Bio-Technology Raw Materials and Consumables from Taiwan

Index - Sorted By Categories :

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(Ver:W_E_W_L_W)

1.	Category	Applications	Items Descriptions
2.	API, Pharmaceutical	Bone Density Conservation Agents	Abaloparatide CAS Number: 247062-33-5 https://en.wikipedia.org/wiki/Abaloparatide Abaloparatide (brand name Tymlos) is a parathyroid hormone-related protein (PTHrP) analog drug used to treat osteoporosis. Like the related drug teriparatide, and unlike bisphosphonates, it is an anabolic (i.e., bone growing) agent.[1] Abaloparatide is 34 amino acid synthetic analog of PTHrP. It has 41% homology to parathyroid hormone (PTH) (1-34) and 76% homology to parathyroid hormone-related protein (PTHrP) (1-34).[6] It works as an anabolic agent for the bone, through selective activation of the parathyroid hormone 1 receptor (PTH1R), a G protein-coupled receptor (GPCR) expressed in the osteoblasts and osteocytes. Abaloparatide preferentially binds the RG conformational state of the PTH1R, which in turn elicits a transient downstream cyclic AMP signaling response towards to a more anabolic signaling pathway.[7][8]
3.	API, Pharmaceutical	Antineoplastic Agents Cytochrome P-450 Enzyme Inhibitors Steroid Synthesis Inhibitors	Abiraterone acetate CAS Number: 154229-18-2 https://en.wikipedia.org/wiki/Abiraterone_acetate Abiraterone acetate, sold under the brand name Zytiga among others, is a medication used to treat prostate cancer.[9] Specifically it is used together with a corticosteroid for metastatic castration-

			resistant prostate cancer (mCRPC) and metastatic high-risk castration-sensitive prostate cancer (mCSPC).[2][3] Abiraterone acetate works by suppressing the production of androgens – specifically it inhibits CYP17A1 – and thereby decreases the production of testosterone.[9] In doing so, it prevents the effects of these hormones in prostate cancer.[9]
4.	API, Pharmaceutical	Antiviral Agents	Aciclovir CAS Number: 59277-89-3 https://en.wikipedia.org/wiki/Aciclovir Aciclovir (ACV), also known as acyclovir, is an antiviral medication.[3] It is primarily used for the treatment of herpes simplex virus infections, chickenpox, and shingles.[4] Other uses include prevention of cytomegalovirus infections following transplant and severe complications of Epstein-Barr virus infection.[4][5] Aciclovir is converted by viral thymidine kinase to aciclovir monophosphate, which is then converted by host cell kinases to aciclovir triphosphate (ACV-TP).[25] ACV-TP, in turn, competitively inhibits and inactivates HSV-specified DNA polymerases preventing further viral DNA synthesis without affecting the normal cellular processes.[25][38][39]
5.	API, Pharmaceutical	Bone Density Conservation Agents	Alfacalcidol CAS Number: 41294-56-8 https://en.wikipedia.org/wiki/Alfacalcidol Alfacalcidol (or 1-hydroxycholecalciferol) is an analogue of vitamin D used for supplementation in humans and as a poultry feed additive. Alfacalcidol has a weaker impact on calcium metabolism[1] and parathyroid hormone levels[2] than calcitriol, however alfacalcidol has significant effects on the immune system, including regulatory T cells.[3] It is considered to be a more useful form of vitamin D supplementation, mostly due to much longer half-life and lower kidney load.[4] It is the most commonly prescribed vitamin D metabolite for patients with end stage renal disease, given that impaired renal function alters the ability to carry out the second hydroxylation step required for the formation of the physiologically active form of vitamin D, 1,25-dihydroxyvitamin D3. Alfacalcidol is an active vitamin D3 metabolite,

			and therefore does not require the second hydroxylation step in the kidney.[5]
6.	API, Pharmaceutical	Antineoplastic and immunomodulating agents Antineoplastic agents Protein kinase inhibitors Phosphatidylinositol-3-kinase (pi3k) inhibitors	Alpelisib CAS Number: 1217486-61-7 https://en.wikipedia.org/wiki/Alpelisib **Alpelisib**, sold under the brand name **Piqray**, is a medication sold by Novartis and used to treat certain types of breast cancer.[5] It is used together with fulvestrant.[5] It is taken by mouth.[5] In the European Union alpelisib is indicated in combination with fulvestrant for the treatment of postmenopausal women, and men, with hormone receptor (HR)-positive, human epidermal growth factor receptor 2 (HER2)-negative, locally advanced or metastatic breast cancer with a PIK3CA mutation after disease progression following endocrine therapy as monotherapy.[3] A **phosphoinositide 3-kinase inhibitor** (**PI3K inhibitor**) is a class of medical drug that functions by inhibiting one or more of the phosphoinositide 3-kinase enzymes, which are part of the PI3K/AKT/mTOR pathway, an important signalling pathway for many cellular functions such as growth control, metabolism and translation initiation. Within this pathway there are many components, inhibition of which may result in tumor suppression.[1] These anti-cancer drugs are examples of targeted therapy.[2][3]
7.	API, Pharmaceutical	Vasodilator Agents Platelet Aggregation Inhibitors Urological Agents	Alprostadil Prostaglandin E1, PGE1 CAS Number: 745-65-3 https://en.wikipedia.org/wiki/Prostaglandin_E1 Prostaglandin E1 (PGE1), also known as alprostadil, is a naturally occurring prostaglandin which is used as a medication.[1] In babies with congenital heart defects, it is used by slow injection into a vein to open the ductus arteriosus until surgery can be carried out.[2] By injection into the penis or placement in the urethra, it is used to treat erectile dysfunction.[3] Prostaglandin E1 is biosynthesized on an as-needed basis from dihomo-γ-linolenic acid (an omega-6 fatty acid) in healthy humans without coronary artery disease[14] and/or a genetic disorder.
8.	API, Pharmaceutical	Antineoplastic Agents Hormonal Aromatase Inhibitors	Anastrozole CAS Number: 120511-73-1 https://en.wikipedia.org/wiki/Anastrozole

			Anastrozole, sold under the brand name Arimidex among others, is a medication used in addition to other treatments for breast cancer.[7][6] Specifically it is used for hormone receptor-positive breast cancer.[6] It has also been used to prevent breast cancer in those at high risk.[6] Anastrozole works by reversibly binding to the aromatase enzyme, and through competitive inhibition blocks the conversion of androgens to estrogens in peripheral (extragonadal) tissues.[25]
9.	API, Pharmaceutical	Factor Xa Inhibitors	Apixaban CAS Number: 503612-47-3 https://en.wikipedia.org/wiki/Apixaban Apixaban, sold under the brand name Eliquis among others, is an anticoagulant medication used to treat and prevent blood clots and to prevent stroke in people with nonvalvular atrial fibrillation.[2][3][4] Specifically it is used to prevent blood clots following hip or knee replacement and in those with a history of prior clots.[2][4] It is used as an alternative to warfarin and does not require monitoring by blood tests.[2] Apixaban is a highly selective, orally bioavailable, and reversible direct inhibitor of free and clot-bound factor Xa. Factor Xa catalyzes the conversion of prothrombin to thrombin, the final enzyme in the coagulation cascade that is responsible for fibrin clot formation.[20] Apixaban has no direct effect on platelet aggregation, but by inhibiting factor Xa, it indirectly decreases clot formation induced by thrombin.[10]
10.	API, Pharmaceutical	Factor Xa Inhibitors Anticoagulant	Apixaban CAS Number: 503612-47-3 https://en.wikipedia.org/wiki/Apixaban Apixaban, sold under the brand name Eliquis among others, is an anticoagulant medication used to treat and prevent blood clots and to prevent stroke in people with nonvalvular atrial fibrillation.[2][3][4] Specifically it is used to prevent blood clots following hip or knee replacement and in those with a history of prior clots.[2][4] It is used as an alternative to warfarin and does not require monitoring by blood tests.[2] Apixaban is a highly selective, orally bioavailable, and reversible direct inhibitor of

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11.	API, Pharmaceutical	Anti-Inflammatory Agents Non-Steroidal	Apremilast CAS Number: 608141-41-9 https://en.wikipedia.org/wiki/Apremilast Apremilast, sold under the brand name Otezla among others, is a medication for the treatment of certain types of psoriasis and psoriatic arthritis. It may also be useful for other immune system related inflammatory diseases. The drug acts as a selective inhibitor of the enzyme phosphodiesterase 4 (PDE4) and inhibits spontaneous production of TNF-alpha from human rheumatoid synovial cells.[5] Apremilast is a small molecule inhibitor of PDE4,[6] an enzyme that breaks down cyclic adenosine monophosphate (cAMP).[6] In inflammatory cells, PDE4 is the dominant enzyme responsible for this reaction. The resulting increase in cAMP levels down-regulates expression of a number of pro-inflammatory factors like tumor necrosis factor alpha (TNFα), interleukin 17, interleukin 23, and many others, and up-regulates the anti-inflammatory interleukin 10.
12.	API, Pharmaceutical	Anesthetics, Local	Articaine HCl CAS Number: 23964-57-0 https://en.wikipedia.org/wiki/Articaine Articaine is a dental amide-type local anesthetic. It is the most widely used local anesthetic in a number of European countries[2] and is available in many countries. It is the only local anaesthetic to contain a thiophene ring, meaning it can be described as 'thiophenic'; this conveys lipid solubility.[3] The amide structure of articaine is similar to that of other local anesthetics, but its molecular structure differs through the presence of a thiophene ring instead of a benzene ring. Articaine is exceptional because it contains an additional ester group that is metabolized by esterases in blood and tissue.[2] The elimination of articaine is exponential with a half-life of 20 minutes.[5][6] Since articaine is

			hydrolized very quickly in the blood, the risk of systemic intoxication seems to be lower than with other anesthetics, especially if repeated injection is performed.[7]
13.	API, Pharmaceutical	HIV Protease Inhibitors	Atazanavir sulfate CAS Number: 229975-97-7 https://en.wikipedia.org/wiki/Atazanavir Atazanavir, sold under the brand name Reyataz among others, is an antiretroviral medication used to treat HIV/AIDS.[2] It is generally recommended for use with other antiretrovirals.[2] It may be used for prevention after a needlestick injury or other potential exposure (postexposure prophylaxis (PEP)).[2] Atazanavir binds to the active site HIV protease and prevents it from cleaving the pro-form of viral proteins into the working machinery of the virus.[9] If the HIV protease enzyme does not work, the virus is not infectious, and no mature virions are made.[10][11] The azapeptide drug was designed as an analog of the peptide chain substrate that HIV protease would cleave normally into active viral proteins. More specifically, atazanavir is a structural analog of the transition state during which the bond between a phenylalanine and proline is broken.[12][13] Humans do not have any enzymes that break bonds between phenylalanine and proline, so this drug will not target human enzymes.
14.	API, Pharmaceutical	Adrenergic Uptake Inhibitors	Atomoxetine HC CAS Number: 82248-59-7 https://en.wikipedia.org/wiki/Atomoxetine Atomoxetine, sold under the brand name Strattera, among others, is a medication used to treat attention deficit hyperactivity disorder (ADHD).[7] It may be used alone or along with psychostimulants.[8][9] Use of atomoxetine is only recommended for those who are at least six years old.[7] Atomoxetine inhibits the presynaptic norepinephrine transporter (NET), preventing the reuptake of norepinephrine throughout the brain along with inhibiting the reuptake of dopamine in specific brain regions such as the prefrontal cortex, where dopamine transporter (DAT) expression is minimal.[5]

15.	API, Pharmaceutical	Adrenergic Uptake Inhibitors Attention deficit hyperactivity disorder	Atomoxetine hydrochloride CAS Number: 82248-59-7 https://en.wikipedia.org/wiki/Atomoxetine Atomoxetine, sold under the brand name Strattera, among others, is a medication used to treat attention deficit hyperactivity disorder (ADHD).[7] It may be used alone or along with psychostimulants.[8][9] Atomoxetine inhibits the presynaptic norepinephrine transporter (NET), preventing the reuptake of norepinephrine throughout the brain along with inhibiting the reuptake of dopamine in specific brain regions such as the prefrontal cortex, where dopamine transporter (DAT) expression is minimal.[5]
16.	API, Pharmaceutical	Antimetabolites, Antineoplastic Enzyme Inhibitors	Azacitidine CAS Number: 320-67-2 https://en.wikipedia.org/wiki/Azacitidine Azacitidine, sold under the brand name Vidaza among others, is a chemical analog of cytidine, a nucleoside in DNA and RNA. Azacitidine and its deoxy derivative, decitabine (also known as 5-aza-2′-deoxycytidine), are used in the treatment of myelodysplastic syndrome. Both drugs were first synthesized in Czechoslovakia as potential chemotherapeutic agents for cancer.[4] Azacitidine is a chemical analogue of the nucleoside cytidine, which is present in DNA and RNA. It is thought to have antineoplastic activity via two mechanisms – at low doses, by inhibiting of DNA methyltransferase, causing hypomethylation of DNA,[15] and at high doses, by its direct cytotoxicity to abnormal hematopoietic cells in the bone marrow through its incorporation into DNA and RNA, resulting in cell death. Azacitidine is a ribonucleoside, so it is incorporated into RNA to a larger extent than into DNA.
17.	API, Pharmaceutical	Anti-Inflammatory Agents, Non-Steroidal Gastrointestinal Agents	Balsalazide CAS Number: 80573-04-2 https://en.wikipedia.org/wiki/Balsalazide Balsalazide is an anti-inflammatory drug used in the treatment of inflammatory bowel disease. It is sold under the brand names Giazo, Colazal in the US and Colazide in the UK. It is also sold in

			generic form in the US by several generic manufacturers. It is usually administered as the disodium salt. Balsalazide releases mesalazine, also known as 5-aminosalicylic acid, or 5-ASA,[2] in the large intestine. Its advantage over that drug in the treatment of ulcerative colitis is believed to be the delivery of the active agent past the small intestine to the large intestine, the active site of ulcerative colitis.
18.	API, Pharmaceutical	Antineoplastic and immunomodulating agents	Baricitinib CAS Number: 1187594-09-7 https://en.wikipedia.org/wiki/Baricitinib Baricitinib, sold under the brand name Olumiant among others, is a drug for the treatment of rheumatoid arthritis (RA) in adults whose disease was not well controlled using RA medications called tumor necrosis factor (TNF) antagonists.[2] It acts as an inhibitor of janus kinase (JAK), blocking the subtypes JAK1 and JAK2.[3] Baricitinib is a Janus kinase (JAK) inhibitor that reversibly inhibits Janus kinase 1 with a half maximal inhibitory concentration (IC_{50}) of 5.9 nM and Janus kinase 2 with an IC_{50} of 5.7 nM. Tyrosine kinase 2, which belongs to the same enzyme family, is affected less (IC_{50} = 53 nM), and Janus kinase 3 far less (IC_{50} > 400 nM). Via a signal transduction pathway involving STAT proteins, this ultimately modulates gene expression in immunological cells.[6]
19.	API, Pharmaceutical	Antihypertensive Agents Angiotensin-Converting Enzyme Inhibitors	Benazepril hydrochloride CAS Number: 86541-74-4 https://en.wikipedia.org/wiki/Benazepril Benazepril, sold under the brand name Lotensin among others, is a medication used to treat high blood pressure, heart failure, and diabetic kidney disease.[1]
20.	API, Pharmaceutical	Intermediates for Pharmaceuticals	Benzhydrylamine CAS Number: 91-00-9 https://pubchem.ncbi.nlm.nih.gov/compound/7036
21.	API, Pharmaceutical	Antitussive Agents	Benzonatate CAS Number: 104-31-4 https://en.wikipedia.org/wiki/Benzonatate Benzonatate, sold under the brand name Tessalon among others, is a medication used to try to help with the symptoms of cough and hiccups.[2][3] It is taken by

			mouth.[2] Use is not recommended in those under the age of ten.[4] Effects generally begin within 20 minutes and last up to eight hours.[2][5] Similar to other local anesthetics, benzonatate is a potent voltage-gated sodium channel inhibitor.[13] After absorption and circulation to the respiratory tract, benzonatate acts as a local anesthetic, decreasing the sensitivity of vagal afferent fibers and stretch receptors in the bronchi, alveoli, and pleura in the lower airway and lung.[2][3] This dampens their activity and reduces the cough reflex.[2][5] Benzonatate also has central antitussive activity on the cough center in central nervous system at the level of the medulla.[2][9] However, there is minimal inhibition of the respiratory center at a therapeutic dosage.[5]
22.	API, Pharmaceutical	Vasodilator Agents Platelet Aggregation Inhibitors	Beraprost Sodium CAS Number: 88475-69-8 https://en.wikipedia.org/wiki/Beraprost Beraprost is a pharmaceutical drug used in several Asian countries, including Japan and South Korea, as a vasodilator and antiplatelet agent.[1] It is classified as a prostacyclin analog.[1][2] It has been studied for the treatment of pulmonary hypertension and for use in avoiding reperfusion injury. As an analog of prostacyclin PGI_2, beraprost affects vasodilation, which in turn lowers blood pressure. Beraprost also inhibits platelet aggregation, though the role this phenomenon may play in relation to pulmonary hypertension has yet to be determined.
23.	API, Pharmaceutical	Cancer VEGF Age-related Macular Degeneration	Bevacizumab Biosimilar https://en.wikipedia.org/wiki/Bevacizumab Bevacizumab, sold under the brand name Avastin, is a medication used to treat a number of types of cancers and a specific eye disease.[6][7] For cancer it is given by slow injection into a vein (intravenous) and used for colon cancer, lung cancer, glioblastoma, and renal-cell carcinoma.[6][7] For age-related macular degeneration it is given by injection into the eye (intravitreal).[6] Bevacizumab was approved for medical use in the United States in 2004.[6] It is on the World Health Organization's List of Essential Medicines.[8] It is listed for its use in treating eye disease.[8]

24.	API, Pharmaceutical	Antineoplastic Agents Androgen Antagonists	Bicalutamide CAS Number: 90357-06-5 https://en.wikipedia.org/wiki/Bicalutamide Bicalutamide, sold under the brand name Casodex among others, is an antiandrogen medication that is primarily used to treat prostate cancer.[10] It is typically used together with a gonadotropin-releasing hormone (GnRH) analogue or surgical removal of the testicles to treat advanced prostate cancer.[11][10][12] Bicalutamide may also be used to treat excessive hair growth in women,[13] as a component of feminizing hormone therapy for transgender women,[14] to treat early puberty in boys,[15] and to prevent overly long-lasting erections in men.[16] Bicalutamide is a member of the nonsteroidal antiandrogen (NSAA) group of medications.[3] It works by blocking the androgen receptor (AR), the biological target of the androgen sex hormones testosterone and dihydrotestosterone (DHT).[23] It does not lower androgen levels.[3] The medication can have some estrogen-like effects in men.[24][25][26]
25.	API, Pharmaceutical	Antihypertensive Agents Antiglaucoma Preparations And Miotics Prostaglandin Analogues	Bimatoprost CAS Number: 155206-00-1 https://en.wikipedia.org/wiki/Bimatoprost Bimatoprost, sold under the trade name Lumigan among others, is a medication used to treat high pressure inside the eye including glaucoma.[2] Specifically it is used for open angle glaucoma when other agents are not sufficient.[2][3] It may also be used to increase the size of the eyelashes.[4][5] Bimatoprost is a structural analog of prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$). Like other $PGF_{2\alpha}$ analogs such as travoprost, latanoprost and tafluprost, it increases the outflow of aqueous fluid from the eye and lowers intraocular pressure. However, in contrast to these it does not act on the prostaglandin F receptor, nor on any other known prostaglandin receptor.
26.	API, Pharmaceutical	Antihypertensive Agents Antiglaucoma Preparations And Miotics Prostaglandin Analogues	Bimatoprost CAS Number: 155206-00-1 https://en.wikipedia.org/wiki/Bimatoprost Bimatoprost, sold under the trade name Lumigan among others, is a medication used to treat high pressure inside the eye including glaucoma.[2] Specifically it is used for open angle glaucoma when other

			agents are not sufficient.[2][3] It may also be used to increase the size of the eyelashes.[4][5] Bimatoprost is a structural analog of prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$). Like other $PGF_{2\alpha}$ analogs such as travoprost, latanoprost and tafluprost, it increases the outflow of aqueous fluid from the eye and lowers intraocular pressure. However, in contrast to these it does not act on the prostaglandin F receptor, nor on any other known prostaglandin receptor.
27.	API, Pharmaceutical	Adrenergic beta-1 Receptor Antagonists Antihypertensive Agents Sympatholytics	Bisoprolol Fumarate CAS Number: 104344-23-2 https://en.wikipedia.org/wiki/Bisoprolol Bisoprolol, marketed under the tradename Zebeta among others, is a beta blocker medication most commonly used for heart diseases.[4] This specifically includes high blood pressure, chest pain from not enough blood flow to the heart, and heart failure.[4][5] Bisoprolol is cardioprotective because it selectively and competitively blocks catecholamine (adrenaline) stimulation of β_1 adrenergic receptors (adrenoreceptors), which are mainly found in the heart muscle cells and heart conduction tissue (cardiospecific), but also found in juxtaglomerular cells in the kidney.[15] Normally, adrenaline and noradrenaline stimulation of the β_1 adrenoreceptor activates a signalling cascade (Gs protein and cAMP) which ultimately leads to increased contractility and increased heart rate of the heart muscle and heart pacemaker, respectively.[21] Bisoprolol competitively blocks the activation of this cascade, so decreases the adrenergic tone/stimulation of the heart muscle and pacemaker cells. Decreased adrenergic tone shows less contractility of heart muscle and lowered heart rate of pacemakers.[18][19][22]
28.	API, Pharmaceutical	Antithrombins	Bivalirudin CAS Number: 128270-60-0 https://en.wikipedia.org/wiki/Bivalirudin Bivalirudin (Bivalitroban[1]), sold under the brand names Angiomax and Angiox and manufactured by The Medicines Company, is a direct thrombin inhibitor (DTI).[2] Chemically, it is a synthetic congener of the naturally occurring drug hirudin (found in the

			saliva of the medicinal leech Hirudo medicinalis). Bivalirudin is a DTI that overcomes many limitations seen with indirect thrombin inhibitors, such as heparin. Bivalirudin is a short, synthetic peptide. It is a potent and highly specific inhibitor of thrombin.[2][3][4] It inhibits both circulating and clot-bound thrombin,[4] while also inhibiting thrombin-mediated platelet activation and aggregation.[5] Bivalirudin directly inhibits thrombin by specifically binding both to the catalytic site and to the anion-binding exosite of circulating and clot-bound thrombin.[2] The binding of bivalirudin to thrombin is reversible as thrombin slowly cleaves the bivalirudin-Arg_3-Pro_4 bond, resulting in recovery of thrombin active site functions.[12]
29.	API, Pharmaceutical	Antineoplastic Agents	Bortezomib CAS Number: 179324-69-7 https://en.wikipedia.org/wiki/Bortezomib Bortezomib, sold under the brand name Velcade among others, is an anti-cancer medication used to treat multiple myeloma and mantle cell lymphoma.[1] While multiple mechanisms are likely to be involved, proteasome inhibition may prevent degradation of pro-apoptotic factors, thereby triggering programmed cell death in neoplastic cells. Recently, it was found that bortezomib caused a rapid and dramatic change in the levels of intracellular peptides that are produced by the proteasome.[14] Some intracellular peptides have been shown to be biologically active, and so the effect of bortezomib on the levels of intracellular peptides may contribute to the biological and/or side effects of the drug.
30.	API, Pharmaceutical	Dopamine Agonists Serotonin Agents	Brexpiprazole CAS Number: 913611-97-9 https://en.wikipedia.org/wiki/Brexpiprazole Brexpiprazole, sold under the brand name Rexulti among others, is an atypical antipsychotic. It is a dopamine D_2 receptor partial agonist and has been described as a "serotonin–dopamine activity modulator" (SDAM). Brexpiprazole acts as a partial agonist of the serotonin 5-HT_{1A} receptor and the dopamine D_2 and D_3 receptors.[11] Partial agonists have both blocking properties and

			stimulating properties at the receptor they bind to. The ratio of blocking activity to stimulating activity determines a portion of its clinical effects. Brexpiprazole has more blocking and less stimulating activity at the dopamine receptors than its predecessor, aripiprazole, which may decrease its risk for agitation and restlessness.[11]
31.	API, Pharmaceutical	Carbonic Anhydrase Inhibitors	Brinzolamide CAS Number: 138890-62-7 https://en.wikipedia.org/wiki/Brinzolamide Brinzolamide (trade names Azopt, Alcon Laboratories, Befardin,[2] F ardi Medicals,[3]) is a carbonic anhydrase inhibitor used to lower intraocular pressure in patients with open-angle glaucoma or ocular hypertension. Inhibition of carbonic anhydrase in the ciliary processes of the eye decreases aqueous humor secretion and thus lowers the intraocular pressure in the anterior chamber, presumably by reducing the rate of formation of bicarbonate ions with subsequent reduction in sodium and fluid transport; this may alleviate the effects of open-angle glaucoma.
32.	API, Pharmaceutical	Antineoplastic Agent Microtubule Inhibitor	Cabazitaxel CAS Number: 183133-96-2 https://en.wikipedia.org/wiki/Cabazitaxel Cabazitaxel, sold under the brand name Jevtana, is a semi-synthetic derivative of a natural taxoid.[1] It was developed by Sanofi-Aventis and was approved by the U.S. FDA for the treatment of hormone-refractory prostate cancer on June 17, 2010. It is a microtubule inhibitor, and the fourth taxane to be approved as a cancer therapy. Taxanes enhance the microtubules stabilization and inhibit the cellular mitosis and division.[3] Moreover, taxanes prevent androgen receptor (AR) signaling by binding cellular microtubules and the microtubule-associated motor protein dynein, thus averting AR nuclear translocation.[4]
33.	API, Pharmaceutical	Dermatologic Agents	Calcipotriol CAS Number: 112965-21-6 https://en.wikipedia.org/wiki/Calcipotriol Calcipotriol, also known as calcipotriene, is a synthetic derivative of calcitriol, a form of vitamin D. It is used in the treatment

			of psoriasis. It is safe for long-term application in psoriatic skin conditions. The efficacy of calcipotriol in the treatment of psoriasis was first noticed by the observation of patients receiving various forms of vitamin D in an osteoporosis study. Unexpectedly, some patients who also suffered from psoriasis experienced dramatic reductions in lesion counts.[7] The precise mechanism of calcipotriol in remitting psoriasis is not well understood. However, it has been shown to have comparable affinity with calcitriol for the vitamin D receptor (VDR), while being less than 1% as active as the calcitriol in regulating calcium metabolism. The vitamin D receptor belongs to the steroid/thyroid receptor superfamily, and is found on the cells of many different tissues including the thyroid, bone, kidney, and T cells of the immune system. T cells are known to play a role in psoriasis, and it is thought that the binding of calcipotriol to the VDR modulates the T cells gene transcription of cell differentiation and proliferation related genes.
34.	API, Pharmaceutical	Calcium Channel Agonists	Calcitriol CAS Number: 112965-21-6 https://en.wikipedia.org/wiki/Calcitriol Calcitriol is the active form of vitamin D, normally made in the kidney.[8] It is often known by its biochemical name 1,25-dihydroxycholecalciferol. It can be given as a medication for the treatment of low blood calcium and hyperparathyroidism due to kidney disease, low blood calcium due to hypoparathyroidism, osteoporosis, osteomalacia, and familial hypophosphatemia,[7][9] and can be taken by mouth or by injection into a vein.[7] Calcitriol acts in concert with parathyroid hormone (PTH) in all three of these roles. For instance, PTH also indirectly stimulates osteoclasts. However, the main effect of PTH is to increase the rate at which the kidneys excrete inorganic phosphate (P_i), the counterion of Ca^{2+} The resulting decrease in serum phosphate causes hydroxyapatite ($Ca_5(PO_4)_3OH$) to dissolve out of bone, thus increasing serum calcium. PTH also stimulates the production of calcitriol (see below).[20] Many of the effects of calcitriol are mediated by its interaction with the calcitriol receptor, also

			called the vitamin D receptor or VDR.[21] For instance, the unbound inactive form of the calcitriol receptor in intestinal epithelial cells resides in the cytoplasm. When calcitriol binds to the receptor, the ligand-receptor complex translocates to the cell nucleus, where it acts as a transcription factor promoting the expression of a gene encoding a calcium binding protein. The levels of the calcium binding protein increase enabling the cells to actively transport more calcium (Ca^{2+}) from the intestine across the intestinal mucosa into the blood.[20]
35.	API, Pharmaceutical	Anticonvulsants	Cannabidiol CAS Number: 13956-29-1 https://en.wikipedia.org/wiki/Cannabidiol Cannabidiol (CBD) is a phytocannabinoid discovered in 1940. It is one of 113 identified cannabinoids in cannabis plants and accounts for up to 40% of the plant's extract.[14] As of 2019, clinical research on CBD included studies related to anxiety, cognition, movement disorders, and pain, but there is insufficient high-quality evidence that cannabidiol is effective for these conditions.[15][16] Cannabidiol has low affinity for the cannabinoid CB_1 and CB_2 receptors,[66][67] although it can act as an antagonist of CB_1/CB_2 agonists despite this low affinity.[67] Cannabidiol may be an antagonist of GPR55, a G protein-coupled receptor and putative cannabinoid receptor that is expressed in the caudate nucleus and putamen in the brain.[68][69] It also may act as an inverse agonist of GPR3, GPR6, and GPR12.[70] CBD has been shown to act as a serotonin 5-HT_{1A} receptor partial agonist.[71] It is an allosteric modulator of the μ- and δ-opioid receptors as well.[72] The pharmacological effects of CBD may involve PPARγ agonism, inhibition of voltage-gated cation channels, and intracellular calcium release.[14]
36.	API, Pharmaceutical	Antimetabolites Antineoplastic	Capecitabine CAS Number: 154361-50-9 https://en.wikipedia.org/wiki/Capecitabine Capecitabine, sold under the brand name Xeloda among others, is a chemotherapy medication used to treat breast cancer, gastric cancer and colorectal cancer.[1]

			Capecitabine is metabolised to 5-FU which in turn is a thymidylate synthase inhibitor, hence inhibiting the synthesis of thymidine monophosphate (ThMP), the active form of thymidine which is required for the de novo synthesis of DNA.[7]
37.	API, Pharmaceutical	Sensory System Agents Antipruritics	Capsaicin CAS Number: 404-86-4 https://en.wikipedia.org/wiki/Capsaicin#Mechanism_of_action Capsaicin (8-methyl-N-vanillyl-6-nonenamide) is an active component of chili peppers, which are plants belonging to the genus Capsicum. It is a chemical irritant for mammals, including humans, and produces a sensation of burning in any tissue with which it comes into contact. Capsaicin and several related compounds are called capsaicinoids and are produced as secondary metabolites by chili peppers, probably as deterrents against certain mammals and fungi.[4] Pure capsaicin is a hydrophobic, colorless, highly pungent,[2] crystalline to waxy solid compound. The burning and painful sensations associated with capsaicin result from its chemical interaction with sensory neurons. Capsaicin, as a member of the vanilloid family, binds to a receptor called the vanilloid receptor subtype 1 (TRPV1).[36] First cloned in 1997, TRPV1 is an ion channel-type receptor.[37] TRPV1, which can also be stimulated with heat, protons and physical abrasion, permits cations to pass through the cell membrane when activated. The resulting depolarization of the neuron stimulates it to signal the brain. By binding to the TRPV1 receptor, the capsaicin molecule produces similar sensations to those of excessive heat or abrasive damage, explaining why the spiciness of capsaicin is described as a burning sensation.
38.	API, Pharmaceutical	Beta-Lactam Antibiotics	Carbapenem https://en.wikipedia.org/wiki/Carbapenem Carbapenems are a class of highly effective antibiotic agents commonly used for the treatment of severe or high-risk bacterial infections. This class of antibiotics is usually reserved for known or suspected multidrug-resistant (MDR) bacterial infections. Similar to penicillins and cephalosporins, carbapenems are members of the beta

			lactam class of antibiotics, which kill bacteria by binding to penicillin-binding proteins, thus inhibiting bacterial cell wall synthesis. However, these agents individually exhibit a broader spectrum of activity compared to most cephalosporins and penicillins. Furthermore, carbapenems are typically unaffected by emerging antibiotic resistance, even to other beta-lactams.
39.	API, Pharmaceutical	Antiprotozoal drug	Carbarsone CAS Number: 121-59-5 https://en.wikipedia.org/wiki/Carbarsone Carbarsone is an organoarsenic compound used as an antiprotozoal drug for treatment of amebiasis and other infections.[1][2][3] It was available for amebiasis in the United States as late as 1991. Thereafter, it remained available as a turkey feed additive for increasing weight gain and controlling histomoniasis (blackhead disease).[4][5] Carbarsone is one of four arsenical animal drugs approved by the U.S. Food and Drug Administration for use in poultry and/or swine, along with nitarsone, arsanilic acid, and roxarsone.[6] Carbarsone is a compound used as an antiprotozoal drug for the treatment of histomoniasis (or blackhead disease) in addition to other infectious diseases in chicken and turkeys. It belongs to the organoarsenic group of chemical compounds and has antiamebic properties. It is also used as a food additive with the goal of increasing weight gain and controlling the occurrence of blackhead disease in chicken and turkeys.
40.	API, Pharmaceutical	Oxytocics	Carboprost Tromethamine CAS Number: 58551-69-2 https://en.wikipedia.org/wiki/Carboprost Carboprost (INN, trade names for the tromethamine salts Hemabate, Tham) is a synthetic prostaglandin analogue of $PGF_{2\alpha}$ (specifically, it is 15-methyl-$PGF_{2\alpha}$) with oxytocic properties. Carboprost main use is in the obstetrical emergency of postpartum hemorrhage which reduces postpartum bleeding during these circumstances.

41.	API, Pharmaceutical	Immunomodulating Agents Antineoplastic Agents Proteasome Inhibitors	Carfilzomib CAS Number: 868540-17-4 https://en.wikipedia.org/wiki/Carfilzomib Carfilzomib, sold under the brand name Kyprolis, is an anti-cancer medication acting as a selective proteasome inhibitor. Chemically, it is a tetrapeptide epoxyketone and an analog of epoxomicin.[2] It was developed by Onyx Pharmaceuticals. The U.S. Food and Drug Administration (FDA) approved it on 20 July 2012, for use in people with multiple myeloma who have received at least two prior therapies, including treatment with bortezomib and an immunomodulatory therapy (such as lenalidomide) and have demonstrated disease progression on or within 60 days of completion of the last therapy. Carfilzomib covalently [13] irreversibly binds to and inhibits the chymotrypsin-like activity of the 20S proteasome, an enzyme that degrades unwanted cellular proteins. Carfilzomib displays minimal interactions with non-proteasomal targets, thereby improving safety profiles over bortezomib.[13] Inhibition of proteasome-mediated proteolysis results in a build-up of polyubiquitinated proteins, which may cause cell cycle arrest, apoptosis, and inhibition of tumor growth.[2]
42.	API, Pharmaceutical	14-alpha Demethylase Inhibitors Antifungal Agents	Econazole CAS Number: 24169-02-6 https://en.wikipedia.org/wiki/Econazole Econazole is an antifungal medication of the imidazole class.[2] Econazole is used as a cream to treat skin infections such as athlete's foot, tinea, pityriasis versicolor, ringworm, and jock itch. It is also sold in Canada under the brand name Ecostatin as vaginal ovules to treat vaginal thrush. Econazole nitrate exhibits strong anti-feeding properties against the keratin-digesting common clothes moth Tineola bisselliella.[5]
43.	API, Pharmaceutical	Enzyme Inhibitors Antifungal Agents	Caspofungin Acetate CAS Number: 179463-17-3 https://en.wikipedia.org/wiki/Caspofungin Caspofungin (INN)[1][3] (brand name Cancidas) is a lipopeptide antifungal drug from Merck & Co., Inc. discovered by James Balkovec,

			Regina Black and Frances A. Bouffard.[4] It is a member of a new class of antifungals termed the echinocandins. It works by inhibiting the enzyme (1→3)-β-D-glucan synthase and thereby disturbing the integrity of the fungal cell wall.
44.	API, Pharmaceutical	Myelodysplastic Syndromes (MDS) Cytidine Deaminase Inhibitor Blood Cancer	Cedazuridine CAS Number: 1141397-80-9 https://en.wikipedia.org/wiki/Decitabine/cedazuridine **Decitabine/cedazuridine**, sold under the brand name **Inqovi**, is a fixed-dose combination medication for the treatment of adults with myelodysplastic syndromes (MDS) and chronic myelomonocytic leukemia (CMML).[5][6][7] It is a combination of decitabine, a nucleoside metabolic inhibitor, and cedazuridine, a cytidine deaminase inhibitor. Decitabine/cedazuridine was approved for medical use in the United States and in Canada in July 2020. Decitabine/cedazuridine is indicated for treatment of adults with myelodysplastic syndromes (MDS), including previously treated and untreated, de novo and secondary MDS with the following French American-British subtypes (refractory anemia, refractory anemia with ringed sideroblasts, refractory anemia with excess blasts, and chronic myelomonocytic leukemia [CMML]) and intermediate-1, intermediate-2, and high-risk International Prognostic Scoring System groups.[5][6][4] MDS is a type of blood cancer in which blood cells in the bone marrow are defective leading to a low number of one or more types of blood cells.[8] Myelodysplastic syndromes (MDS) are a group of hematopoietic neoplasms that give rise to variable cytopenias progressing to secondary acute myeloid leukemia (sAML), which is invariably fatal if untreated. Hypomethylating agents such as [decitabine] and [azacitidine] are used to treat MDS through inducing DNA hypomethylation and apoptosis of cancerous cells. Although effective, these compounds are rapidly metabolized by cytidine deaminase (CDA) prior to reaching systemic circulation when administered orally, necessitating intramuscular or intravenous administration routes. Cedazuridine is a fluorinated tetrahydrouridine derivative specifically designed to inhibit CDA and facilitate oral

			administration of hypomethylating agents. Cedazuridine was first reported in 2014, and was subsequently approved by the FDA on July 7, 2020, in combination with [decitabine] for sale by Astex Pharmaceuticals Inc under the name INQOVI®.
45.	API, Pharmaceutical	Cyclooxygenase 2 Inhibitors Anti-Inflammatory Agents, Non-Steroidal	Celecoxib CAS Number: 169590-42-5 https://en.wikipedia.org/wiki/Celecoxib Celecoxib, sold under the brand name Celebrex among others, is a COX-2 inhibitor and nonsteroidal anti-inflammatory drug (NSAID).[5] It is used to treat the pain and inflammation in osteoarthritis, acute pain in adults, rheumatoid arthritis, ankylosing spondylitis, painful menstruation, and juvenile rheumatoid arthritis.[5] It may also be used to decrease the risk of colorectal adenomas in people with familial adenomatous polyposis.[5] A highly selective reversible inhibitor of the COX-2 isoform of cyclooxygenase, celecoxib inhibits the transformation of arachidonic acid to prostaglandin precursors. Therefore, it has analgesic and anti-inflammatory properties.[3] For its use in reducing colon polyps, celecoxib affects genes and pathways involved in inflammation and malignant transformation in tumors, but not normal tissues.[38] Celecoxib binds to Cadherin-11 (which may explain the reduction in cancer progression).
46.	API, Pharmaceutical	Anti-Anxiety Agents Muscle Relaxants, Central Anxiolytic,Muscle relaxant	Chlormezanone CAS Number: 80-77-3 https://en.wikipedia.org/wiki/Chlormezanone Chlormezanone (marketed under the brandname Trancopal or Fenaprim) is a drug used as an anxiolytic and a muscle relaxant.
47.	API, Pharmaceutical	Muscle Relaxants, Central Skeletal muscle relaxant	Chlorzoxazone CAS Number: 95-25-0 https://en.wikipedia.org/wiki/Chlorzoxazone Chlorzoxazone (INN) is a centrally acting muscle relaxant used to treat muscle spasm and the resulting pain or discomfort. It acts on the spinal cord by depressing reflexes. It is sold under the brand names Lorzone, Paraflex and Muscol and in combination form as Parafon Forte, a

			combination of chlorzoxazone and acetaminophen (paracetamol). Like metaxalone, its mechanism of action is still in question. It is believed that metaxalone works by altering serotonin levels and acting as a mild MAO inhibitor.[medical citation needed] The mechanism of action of chlorzoaxazone is thought[by whom?] to act on Gaba-A & B receptors and voltage-gated calcium channels to a degree.
48.	API, Pharmaceutical	Calcimimetic Agents Calcium-Regulating Hormones and Agents Hyperparathyroidism, Calcimimetics	Cinacalcet HCl CAS Number: 364782-34-3 https://en.wikipedia.org/wiki/Cinacalcet Cinacalcet, sold under the brand name Sensipar among others, is a medication used to treat secondary hyperparathyroidism, parathyroid carcinoma, and primary hyperparathyroidism.[4][5][6] Cinacalcet is a drug that acts as a calcimimetic[4][6] (i.e. it mimics the action of calcium on tissues) by allosteric activation of the calcium-sensing receptor that is expressed in various human organ tissues. The calcium-sensing receptors on the surface of the chief cell of the parathyroid gland is the principal negative regulator of parathyroid hormone secretion.[15] Cinacalcet increases the sensitivity of calcium receptors on parathyroid cells to reduce parathyroid hormone (PTH) levels and thus decrease serum calcium levels.[12]
49.	API, Pharmaceutical	Calcimimetic Agents Calcium-Regulating Hormones and Agents	Cinacalcet HCl CAS Number: 364782-34-3 https://en.wikipedia.org/wiki/Cinacalcet Cinacalcet, sold under the brand name Sensipar among others, is a medication used to treat secondary hyperparathyroidism, parathyroid carcinoma, and primary hyperparathyroidism.[4][5][6] Cinacalcet is a drug that acts as a calcimimetic[4][6] (i.e. it mimics the action of calcium on tissues) by allosteric activation of the calcium-sensing receptor that is expressed in various human organ tissues. The calcium-sensing receptors on the surface of the chief cell of the parathyroid gland is the principal negative regulator of parathyroid hormone secretion.[15] Cinacalcet increases the sensitivity of calcium receptors on parathyroid cells to reduce parathyroid hormone (PTH)

			levels and thus decrease serum calcium levels.[12]
50.	API, Pharmaceutical	Antineoplastic Agents Immunosuppressive Agents	Cladribine CAS Number: 4291-63-8 https://en.wikipedia.org/wiki/Cladribine Cladribine, sold under the brand name Leustatin among others, is a medication used to treat hairy cell leukemia (HCL, leukemic reticuloendotheliosis), B-cell chronic lymphocytic leukemia and Relapsing-remitting Multiple Sclerosis (RRMS).[4][5] Its chemical name is 2-chloro-2'-deoxyadenosine (2CdA). As a purine analogue, it is taken up into rapidly proliferating cells like lymphocytes to be incorporated into DNA synthesis. Unlike adenosine, cladribine has a chlorine molecule at position 2, which renders it partially resistant to breakdown by adenosine deaminase (ADA). In cells it is phosphorylated into its toxic form, deoxyadenosine triphosphate, by the enzyme deoxycytidine kinase (DCK). This molecule is then incorporated into the DNA synthesis pathway, where it causes strand breakage. This is followed by the activation of transcription factor p53, the release of cytochrome c from mitochondria and eventual programmed cell death (apoptosis).[13] This process occurs over approximately 2 months, with a peak level of cell depletion 4–8 weeks after treatment[14]
51.	API, Pharmaceutical	Anti-Bacterial Agents Protein Synthesis Inhibitors	Clindamycin Palmitate HCl CAS Number: 25507-04-4 https://en.wikipedia.org/wiki/Clindamycin Clindamycin is an antibiotic used for the treatment of a number of bacterial infections, including bone or joint infections, pelvic inflammatory disease, strep throat, pneumonia, middle ear infections, and endocarditis.[2] It can also be used to treat acne,[2][3] and some cases of methicillin-resistant Staphylococcus aureus (MRSA).[4] In combination with quinine, it can be used for malaria.[2][3] Clindamycin has a primarily bacteriostatic effect. At higher concentrations, it may be bactericidal.[54] It is a bacterial protein synthesis inhibitor by inhibiting ribosomal translocation,[55] in a similar way to macrolides. It does so by binding to the 50S rRNA of the large bacterial ribosome subunit, overlapping with

			the binding sites of the oxazolidinone, pleuromutilin, and macrolide antibiotics, among others.[18][56] The binding is reversible.[57] Clindamycin is more effective than lincomycin.[54]
52.	API, Pharmaceutical	Anticholesteremic Agents Hypolipidemic Agents Antihyperlipoproteinemic	Clofibrate CAS Number: 637-07-0 https://en.wikipedia.org/wiki/Clofibrate Clofibrate (trade name Atromid-S) is a lipid-lowering agent used for controlling the high cholesterol and triacylglyceride level in the blood. It belongs to the class of fibrates. It increases lipoprotein lipase activity to promote the conversion of VLDL to LDL, and hence reduce the level of VLDL. It can increase the level of HDL as well.
53.	API, Pharmaceutical	Analgesics Antihypertensive Agents Adrenergic alpha-2 Receptor Agonists Sympatholytics	Clonidine Hydrochloride CAS Number: 4205-91-8 https://en.wikipedia.org/wiki/Clonidine Clonidine, sold as the brand name Catapres among others, is a medication used to treat high blood pressure, attention deficit hyperactivity disorder, drug withdrawal (alcohol, opioids, or smoking), menopausal flushing, diarrhea, spasticity and certain pain conditions.[7] Clonidine crosses the blood-brain barrier.[5] Clonidine treats high blood pressure by stimulating α_2 receptors in the brain stem, which decreases peripheral vascular resistance, lowering blood pressure. It has specificity towards the presynaptic α_2 receptors in the vasomotor center in the brainstem. This binding has a sympatholytic effect, suppresses release of norepinephrine, ATP, renin, and neuropeptide Y which if released would increase vascular resistance.[62]:201–203
54.	API, Pharmaceutical	Antitussive Cough suppressants Antitussive	Cloperastine HCl CAS Number: 14957-68-0 https://en.wikipedia.org/wiki/Cloperastine Cloperastine (INN) or cloperastin, also known as cloperastine hydrochloride (JAN) (brand names Hustazol, Nitossil, Seki) and cloperastine fendizoate (or hybenzoate), is an antitussive and antihistamine that is marketed as a cough suppressant in Japan, Hong Kong, and in some European countries.[1][2][3] It was first introduced in 1972 in Japan, and then

			in Italy in 1981.[4] The precise mechanism of action of cloperastine is not fully clear, but several different biological activities have been identified for the drug, of which include: ligand of the σ_1 receptor (K_i = 20 nM) (likely an agonist),[5] GIRK channel blocker (described as "potent"),[6][7][8][9] antihistamine (K_i = 3.8 nM for the H_1 receptor),[3][5] and anticholinergic.[3][10]
55.	API, Pharmaceutical	Luteolytic Agents	Cloprostenol Sodium CAS Number: 55028-72-3 https://en.wikipedia.org/wiki/Cloprostenol Cloprostenol is a synthetic analogue of prostoglandin $F_{2\alpha}$ ($PGF_{2\alpha}$).[1] It is a potent luteolytic agent; this means that, within hours of administration, it causes the corpus luteum to stop production of progesterone, and to reduce in size over several days.[1] This effect is used in animals to induce estrus and to cause abortion.[2]
56.	API, Pharmaceutical	Nonabsorbed Bile Acid Sequestrant	Colesevelam CAS Number: 182815-43-6 https://en.wikipedia.org/wiki/Colesevelam Colesevelam is indicated as an adjunct to diet and exercise to reduce elevated low-density lipoprotein cholesterol (LDL-C) in patients with primary hyperlipidemia as monotherapy and to improve glycemic control in adults with type 2 diabetes mellitus,[1] including in combination with a statin. The expanded use of colesevelam in adults with type 2 diabetes mellitus is an example of drug repositioning. Colesevelam is part of a class of drugs known as bile acid sequestrants. Colesevelam hydrochloride, the active pharmaceutical ingredient in Welchol, is a non-absorbed, lipid-lowering polymer that binds bile acids in the intestine, impeding their reabsorption. As the bile acid pool becomes depleted, the hepatic enzyme, cholesterol 7-α-hydroxylase, is upregulated, which increases the conversion of cholesterol to bile acids. This causes an increased demand for cholesterol in the liver cells, resulting in the dual effect of increasing transcription and activity of the cholesterol biosynthetic enzyme, HMG-CoA reductase, and increasing the number of hepatic LDL receptors. These compensatory effects result in increased clearance of LDL-C from the blood, resulting in decreased serum LDL-C levels. Serum TG levels may increase or remain unchanged.[7]

			It is not yet known how Colesevelam works to help control blood sugar in people with type 2 diabetes. However, it is clear that the drug works within the digestive tract, since it is not absorbed into the rest of the body.
57.	API, Pharmaceutical	Carrier protein for conjugate vaccines	CRM197 Carrier Protein https://en.wikipedia.org/wiki/CRM197 CRM197[1] is a non-toxic mutant of diphtheria toxin, currently used as a carrier protein for polysaccharides and haptens to make them immunogenic.[2] CRM197 is a genetically detoxified form of diphtheria toxin. A single mutation at position 52, substituting glutamic acid for glycine, causes the ADP-ribosyltransferase activity of the native toxin to be lost. The structural basis for the lack of CRM197 toxicity has recently been elucidated.[4] CRM197 is widely used as a carrier protein for conjugate vaccines. A potential advantage of CRM197 over toxoided proteins is that, because it is genetically detoxified, it retains its full complement of lysine amines for conjugation. There is also evidence suggesting that, compared with tetanus toxoid, there is less carrier-induced suppression of the immune response, especially when there are many individual polysaccharides linked to the same carrier protein.[5] A summary of the uses and properties of CRM197 has been published.[5] CRM197, like diphtheria toxin, is a single polypeptide chain of 535 amino acids (58.4 kD) consisting of two subunits (linked by disulfide bridges).
58.	API, Pharmaceutical	Pesticides Antipruritic , Scabicide	Crotamiton CAS Number: 483-63-6 https://en.wikipedia.org/wiki/Crotamiton Crotamiton is a drug that is used both as a scabicidal (for treating scabies) and as a general antipruritic (anti-itching drug). It is a prescription, lotion-based medicine that is applied to the whole body to get rid of the scabies parasite that burrows under the skin and causes itching. Crotamiton is toxic to the scabies mite,[1] The mechanism of action of crotamiton as a general antipruritic was reported, in which crotamiton inhibits TRPV4 (transient receptor potential vanilloid 4) channel that is expressed in the skin, primary sensory neurons, and so on.[2]

59.	API, Pharmaceutical	Muscle Relaxants, Central	Dantrolene sodium CAS Number: 14663-23-1 https://en.wikipedia.org/wiki/Dantrolene Dantrolene sodium, sold under the brand name Dantrium among others, is a postsynaptic muscle relaxant that lessens excitation-contraction coupling in muscle cells.[3][4][5] It achieves this by inhibiting Ca^{2+} ions release from sarcoplasmic reticulum stores by antagonizing ryanodine receptors.[6] It is the primary drug used for the treatment and prevention of malignant hyperthermia, a rare, life-threatening disorder triggered by general anesthesia. It is also used in the management of neuroleptic malignant syndrome, muscle spasticity (e.g. after strokes, in paraplegia, cerebral palsy, or patients with multiple sclerosis), and poisoning by 2,4-dinitrophenol[7][8] or by the related compounds dinoseb and dinoterb.[9]
60.	API, Pharmaceutical	Enzyme Inhibitors Antimetabolites, Antineoplastic	Decitabine CAS Number: 2353-33-5 https://en.wikipedia.org/wiki/Decitabine Decitabine, sold under the brand name Dacogen, acts as a nucleic acid synthesis inhibitor.[1] It is a medication for the treatment of myelodysplastic syndromes, a class of conditions where certain blood cells are dysfunctional, and for acute myeloid leukemia (AML).[2] Chemically, it is a cytidine analog. It incorporates into DNA strands upon replication, and then when DNA methyltransferases (DNMTs) such as DNMT1, are engaged to bind the DNA and to replicate the methylation to the daughter strand, DNMTs are bound to decitabine irreversibly and cannot disengage. Therefore, the action of decitabine is division-dependent, meaning the cells have to divide in order for the pharmaceutical to act. Therefore, cancer cells which divide much more rapidly than most other cells in the body will be more severely affected by decitabine just because they replicate more. In cancer cells, and more specifically in haematological malignancies, it seems that DNA hypermethylation is really critical for their development. Methylation of CpG islands upstream of tumor suppressor genes in order to silence them seems to be critical for these type of cancers. Thus at optimal doses,

			decitabine blocks this type of methylation and has an anti-neoplastic effect.
61.	API, Pharmaceutical	Iron Chelating Agents	Deferasirox CAS Number: 201530-41-8 https://en.wikipedia.org/wiki/Deferasirox Deferasirox, sold under the brand name Exjade among others, is an oral iron chelator. Its main use is to reduce chronic iron overload in patients who are receiving long-term blood transfusions for conditions such as beta-thalassemia and other chronic anemias.[2][3] It is the first oral medication approved in the United States for this purpose.[4] The half-life of deferasirox is between 8 and 16 hours allowing once a day dosing. Two molecules of deferasirox are capable of binding to 1 atom of iron which are subsequently eliminated by fecal excretion. Its low molecular weight and high lipophilicity allows the drug to be taken orally unlike deferoxamine which has to be administered by IV route (intravenous infusion). Together with deferiprone, deferasirox seems to be capable of removing iron from cells (cardiac myocytes and hepatocytes) as well as removing iron from the blood.
62.	API, Pharmaceutical	Antidiuretic Agents Hemostatics	Desmopressin acetate CAS Number: 62288-83-9 https://en.wikipedia.org/wiki/Desmopressin Desmopressin, sold under the trade name DDAVP among others, is a medication used to treat diabetes insipidus, bedwetting, hemophilia A, von Willebrand disease, and high blood urea levels.[1] Desmopressin works by limiting the amount of water that is eliminated in the urine; that is, it is an antidiuretic. It works at the level of the renal collecting duct by binding to V2 receptors, which signal for the translocation of aquaporin channels via cytosolic vesicles to the apical membrane of the collecting duct. The presence of these aquaporin channels in the distal nephron causes increasing water reabsorption from the urine, which becomes passively re-distributed from the nephron to systemic circulation by way of basolateral membrane channels.[9] Desmopressin also stimulates release of von Willebrand

			factor from endothelial cells by acting on the V2 receptor.
63.	API, Pharmaceutical	Sedative Analgesics, Non-Narcotic Adrenergic alpha-2 Receptor Agonists Hypnotics and Sedatives	Dexmedetomidine HCl CAS Number: 113775-47-6 https://en.wikipedia.org/wiki/Dexmedetomidine **Dexmedetomidine**, sold under the trade name **Precedex** among others, is an anxiolytic, sedative, and pain medication. Dexmedetomidine is notable for its ability to provide sedation without risk of respiratory depression (unlike other commonly used drugs such as propofol and fentanyl) and can provide cooperative or semi-rousable sedation. Similar to clonidine, it is a sympatholytic drug that acts as an agonist of α_2-adrenergic receptors in certain parts of the brain.[1] Veterinarians use dexmedetomidine for similar purposes in treating cats, dogs, and horses.[2][3] It was developed by Orion Pharma.
64.	API, Pharmaceutical	Dopamine Uptake Inhibitors Central Nervous System Stimulants	Dexmethylphenidate HCl CAS Number: 19262-68-1 https://en.wikipedia.org/wiki/Dexmethylphenidate Dexmethylphenidate, sold under the brand name Focalin among others, is a medication used to treat attention deficit hyperactivity disorder (ADHD) in those over the age of five years.[4] Methylphenidate is a catecholamine reuptake inhibitor that indirectly increases catecholaminergic neurotransmission by inhibiting the dopamine transporter (DAT) and norepinephrine transporter (NET),[57] which are responsible for clearing catecholamines from the synapse, particularly in the striatum and meso-limbic system.[58] Moreover, it is thought to "increase the release of these monoamines into the extraneuronal space."[2] Although four stereoisomers of methylphenidate (MPH) are possible, only the threo diastereoisomers are used in modern practice. There is a high eudysmic ratio between the SS and RR enantiomers of MPH. Dexmethylphenidate (d-threo-methylphenidate) is a preparation of the RR enantiomer of methylphenidate.[59][60] In theory, D-TMP (d-threo-methylphenidate) can be anticipated to be twice the strength of the racemic product.[57][61]

65.	API, Pharmaceutical	Cyclooxygenase Inhibitors Anti-Inflammatory Agents, Non-Steroidal Anti-inflammatory, Antipyretic, Analgesic	Diclofenac Diclofenac Epolamine Diclofenac Potassium Diclofenac Sodium CAS Number: 119623-66-4, 119623-66-4, 15307-79-6 https://en.wikipedia.org/wiki/Diclofenac Diclofenac, sold under the brand name Voltaren among others, is a nonsteroidal anti-inflammatory drug (NSAID) used to treat pain and inflammatory diseases such as gout.[5] The primary mechanism responsible for its anti-inflammatory, antipyretic, and analgesic action is thought to be inhibition of prostaglandin synthesis by inhibition of the transiently expressed prostaglandin-endoperoxide synthase-2 (PGES-2) also known as cycloxygenase-2 (COX-2). It also appears to exhibit bacteriostatic activity by inhibiting bacterial DNA synthesis.[35] Research and an updated reveal of mechanism of action of diclofenac shows, that its action is as with all NSAIDs by inhibition of prostaglandin synthesis. Important is that diclofenac inhibits COX-1 and COX-2 with relative equipotency.
66.	API, Pharmaceutical	Cyclooxygenase Inhibitors Anti-Inflammatory Agents, Non-Steroidal	Diclofenac Diclofenac Epolamine Diclofenac Potassium Diclofenac Sodium CAS Number: 119623-66-4, 119623-66-4, 15307-79-6 https://en.wikipedia.org/wiki/Diclofenac Diclofenac, sold under the brand name Voltaren among others, is a nonsteroidal anti-inflammatory drug (NSAID) used to treat pain and inflammatory diseases such as gout.[5] The primary mechanism responsible for its anti-inflammatory, antipyretic, and analgesic action is thought to be inhibition of prostaglandin synthesis by inhibition of the transiently expressed prostaglandin-endoperoxide synthase-2 (PGES-2) also known as cycloxygenase-2 (COX-2). It also appears to exhibit bacteriostatic activity by inhibiting bacterial DNA synthesis.[35] Research and an updated reveal of mechanism of action of diclofenac shows, that

			its action is as with all NSAIDs by inhibition of prostaglandin synthesis. Important is that diclofenac inhibits COX-1 and COX-2 with relative equipotency.
67.	API, Pharmaceutical	Intermediates for Valproic acid	Diethyl dipropylmalonate CAS Number: 6065-63-0 https://pubchem.ncbi.nlm.nih.gov/compound/80168
68.	API, Pharmaceutical	Intermediates for Pentobarbital, Thiopental sodium	Diethyl ethyl(1-methylbutyl)malonate CAS Number: 76-72-2 https://pubchem.ncbi.nlm.nih.gov/compound/95450
69.	API, Pharmaceutical	Intermediates for Butalbital	Diethyl Isobutyl Malonate CAS Number: 10203-58-4 https://pubchem.ncbi.nlm.nih.gov/compound/25047
70.	API, Pharmaceutical	Oxytocics Abortifacient Agents, Nonsteroidal	Dinoprost (PGF2α, Prostaglandin F2alpha) Dinoprost Tromethamine CAS Number: 551-11-1, 38562-01-5 Prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$ in prostanoid nomen clature), pharmaceutically termed carboprost is a naturally occurring prostaglandin used in medicine to induce labor and as an abortifacient.[1] In domestic mammals, it is produced by the uterus when stimulated by oxytocin, in the event that there has been no implantation during the luteal phase. It acts on the corpus luteum to cause luteolysis, forming a corpus albicans and stopping the production of progesterone. Action of $PGF_{2\alpha}$ is dependent on the number of receptors on the corpus luteum membrane. The $PGF_{2\alpha}$ isoform 8-iso-$PGF_{2\alpha}$ was found in significantly increased amounts in patients with endometriosis, thus being a potential causative link in endometriosis-associated oxidative stress.[2] $PGF_{2\alpha}$ acts by binding to the prostaglandin F2α receptor. It is released in response to an increase in oxytocin levels in the uterus, and stimulates both luteolytic activity and the release of oxytocin.[3] Because $PGF_{2\alpha}$ is linked with an increase in uterine oxytocin levels, there is evidence that $PGF_{2\alpha}$ and oxytocin form a positive feedback loop to facilitate the degradation of the corpus luteum.[4] $PGF_{2\alpha}$ and oxytocin also inhibit the production of progesterone, a hormone that facilitates corpus luteum development. Conversely, higher progesterone levels inhibit production of

			$PGF_{2\alpha}$ and oxytocin, as the effects of the hormones are in opposition to each other.
71.	API, Pharmaceutical	Oxytocics	Dinoprostone Prostaglandin E2, PGE2; CAS Number: 363-24-6 https://en.wikipedia.org/wiki/Prostaglandin_E2 Prostaglandin E_2 (PGE2), also known as dinoprostone, is a naturally occurring prostaglandin with oxytocic properties that is used as a medication.[2][3][4] Dinoprostone is used in labor induction, bleeding after delivery, termination of pregnancy, and in newborn babies to keep the ductus arteriosus open.[2][5] In babies it is used in those with congenital heart defects until surgery can be carried out.[5] It is also used to manage gestational trophoblastic disease.[4] Prostaglandin E_2 binds to G protein-coupled receptors (GPCRs) EP1, EP2, EP3, and EP4 to cause various downstream effects to cause direct contractions in the myometrium.[4] In addition, PGE2 inhibits Na+ absorption within the Thick Ascending Limb (TAL) of the Loop of Henle and ADH-mediated water transport in collecting tubules. As a result, blockage of PGE2 synthesis with NSAIDs can limit the efficacy of loop diuretics.[4]
72.	API, Pharmaceutical	Enzyme Inhibitors Antimanic Agents Anticonvulsants GABA Agents	Divalproex sodium CAS Number: 76584-70-8 https://en.wikipedia.org/wiki/Valproate Valproate (VPA) and its valproic acid, sodium valproate, and valproate semisodium forms are medications primarily used to treat epilepsy and bipolar disorder and prevent migraine headaches.[2] They are useful for the prevention of seizures in those with absence seizures, partial seizures, and generalized seizures.[2] Although the mechanism of action of valproate is not fully understood,[50] traditionally, its anticonvulsant effect has been attributed to the blockade of voltage-gated sodium channels and increased brain levels of gamma-aminobutyric acid (GABA).[50] The GABAergic effect is also believed to contribute towards the anti-manic properties of valproate.[50] In animals, sodium valproate raises cerebral and cerebellar levels of the inhibitory synaptic neurotransmitter, GABA, possibly by inhibiting GABA degradative enzymes, such as GABA

			transaminase, succinate-semialdehyde dehydrogenase and by inhibiting the re-uptake of GABA by neuronal cells.[50]
73.	API, Pharmaceutical	Tubulin Modulators Antineoplastic Agents	Docetaxel anhydrous CAS Number: 114977-28-5 https://en.wikipedia.org/wiki/Docetaxel Docetaxel (DTX or DXL), sold under the brand name Taxotere among others, is a chemotherapy medication used to treat a number of types of cancer.[4] This includes breast cancer, head and neck cancer, stomach cancer, prostate cancer and non-small-cell lung cancer.[5] It may be used by itself or along with other chemotherapy medication.[4] Docetaxel binds to microtubules reversibly with high affinity and has a maximum stoichiometry of 1 mole docetaxel per mole tubulin in microtubules.[34] This binding stabilizes microtubules and prevents depolymerisation from calcium ions, decreased temperature and dilution, preferentially at the plus end of the microtubule.[34] Docetaxel has been found to accumulate to higher concentration in ovarian adenocarcinoma cells than kidney carcinoma cells, which may contribute to the more effective treatment of ovarian cancer by docetaxel.[9][34] It has also been found to lead to the phosphorylation of oncoprotein bcl-2, which is apoptosis-blocking in its oncoprotein form.[9]
74.	API, Pharmaceutical	Tubulin Modulators Antineoplastic Agents	Docetaxel trihydrate CAS Number: 148408-66-6 https://en.wikipedia.org/wiki/Docetaxel Docetaxel (DTX or DXL), sold under the brand name Taxotere among others, is a chemotherapy medication used to treat a number of types of cancer.[4] This includes breast cancer, head and neck cancer, stomach cancer, prostate cancer and non-small-cell lung cancer.[5] It may be used by itself or along with other chemotherapy medication.[4] Docetaxel binds to microtubules reversibly with high affinity and has a maximum stoichiometry of 1 mole docetaxel per mole tubulin in microtubules.[34] This binding stabilizes microtubules and prevents depolymerisation from calcium ions, decreased temperature and dilution, preferentially at the plus end of the microtubule.[34] Docetaxel has been found to accumulate to higher concentration in ovarian adenocarcinoma cells than kidney carcinoma cells, which may contribute to the more

			effective treatment of ovarian cancer by docetaxel.[9][34] It has also been found to lead to the phosphorylation of oncoprotein bcl-2, which is apoptosis-blocking in its oncoprotein form.[9]
75.	API, Pharmaceutical	Antineoplastic Agents Tubulin Modulators	Docetaxel CAS Number: 114977-28-5 https://en.wikipedia.org/wiki/Docetaxel Docetaxel (DTX or DXL), sold under the brand name Taxotere among others, is a chemotherapy medication used to treat a number of types of cancer.[4] This includes breast cancer, head and neck cancer, stomach cancer, prostate cancer and non-small-cell lung cancer.[5] It may be used by itself or along with other chemotherapy medication.[4] Docetaxel binds to microtubules reversibly with high affinity and has a maximum stoichiometry of 1 mole docetaxel per mole tubulin in microtubules.[34] This binding stabilizes microtubules and prevents depolymerisation from calcium ions, decreased temperature and dilution, preferentially at the plus end of the microtubule.[34] Docetaxel has been found to accumulate to higher concentration in ovarian adenocarcinoma cells than kidney carcinoma cells, which may contribute to the more effective treatment of ovarian cancer by docetaxel.[9][34] It has also been found to lead to the phosphorylation of oncoprotein bcl-2, which is apoptosis-blocking in its oncoprotein form.[9]
76.	API, Pharmaceutical	Bone Density Conservation Agents Vitamins	Doxercalciferol CAS Number: 54573-75-0 https://en.wikipedia.org/wiki/Doxercalciferol Doxercalciferol (or 1-hydroxyergocalciferol, trade name Hectorol) is drug for secondary hyperparathyroidism and metabolic bone disease.[1] It is a synthetic analog of ergocalciferol (vitamin D_2). It suppresses parathyroid synthesis and secretion.[2] Docercalciferol is the vitamin D_2 analogue of alfacalcidol.[3] It undergoes 25-hydroxylation in the liver to become the active ercalcitriol, without the involvement of kidneys.[4]
77.	API, Pharmaceutical	Intermediates for Dexmethylphenidate	d-Ritalinic acid HCl Ritalinic Acid Hydrochloride 2-Phenyl-2-(piperidin-2-yl)acetic acid hydrochloride CAS Number: 19395-40-5 https://en.wikipedia.org/wiki/Ritalinic_acid

78.	API, Pharmaceutical	Anti-depressive Agents Dopamine Agents Analgesics Serotonin and Noradrenaline Reuptake Inhibitors	Duloxetine HCl CAS Number: 136434-34-9 https://en.wikipedia.org/wiki/Duloxetine Duloxetine, sold under the brand name Cymbalta among others,[1] is a medication used to treat major depressive disorder, generalized anxiety disorder, fibromyalgia, and neuropathic pain.[5] Duloxetine inhibits the reuptake of serotonin and norepinephrine (NE) in the central nervous system. Duloxetine increases dopamine (DA) specifically in the prefrontal cortex, where there are few DA reuptake pumps, via the inhibition of NE reuptake pumps (NET), which is believed to mediate reuptake of DA and NE.[57] Duloxetine has no significant affinity for dopaminergic, cholinergic, histaminergic, opioid, glutamate, and GABA reuptake transporters, however, and can therefore be considered to be a selective reuptake inhibitor at the 5-HT and NE transporters. Duloxetine undergoes extensive metabolism, but the major circulating metabolites do not contribute significantly to the pharmacologic activity.[58][59]
79.	API, Pharmaceutical	Hormonal Agents, Suppressant (Pituitary) Elagolix	Elagolix sodium CAS Number: 832720-36-2 https://en.wikipedia.org/wiki/Elagolix Elagolix, sold under the brand name Orilissa, is a gonadotropin-releasing hormone antagonist (GnRH antagonist) medication which is used in the treatment of pain associated with endometriosis in women.[1][5][6][4][2][7][8] It is also under development for the treatment of uterine fibroids and heavy menstrual bleeding in women.[8] Elagolix acts as a potent and selective competitive antagonist of the gonadotropin-releasing hormone receptor (GnRHR), the biological target of the hypothalamic peptide hormone gonadotropin-releasing hormone (GnRH).[1] As such, it is a GnRH antagonist.[1] The affinity (K_D) of elagolix for the GnRHR is 54 pM.[1][9][22] By blocking the GnRHR in the pituitary gland, elagolix suppresses the GnRH-induced secretion of the gonadotropins luteinizing hormone (LH) and follicle-stimulating hormone (FSH) from the anterior pituitary, and thereby decreases the production of sex hormones by the gonads.[1][23]

			Estrogens like estradiol stimulate the growth of the endometrium, and thereby aggravate symptoms of endometriosis.[7] By suppressing estrogen production and levels, elagolix decreases the growth of the endometrium and decreases endometriosis symptoms such as pelvic pain.[7][1]
80.	API, Pharmaceutical	Serotonin Receptor Agonists	Eletriptan CAS Number: 143322-58-1 https://en.wikipedia.org/wiki/Eletriptan Eletriptan, sold under the brand name Relpax and used in the form of eletriptan hydrobromide, is a second generation triptan medication intended for treatment of migraine headaches. It is used as an abortive medication, blocking a migraine attack which is already in progress. Eletriptan is believed to reduce swelling of the blood vessels surrounding the brain. This swelling is associated with the head pain of a migraine attack. Eletriptan blocks the release of substances from nerve endings that cause more pain and other symptoms like nausea, and sensitivity to light and sound. It is thought that these actions contribute to relief of symptoms by eletriptan. Eletriptan is a serotonin receptor agonist, specifically an agonist of certain 5-HT_1 family receptors.
81.	API, Pharmaceutical	Antiviral Agents	Entecavir CAS Number: 142217-69-4 https://en.wikipedia.org/wiki/Entecavir Entecavir (ETV), sold under the brand name Baraclude, is an antiviral medication used in the treatment of hepatitis B virus (HBV) infection.[1] In those with both HIV/AIDS and HBV antiretroviral medication should also be used.[1] Entecavir is a nucleoside analog,[17] or more specifically, a deoxyguanosine analogue that belongs to a class of carbocyclic nucleosides and inhibits reverse transcription, DNA replication and transcription in the viral replication process. Other nucleoside and nucleotide analogues include lamivudine, telbivudine, adefovir dipivoxil, and tenofovir. Entecavir reduces the amount of HBV in the blood by reducing its ability to multiply and infect new cells.[18]

82.	API, Pharmaceutical	Antiviral Agents	Entecavir Monohydrate CAS Number: 209216-23-9 https://en.wikipedia.org/wiki/Entecavir Entecavir (ETV), sold under the brand name Baraclude, is an antiviral medication used in the treatment of hepatitis B virus (HBV) infection.[1] In those with both HIV/AIDS and HBV antiretroviral medication should also be used.[1] Entecavir is a nucleoside analog,[17] or more specifically, a deoxyguanosine analogue that belongs to a class of carbocyclic nucleosides and inhibits reverse transcription, DNA replication and transcription in the viral replication process. Other nucleoside and nucleotide analogues include lamivudine, telbivudine, adefovir dipivoxil, and tenofovir. Entecavir reduces the amount of HBV in the blood by reducing its ability to multiply and infect new cells.[18]
83.	API, Pharmaceutical	Agents Affecting Cellular Function Antineoplastics	Enzalutamide CAS Number: 915087-33-1 https://en.wikipedia.org/wiki/Enzalutamide Enzalutamide, sold under the brand name Xtandi, is a nonsteroidal antiandrogen (NSAA) medication which is used in the treatment of prostate cancer.[2][6] Enzalutamide acts as a selective silent antagonist of the androgen receptor (AR), the biological target of androgens like testosterone and dihydrotestosterone (DHT). Unlike the first-generation NSAA bicalutamide, enzalutamide does not promote translocation of AR to the cell nucleus and in addition prevents binding of AR to deoxyribonucleic acid (DNA) and AR to coactivator proteins.[42] As such, it has been described as an AR signaling inhibitor in addition to antagonist.[25]
84.	API, Pharmaceutical	Anticonvulsants Calcium Channel Blockers Muscle Relaxants, Central Vasodilator Agents Parasympatholytics Muscle relaxant	Eperisone HCl CAS Number: 56839-43-1 https://en.wikipedia.org/wiki/Eperisone Eperisone acts by relaxing both skeletal muscles and vascular smooth muscles, and demonstrates a variety of effects such as reduction of myotonia, improvement of circulation, and suppression of the pain reflex. The drug inhibits the vicious circle of myotonia by decreasing pain, ischaemia,

			and hypertonia in skeletal muscles, thus alleviating stiffness and spasticity, and facilitating muscle movement[1] Eperisone suffers from a very low bioavailability when taken orally, as a result of high first pass intestinal metabolism; a transdermal patch containing eperisone is currently in development in South Korea.[1] This has shown promise, with the antispasmodic effect lasting over 24 hours, compared to one to two hours following oral administration. Eperisone is also under investigation as an antihypertensive agent, with promising results from trials on beagles.[12]
85.	API, Pharmaceutical	Beta-Lactam Antibiotics	Ertapenem CAS Number: 153832-46-3 https://en.wikipedia.org/wiki/Ertapenem Ertapenem (trade name Invanz) is a carbapenem antibiotic medication for the treatment of infections of the abdomen, the lungs, the upper part of the female reproductive system, and diabetic foot, used in the form of infusions or injections.[6][7] Like all beta-lactam antibiotics, ertapenem is bactericidal.[11] It inhibits cross-linking of the peptidoglycan layer of bacterial cell walls by blocking a type of enzymes called penicillin-binding proteins (PBPs). When a bacterial cell tries to synthesize new cell wall in order to grow and divide, the attempt fails, rendering the cell vulnerable to osmotic disruption. Additionally, the surplus of peptidoglycan precursors triggers autolytic enzymes of the bacterium, which disintegrate the existing wall.[17]
86.	API, Pharmaceutical	Anti-Bacterial Agents	Ertapenem Sodium CAS Number: 153773-82-1 https://en.wikipedia.org/wiki/Ertapenem Ertapenem (trade name Invanz) is a carbapenem antibiotic medication for the treatment of infections of the abdomen, the lungs, the upper part of the female reproductive system, and diabetic foot, used in the form of infusions or injections.[6][7] Like all beta-lactam antibiotics, ertapenem is bactericidal.[11] It inhibits cross-linking of the peptidoglycan layer of bacterial cell walls by blocking a type of enzymes called penicillin-binding proteins (PBPs). When a bacterial cell

			tries to synthesize new cell wall in order to grow and divide, the attempt fails, rendering the cell vulnerable to osmotic disruption. Additionally, the surplus of peptidoglycan precursors triggers autolytic enzymes of the bacterium, which disintegrate the existing wall.[17]
87.	API, Pharmaceutical	Systemic Hormonal Preparations Calcium Homeostasis Anti-Parathyroid Agents	Etelcalcetide HCl CAS Number: 1334237-71-6 https://en.wikipedia.org/wiki/Etelcalcetide Etelcalcetide (formerly velcalcetide, trade name Parsabiv) is a calcimimetic drug for the treatment of secondary hyperparathyroidism in patients undergoing hemodialysis. It is administered intravenously at the end of each dialysis session.[1][2] Etelcalcetide functions by binding to and activating the calcium-sensing receptor in the parathyroid gland.[1] Etelcalcetide functions by binding to and activating the calcium-sensing receptor (CaSR) in the parathyroid gland as an allosteric activator, resulting in PTH reduction and suppression.[1]
88.	API, Pharmaceutical	Intermediates for CBD and Dronabinol	Ethyl 2,4-dihydroxy-6-pentylbenzoate Ethyl Olivetolate CAS Number: 38862-65-6 https://pubchem.ncbi.nlm.nih.gov/compound/12470331 https://en.wikipedia.org/wiki/Olivetolic_acid
89.	API, Pharmaceutical	Lipid Regulating Agents Platelet Aggregation Inhibitors	Ethyl Icosapent Ethyl Icosapentate, Ethyl Eicosapentaenoate CAS Number: 86227-47-6 https://en.wikipedia.org/wiki/Ethyl_eicosapentaenoic_acid Ethyl eicosapentaenoic acid (E-EPA, icosapent ethyl) is a medication used to treat hypertriglyceridemia. It is used in combination with changes in diet in adults with hypertriglyceridemia ≥ 150 mg/dL.[2] It is made from the omega-3 fatty acid eicosapentaenoic acid (EPA).[2] Eicosapentaenoic acid (EPA), the active metabolite of ethyl eicosapentaenoic acid (E-EPA), like other omega-3 fatty acid based drugs, appears to reduce production of triglycerides in the liver, and to enhance clearance of triglycerides from circulating very low-density lipoprotein (VLDL) particles; the way it does that is not clear, but potential mechanisms include increased breakdown of

			fatty acids; inhibition of diglyceride acyltransferase which is involved in biosynthesis of triglycerides in the liver; and increased activity of lipoprotein lipase in blood.[5][7]
90.	API, Pharmaceutical	Immunosuppressive Agents Antineoplastic Agents	Everolimus CAS Number: 159351-69-6 https://en.wikipedia.org/wiki/Everolimus Everolimus is a medication used as an immunosuppressant to prevent rejection of organ transplants and in the treatment of renal cell cancer and other tumours.[medical citation needed] Much research has also been conducted on everolimus and other mTOR inhibitors as targeted therapy for use in a number of cancers. Compared with the parent compound rapamycin, everolimus is more selective for the mTORC1 protein complex, with little impact on the mTORC2 complex.[18] This can lead to a hyper-activation of the kinase AKT via inhibition on the mTORC1 negative feedback loop, while not inhibiting the mTORC2 positive feedback to AKT. This AKT elevation can lead to longer survival in some cell types.[medical citation needed] Thus, everolimus has important effects on cell growth, cell proliferation and cell survival. mTORC1 inhibition by everolimus has been shown to normalize tumor blood vessels, to increase tumor-infiltrating lymphocytes, and to improve adoptive cell transfer therapy.[19] Additionally, mTORC2 is believed to play an important role in glucose metabolism and the immune system, suggesting that selective inhibition of mTORC1 by drugs such as everolimus could achieve many of the benefits of rapamycin without the associated glucose intolerance and immunosuppression.[18]
91.	API, Pharmaceutical	Antineoplastic Agents Aromatase Inhibitors	Exemestane CAS Number: 107868-30-4 https://en.wikipedia.org/wiki/Exemestane Exemestane, sold under the brand name Aromasin among others, is a medication used to treat breast cancer. It is a member of the class of antiestrogens known as aromatase inhibitors. Some breast cancers require estrogen to grow. Those cancers have

			estrogen receptors (ERs), and are called ER-positive. Exemestane is an irreversible, steroidal aromatase inactivator of type I, structurally related to the natural substrate 4-androstenedione. It acts as a false substrate for the aromatase enzyme, and is processed to an intermediate that binds irreversibly to the active site of the enzyme causing its inactivation, an effect also known as "suicide inhibition." By being structurally similar to enzyme targets, exemestane permanently binds to the enzymes, preventing them from converting androgen into estrogen.[6]
92.	API, Pharmaceutical	Anti-Ulcer Agents Histamine H2 Antagonists	Famotidine CAS Number: 76824-35-6 https://en.wikipedia.org/wiki/Famotidine Famotidine, sold under the brand name Pepcid among others, is an Histamine H_2 receptor antagonist medication that decreases stomach acid production.[2] It is used to treat peptic ulcer disease, gastroesophageal reflux disease, and Zollinger-Ellison syndrome.[2] Activation of H2 receptors located on parietal cells stimulates proton pumps to secrete acid into the stomach lumen. Famotidine, an H2 antagonist, blocks the action of histamine on the parietal cells, ultimately reducing acid secretion into the stomach. Unlike cimetidine, the first H_2 antagonist, famotidine has no effect on the cytochrome P450 enzyme system, and does not appear to interact with other drugs.[27]
93.	API, Pharmaceutical	Antiviral Agents	Favipiravir CAS Number: 259793-96-9 https://en.wikipedia.org/wiki/Favipiravir Favipiravir, sold under the brand name Avigan among others,[3] is an antiviral medication used to treat influenza in Japan.[4] It is also being studied to treat a number of other viral infections.[4] Like the experimental antiviral drugs T-1105 and T-1106, it is a pyrazinecarboxamide derivative The mechanism of its actions is thought to be related to the selective inhibition of viral RNA-dependent RNA polymerase.[8][medical citation needed] Favipiravir is a prodrug that is metabolized to its active form, favipiravir-ribofuranosyl-5'-triphosphate (favipiravir-RTP), available in both oral and intravenous

			formulations.[9][10] In 2014, favipiravir was approved in Japan for stockpiling against influenza pandemics.[11] Favipiravir ribofuranosyl triphosphate, the active form inside the body Favipiravir-RTP is a nucleoside analogue. It mimics both guanosine and adenosine for the viral RdRP. Incorporating two such bases in a row stops primer extension, although it's unclear how as of 2013.[8]
94.	API, Pharmaceutical	Anticonvulsants Muscle Relaxants, CentralAnti-Anxiety Agents	Fludiazepam CAS Number: 3900-31-0 https://en.wikipedia.org/wiki/Fludiazepam Fludiazepam,[1] marketed under the brand name Erispan (エリスパン)[2][3] is a potent benzodiazepine and 2'-fluoro derivative of diazepam,[4] originally developed by Hoffman-La Roche in the 1960s.[5] It is marketed in Japan and Taiwan.[citation needed] It exerts its pharmacological properties via enhancement of GABAergic inhibition.[6] Fludiazepam has 4 times more binding affinity for benzodiazepine receptors than diazepam.[7] It possesses anxiolytic,[8][9][10] anticonvulsant, sedative, hypnotic and skeletal muscle relaxant properties.[11] Fludiazepam has been used recreationally.[12]
95.	API, Pharmaceutical	Antidotes GABA Modulators	Flumazenil CAS Number: 78755-81-4 https://en.wikipedia.org/wiki/Flumazenil Flumazenil (also known as flumazepil, code name Ro 15-1788) is a selective $GABA_A$ receptor antagonist[1] administered via injection, otic insertion, or intranasally. Therapeutically, it acts as both an antagonist and antidote to benzodiazepines (particularly in cases of overdose), through competitive inhibition. Intravenous flumazenil has been shown to antagonize sedation, impairment of recall, psychomotor impairment and ventilatory depression produced by benzodiazepines in healthy human volunteers. The duration and degree of reversal of sedative benzodiazepine effects are related to the dose and plasma concentrations of flumazenil.

96.	API, Pharmaceutical	Antipsychotic Agents Dopamine Antagonists	Flupentixol CAS Number: 2413-38-9 https://en.wikipedia.org/wiki/Flupentixo Flupentixol (INN), also known as flupenthixol (former BAN), marketed under brand names such as Depixol and Fluanxol is a typical antipsychotic drug of the thioxanthene class. It was introduced in 1965 by Lundbeck. In addition to single drug preparations, it is also available as flupentixol/melitracen—a combination product containing both melitracen (a tricyclic antidepressant) and flupentixol. Flupentixol is not approved for use in the United States. It is, however, approved for use in the UK,[4] Australia,[5] Canada, Russian Federation,[6] South Africa, New Zealand, Philippines and various other countries.
97.	API, Pharmaceutical	Estrogen Receptor Antagonists Antineoplastic Agents, Hormonal	Fulvestrant CAS Number: 129453-61-8 https://en.wikipedia.org/wiki/Fulvestrant Fulvestrant, sold under the brand name Faslodex among others, is a medication used to treat hormone receptor (HR)-positive metastatic breast cancer in postmenopausal women with disease progression as well as HR-positive, HER2-negative advanced breast cancer in combination with palbociclib in women with disease progression after endocrine therapy.[2] Fulvestrant is an antiestrogen which acts as an antagonist of the estrogen receptor (ER) and additionally as a selective estrogen receptor degrader (SERD).[4] It works by binding to the estrogen receptor and making it more hydrophobic, which makes the receptor unstable and misfold, which in turn leads normal processes inside the cell to degrade it.[4] In addition to its antiestrogenic activity, fulvestrant is an agonist of the G protein-coupled estrogen receptor (GPER), albeit with relatively low affinity (10–100 nM, relative to 3–6 nM for estradiol).[11][12][13][14][15]
98.	API, Pharmaceutical	Contrast Media	Gadodiamide Hydrate CAS Number: 122795-43-1 https://en.wikipedia.org/wiki/Gadodiamide Gadodiamide is a drug i.e contrast

			medium used for cranial and spinal magnetic resonance imaging (MRI) and for general MRI of the body after intravenous administration. The product provides contrast enhancement and facilitates visualisation of abnormal structures or lesions in various parts of the body including the central nervous system (CNS). It does not cross an intact blood brain barrier but might give enhancement in pathological conditions.
99.	API, Pharmaceutical	Nootropic Agents Parasympathomimetics Cholinesterase Inhibitors	Galantamine hydrobromide CAS Number: 1953-04-4, 357-70-0 https://en.wikipedia.org/wiki/Galantamine Galantamine, (sold under the brand name Razadyne and GalantaMind™), is used for the treatment of cognitive decline in mild to moderate Alzheimer's disease and various other memory impairments.[3][4] Galantamine is a potent allosteric potentiating ligand of human nicotinic acetylcholine receptors (nAChRs) $\alpha_4\beta_2$, $\alpha_3\beta_4$, and $\alpha_6\beta_4$, and chicken/mouse nAChRs α_7/5-HT_3 in certain areas of the brain.[3][28] By binding to the allosteric site of the nAChRs, a conformational change occurs which increases the receptors response to acetylcholine.[19] This modulation of the nicotinic cholinergic receptors on cholinergic neurons in turn causes an increase in the amount of acetylcholine released.[29] However, recent studies suggest that Galantamine does not functionally act at human nAChRs $\alpha_4\beta_2$ or α_7 as a positive allosteric modulator. [30] Galantamine also works as a weak competitive and reversible cholinesterase inhibitor in all areas of the body.[3]
100.	API, Pharmaceutical	Antineoplastic Agents Protein Kinase Inhibitors	Gefitinib CAS Number: 184475-35-2 https://en.wikipedia.org/wiki/Gefitinib Gefitinib, sold under the brand name Iressa, is a medication used for certain breast, lung and other cancers. Gefitinib is an EGFR inhibitor, like erlotinib, which interrupts signaling through the epidermal growth factor receptor (EGFR) in target cells. Therefore, it is only effective in cancers with mutated and overactive EGFR. Gefitinib is the first selective inhibitor of epidermal growth factor receptor's (EGFR) tyrosine kinase domain. Thus gefitinib is an EGFR inhibitor. The target protein

			(EGFR) is a member of a family of receptors (ErbB) which includes Her1(EGFR), Her2(erb-B2), Her3(erb-B3) and Her4 (Erb-B4). EGFR is overexpressed in the cells of certain types of human carcinomas - for example in lung and breast cancers. This leads to inappropriate activation of the anti-apoptotic Ras signalling cascade, eventually leading to uncontrolled cell proliferation.
101.	API, Pharmaceutical	Enzyme Inhibitors Radiation-Sensitizing Agents Antimetabolites Antineoplastic Immunosuppressive Agents Antiviral Agents	Gemcitabine hydrochloride CAS Number: 122111-03-9 https://en.wikipedia.org/wiki/Gemcitabine Gemcitabine, sold under the brand name Gemzar, among others,[1] is a chemotherapy medication used to treat a number of types of cancer.[2] These cancers include testicular cancer[3],breast cancer, ovarian cancer, non-small cell lung cancer, pancreatic cancer, and bladder cancer.[2][4] After being thrice phosphorylated, gemcitabine can masquerade as deoxycytidine triphosphate and is incorporated into new DNA strands being synthesized as the cell replicates.[2][18][19] When gemcitabine is incorporated into DNA it allows a native, or normal, nucleoside base to be added next to it. This leads to “masked chain termination” as gemcitabine is a “faulty” base, but due to its neighboring native nucleoside it eludes the cell's normal repair system (base-excision repair). Thus, incorporation of gemcitabine into the cell's DNA creates an irreparable error that leads to inhibition of further DNA synthesis, and thereby leading to cell death.[2][18][19]
102.	API, Pharmaceutical	Serotonin Antagonists Antiemetics	Granisetron HCl Granisetron Base CAS Number: 107007-99-8, 109889-09-0 https://en.wikipedia.org/wiki/Granisetron Granisetron is a serotonin 5-HT_3 receptor antagonist used as an antiemetic to treat nausea and vomiting following chemotherapy and radiotherapy. Its main effect is to reduce the activity of the vagus nerve, which is a nerve that activates the vomiting center in the medulla oblongata. It does not have much effect on vomiting due to motion sickness. This drug does not have any effect

			on dopamine receptors or muscarinic receptors. A granisetron transdermal patch with the trade name Sancuso was approved by the US FDA on September 12, 2008.[1] Sancuso is manufactured by 3M Drug Delivery Systems for Kyowa Kirin, Inc.
103.	API, Pharmaceutical	Antiemetics Serotonin Antagonists	Granisetron hydrochloride CAS Number: 107007-99-8 https://en.wikipedia.org/wiki/Granisetron Granisetron is a serotonin 5-HT_3 receptor antagonist used as an antiemetic to treat nausea and vomiting following chemotherapy and radiotherapy. Its main effect is to reduce the activity of the vagus nerve, which is a nerve that activates the vomiting center in the medulla oblongata. It does not have much effect on vomiting due to motion sickness. This drug does not have any effect on dopamine receptors or muscarinic receptors. Mechanism of Action Granisetron is a potent, selective antagonist of 5-HT_3 receptors. The antiemetic activity of the drug is brought about through the inhibition of 5-HT3 receptors present both centrally (medullary chemoreceptor zone) and peripherally (GI tract). This inhibition of 5-HT3 receptors in turn inhibits the visceral afferent stimulation of the vomiting center, likely indirectly at the level of the area postrema, as well as through direct inhibition of serotonin activity within the area postrema and the chemoreceptor trigger zone.
104.	API, Pharmaceutical	Expectorants	Guaifenesin CAS Number: 93-14-1 https://en.wikipedia.org/wiki/Guaifenesin Guaifenesin, sold under the brand name Mucinex among others,[2] is a medication used to try to help cough out phlegm from the airways.[3] It is unclear if it decreases coughing.[3] Guaifenesin is thought to act as an expectorant by increasing the volume and reducing the viscosity of secretions in the trachea and bronchi. It has been said to aid in the flow of respiratory tract secretions, allowing ciliary movement to carry the loosened secretions upward toward the pharynx.[13] Thus, it may

			increase the efficiency of the cough reflex and facilitate removal of the secretions. Guaifenesin has muscle relaxant and anticonvulsant properties and may act as an NMDA receptor antagonist.[14]
105.	API, Pharmaceutical	Expectorants	Guaifenesin Guaifenesin DC95 CAS Number: 93-14-1 https://en.wikipedia.org/wiki/Guaifenesin Guaifenesin, sold under the brand name Mucinex among others,[2] is a medication used to try to help cough out phlegm from the airways.[3] It is unclear if it decreases coughing.[3] Guaifenesin is thought to act as an expectorant by increasing the volume and reducing the viscosity of secretions in the trachea and bronchi. It has been said to aid in the flow of respiratory tract secretions, allowing ciliary movement to carry the loosened secretions upward toward the pharynx.[13] Thus, it may increase the efficiency of the cough reflex and facilitate removal of the secretions. Guaifenesin has muscle relaxant and anticonvulsant properties and may act as an NMDA receptor antagonist.[14]
106.	API, Pharmaceutical	Enzyme Inhibitors Antirheumatic Agents Antimalarials	Hydroxychloroquine sulfate CAS Number: 747-36-4 https://en.wikipedia.org/wiki/Hydroxychloroquine Hydroxychloroquine, sold under the brand name Plaquenil among others, is a medication used to prevent and treat malaria in areas where malaria remains sensitive to chloroquine. Other uses include treatment of rheumatoid arthritis, lupus, and porphyria cutanea tarda. Hydroxychloroquine increases[38] lysosomal pH in antigen-presenting cells.[3] In inflammatory conditions, it blocks toll-like receptors on plasmacytoid dendritic cells (PDCs).[39] Toll-like receptor 9 (TLR 9), which recognizes DNA-containing immune complexes, leads to the production of interferon and causes the dendritic cells to mature and present antigen to T cells. Hydroxychloroquine, by decreasing TLR signaling, reduces the activation of dendritic cells and the inflammatory process.

107.	API, Pharmaceutical	Antineoplastic agents Protein kinase inhibitors	Ibrutinib CAS Number: 936563-96-1 https://en.wikipedia.org/wiki/Ibrutinib Ibrutinib, sold under the brand name Imbruvica among others, is a small molecule drug that binds permanently to a protein, Bruton's tyrosine kinase (BTK), that is important in B cells. It is used to treat B cell cancers like mantle cell lymphoma, chronic lymphocytic leukemia, and Waldenström's macroglobulinemia.[3] Ibrutinib has been reported to reduce chronic lymphocytic leukemia cell chemotaxis towards the chemokines CXCL12 and CXCL13, and inhibit cellular adhesion following stimulation at the B-cell receptor (BCR).[13][14] Additionally, ibrutinib down-modulates the expression of CD20 (target of rituximab/ofatumumab) by targeting the CXCR4/SDF1 axis.[15] Together, these data are consistent with a mechanistic model whereby ibrutinib blocks BCR signaling, which drives cells into apoptosis and/or disrupts cell migration and adherence to protective tumour microenvironments.
108.	API, Pharmaceutical	Cardiovascular Agent Antiplatelet Agent	Iloprost Tromethamine CAS Number: 697225-02-8 https://en.wikipedia.org/wiki/Iloprost Iloprost is a drug used to treat pulmonary arterial hypertension (PAH), scleroderma, Raynaud's phenomenon and other diseases in which the blood vessels are constricted and blood can't flow to the tissues. This damages the tissues and causes high blood pressure.[1] Iloprost works by opening (dilating) the blood vessels to allow the blood to flow through again. Iloprost is a synthetic analogue of prostacyclin PGI_2. Iloprost dilates systemic and pulmonary arterial vascular beds. It also affects platelet aggregation but the relevance of this effect to the treatment of pulmonary hypertension is unknown. The two diastereoisomers of iloprost differ in their potency in dilating blood vessels, with the 4S isomer substantially more potent than the 4R isomer.
109.	API, Pharmaceutical	Antineoplastic Agents Protein Kinase Inhibitors	Imatinib Mesylate CAS Number: 863127-77-9 https://en.wikipedia.org/wiki/Imatinib https://en.wikipedia.org/wiki/Mesylate

			Imatinib, sold under the brand name Gleevec among others, is an oral chemotherapy medication used to treat cancer.[2] Specifically, it is used for chronic myelogenous leukemia (CML) and acute lymphocytic leukemia (ALL) that are Philadelphia chromosome-positive (Ph^+), certain types of gastrointestinal stromal tumors (GIST), hypereosinophilic syndrome (HES), chronic eosinophilic leukemia (CEL), systemic mastocytosis, and myelodysplastic syndrome.[2] It is taken by mouth.[2] Imatinib is a 2-phenyl amino pyrimidine derivative that functions as a specific inhibitor of a number of tyrosine kinase enzymes. It occupies the TK active site, leading to a decrease in activity. There are a large number of TK enzymes in the body, including the insulin receptor. Imatinib is specific for the TK domain in abl (the Abelson proto-oncogene), c-kit and PDGF-R (platelet-derived growth factor receptor). In chemistry, a mesylate is any salt or ester of methanesulfonic acid (CH_3SO_3H). In salts, the mesylate is present as the $CH_3SO_3^-$ anion. When modifying the International Nonproprietary Name of a pharmaceutical substance containing the group or anion, the correct spelling is mesilate (as in imatinib mesilate, the mesylate salt of imatinib).[1]
110.	API, Pharmaceutical	Beta-Lactam Antibiotics	Imipenem CAS Number: 64221-86-9 https://en.wikipedia.org/wiki/Imipenem Imipenem (trade name Primaxin among others) is an intravenous β-lactam antibiotic discovered by Merck scientists Burton Christensen, William Leanza, and Kenneth Wildonger in the mid-1970s.[1] Carbapenems are highly resistant to the β-lactamase enzymes produced by many multiple drug-resistant Gram-negative bacteria,[2] thus play a key role in the treatment of infections not readily treated with other antibiotics.[3] Imipenem acts as an antimicrobial through inhibiting cell wall synthesis of various Gram-positive and Gram-negative bacteria. It

			remains very stable in the presence of β-lactamase (both penicillinase and cephalosporinase) produced by some bacteria, and is a strong inhibitor of β-lactamases from some Gram-negative bacteria that are resistant to most β-lactam antibiotics.
111.	API, Pharmaceutical	Topoisomerase I Inhibitors	Irinotecan hydrochloride CAS Number: 100286-90-6 https://en.wikipedia.org/wiki/Irinotecan Irinotecan, sold under the brand name Camptosar among others, is a medication used to treat colon cancer, and small cell lung cancer.[4] For colon cancer it is used either alone or with fluorouracil.[4] For small cell lung cancer it is used with cisplatin.[4] It is given by slow injection into a vein.[4] The molecular action of irinotecan occurs by trapping a subset of topoisomerase-1-DNA cleavage complexes, those with a guanine +1 in the DNA sequence.[13] One irinotecan molecule stacks against the base pairs flanking the topoisomerase-induced cleavage site and poisons (inactivates) the topoisomerase 1 enzyme.[13]
112.	API, Pharmaceutical	Chloride Channel Agonists	Ivacaftor CAS Number: 873054-44-5 https://en.wikipedia.org/wiki/Ivacaftor Ivacaftor (trade name Kalydeco) is a drug used to treat cystic fibrosis in people with certain mutations in the cystic fibrosis transmembrane conductance regulator (CFTR) gene (primarily the G551D mutation), who account for 4–5% cases of cystic fibrosis.[2][3] In the case of G551D, the protein is trafficked to the correct area, the epithelial cell surface, but once there the protein cannot transport chloride through the channel. Ivacaftor, a CFTR potentiator, improves the transport of chloride through the ion channel by binding to the channels directly to induce a non-conventional mode of gating which in turn increases the probability that the channel is open.[12][13][14]
113.	API, Pharmaceutical	Antineoplastics Other Antitumors	Ixazomib Citrate CAS Number: 1239908-20-3 https://en.wikipedia.org/wiki/Ixazomib Ixazomib (trade name Ninlaro) is a drug for the treatment of multiple myeloma, a type of white blood cell cancer,[2] in combination with other

			drugs. t therapeutic concentrations, ixazomib selectively and reversibly inhibits the protein proteasome subunit beta type-5 (PSMB5)[7] with a dissociation half-life of 18 minutes. This mechanism is the same as of bortezomib, which has a much longer dissociation half-life of 110 minutes; the related drug carfilzomib, by contrast, blocks PSMB5 irreversibly. Proteasome subunits beta type-1 and type-2 are only inhibited at high concentrations reached in cell culture models.[9] PSMB5 is part of the 20S proteasome complex and has enzymatic activity similar to chymotrypsin. It induces apoptosis, a type of programmed cell death, in various cancer cell lines. A synergistic effect of ixazomib and lenalidomide has been found in a large number of myeloma cell lines.[7][10]
114.	API, Pharmaceutical	Antipsychotic Agents Calcium Channel Blockers Anticonvulsants Sodium Channel Blockers	Lamotrigine CAS Number: 84057-84-1 https://en.wikipedia.org/wiki/Lamotrigine Lamotrigine, sold as the brand name Lamictal among others, is an anticonvulsant medication used to treat epilepsy and to delay or prevent the recurrence of depressive episodes in bipolar disorder.[3] Lamotrigine is a member of the sodium channel blocking class of antiepileptic drugs.[64] This may suppress the release of glutamate and aspartate, two dominant excitatory neurotransmitters in the central nervous system.[65] It is a triazine derivate that inhibits voltage-sensitive sodium channels, leading to stabilization of neuronal membranes. It also blocks L-, N-, and P-type calcium channels and weakly inhibits the serotonin 5-HT_3 receptor.[68] These actions are thought to inhibit release of glutamate at cortical projections in the ventral striatum limbic areas,[69] and its neuroprotective and antiglutamatergic effects have been pointed out as promising contributors to its mood stabilizing activity.[70]
115.	API, Pharmaceutical	Antineoplastic Agents	Lanreotide Acetate CAS Number: 127984-74-1 https://en.wikipedia.org/wiki/Lanreotide

			Lanreotide (INN) is a medication used in the management of acromegaly and symptoms caused by neuroendocrine tumors, most notably carcinoid syndrome. It is a long-acting analogue of somatostatin, like octreotide. Its sequence is H-D-2Nal-Cys(1)-Tyr-D-Trp-Lys-Val-Cys(1)-Thr-NH2. Lanreotide is a synthetic analogue of somatostatin, a naturally occurring inhibitory hormone which blocks the release of several other hormones, including growth hormone, thyroid-stimulating hormone (TSH), insulin and glucagon. Lanreotide binds to the same receptors as somatostatin, although with higher affinity to peripheral receptors, and has similar activity. However, while somatostatin is quickly broken down in the body (within minutes),[2] lanreotide has a much longer half-life, and produces far more prolonged effects.
116.	API, Pharmaceutical	Anti-Ulcer Agents Proton Pump Inhibitors	Lansoprazole CAS Number: 103577-45-3 https://en.wikipedia.org/wiki/Lansoprazole Lansoprazole, sold under the brand name Prevacid among others, is a medication which reduces stomach acid.[2] It is used to treat peptic ulcer disease, gastroesophageal reflux disease, and Zollinger–Ellison syndrome.[3] Effectiveness is similar to other proton pump inhibitors (PPIs).[4] It is a racemic 1:1 mixture of the enantiomers dexlansoprazole and levolansoprazole.[17] Dexlansoprazole is an enantiomerically pure active ingredient of a commercial drug as a result of the enantiomeric shift. Lansoprazole's plasma elimination half-life (1.5 h) is not proportional to the duration of the drug's effects to the person (i.e. gastric acid suppression).[18]
117.	API, Pharmaceutical	Proton Pump Inhibitors Anti-Ulcer Agents	Lansoprazole CAS Number: 103577-45-3 https://en.wikipedia.org/wiki/Lansoprazole Lansoprazole, sold under the brand name Prevacid among others, is a medication which reduces stomach acid.[2] It is used to treat peptic ulcer disease, gastroesophageal reflux disease, and Zollinger–Ellison syndrome.[3] Effectiveness is similar to other proton pump inhibitors (PPIs).[4]

			It is a racemic 1:1 mixture of the enantiomers dexlansoprazole and levolansoprazole.[17] Dexlansoprazole is an enantiomerically pure active ingredient of a commercial drug as a result of the enantiomeric shift. Lansoprazole's plasma elimination half-life (1.5 h) is not proportional to the duration of the drug's effects to the person (i.e. gastric acid suppression).[18]
118.	API, Pharmaceutical	Antineoplastic Agents Protein Kinase Inhibitors	Lapatinib ditosylate CAS Number: 388082-77-7 https://en.wikipedia.org/wiki/Lapatinib https://en.wikipedia.org/wiki/Tosyl Lapatinib (INN), used in the form of lapatinib ditosylate (USAN) (trade names Tykerb and Tyverb) is an orally active drug for breast cancer and other solid tumours.[1] It is a dual tyrosine kinase inhibitor which interrupts the HER2/neu and epidermal growth factor receptor (EGFR) pathways.[2] It is used in combination therapy for HER2-positive breast cancer. It is used for the treatment of patients with advanced or metastatic breast cancer whose tumors overexpress HER2 (ErbB2).[3] A toluenesulfonyl (shortened tosyl, abbreviated Ts[nb 1] or Tos) group, $H_3CC_6H_4SO_2$, is a univalent organic group that consists of a tolyl group, $H_3CC_6H_4$, joined to a sulfonyl group, SO_2, with the open valence on sulfur.
119.	API, Pharmaceutical	Protein Kinase Inhibitors Antineoplastic Agents	Lapatinib Ditosylate Lapatinib Ditosylate Hydrate CAS Number: 388082-78-8 https://en.wikipedia.org/wiki/Lapatinib https://en.wikipedia.org/wiki/Tosyl Lapatinib (INN), used in the form of lapatinib ditosylate (USAN) (trade names Tykerb and Tyverb) is an orally active drug for breast cancer and other solid tumours.[1] It is a dual tyrosine kinase inhibitor which interrupts the HER2/neu and epidermal growth factor receptor (EGFR) pathways.[2] It is used in combination therapy for HER2-positive breast cancer. It is used for the treatment of patients with advanced or metastatic breast cancer whose tumors overexpress HER2 (ErbB2).[3] A toluenesulfonyl (shortened tosyl, abbreviated Ts[nb 1] or Tos) group, $H_3CC_6H_4SO_2$, is a univalent organic group that consists of

			a tolyl group, $H_3CC_6H_4$, joined to a sulfonyl group, SO_2, with the open valence on sulfur.
120.	API, Pharmaceutical	Antihypertensive Agents Antiglaucoma Preparations And Miotics Prostaglandin Analogues	Latanoprostene Bunod CAS Number: 130209-82-4, 860005-21-6 https://en.wikipedia.org/wiki/Latanoprost Latanoprost, sold under the brand name Xalatan among others, is a medication used to treat increased pressure inside the eye.[1] This includes ocular hypertension and open angle glaucoma.[1] Like tafluprost and travoprost, latanoprost is an ester prodrug that is activated to the free acid in the cornea. Also like the related drugs, latanoprost acid is an analog of prostaglandin $F_{2\alpha}$ that acts as a selective agonist at the prostaglandin F receptor. Prostaglandins increase the sclera's permeability to aqueous fluid. So, an increase in prostaglandin activity increases outflow of aqueous fluid thus lowering intraocular pressure.[10][11]
121.	API, Pharmaceutical	Immunosuppressive Agents Enzyme Inhibitors	Leflunomide https://en.wikipedia.org/wiki/Leflunomide CAS Number: 75706-12-6 Leflunomide, sold under the brand name Arava among others, is an immunosuppressive disease-modifying antirheumatic drug (DMARD),[2] used in active moderate-to-severe rheumatoid arthritis and psoriatic arthritis. It is a pyrimidine synthesis inhibitor that works by inhibiting dihydroorotate dehydrogenase.[3] Leflunomide is an immunomodulatory drug that achieves its effects by inhibiting the mitochondrial enzyme dihydroorotate dehydrogenase (DHODH), which plays a key role in the de novo synthesis of uridine monophosphate (rUMP), which is required for the synthesis of DNA and RNA. Hence, leflunomide inhibits the reproduction of rapidly dividing cells, especially lymphocytes.[19]
122.	API, Pharmaceutical	Antineoplastic Agents Aromatase Inhibitors	Letrozole CAS Number: 112809-51-5 https://en.wikipedia.org/wiki/Letrozole Letrozole, sold under the brand name Femara among others, is an aromatase inhibitor which is used in the treatment of hormonally-responsive breast cancer after surgery.

			Letrozole is an orally active, nonsteroidal, selective aromatase inhibitor and hence an antiestrogen. It prevents aromatase from producing estrogens by competitive, reversible binding to the heme of its cytochrome P450 unit. The action is specific, and letrozole does not reduce production of corticosteroids.
123.	API, Pharmaceutical	Antineoplastic Agents, Hormonal Fertility Agents, Female	Leuprolide acetate CAS Number: 74381-53-6 https://en.wikipedia.org/wiki/Leuprorelin Leuprorelin, also known as leuprolide, is a manufactured version of a hormone used to treat prostate cancer, breast cancer, endometriosis, uterine fibroids, and early puberty.[1][2] Leuprorelin is a gonadotropin-releasing hormone (GnRH) analogue acting as an agonist at pituitary GnRH receptors. Agonism of GnRH receptors initially results in the stimulation of luteinizing hormone (LH) and follicle-stimulating hormone (FSH) secretion by the anterior pituitary ultimately leading to increased serum estradiol and testosterone levels via the normal physiology of the hypothalamic–pituitary–gonadal axis (HPG axis); however, because propagation of the HPG axis is incumbent upon pulsatile hypothalamic GnRH secretion, pituitary GnRH receptors become desensitised after several weeks of continuous leuprorelin therapy. This protracted downregulation of GnRH receptor activity is the targeted objective of leuprorelin therapy and ultimately results in decreased LH and FSH secretion, leading to hypogonadism and thus a dramatic reduction in estradiol and testosterone levels regardless of sex.[16][17]
124.	API, Pharmaceutical	Contraceptive Agents, Hormonal Contraceptives, Oral, Synthetic Contraceptive Agents, Female	Levonorgestrel CAS Number: 797-63-7 https://en.wikipedia.org/wiki/Levonorgestrel Levonorgestrel is a hormonal medication which is used in a number of birth control methods.[5] It is combined with an estrogen to make combination birth control pills.[6] Levonorgestrel is a progestogen; that is, an agonist of the progesterone receptor (PR), the main biological target of the progestogen sex hormone progesterone.[2] It is also a weak agonist of the androgen receptor (AR), the main biological target of the androgen sex hormone testosterone.[2]

125.	API, Pharmaceutical	Voltage-Gated Sodium Channel Blockers Anti-Arrhythmia Agents Anesthetics, Local	Lidocaine Lidocaine HCl CAS Number: 137-58-6, 73-78-9 https://en.wikipedia.org/wiki/Lidocaine Lidocaine, also known as lignocaine, is a local anesthetic of the amino amide type. It is also used to treat ventricular tachycardia.[3][4] When used for local anaesthesia or in nerve blocks, lidocaine typically begins working within several minutes and lasts for half an hour to three hours.[4][5] Lidocaine mixtures may also be applied directly to the skin or mucous membranes to numb the area.[4] It is often used mixed with a small amount of adrenaline (epinephrine) to prolong its local effects and to decrease bleeding.[4] Lidocaine alters signal conduction in neurons by prolonging the inactivation of the fast voltage-gated Na^+ channels in the neuronal cell membrane responsible for action potential propagation.[36] With sufficient blockage, the voltage-gated sodium channels will not open and an action potential will not be generated. Careful titration allows for a high degree of selectivity in the blockage of sensory neurons, whereas higher concentrations also affect other types of neurons. The same principle applies for this drug's actions in the heart. Blocking sodium channels in the conduction system, as well as the muscle cells of the heart, raises the depolarization threshold, making the heart less likely to initiate or conduct early action potentials that may cause an arrhythmia.[37]
126.	API, Pharmaceutical	Ophthalmic Solutions	Lifitegrast CAS Number: 1025967-78-5 https://en.wikipedia.org/wiki/Lifitegrast Lifitegrast, sold under the brand name Xiidra, is a medication for the treatment of signs and symptoms of dry eye, a syndrome called keratoconjunctivitis sicca. Lifitegrast reduces inflammation by inhibiting inflammatory cell binding.[1] It is often used in conjunction with ciclosporin (Ikervis or Restasis) for dry eye treatment including meibomian gland dysfunction and inflammatory dry eye. Lifitegrast inhibits an integrin, lymphocyte function-associated antigen 1 (LFA-1), from binding to intercellular adhesion molecule

			1 (ICAM-1). This mechanism down-regulates inflammation mediated by T lymphocytes.[1][3]
127.	API, Pharmaceutical	Dipeptidyl-Peptidase IV Inhibitors Hypoglycemic Agents Incretins	Linagliptin CAS Number: 668270-12-0 https://en.wikipedia.org/wiki/Linagliptin Linagliptin, sold under the brand name Tradjenta among others, is a medication used to treat diabetes mellitus type 2.[2] It is generally less preferred than metformin and sulfonylureas as an initial treatment.[2][3] It is used together with exercise and diet.[2] It is not recommended in type 1 diabetes.[2] Linagliptin belongs to a class of drugs called DPP-4 inhibitors. Inhibitors of dipeptidyl peptidase 4 (DPP-4 inhibitors or gliptins) are a class of oral hypoglycemics that block the enzyme dipeptidyl peptidase-4 (DPP-4). They can be used to treat diabetes mellitus type 2. The first agent of the class – sitagliptin – was approved by the FDA in 2006.[1] Glucagon increases blood glucose levels, and DPP-4 inhibitors reduce glucagon and blood glucose levels. The mechanism of DPP-4 inhibitors is to increase incretin levels (GLP-1 and GIP),[2][3][4] which inhibit glucagon release, which in turn increases insulin secretion, decreases gastric emptying, and decreases blood glucose levels.
128.	API, Pharmaceutical	Protein Synthesis Inhibitors Anti-Bacterial Agents	Linezolid CAS Number: 165800-03-3 https://en.wikipedia.org/wiki/Linezolid Linezolid is an antibiotic used for the treatment of infections caused by Gram-positive bacteria that are resistant to other antibiotics.[2][3] Linezolid is active against most Gram-positive bacteria that cause disease, including streptococci, vancomycin-resistant enterococci (VRE), and methicillin-resistant Staphylococcus aureus (MRSA).[2][4] The main uses are infections of the skin and pneumonia although it may be used for a variety of other infections including drug-resistant tuberculosis.[3][5] As a protein synthesis inhibitor, linezolid works by suppressing bacterial protein production.[8] This either stops growth or results in bacterial death.[3] Although many antibiotics work this way, the exact mechanism

			of action of linezolid appears to be unique in that it blocks the initiation of protein production, rather than one of the later steps.[8] As of 2014, bacterial resistance to linezolid has remained low.[9] Linezolid is a member of the oxazolidinone class of medications.[3]
129.	API, Pharmaceutical	Anti-Inflammatory Agents, Non-Steroidal	Loxoprofen sodium CAS Number: 80382-23-6 https://en.wikipedia.org/wiki/Loxoprofen Loxoprofen is a nonsteroidal anti-inflammatory drug (NSAID) in the propionic acid derivatives group, which also includes ibuprofen and naproxen among others. It is available in some countries for oral administration. A transdermal preparation was approved for sale in Japan on January 2006.[1] As most NSAIDs, loxoprofen is a non-selective cyclooxygenase inhibitor, and works by reducing the synthesis of prostaglandins from arachidonic acid.
130.	API, Pharmaceutical	Chloride Channel Agonists	Lubiprostone CAS Number: 333963-40-9 https://en.wikipedia.org/wiki/Lubiprostone Lubiprostone (rINN, marketed under the trade name Amitiza among others) is a medication used in the management of chronic idiopathic constipation, predominantly irritable bowel syndrome-associated constipation in women and opioid-induced constipation. Lubiprostone is a bicyclic fatty acid derived from prostaglandin E1 that acts by specifically activating ClC-2 chloride channels on the apical aspect of gastrointestinal epithelial cells, producing a chloride-rich fluid secretion. These secretions soften the stool, increase motility, and promote spontaneous bowel movements (SBM).
131.	API, Pharmaceutical	CCR5 Receptor Antagonists HIV Fusion Inhibitors	Maraviroc CAS Number: 376348-65-1 https://en.wikipedia.org/wiki/Maraviroc Maraviroc, sold under the brand names Selzentry (US) and Celsentri (EU), is an antiretroviral drug in the CCR5 receptor antagonist class used in the treatment of HIV infection. It is also classed as an entry inhibitor. It also appeared to reduce graft-versus-host disease in patients treated with allogeneic bone marrow

			transplantation for leukemia, in a Phase I/II study.[5][6] Maraviroc is an entry inhibitor. Specifically, maraviroc is a negative allosteric modulator of the CCR5 receptor, which is found on the surface of certain human cells. The chemokine receptor CCR5 is an essential co-receptor for most HIV strains and necessary for the entry process of the virus into the host cell. The drug binds to CCR5, thereby blocking the HIV protein gp120 from associating with the receptor. HIV is then unable to enter human macrophages and T cells.[11] Because HIV can also use other coreceptors, such as CXCR4, an HIV tropism test such as a trofile assay must be performed to determine if the drug will be effective.[12]
132.	API, Pharmaceutical	Dermatologic Agents Anticarcinogenic Agents Antineoplastic Agents	Maxacalcitol CAS Number: 103909-75-7 https://pubchem.ncbi.nlm.nih.gov/compound/6398761 Vitamin D3 and derivatives Cholecalciferol, also known as vitamin D_3 and colecalciferol, is a type of vitamin D which is made by the skin when exposed to sunlight; it is also found in some foods and can be taken as a dietary supplement.[1] It is used to treat and prevent vitamin D deficiency and associated diseases, including rickets.[2][3] It is also used for familial hypophosphatemia, hypoparathyroidism that is causing low blood calcium, and Fanconi syndrome.[3][4] Vitamin-D supplements may not be effective in people with severe kidney disease.[5] By itself cholecalciferol is inactive. It is converted to its active form by two hydroxylations: the first in the liver, by CYP2R1 or CYP27A1, to form 25-hydroxycholecalciferol (calcifediol, 25-OH vitamin D_3). The second hydroxylation occurs mainly in the kidney through the action of CYP27B1 to convert 25-OH vitamin D_3 into 1,25-dihydroxycholecalciferol (calcitriol, 1,25-$(OH)_2$vitamin D_3). All these metabolites are bound in blood to the vitamin D-binding protein. The action of calcitriol is mediated by the vitamin D receptor, a nuclear receptor which regulates the synthesis of hundreds of proteins and is present in virtually every cell in the body.[8]
133.	API, Pharmaceutical	Serotonin Receptor Agonists	Meclofenamate Sodium CAS Number: 6385-02-0

		Cyclooxygenase Inhibitors	https://en.wikipedia.org/wiki/Meclofenamic_acid Meclofenamic acid (meclofenamate sodium, brand Meclomen) is a drug used for joint, muscular pain, arthritis and dysmenorrhea.[1] It is a member of the anthranilic acid derivatives (or fenamate) class of NSAID drugs and was approved by the FDA in 1980.[2] Like other members of the class, it is a COX inhibitor and prevents formation of prostaglandins.[3] Scientists led by Claude Winder from Parke-Davis invented meclofenamate sodium in 1964, along with fellow members of the class, mefenamic acid in 1961 and flufenamic acid in 1963.[4]:718 Meclofenamic acid is sold under the trade name "Arquel" for use in horses, and is administered as an oral granule form at a dose of 2.2 mg/kg/day.[12]
134.	API, Pharmaceutical	Cyclooxygenase Inhibitors Anti-Inflammatory Agents, Non-Steroidal	Mefenamic acid CAS Number: 61-68-7 https://en.wikipedia.org/wiki/Mefenamic_acid Mefenamic acid is a member of the anthranilic acid derivatives (or fenamate) class of nonsteroidal anti-inflammatory drugs (NSAIDs), and is used to treat mild to moderate pain.[1][2] Like other members of the anthranilic acid derivatives (or fenamate) class of NSAIDs, it inhibits both isoforms of the enzyme cyclooxygenase (COX-1 and COX-2). This prevents formation of prostaglandins,[3][16] which play a role in pain sensitivity, inflammation and fever, but also in hemostasis, kidney function, sustaining of pregnancy, and protection of the gastric mucosa.[17]
135.	API, Pharmaceutical	Antidepressive Agents, Tricyclic	Melitracen HCl CAS Number: 10563-70-9 https://en.wikipedia.org/wiki/Melitracen Melitracen (brand names Melixeran) is a tricyclic antidepressant (TCA), for the treatment of depression and anxiety.[1][2][3][4] In addition to single drug preparations, it is also available as Deanxit, marketed by Lundbeck, a combination product containing both melitracen and flupentixol.[5][6][7][8]

			The pharmacology of melitracen has not been properly investigated and is largely unknown, but it is likely to act in a similar manner to other TCAs. Indeed, melitracen is reported to have imipramine and amitriptyline-like effects and efficacy against depression and anxiety, though with improved tolerability and a somewhat faster onset of action.[9][10]
136.	API, Pharmaceutical	Anti-Inflammatory Agents, Non-Steroidal Cyclooxygenase 2 Inhibitors	Meloxicam CAS Number: 71125-38-7 https://en.wikipedia.org/wiki/Meloxicam Meloxicam, sold under the brand name Mobic among others, is a nonsteroidal anti-inflammatory drug (NSAID) used to treat pain and inflammation in rheumatic diseases and osteoarthritis.[3][4] It is used by mouth or by injection into a vein.[4][5] Meloxicam blocks cyclooxygenase (COX), the enzyme responsible for converting arachidonic acid into prostaglandin H_2—the first step in the synthesis of prostaglandins, which are mediators of inflammation. Meloxicam has been shown, especially at its low therapeutic doses, selectively to inhibit COX-2 over COX-1.[2] Meloxicam concentrations in synovial fluid range from 40% to 50% of those in plasma. The free fraction in synovial fluid is 2.5 times higher than in plasma, due to the lower albumin content in synovial fluid as compared to plasma. The significance of this penetration is unknown,[18] but it may account for the fact that it performs exceptionally well in treatment of arthritis in animal models.[19]
137.	API, Pharmaceutical	Intermediates for CBD and Dronabinol	Menthadienol 4-Methyl-beta-methylenecyclohex-3-ene-1-ethanol CAS Number: 3269-90-7 https://pubchem.ncbi.nlm.nih.gov/compound/527143 Food additive, flavor, contact, Fragrance, consumer use
138.	API, Pharmaceutical	Beta-Lactam Antibiotics	Meropenem CAS Number: 119478-56-7 https://en.wikipedia.org/wiki/Meropenem Meropenem, sold under the brandname Merrem among others, is a broad-spectrum antibiotic used to treat a variety of bacterial infections.[1] Some of these include meningitis, intra-abdominal infection, pneumonia, sepsis, and anthrax.[1] It is given by injection into a vein.[1]

			Meropenem is bactericidal except against Listeria monocytogenes, where it is bacteriostatic. It inhibits bacterial cell wall synthesis like other β-lactam antibiotics. In contrast to other beta-lactams, it is highly resistant to degradation by β-lactamases or cephalosporinases. In general, resistance arises due to mutations in penicillin-binding proteins, production of metallo-β-lactamases, or resistance to diffusion across the bacterial outer membrane.[10] Unlike imipenem, it is stable to dehydropeptidase-1, so can be given without cilastatin. In 2016, a synthetic peptide-conjugated PMO (PPMO) was found to inhibit the expression of New Delhi metallo-beta-lactamase, an enzyme that many drug-resistant bacteria use to destroy carbapenems.[15][16]
139.	API, Pharmaceutical	Neuromuscular Agents Muscle Relaxant	Metaxalone CAS Number: 1665-48-1 https://en.wikipedia.org/wiki/Metaxalone Metaxalone, sold under the brand name Skelaxin, is a muscle relaxant medication used to relax muscles and relieve pain caused by strains, sprains, and other musculoskeletal conditions.[1] Its exact mechanism of action is not known, but it may be due to general central nervous system depression.[1] It is considered[by whom?] to be a moderately strong muscle relaxant, with relatively low incidence of side effects. Metaxalone is a substrate of CYP1A2 and CYP2C19, an inhibitor of CYP1A2, CYP2B6, CYP2C9, CYP2C19, CYP2D6, CYP2E1, and CYP3A, and an inducer of CYP1A2 and CYP3A4.[2]
140.	API, Pharmaceutical	Neuromuscular Agents Skeletal Muscle Relaxants	Metaxalone CAS Number: 1665-48-1 https://en.wikipedia.org/wiki/Metaxalone Metaxalone, sold under the brand name Skelaxin, is a muscle relaxant medication used to relax muscles and relieve pain caused by strains, sprains, and other musculoskeletal conditions.[1] Its exact mechanism of action is not known, but it may be due to general central nervous system depression.[1] It is considered[by whom?] to be a moderately strong muscle relaxant, with relatively low incidence of side effects.

			Common side effects include nausea, vomiting, drowsiness, and central nervous system (CNS) side effects, such as dizziness, headache, and irritability.[1] The metabolism of metaxalone involves enzymes CYP1A2 and CYP2C19 in the cytochrome P450 system.[medical citation needed] Because many medications are metabolized by enzymes in this system, precaution must be taken when administering it with other medications involving the P450 system to avoid interactions.[2]
141.	API, Pharmaceutical	Muscle Relaxants, Central	Methocarbamol CAS Number: 532-03-6 https://en.wikipedia.org/wiki/Methocarbamol Methocarbamol, sold under the brand name Robaxin among others, is a medication used for short-term musculoskeletal pain.[4][5] It may be used together with rest, physical therapy, and pain medication.[4][6][7] It is less preferred in low back pain.[4] The mechanism of action of methocarbamol has not currently been established.[4] Its effect is thought to be localized to the central nervous system rather than a direct effect on skeletal muscles.[4] It has no effect on the motor end plate or the peripheral nerve fiber.[7] The efficacy of the medication is likely related to its sedative effect.[4] Alternatively, methocarbamol may act via inhibition of acetylcholinesterase, similarly to carbamate.[20]
142.	API, Pharmaceutical	Intermediates for CBD and Dronabinol	Methyl 2,4-dihydroxy-6-pentylbenzoate Methyl Olivetolate CAS Number: 58016-28-7 https://pubchem.ncbi.nlm.nih.gov/compound/13939393
143.	API, Pharmaceutical	Central Nervous System Stimulants Dopamine Uptake Inhibitors	Methylphenidate hydrochloride CAS Number: 298-59-9 https://en.wikipedia.org/wiki/Methylphenidate Methylphenidate, abbreviated MP or MPH, sold under the trade name Ritalin among others, is a stimulant medication used to treat attention deficit hyperactivity disorder (ADHD) and narcolepsy. It is a first line medication for ADHD. Methylphenidate primarily acts as a norepinephrine–dopamine reuptake inhibitor (NDRI). It is a benzylpiperidine and phenethylamine derivati

			ve which also shares part of its basic structure with catecholamines. Methylphenidate is a psychostimulant and increases the activity of the central nervous system through inhibition on reuptake of the neurotransmitters norepinephrine and dopamine.
144.	API, Pharmaceutical	Adrenergic beta-1 Receptor Antagonists Anti-Arrhythmia Agents Sympatholytics Antihypertensive Agents	Metoprolol CAS Number: 98418-47-4 https://en.wikipedia.org/wiki/Metoprolol Metoprolol, sold under the brand name Lopressor among others, is a selective β_1 receptor blocker medication.[3] It is used to treat high blood pressure, chest pain due to poor blood flow to the heart, and a number of conditions involving an abnormally fast heart rate.[3] It is also used to prevent further heart problems after myocardial infarction and to prevent headaches in those with migraines.[3] Metoprolol blocks β1 adrenergic receptors in heart muscle cells, thereby decreasing the slope of phase 4 in the nodal action potential (reducing Na^+ uptake) and prolonging repolarization of phase 3 (slowing down K^+ release).[26] It also suppresses the norepinephrine-induced increase in the sarcoplasmic reticulum (SR) Ca^{2+} leak and the spontaneous SR Ca^{2+} release, which are the major triggers for atrial fibrillation.[26]
145.	API, Pharmaceutical	Antifungal Agents	Micafungin CAS Number: 235114-32-6 https://en.wikipedia.org/wiki/Micafungin Micafungin, sold under the brand name Mycamine, is a polyene antifungal medication used to treat and prevent invasive fungal infections including candidemia, abscesses and esophageal candidiasis. It inhibits the production of beta-1,3-glucan, an essential component of fungal cell walls. Micafungin is indicated for the treatment of candidemia, acute disseminated candidiasis, Candida peritonitis, abscesses and esophageal candidiasis. Since January 23, 2008, micafungin has been approved for the prophylaxis of Candida infections in patients undergoing hematopoietic stem cell transplantation (HSCT). Micafungin works by way of concentration-dependent inhibition of 1,3-beta-D-glucan

			synthase resulting in reduced formation of 1,3-beta-D-glucan, which is an essential polysaccharide comprising one-third of the majority of Candida spp. cell walls. This decreased glucan production leads to osmotic instability and thus cellular lysis. [1] [2]
146.	API, Pharmaceutical	Antifungal Agents Cytochrome P-450 CYP3A Inhibitors 14-alpha Demethylase Inhibitors Cytochrome P-450 CYP2C9 Inhibitors	Miconazole Base, Miconazole Nitrate CAS Number: 22916-47-8, 22832-87-7 https://en.wikipedia.org/wiki/Miconazole Miconazole, sold under the brand name Monistat among others, is an antifungal medication used to treat ring worm, pityriasis versicolor, and yeast infections of the skin or vagina.[2] It is used for ring worm of the body, groin (jock itch), and feet (athlete's foot).[2] It is applied to the skin or vagina as a cream or ointment.[2] Miconazole inhibits the fungal enzyme 14α-sterol demethylase, resulting in a reduced production of ergosterol.[7] In addition to its antifungal actions, miconazole, similarly to ketoconazole, is known to act as an antagonist of the glucocorticoid receptor.[8]
147.	API, Pharmaceutical	Antineoplastic Agents Protein Kinase Inhibitors	Midostaurin CAS Number: 120685-11-2 https://en.wikipedia.org/wiki/Midostaurin Midostaurin, sold under the brand name Rydapt, is a multi-targeted protein kinase inhibitor that has been investigated for the treatment of acute myeloid leukemia (AML), myelodysplastic syndrome (MDS) and advanced systemic mastocytosis. It is a semi-synthetic derivative of staurosporine, an alkaloid from the bacterium Streptomyces staurosporeus. Midostaurin was found to be active against oncogenic CD135 (FMS-like tyrosine kinase 3 receptor, FLT3), in preclinical studies.[2] The drug is approved for use with a companion diagnostic, the LeukoStrat CDx FLT3 Mutation Assay, which is used to detect the FLT3 mutation in patients with AML.
148.	API, Pharmaceutical	Contraceptives, Oral, Synthetic Hormone Antagonists Abortifacient Agents, Steroidal Contraceptives, Postcoital, Synthetic Luteolytic Agents	Mifepristone CAS Number: 84371-65-3 https://en.wikipedia.org/wiki/Mifepristone Mifepristone, also known as RU-486, is a medication typically used in combination with misoprostol to bring about an abortion during pregnancy.[1] This combination is 97% effective during the first 63

		Menstruation-Inducing Agents	days of pregnancy.[2] It is also effective in the second trimester of pregnancy.[3][4] Effectiveness should be verified two weeks after use.
149.	API, Pharmaceutical	Abortifacient Agents, Nonsteroidal Anti-Ulcer Agents Oxytocics	Misoprostol CAS Number: 59122-46-2 https://en.wikipedia.org/wiki/Misoprostol Misoprostol, sold under the brandname Cytotec among others, is a medication used to prevent and treat stomach ulcers, start labor, cause an abortion, and treat postpartum bleeding due to poor contraction of the uterus.[1][2] Misoprostol, a prostaglandin analogue, binds to myometrial cells to cause strong myometrial contractions leading to expulsion of tissue. This agent also causes cervical ripening with softening and dilation of the cervix. Misoprostol binds to and stimulates prostaglandin EP2 receptors, prostaglandin EP3 receptor and prostaglandin EP4 receptor but not Prostaglandin EP1 receptor and therefore is expected to have a more restricted range of physiological and potentially toxic actions than prostaglandin E2 or other analogs which activate all four prostaglandin receptors.[45]
150.	API, Pharmaceutical	Antibiotics, Antineoplastic Antitubercular Enzyme Inhibitors	Mycophenolate mofetil CAS Number: 115007-34-6 https://en.wikipedia.org/wiki/Mycophenolic_acid https://en.wikipedia.org/wiki/Morpholino Mycophenolic acid (MPA) is an immunosuppressant medication used to prevent rejection following organ transplantation and to treat Crohn's disease.[9] Specifically it is used following kidney, heart, and liver transplantation.[9] It can be given by mouth or by injection into a vein.[9] It comes as mycophenolate sodium and mycophenolate mofetil.[9] A Morpholino, also known as a Morpholino oligomer and as a phosphorodiamidate Morpholino oligomer (PMO), is a type of oligomer molecule (colloquially, an oligo) used in molecular biology to modify gene expression. Its molecular structure contains DNA bases attached to a backbone of methylenemorpholine rings linked through phosphorodiamidate groups. Morpholinos block access of other molecules to small (~25 base) specific sequences of the

			base-pairing surfaces of ribonucleic acid (RNA). Morpholinos are used as research tools for reverse genetics by knocking down gene function.
151.	API, Pharmaceutical	Antibiotics, Antineoplastic Antibiotics, Antitubercular Enzyme Inhibitors	Mycophenolic acid Mycophenolate mofetil Mycophenolate Mofetil HCl Mycophenolate sodium CAS Number: 115007-34-6, 116680-01-4, 37415-62-6 https://en.wikipedia.org/wiki/Mycophenolic_acid Mycophenolic acid (MPA) is an immunosuppressant medication used to prevent rejection following organ transplantation and to treat Crohn's disease.[9] Specifically it is used following kidney, heart, and liver transplantation.[9] It can be given by mouth or by injection into a vein.[9] It comes as mycophenolate sodium and mycophenolate mofetil.[9] Purines (including the nucleotides guanosine and adenosine) can either be synthesized de novo using ribose 5-phosphate or they can be salvaged from free nucleotides. Mycophenolic acid is potent, reversible, non-competitive inhibitor of inosine-5′-monophosphate dehydrogenase (IMPDH), an enzyme essential to the de novo synthesis of guanosine-5'-monophosphate (GMP) from inosine-5'-monophosphate (IMP).[32] IMPDH inhibition particularly affects lymphocytes since they rely almost exclusively on de novo purine synthesis.[33] In contrast, many other cell types use both pathways, and some cells, such as terminally differentiated neurons, depend completely on purine nucleotide salvage.[34] Thus, use of mycophenolic acid leads to a relatively selective inhibition of DNA replication in T cells and B cells.
152.	API, Pharmaceutical	Bone Density Conservation Agents Delivery of Polynucleotides CGPR Antagonists Glycosidasc inhibitors Degenerative Cartilage Conditions Bleaching inorganic persalt or of hydrogen peroxide	N-Acetylglucosamine CAS Number: 14131-68-1 https://pubchem.ncbi.nlm.nih.gov/compound/24139 https://en.wikipedia.org/wiki/N-Acetylglucosamine ***N*-Acetylglucosamine** (GlcNAc) is an amide derivative of the monosaccharide glucose. It is a secondary amide between glucosamine and acetic acid. It is significant in several biological systems.

			It is part of a biopolymer in the bacterial cell wall, which is built from alternating units of GlcNAc and *N*-acetylmuramic acid (MurNAc), cross-linked with oligopeptides at the lactic acid residue of MurNAc. This layered structure is called peptidoglycan (formerly called murein). GlcNAc is the monomeric unit of the polymer chitin, which forms the exoskeletons of arthropods like insects and crustaceans. It is the main component of the radulas of mollusks, the beaks of cephalopods, and a major component of the cell walls of most fungi. Polymerized with glucuronic acid, it forms hyaluronan. GlcNAc has been reported to be an inhibitor of elastase release from human polymorphonuclear leukocytes (range 8–17% inhibition), however this is much weaker than the inhibition seen with *N*-acetylgalactosamine (range 92–100%).[1] Ref : https://pubchem.ncbi.nlm.nih.gov/compound/24139 Delivery of Polynucleotides, CGPR Antagonists Glycosidasc inhibitors, Degenerative Cartilage Conditions, Bleaching inorganic persalt or of hydrogen peroxide, etc.
153.	API, Pharmaceutical	Antihypertensive Agents Adrenergic alpha-Antagonists Calcium Channel Blockers Platelet Aggregation Inhibitors α- Blocker	Naftopidil CAS Number: 57147-07-2 https://en.wikipedia.org/wiki/Naftopidil Naftopidil (INN, marketed under the brand name Flivas) is a drug used in benign prostatic hypertrophy which acts as a selective α_1-adrenergic receptor antagonist or alpha blocker.[1]
154.	API, Pharmaceutical	Vasodilator Agents Vasodilator (peripheral, cerebral)	Nicametate Citrate CAS Number: 1641-74-3 Nicametate citrate is an aromatic carboxylic acid and a member of pyridines. Drugs used to cause dilation of the blood vessels.
155.	API, Pharmaceutical	Antineoplastic Agents	Niraparib tosylate CAS Number: 1038915-73-9 https://en.wikipedia.org/wiki/Niraparib **Niraparib**, sold under the brand name **Zejula**, is an anti-cancer medication used for the treatment of epithelial ovarian, fallopian tube,

			or primary peritoneal cancer.[2][3][4] It is taken by mouth.[2][3] Niraparib is an inhibitor of the enzymes PARP1 and PARP2.[9] PARP1 is a protein that is important for repairing single-strand breaks ('nicks' in the DNA). If such nicks persist unrepaired until DNA is replicated (which must precede cell division), then the replication itself can cause double strand breaks to form.[11] Drugs that inhibit PARP1 cause multiple double strand breaks to form in this way, and in tumours with BRCA1, BRCA2 or PALB2[10] mutations, these double strand breaks cannot be efficiently repaired, leading to the death of the cells. Normal cells that don't replicate their DNA as often as cancer cells, and that lack any mutated BRCA1 or BRCA2 still have homologous repair operating, which allows them to survive the inhibition of PARP.[12]
156.	API, Pharmaceutical	Sensory System Agents Antipruritics	Nonivamide CAS Number: 2444-46-4 https://en.wikipedia.org/wiki/Nonivamide Nonivamide, also called pelargonic acid vanillylamide or PAVA, is an organic compound and a capsaicinoid. It is an amide of pelargonic acid (n-nonanoic acid) and vanillyl amine. It is present in chili peppers,[2] but is commonly manufactured synthetically. It is more heat-stable than capsaicin. Nonivamide is used as a food additive to add pungency to seasonings, flavorings, and spice blends. It is also used in the confectionery industry to create a hot sensation, and in the pharmaceutical industry in some formulations as a cheaper alternative to capsaicin.
157.	API, Pharmaceutical	Antineoplastic Agents, Hormonal Gastrointestinal Agents	Octreotide acetate CAS Number: 79517-01-4 https://en.wikipedia.org/wiki/Octreotide Octreotide, sold under the brand name Sandostatin among others, is an octapeptide that mimics natural somatostatin pharmacologically, though it is a more potent inhibitor of growth hormone, glucagon, and insulin than the natural hormone. It was first synthesized in 1979, by the chemist Wilfried Bauer.

			Since octreotide resembles somatostatin in physiological activities, it can: • inhibit secretion of many hormones, such as gastrin, cholecystokinin, glucagon, growth hormone, insulin, secretin, pancreatic polypeptide, TSH, and vasoactive intestinal peptide, • reduce secretion of fluids by the intestine and pancreas, • reduce gastrointestinal motility and inhibit contraction of the gallbladder, • inhibit the action of certain hormones from the anterior pituitary, • cause vasoconstriction in the blood vessels, and • reduce portal vessel pressures in bleeding varices. It has also been shown to produce analgesic effects, most probably acting as a partial agonist at the mu opioid receptor.[16][17]
158.	API, Pharmaceutical	Antiemetics Antipsychotic Agents Serotonin Uptake Inhibitors	Olanzapine CAS Number: 132539-06-1 https://en.wikipedia.org/wiki/Olanzapine Olanzapine, sold under the trade name Zyprexa among others, is an atypical antipsychotic primarily used to treat schizophrenia and bipolar disorder.[7] For schizophrenia, it can be used for both new-onset disease and long-term maintenance.[7] Olanzapine has a higher affinity for 5-HT_{2A} serotonin receptors than D_2 dopamine receptors, which is a common property of most atypical antipsychotics, aside from the benzamide antipsychotics such as amisulpride along with the nonbenzamides aripiprazole, brexpiprazole, blonanserin, cariprazine, melperone, and perospirone. Olanzapine had the highest affinity of any second-generation antipsychotic towards the P-glycoprotein in one in vitro study.[93]
159.	API, Pharmaceutical	Poly(ADP-ribose) Polymerase Inhibitors Antineoplastic Agents	Olaparib CAS Number: 763113-22-0 https://en.wikipedia.org/wiki/Olaparib

			Olaparib, sold under the brand name Lynparza, is a medication for the maintenance treatment of BRCA-mutated advanced ovarian cancer in adults. It is a PARP inhibitor, inhibiting poly ADP ribose polymerase (PARP), an enzyme involved in DNA repair. It acts against cancers in people with hereditary BRCA1 or BRCA2 mutations, which include some ovarian, breast, and prostate cancers.[6] Olaparib acts as an inhibitor of the enzyme poly ADP ribose polymerase (PARP), and is termed a PARP inhibitor. BRCA1/2 mutations may be genetically predisposed to development of some forms of cancer, and may be resistant to other forms of cancer treatment. However, these cancers sometimes have a unique vulnerability, as the cancer cells have increased reliance on PARP to repair their DNA and enable them to continue dividing. This means that drugs which selectively inhibit PARP may be of benefit if the cancers are susceptible to this treatment.[17][18]
160.	API, Pharmaceutical	Nutraceuticals Dietary supplement Dietary Fats, Unsaturated	Omega-3-Carboxylic Acids CAS Number: 10417-94-4 & 6217-54-5 https://en.wikipedia.org/wiki/Omega-3_carboxylic_acids Omega-3 carboxylic acids[1] (Epanova) is an FDA approved prescription medication used alongside a low fat and low cholesterol diet that lowers high triglyceride (fat) levels in adults with very high levels.[2] This was the third class of fish oil-based drug, after omega-3 acid ethyl esters (Lovaza and Omtryg) and ethyl eicosapentaenoic acid (Vascepa), to be approved for use as a drug.[3] The first approval by US Food and Drug Administration was granted in 2014. These fish oil drugs are similar to fish oil dietary supplements but the ingredients are better controlled and have been tested in clinical trials. Omega-3 carboxylic acids, like other omega-3 fatty acid based drugs, appears to reduce production of triglycerides in the liver, and to enhance clearance of triglycerides from circulating very low-density lipoprotein (VLDL) particles; the way it does that is not clear, but potential mechanisms include increased breakdown of fatty acids; inhibition of diglyceride acyltransferase which is involved in biosynthesis of triglycerides in the liver; and

			increased activity of lipoprotein lipase in blood.[7]
161.	API, Pharmaceutical	Anti-Ulcer Agents Proton Pump Inhibitors	Omeprazole CAS Number: 73590-58-6 https://en.wikipedia.org/wiki/Omeprazole Omeprazole, sold under the brand names Prilosec and Losec among others, is a medication used in the treatment of gastroesophageal reflux disease (GERD), peptic ulcer disease, and Zollinger–Ellison syndrome.[1] It is also used to prevent upper gastrointestinal bleeding in people who are at high risk.[1] Omeprazole is a proton-pump inhibitor (PPI) and its effectiveness is similar to other PPIs.[8] Omeprazole is a selective and irreversible proton pump inhibitor. It suppresses stomach acid secretion by specific inhibition of the H^+/K^+-ATPase system found at the secretory surface of gastric parietal cells. Because this enzyme system is regarded as the acid (proton, or H^+) pump within the gastric mucosa, omeprazole inhibits the final step of acid production.[46] Omeprazole also inhibits both basal and stimulated acid secretion irrespective of the stimulus[47] as it blocks the last step in acid secretion.[47] The drug binds non-competitively so it has a dose dependent effect.[48]
162.	API, Pharmaceutical	Antipsychotic Agents Anti-Anxiety Agents Antiemetics Antipruritics Serotonin Antagonists	Ondansetron hydrochloride CAS Number: 99614-01-4 https://en.wikipedia.org/wiki/Ondansetron Ondansetron, sold under the brand name Zofran among others, is a medication used to prevent nausea and vomiting caused by cancer chemotherapy, radiation therapy, or surgery.[2] It is also effective for treating gastroenteritis.[3][4] It is ineffective for treating vomiting caused by motion sickness.[5] Serotonin is released by the enterochromaffin cells of the small intestine in response to chemotherapeutic agents and may stimulate vagal afferents (via $5\text{-}HT_3$ receptors) to initiate the vomiting reflex. It is thought that ondansetron's antiemetic action is mediated mostly via antagonism of vagal afferents with a minor contribution from antagonism of central receptors.[21]

163.	API, Pharmaceutical	Adrenergic beta-2 Receptor Agonists Tocolytic Agents Bronchodilator Agents Sympathomimetics Bronchodilator	Orciprenaline Sulfate CAS Number: 5874-97-5 https://en.wikipedia.org/wiki/Orciprenaline Orciprenaline, also known as metaproterenol, is a bronchodilator used in the treatment of asthma.[1][2] Orciprenaline is a moderately selective β_2 adrenergic receptor agonist that stimulates receptors of the smooth muscle in the lungs, uterus, and vasculature supplying skeletal muscle, with minimal or no effect on α adrenergic receptors. The pharmacologic effects of β adrenergic agonist drugs, such as orciprenaline, are at least in part attributable to stimulation through β adrenergic receptors of intracellular adenylyl cyclase, the enzyme which catalyzes the conversion of ATP to cAMP. Increased cAMP levels are associated with relaxation of bronchial smooth muscle and inhibition of release of mediators of immediate hypersensitivity from many cells, especially from mast cells.
164.	API, Pharmaceutical	Antineoplastic Agents Protein Kinase Inhibitors	Osimertinib mesylate CAS Number: 1421373-66-1 https://en.wikipedia.org/wiki/Osimertinib Osimertinib, sold under the brand name Tagrisso,[3] is a medication used to treat non-small-cell lung carcinomas with specific mutations.[4][5] It is a third-generation epidermal growth factor receptor tyrosine kinase inhibitor. Osimertinib binds irreversibly to epidermal growth factor receptor proteins expressed by EGFR with a T790M mutation;[14] it also binds irreversibly to EGFR with a L858R mutation and with an exon 19 deletion.[1]
165.	**API, Pharmaceutical**	**Antineoplastic agents**	Oteracil CAS Number: 2207-75-2 https://pubchem.ncbi.nlm.nih.gov/compound/Oxonic-Acid Oteracil's main role within Teysuno is to reduce the activity of 5-FU within normal gastrointestinal mucosa, and therefore reduce's gastrointestinal toxicity [L933]. It functions by blocking the enzyme orotate phosphoribosyltransferase (OPRT), which is involved in the production of 5-FU. Oteracil is a modulator of 5-fluorouracil (5-FU) activity and inhibitor of the

			enzyme orotate phosphoribosyl-transferase (OPRT), with chemoprotective activity. Oteracil preferentially localizes in the gastrointestinal (GI) tract where it inhibits OPRT, thereby decreasing metabolism of 5-FU into its active metabolite 5-fluorouridine-5'-monophosphate (FUMP). This decreases activated 5-FU-related gastrointestinal toxicity.
166.	API, Pharmaceutical	Anti-Anxiety Agents GABA Modulators Anxiolytic Tranquilizer	Oxazolam CAS Number: 24143-17-7 https://en.wikipedia.org/wiki/Oxazolam Oxazolam is a drug that is a benzodiazepine derivative. It has anxiolytic, anticonvulsant, sedative, and skeletal muscle relaxant properties. It is a prodrug for desmethyldiazepam.[1]
167.	API, Pharmaceutical	Anesthetics, Local	Oxethazaine/Oxetacaine CAS Number: 126-27-2 https://en.wikipedia.org/wiki/Oxetacaine Oxetacaine (INN, also known as oxethazaine) is a potent local anesthetic. It is administered orally (usually in combination with an antacid) for the relief of pain associated with peptic ulcer disease or esophagitis. It is also used topically in the management of hemorrhoid pain.
168.	API, Pharmaceutical	Selective Immunosuppressants	Ozanimod Hydrochloride CAS Number: 1618636-37-5 https://en.wikipedia.org/wiki/Ozanimod Ozanimod, sold under the brand name Zeposia, is an immunomodulatory drug for the treatment of relapsing multiple sclerosis (RMS), to include clinically isolated syndrome, relapsing-remitting disease, and active secondary progressive disease, in adults.[4][2][5][6] It acts as a sphingosine-1-phosphate (S1P) receptor agonist, sequestering lymphocytes to peripheral lymphoid organs and away from their sites of chronic inflammation.[6] Ozanimod is an agonist of the S1P1 and S1P5 receptors.[6] It demonstrates this effect in a dose-dependent manner, with 10-fold potency to three comparators.[6] This is an improvement of selectivity over its predecessor, fingolimod, which is non-specific to all 5 isotypes.[6] The agonism of S1P directly causes its internalization and degradation through the ubiquitin-proteosome pathway.[10] The loss of S1P leads to a decrease in the total

			lymphocyte count in circulation, specifically CD4+ CCR7+ and CD8+ CCR7+ T cells.[6][11]
169.	API, Pharmaceutical	Antineoplastic Agents, Phytogenic Tubulin Modulators	Paclitaxel CAS Number: 33069-62-4 https://en.wikipedia.org/wiki/Paclitaxel Paclitaxel (PTX), sold under the brand name Taxol among others, is a chemotherapy medication used to treat a number of types of cancer.[3] This includes ovarian cancer, breast cancer, lung cancer, Kaposi sarcoma, cervical cancer, and pancreatic cancer.[3] Paclitaxel was first isolated in 1971 from the Pacific yew and approved for medical use in 1993.[6][7] It is on the World Health Organization's List of Essential Medicines.[8] It has been made from precursors, and more recently through cell culture.[7] Paclitaxel is one of several cytoskeletal drugs that target tubulin. Paclitaxel-treated cells have defects in mitotic spindle assembly, chromosome segregation, and cell division. Unlike other tubulin-targeting drugs, such as colchicine, that inhibit microtubule assembly, paclitaxel stabilizes the microtubule polymer and protects it from disassembly. Chromosomes are thus unable to achieve a metaphase spindle configuration. This blocks the progression of mitosis and prolonged activation of the mitotic checkpoint triggers apoptosis or reversion to the G0-phase of the cell cycle without cell division.[19][20]
170.	API, Pharmaceutical	Antineoplastic Agents, Phytogenic Tubulin Modulators	Paclitaxel (Extraction, Semi-synthesis) CAS Number: 33069-62-4 https://en.wikipedia.org/wiki/Paclitaxel Paclitaxel (PTX), sold under the brand name Taxol among others, is a chemotherapy medication used to treat a number of types of cancer.[3] This includes ovarian cancer, breast cancer, lung cancer, Kaposi sarcoma, cervical cancer, and pancreatic cancer.[3] Paclitaxel was first isolated in 1971 from the Pacific yew and approved for medical use in 1993.[6][7] It is on the World Health Organization's List of Essential Medicines.[8] It has been made from precursors, and more recently through cell culture.[7]

			Paclitaxel is one of several cytoskeletal drugs that target tubulin. Paclitaxel-treated cells have defects in mitotic spindle assembly, chromosome segregation, and cell division. Unlike other tubulin-targeting drugs, such as colchicine, that inhibit microtubule assembly, paclitaxel stabilizes the microtubule polymer and protects it from disassembly. Chromosomes are thus unable to achieve a metaphase spindle configuration. This blocks the progression of mitosis and prolonged activation of the mitotic checkpoint triggers apoptosis or reversion to the G0-phase of the cell cycle without cell division.[19][20]
171.	API, Pharmaceutical	Antineoplastic Agents Protein Kinase Inhibitors	Palbociclib CAS Number: 571190-30-2 https://en.wikipedia.org/wiki/Palbociclib Palbociclib, sold under the brand name Ibrance among others, is a medication developed by Pfizer for the treatment of HR-positive and HER2-negative breast cancer. It is a selective inhibitor of the cyclin-dependent kinases CDK4 and CDK6.[1][2] Palbociclib was the first CDK4/6 inhibitor to be approved as a cancer therapy.[3] t is a selective inhibitor of the cyclin-dependent kinases CDK4 and CDK6.[1][2] In the G1 phase of the cell cycle, mammalian cells must pass a checkpoint, known as the restriction point "R", in order to complete the cell cycle and divide. CDK4 and CDK6 complex with cyclin D drive the phosphorylation of the retinoblastoma protein, Rb, which allows the cell to pass R and commit to division.[4] Regulation of one or more proteins involved in this checkpoint is lost in many cancers. However, by inhibiting CDK4/6, palbociclib ensures that the cyclin D-CDK4/6 complex cannot aid in phosphorylating Rb. This prevents the cell from passing R and exiting G1, and in turn from proceeding through the cell cycle.[4]
172.	API, Pharmaceutical	Protein Kinase Inhibitors Antineoplastic Agents	Palbociclib CAS Number: 571190-30-2 https://en.wikipedia.org/wiki/Palbociclib Palbociclib, sold under the brand name Ibrance among others, is a medication developed by Pfizer for the treatment of HR-positive and HER2-

			negative breast cancer. It is a selective inhibitor of the cyclin-dependent kinases CDK4 and CDK6.[1][2] Palbociclib was the first CDK4/6 inhibitor to be approved as a cancer therapy.[3] In the G1 phase of the cell cycle, mammalian cells must pass a checkpoint, known as the restriction point "R", in order to complete the cell cycle and divide. CDK4 and CDK6 complex with cyclin D drive the phosphorylation of the retinoblastoma protein, Rb, which allows the cell to pass R and commit to division.[4] Regulation of one or more proteins involved in this checkpoint is lost in many cancers. However, by inhibiting CDK4/6, palbociclib ensures that the cyclin D-CDK4/6 complex cannot aid in phosphorylating Rb. This prevents the cell from passing R and exiting G1, and in turn from proceeding through the cell cycle.[4]
173.	API, Pharmaceutical	Dopamine D2 Receptor Antagonists Serotonin 5-HT2 Receptor Antagonists Antipsychotic Agents	Paliperidone Palmitate CAS Number: 199739-10-1 https://en.wikipedia.org/wiki/Paliperidone Paliperidone, sold under the brand name Invega among others, is an atypical antipsychotic. It is marketed by Janssen Pharmaceutica. Invega is an extended release formulation of paliperidone that uses the OROS extended release system to allow for once-daily dosing. Paliperidone is mainly used to treat schizophrenia and schizoaffective disorder. Paliperidone palmitate is a long-acting injectable formulation of paliperidone palmitoyl ester indicated for once-every 28 days injection after an initial titration period. While its specific mechanism of action is unknown, it is believed paliperidone and risperidone act via similar, if not identical, pathways.[22] Its efficacy is believed to result from central dopaminergic and serotonergic antagonism.
174.	API, Pharmaceutical	Dermatologic Agents Anticarcinogenic Agents Antineoplastic Agents	Paricalcitol CAS Number: 131918-61-1 https://en.wikipedia.org/wiki/Paricalcitol Vitamin D3 and derivatives Cholecalciferol, also known as vitamin D_3 and colecalciferol, is a type of vitamin D which is made by the skin when exposed to

			sunlight; it is also found in some foods and can be taken as a dietary supplement.[1] It is used to treat and prevent vitamin D deficiency and associated diseases, including rickets.[2][3]
175.	API, Pharmaceutical	Antineoplastics	Pazopanib Hydrochloride CAS Number: 635702-64-6 https://en.wikipedia.org/wiki/Pazopanib Pazopanib, sold under the brand name Votrient, is an anti-cancer medication. It is a potent and selective multi-targeted receptor tyrosine kinase inhibitor that blocks tumour growth and inhibits angiogenesis. It has been approved for renal cell carcinoma and soft tissue sarcoma by numerous regulatory administrations worldwide.[3][4][5][6] Pazopanib is a multiple kinase inhibitor that limits tumor growth by targeting angiogenesis via inhibition of enzymes including vascular endothelial growth factor receptor (VEGFR), platelet-derived growth factor receptor (PDGFR), c-KIT and FGFR.[2][12][15][16][17][18]
176.	API, Pharmaceutical	Antineoplastic Agents Enzyme Inhibitors Folic Acid Antagonists Nucleic Acid Synthesis Inhibitors	Pemetrexed disodium CAS Number: 150399-23-8 https://en.wikipedia.org/wiki/Pemetrexed Pemetrexed, sold under the brand name Alimta among others, is a chemotherapy medication for the treatment of pleural mesothelioma and non-small cell lung cancer (NSCLC). Pemetrexed is chemically similar to folic acid and is in the class of chemotherapy drugs called folate antimetabolites. It works by inhibiting three enzymes used in purine and pyrimidine synthesis—thymidylate synthase (TS), dihydrofolate reductase (DHFR), and glycinamide ribonucleotide formyltransferase[12][13] (GARFT). By inhibiting the formation of precursor purine and pyrimidine nucleotides, pemetrexed prevents the formation of DNA and RNA, which are required for the growth and survival of both normal cells and cancer cells.
177.	API, Pharmaceutical	Hypnotics and Sedatives GABA Modulators Adjuvants, Anesthesia	Pentobarbital Sodium CAS Number: 57-33-0 https://en.wikipedia.org/wiki/Pentobarbital Pentobarbital (previously known as pentobarbitone in Britain and Australia) is a short-acting barbiturate typically used as

			a sedative, a preanesthetic, and to control convulsions in emergencies.[1]
178.	API, Pharmaceutical	Cancer HER2	Pertuzumab Biosimilar https://en.wikipedia.org/wiki/Pertuzumab Antibody-Drug Conjugate Pertuzumab (also called 2C4, trade name Perjeta)[1] is a monoclonal antibody used in combination with trastuzumab and docetaxel for the treatment of metastatic HER2-positive breast cancer; it also used in the same combination as a neoadjuvant in early HER2-positive breast cancer.[2] The epitope for pertuzumab is the domain of HER2 where it binds to HER3, and pertuzumab prevents the HER2/HER3 dimer from forming, which blocks signalling by the dimer.[4][7] Trastuzumab is another monoclonal antibody against HER2; its epitope is the domain where HER2 binds to another HER2 protein.[4] The two mAbs together prevent HER2 from functioning.[4]
179.	API, Pharmaceutical	Nasal Decongestants Adrenergic alpha-1 Receptor Agonists Sympathomimetics Cardiotonic Agents Mydriatics Vasoconstrictor Agents	Phenylephrine HCl CAS Number: 61-76-7 https://en.wikipedia.org/wiki/Phenylephrine Phenylephrine is a medication primarily used as a decongestant, to dilate the pupil, to increase blood pressure, and to relieve hemorrhoids.[2][3] Phenylephrine is a sympathomimetic drug, which means that it mimics the actions of epinephrine (commonly known as adrenaline) or norepinephrine. Phenylephrine selectively binds to alpha-1 receptors which cause blood vessels to constrict.[21] Whereas pseudoephedrine causes both vasoconstriction and increase of mucociliary clearance through its nonspecific adrenergic activity, phenylephrine's selective α-adrenergic agonism causes vasoconstriction alone, creating a difference in their methods of action.
180.	API, Pharmaceutical	Antiparkinson Agents Antipsychotic Agents Serotonin 5-HT2 Receptor Antagonists	Pimavanserin tartrate CAS Number: 706782-28-7 https://en.wikipedia.org/wiki/Pimavanserin Pimavanserin (ACP-103; BVF-036), sold under the brand name Nuplazid, is an atypical antipsychotic which is approved for the treatment of Parkinson's disease psychosis and is also being

			researched for the treatment of Alzheimer's disease psychosis, schizophrenia, agitation, and major depressive disorder.[3] Unlike other antipsychotics, pimavanserin is not a dopamine receptor antagonist.[4] Pimavanserin acts as an inverse agonist and antagonist at serotonin 5-HT_{2A} [5] receptors with high binding affinity (K_i 0.087 nM) and at serotonin 5-HT_{2C} receptors with lower binding affinity (K_i 0.44 nM).
181.	API, Pharmaceutical	Phosphodiesterase Inhibitors Cardiotonic Agents Vasodilator Agents	Pimobendan CAS Number: 74150-27-9 https://en.wikipedia.org/wiki/Pimobendan Pimobendan (INN, or pimobendane; tradenames Vetmedin, Acardi) is a veterinary medication. It is a calcium sensitizer and a selective inhibitor of phosphodiesterase 3 (PDE3) with positive inotropic and vasodilator effects. Pimobendan is used in the management of heart failure in dogs, most commonly caused by myxomatous mitral valve disease (also previously known as endocardiosis), or dilated cardiomyopathy.[1] Under the trade name Acardi, it is available for human use in Japan.[3] Pimobendan is a positive inotrope (increases myocardial contractility). It sensitizes and increases the binding efficiency of cardiac troponin in the myofibril to the calcium ions that are already present in systole. In normal hearts it increases the consumption of oxygen and energy to the same degree as dobutamine but in diseased hearts it may not.[4][5] Pimobendan also causes peripheral vasodilation by inhibiting the function of PDE3. This results in decreased resistance to blood flow through systemic arterioles, which decreases afterload (decreases the failing heart's workload) and reduces the amount of mitral regurgitation.[6][7]
182.	API, Pharmaceutical	Antispasmodic	Pipethanate Ethobromide CAS Number: 23182-46-9 https://pubchem.ncbi.nlm.nih.gov/compound/168088
183.	API, Pharmaceutical	Gastrointestinal Agents Guanylyl Cyclase C Agonists	Plecanatide CAS Number: 467426-54-6 https://en.wikipedia.org/wiki/Plecanatide Plecanatide (brand name Trulance), is a drug approved by the FDA for the treatment

			of chronic idiopathic constipation (CIC)[1] and irritable bowel syndrome with constipation. Plecanatide is an agonist of guanylate cyclase-C. Plecanatide increases intestinal transit and fluid through a buildup of cGMP.[2][3] Plecanatide works as a laxative by drawing water in to the gastrointestinal tract thereby softening stool and encouraging its natural passage. Similar to its endogenous counterpart, plecanatide activates guanylate cyclase-C on endothelial cells within the gastrointestinal tract.[7] The activation of guanylate cyclase-C catalyses the production of the second messenger guanosine 3',5'-cyclic monophosphate (cGMP) which leads to the protein kinase A (PKA) and protein kinase G II (PKGII)-mediated phosphorylation of the cystic fibrosis transmembrane conductance regulator (CFTR) protein.[11][12] CFTR is an anion channel and upon activation it will secrete negatively charged ions, particularly chloride (Cl^-) and bicarbonate (HCO_3^-) in to the GI tract lumen.[13][14] This disruption to the electrochemical gradient is in part rectified by the passive secretion of positively charged sodium ions in to the lumen and water follows by osmosis.[13]
184.	API, Pharmaceutical	Tissue engineering Aesthetic Medicine Lipodystrophy / Lipoatrophy Innocuous Degradable Implant Nonsurgical Facial and Dermal Rejuvenation Decomposable Packaging and Container 3D Print Lost PLA Casting	Poly-L-lactic acid PLA (Poly(Lactic acid) PLLA) https://en.wikipedia.org/wiki/Polylactic_acid Lactic acid https://en.wikipedia.org/wiki/Lactic_acid CAS Number: 26100-51-6 **Polylactic acid**, also known as **poly(lactic acid)** or **polylactide** (abbreviation **PLA**) is a thermoplastic polyester with backbone formula ($C_3H_4O_2)_n$ or $[–C(CH_3)HC(=O)O–]_n$, formally obtained by condensation of lactic acid $C(CH_3)(OH)HCOOH$ with loss of water (hence its name). It can also be prepared by ring-opening polymerization of lactide $[–C(CH_3)HC(=O)O–]_2$, the cyclic dimer of the basic repeating unit. PLA has become a popular material due to it being economically produced from renewable resources. In 2010, PLA had the second highest consumption volume of any bioplastic of the world,[3] although it is still not a commodity polymer. Its widespread

			application has been hindered by numerous physical and processing shortcomings.[4] PLA is the most widely used plastic filament material in 3D printing. PLA is used as a feedstock material in desktop fused filament fabrication 3D printers (e.g. RepRap).[34][35] PLA-printed solids can be encased in plaster-like moulding materials, then burned out in a furnace, so that the resulting void can be filled with molten metal. This is known as "lost PLA casting", a type of investment casting.[36] PLA can degrade into innocuous lactic acid, so it is used as medical implants in the form of anchors, screws, plates, pins, rods, and as a mesh.[37] Depending on the exact type used, it breaks down inside the body within 6 months to 2 years. This gradual degradation is desirable for a support structure, because it gradually transfers the load to the body (e.g. the bone) as that area heals. The strength characteristics of PLA and PLLA implants are well documented.[38] PLA can also be used as a decomposable packaging material, either cast, injection-molded, or spun.[37] Cups and bags have been made from this material. In the form of a film, it shrinks upon heating, allowing it to be used in shrink tunnels. It is useful for producing loose-fill packaging, compost bags, food packaging, and disposable tableware. In the form of fibers and nonwoven fabrics, PLA also has many potential uses, for example as upholstery, disposable garments, awnings, feminine hygiene products, and diapers. Thanks to its bio-compatibility and biodegradability, PLA has also found ample interest as a polymeric scaffold for drug delivery purposes. Racemic and regular PLLA has a low glass transition temperature, which is undesirable. A stereocomplex of PDLA and PLLA has a higher glass transition temperatures, lending it more mechanical strength.[39] It has a wide range of applications, such as woven shirts (ironability), microwavable trays, hot-fill applications and even engineering plastics (in this case, the stereocomplex is blended with a rubber-like polymer such as ABS). Such blends also have good form stability and visual transparency, making them useful for low-end packaging applications. Pure poly-L-lactic acid (PLLA), on the other hand, is the main

			ingredient in Sculptra, a long-lasting facial volume enhancer, primarily used for treating lipoatrophy of cheeks. Progress in biotechnology has resulted in the development of commercial production of the D enantiomer form, something that was not possible until recently.[40]
185.	API, Pharmaceutical	Antioxidants Anticholesteremic Agents	Probucol CAS Number: 23288-49-5 https://en.wikipedia.org/wiki/Probucol Probucol, sold under the trade name Lorelco among others, is an anti-hyperlipidemic drug[1] initially developed for the treatment of coronary artery disease. Probucol lowers the level of cholesterol in the bloodstream by increasing the rate of LDL catabolism. Additionally, probucol may inhibit cholesterol synthesis and delay cholesterol absorption.[2] Probucol is a powerful antioxidant which inhibits the oxidation of cholesterol in LDLs; this slows the formation of foam cells, which form atherosclerotic plaques. Probucol has also been shown to inhibit ABCA1-dependent cholesterol transport,[3] which may contribute to its known effect of lowering HDL.[4]
186.	API, Pharmaceutical	Voltage-Gated Sodium Channel Blockers Anti-Arrhythmia Agents	Propafenone HCl CAS Number: 34183-22-7 https://en.wikipedia.org/wiki/Propafenone Propafenone, sold under the brand name Rythmol among others, is a class 1C anti-arrhythmic medication, which treats illnesses associated with rapid heart beats such as atrial and ventricular arrhythmias. Propafenone works by slowing the influx of sodium ions into the cardiac muscle cells, causing a decrease in excitability of the cells. Propafenone is more selective for cells with a high rate, but also blocks normal cells more than class Ia or Ib. Propafenone differs from the prototypical class Ic antiarrhythmic in that it has additional activity as a beta-adrenergic blocker which can cause bradycardia and bronchospasm.
187.	API, Pharmaceutical	Platelet Aggregation Inhibitors Antihypertensive Agents	Prostacyclin & Analogs Prostaglandin I2, PGI2 CAS Number: 35121-78-9 https://en.wikipedia.org/wiki/Prostacyclin

			Prostacyclin (also called prostaglandin I2 or PGI_2) is a prostaglandin member of the eicosanoid family of lipid molecules. It inhibits platelet activation and is also an effective vasodilator. When used as a drug, it is also known as epoprostenol.[1] The terms are sometimes used interchangeably.[2] prostacyclin (PGI_2) is released by healthy endothelial cells and performs its function through a paracrine signaling cascade that involves G protein-coupled receptors on nearby platelets and endothelial cells. The platelet Gs protein-coupled receptor (prostacyclin receptor) is activated when it binds to PGI_2. This activation, in turn, signals adenylyl cyclase to produce cAMP. cAMP goes on to inhibit any undue platelet activation (in order to promote circulation) and also counteracts any increase in cytosolic calcium levels that would result from thromboxane A2 (TXA_2) binding (leading to platelet activation and subsequent coagulation).
188.	API, Pharmaceutical	Anti-Ulcer Agents	Rabeprazole Sodium CAS Number: 117976-90-6 https://en.wikipedia.org/wiki/Rabeprazole Rabeprazole, sold under the brand name Aciphex, among others, is a medication that decreases stomach acid.[6] It is used to treat peptic ulcer disease, gastroesophageal reflux disease, and excess stomach acid production such as in Zollinger–Ellison syndrome.[6] It may also be used in combination with other medications to treat Helicobacter pylori.[7] Effectiveness is similar to other proton pump inhibitors (PPIs).[8] It is taken by mouth.[6] Rabeprazole's mechanism of action first involves getting absorbed into the parietal cells of the stomach, which are the cells that are responsible for secreting hydrochloric acid (HCl).[12] At this point, rabeprazole is inactive.[12] However, rabeprazole is then secreted into the secretory canaliculus of the parietal cells, which is the space from which acid secretion occurs.[12] Here, acid secretion is mediated by the energy-dependent acid pumps, called hydrogen potassium adenosine triphosphatase (H^+/K^+ ATPase) pumps.[12] These enzymatic pumps have cysteine amino acid residues.[12] After

			being activated by gastric (stomach) acid to a reactive sulfenamide intermediate,[22] rabeprazole permanently binds the cysteine residues, forming covalent, disulfide bonds.[12] This action fundamentally alters the configuration of the acid pump, thereby inhibiting its activity.
189.	API, Pharmaceutical	Cardiovascular Agents Sodium Channel Blockers	Ranolazine CAS Number: 95635-55-5 https://en.wikipedia.org/wiki/Ranolazine Ranolazine, sold under the brand name Ranexa among others, is a medication used to treat heart related chest pain.[1] Typically it is used together with other medications when those are insufficient.[1][2] Ranolazine inhibits persistent or late inward sodium current (I_{Na}) in heart muscle[9] in a variety of voltage-gated sodium channels.[10] Inhibiting that current leads to reductions in intracellular calcium levels. This in turn leads to reduced tension in the heart wall, leading to reduced oxygen requirements for the muscle.[7] Ranolazine prolongs the action potential duration, with corresponding QT interval prolongation on electrocardiography, blocks the I_{Na} current, and prevents calcium overload caused by the hyperactive I_{Na} current, thus it stabilizes the membrane and reducing excitability.[12]
190.	API, Pharmaceutical	Antibiotics, Antineoplastic Antifungal Agents Anti-Bacterial Agents Immunosuppressive Agents	Rapamycin (Sirolimus) CAS Number: 53123-88-9 https://en.wikipedia.org/wiki/Sirolimus Sirolimus, also known as rapamycin, is a macrolide compound that is used to coat coronary stents, prevent organ transplant rejection and treat a rare lung disease called lymphangioleiomyomatosis.[4][5][6] It has immunosuppressant functions in humans and is especially useful in preventing the rejection of kidney transplants. It inhibits activation of T cells and B cells by reducing their sensitivity to interleukin-2 (IL-2) through mTOR inhibition.[7] It is produced by the bacterium Streptomyces hygroscopicus and was isolated for the first time in 1972 by Surendra Nath Sehgal and colleagues from samples of Streptomyces hygroscopicus found on Easter Island.[8][9] The mode of action of sirolimus is to bind the cytosolic protein FK-binding protein 12 (FKBP12) in a manner similar to tacrolimus.

			Unlike the tacrolimus-FKBP12 complex, which inhibits calcineurin (PP2B), the sirolimus-FKBP12 complex inhibits the mTOR (mammalian Target Of Rapamycin, rapamycin being another name for sirolimus) pathway by directly binding to mTOR Complex 1 (mTORC1).[7]
191.	API, Pharmaceutical	Adenosine A2 Receptor Agonists	Regadenoson CAS Number: 313348-27-5 https://en.wikipedia.org/wiki/Regadenoson Regadenoson, sold under the brand name Lexiscan among others, is an A_{2A} adenosine receptor agonist that is a coronary vasodilator that is commonly used in pharmacologic stress testing. The adenosine receptors (or P1 receptors[1]) are a class of purinergic G protein-coupled receptors with adenosine as the endogenous ligand.[2] There are four known types of adenosine receptors in humans: A_1, A_{2A}, A_{2B} and A_3; each is encoded by a different gene. The adenosine receptors are commonly known for their antagonists caffeine and theophylline, whose action on the receptors produces the stimulating effects of coffee, tea and chocolate.
192.	API, Pharmaceutical	Antineoplastic agents	Ribociclib succinate CAS Number: 1374639-75-4 https://en.wikipedia.org/wiki/Ribociclib Ribociclib, sold under the brand name Kisqali, is an inhibitor of cyclin D1/CDK4 and CDK6, and is used for the treatment of certain kinds of breast cancer.[1] It is also being studied as a treatment for other drug-resistant cancers.[2] When used in combination with other drugs such as an ALK or an MEK inhibitor, ribociclib has been shown to have a synergistic effect, resulting in improved responses.[8][9] Again, this is likely a result of "crosstalk" between signaling pathways. Simply blocking one pathway in cancer tumorigenesis can sometimes result in "tumor compensation", where the tumor compensates for the blocked signaling pathway by utilizing other pathways to survive. By blocking several pathways at once, it is thought that the tumor is less able to compensate, and a greater anti-tumor response is often observed.
193.	API, Pharmaceutical	Anticonvulsants Excitatory Amino Acid Antagonists	Riluzole CAS Number: 1744-22-5 https://en.wikipedia.org/wiki/Riluzole

		Neuroprotective Agents	Riluzole is a medication used to treat amyotrophic lateral sclerosis. Riluzole delays the onset of ventilator-dependence or tracheostomy in some people and may increase survival by two to three months.[2] Riluzole preferentially blocks TTX-sensitive sodium channels, which are associated with damaged neurons.[6][7] Riluzole has also been reported to directly inhibit the kainate and NMDA receptors.[8] The drug has also been shown to postsynaptically potentiate $GABA_A$ receptors via an allosteric binding site.[9]
194.	API, Pharmaceutical	Factor Xa Inhibitors Anticoagulant	Rivaroxaban CAS Number: 366789-02-8 https://en.wikipedia.org/wiki/Rivaroxaban Rivaroxaban, sold under the brand name Xarelto among others, is an anticoagulant medication (blood thinner) used to treat and prevent blood clots.[6] Specifically it is used to treat deep vein thrombosis and pulmonary emboli and prevent blood clots in atrial fibrillation and following hip or knee surgery.[6] Rivaroxaban inhibits both free Factor Xa and Factor Xa bound in the prothrombinase complex.[30] It is a highly selective direct Factor Xa inhibitor with a rapid onset of action. Inhibition of Factor Xa interrupts the intrinsic and extrinsic pathway of the blood coagulation cascade, inhibiting both thrombin formation and development of thrombi. Rivaroxaban does not inhibit thrombin (activated Factor II), and no effects on platelets have been demonstrated.[4] It allows predictable anticoagulation and dose adjustments and routine coagulation monitoring;[4] dietary restrictions are not needed.[27]
195.	API, Pharmaceutical	Serotonin Receptor Agonists Antimigraine	Rizatriptan Benzoate CAS Number: 145202-66-0 https://en.wikipedia.org/wiki/Rizatriptan Rizatriptan, sold under the brand name Maxalt among others, is a medication used for the treatment of migraine headaches.[1] It should be used as soon as the headache starts.[2] It is taken by mouth.[1] Rizatriptan acts as an agonist at serotonin $5\text{-}HT_{1B}$ and $5\text{-}HT_{1D}$ receptors.[10] Like the other triptans sumatriptan and zolmitriptan,

			rizatriptan induces vasoconstriction—possibly by inhibiting the release of calcitonin gene-related peptide from sensory neurons in the trigeminal nerve.[10]
196.	API, Pharmaceutical	Respiratory Tract/Pulmonary Agents Phosphodiesterase Inhibitors, Airways Disease	Roflumilast CAS Number: 162401-32-3 https://en.wikipedia.org/wiki/Roflumilast Roflumilast, sold under the trade name Daxas among others, is a drug that acts as a selective, long-acting inhibitor of the enzyme phosphodiesterase-4 (PDE-4). It has anti-inflammatory effects and is used as an orally administered drug for the treatment of inflammatory conditions of the lungs such as chronic obstructive pulmonary disease (COPD).[6][7][8][9]
197.	API, Pharmaceutical	Angiotensin Receptor Antagonists	Sacubitril Sodium Salt CAS Number: 149690-05-1 https://en.wikipedia.org/wiki/Sacubitril Sacubitril (/səˈkjuːbɪtrɪl/; INN) is an antihypertensive drug used in combination with valsartan. The combination drug sacubitril/valsartan, known during trials as LCZ696 and marketed under the brand name Entresto, is a treatment for heart failure.[1] Sacubitril is a prodrug that is activated to sacubitrilat (LBQ657) by de-ethylation via esterases.[2] Sacubitrilat inhibits the enzyme neprilysin,[3] which is responsible for the degradation of atrial and brain natriuretic peptide, two blood pressure–lowering peptides that work mainly by reducing blood volume.[4] In addition, neprilysin degrades a variety of peptides including bradykinin,[5] an inflammatory mediator, exerting potent vasodilatory action.
198.	API, Pharmaceutical	Chelating Agents	Sevelamer Carbonate Sevelamer Hydrochloride CAS Number: 845273-93-0, 82683-00-7 https://en.wikipedia.org/wiki/Sevelamer Sevelamer (rINN) is a phosphate binding medication used to treat hyperphosphatemia in patients with chronic kidney disease. When taken with meals, it binds to dietary phosphate and prevents its absorption. Sevelamer consists of polyallylamine that is crosslinked with epichlorohydrin.[1] The

			marketed form sevelamer hydrochloride is a partial hydrochloride salt being present as approximately 40% amine hydrochloride and 60% sevelamer base. The amine groups of sevelamer become partially protonated in the intestine and interact with phosphate ions through ionic and hydrogen bonding.
199.	API, Pharmaceutical	Antineoplastic Agents	SN38 CAS Number: 86639-52-3 https://en.wikipedia.org/wiki/SN-38 SN-38 is an antineoplastic drug. It is the active metabolite of irinotecan (an analog of camptothecin - a topoisomerase I inhibitor) but has 1000 times more activity than irinotecan itself. In vitro cytotoxicity assays show that the potency of SN-38 relative to irinotecan varies from 2- to 2000-fold.[1]
200.	API, Pharmaceutical	Anesthetics, Intravenous Anticonvulsants Hypnotics and Sedatives GABA Modulators	Sodium thiopental CAS Number: 71-73-8 https://en.wikipedia.org/wiki/Sodium_thiopental Sodium thiopental, also known as Sodium Pentothal (a trademark of Abbott Laboratories), thiopental, thiopentone, or Trapanal (also a trademark), is a rapid-onset short-acting barbiturate general anesthetic. It is the thiobarbiturate analog of pentobarbital, and an analog of thiobarbital. Sodium thiopental is a member of the barbiturate class of drugs, which are relatively non-selective compounds that bind to an entire superfamily of ligand-gated ion channels, of which the $GABA_A$ receptor channel is one of several representatives. This superfamily of ion channels includes the neuronal nicotinic acetylcholine receptor (nAChR), the 5-HT3 receptor, the glycine receptor and others.
201.	API, Pharmaceutical	Anticonvulsants Antimanic Agents Enzyme Inhibitors GABA Agents	Sodium valproate CAS Number: 1069-66-5 https://en.wikipedia.org/wiki/Valproate Valproate (VPA) and its valproic acid, sodium valproate, and valproate semisodium forms are medications primarily used to treat epilepsy and bipolar disorder and prevent migraine headaches.[2] They are useful for the prevention of seizures in those with absence seizures, partial seizures, and generalized seizures.[2]
202.	API, Pharmaceutical	Muscarinic Antagonists	Solifenacin Succinate CAS Number: 242478-38-2 https://en.wikipedia.org/wiki/Solifenacin

		Urological Agents Overactive bladder	Solifenacin, sold as the brand name Vesicare among others, is a medicine used to treat overactive bladder and neurogenic detrusor overactivity (NDO).[1][2] It may help with incontinence, urinary frequency, and urinary urgency.[3] Benefits appear similar to other medications in the class.[4] Solifenacin is a competitive cholinergic receptor antagonist, selective for the M_3 receptor subtype. The binding of acetylcholine to these receptors, particularly M_3, plays a critical role in the contraction of smooth muscle. By preventing the binding of acetylcholine to these receptors, solifenacin reduces smooth muscle tone in the bladder, allowing the bladder to retain larger volumes of urine and reducing the number of micturition, urgency and incontinence episodes. Because of a long elimination half life, a once-a-day dose can offer 24-hour control of the urinary bladder smooth muscle tone.[9]
203.	API, Pharmaceutical	Agents Affecting Metabolism Antidotes	Sugammadex sodium CAS Number: 343306-79-6 https://en.wikipedia.org/wiki/Sugammadex Sugammadex, sold under the brand name Bridion, is a medication for the reversal of neuromuscular blockade induced by rocuronium and vecuronium[1][2] in general anaesthesia. It is the first selective relaxant binding agent (SRBA). Sugammadex is a modified γ-cyclodextrin, with a lipophilic core and a hydrophilic periphery. This gamma cyclodextrin has been modified from its natural state by placing eight carboxyl thio ether groups at the sixth carbon positions. These extensions extend the cavity size allowing greater encapsulation of the rocuronium molecule. These negatively charged extensions electrostatically bind to the quaternary nitrogen of the target as well as contribute to the aqueous nature of the cyclodextrin.
204.	API, Pharmaceutical	Calcineurin Inhibitors Immunosuppressive Agents	Tacrolimus CAS Number: 109581-93-3 https://en.wikipedia.org/wiki/Tacrolimus Tacrolimus, sold under the brand names Protopic and Prograf among others, is an immunosuppressive drug. It is used after allogeneic organ transplant to lower the risk of organ rejection, and also as a topical medication in the treatment of T-cell-mediated

			diseases such as eczema and psoriasis. It also used for severe refractory uveitis after bone marrow transplants, exacerbations of minimal change disease, Kimura's disease, and the skin condition vitiligo, and it is used to treat dry eye syndrome in cats and dogs.[2][3] Tacrolimus is a macrolide calcineurin inhibitor. In T-cells, activation of the T-cell receptor normally increases intracellular calcium, which acts via calmodulin to activate calcineurin. Calcineurin then dephosphorylates the transcription factor nuclear factor of activated T-cells (NF-AT), which moves to the nucleus of the T-cell and increases the activity of genes coding for IL-2 and related cytokines. Tacrolimus prevents the dephosphorylation of NF-AT.[22]
205.	API, Pharmaceutical	Nootropic Agents	Taltirelin CAS Number: 103300-74-9 https://en.wikipedia.org/wiki/Taltirelin Taltirelin (marketed under the tradename Ceredist) is a thyrotropin-releasing hormone (TRH) analog, which mimics the physiological actions of TRH, but with a much longer half-life and duration of effects,[1] and little development of tolerance following prolonged dosing.[2] It has nootropic,[3] neuroprotective[4] and analgesic effects.[5] Taltirelin is primarily being researched for the treatment of spinocerebellar ataxia; limited research has also been carried out with regard to other neurodegenerative disorders, e.g., spinal muscular atrophy.[6][7][8]
206.	API, Pharmaceutical	Adrenergic alpha-1 Receptor Antagonists Urological Agents	Tamsulosin hydrochloride CAS Number: 106463-17-6 https://en.wikipedia.org/wiki/Tamsulosin Tamsulosin, sold under the brand name Flomax among others, is a medication used to treat symptomatic benign prostatic hyperplasia (BPH) and chronic prostatitis and to help with the passage of kidney stones.[2][3][4] Tamsulosin is a selective α_1 receptor antagonist that has preferential selectivity for the α_{1A} receptor in the prostate versus the α_{1B} receptor in the blood vessels.[22] When alpha 1 receptors in the bladder neck, the prostate, the ureter, and the urethra are blocked, a relaxation in smooth muscle tissue

			results.[12] This mechanism decreases resistance to urinary flow, reduces discomfort associated with BPH, and facilitates passage of kidney stones.[12]
207.	API, Pharmaceutical	Alimentary Tract And Metabolism Glucagon-like peptide receptor	Teduglutide (Recombinant) CAS Number: 197922-42-2 https://en.wikipedia.org/wiki/Teduglutide Teduglutide (brand names Gattex in the US and Revestive in Europe) is a 33-membered polypeptide and glucagon-like peptide-2 (GLP-2) analog that is used for the treatment of short bowel syndrome. It works by promoting mucosal growth and possibly restoring gastric emptying and secretion.[1] Teduglutide differs from natural GLP-2 by a single amino acid: an alanine is replaced with a glycine. This blocks breaking down of the molecule by dipeptidyl peptidase and increases its half-life from seven minutes (GLP-2) to about two hours, while retaining its biological actions. These include maintenance of the intestinal mucosa, increasing intestinal blood flow, reducing gastrointestinal motility and secretion of gastric acid.[2]
208.	API, Pharmaceutical	Antimetabolites, Antineoplastic	Tegafur CAS Number: 17902-23-7 https://en.wikipedia.org/wiki/Tegafur Tegafur is a chemotherapeutic prodrug of 5-fluorouracil (5-FU) used in the treatment of cancers. It is a component of the combination drug tegafur/uracil. When metabolised, it becomes 5-FU.[1] It is a prodrug to 5-FU, which is a thymidylate synthase inhibitor.[3] The dihydropyrimidine dehydrogenase (DPD) enzyme is responsible for the detoxifying metabolism of fluoropyrimidines, a class of drugs that includes 5-fluorouracil, capecitabine, and tegafur.
209.	API, Pharmaceutical	Antineoplastic Agents, Alkylating	Temozolomide CAS Number: 85622-93-1 https://en.wikipedia.org/wiki/Temozolomide Temozolomide (TMZ), sold under the brand name Temodar among others, is a medication used to treat some brain tumors such as glioblastoma multiforme or anaplastic astrocytoma.[3][4] Temozolomide is an alkylating agent used as a treatment of some brain cancers; as a second-line treatment for astrocytoma and a first-line treatment for glioblastoma

			multiforme.[3][5][6] Olaparib in combination with temozolomide demonstrated substantial clinical activity in relapsed small cell lung cancer.[7] The therapeutic benefit of temozolomide depends on its ability to alkylate/methylate DNA, which most often occurs at the N-7 or O-6 positions of guanine residues. This methylation damages the DNA and triggers the death of tumor cells. However, some tumor cells are able to repair this type of DNA damage, and therefore diminish the therapeutic efficacy of temozolomide, by expressing a protein O^6-alkylguanine DNA alkyltransferase (AGT) encoded in humans by the O-6-methylguanine-DNA methyltransferase (MGMT) gene.[10] In some tumors, epigenetic silencing of the MGMT gene prevents the synthesis of this enzyme, and as a consequence such tumors are more sensitive to killing by temozolomide.[11] Conversely, the presence of AGT protein in brain tumors predicts poor response to temozolomide and these patients receive little benefit from chemotherapy with temozolomide.[12]
210.	API, Pharmaceutical	Antineoplastic and immunomodulating agents	Teriflunomide CAS Number: 163451-81-8 https://en.wikipedia.org/wiki/Teriflunomide Teriflunomide, sold under the brand name Aubagio, is the active metabolite of leflunomide.[2] Teriflunomide was investigated in the Phase III clinical trial TEMSO as a medication for multiple sclerosis (MS). The study was completed in July 2010.[3] 2-year results were positive.[4] Teriflunomide is an immunomodulatory drug inhibiting pyrimidine de novo synthesis by blocking the enzyme dihydroorotate dehydrogenase. It is uncertain whether this explains its effect on MS lesions.[9] Teriflunomide inhibits rapidly dividing cells, including activated T cells, which are thought to drive the disease process in MS. Teriflunomide may decrease the risk of infections compared to chemotherapy-like drugs because of its more-limited effects on the immune system.[10] It has been found that teriflunomide blocks the transcription factor NF-κB. It also inhibits tyrosine kinase enzymes, but only in high doses not clinically used.[11]

211.	API, Pharmaceutical	Purinergic P2Y Receptor Antagonists Platelet Aggregation Inhibitors	Ticagrelor CAS Number: 274693-27-5 https://en.wikipedia.org/wiki/Ticagrelor Ticagrelor, sold under the brand name Brilinta among others, is a medication used for the prevention of stroke, heart attack and other events in people with acute coronary syndrome, meaning problems with blood supply in the coronary arteries. It acts as a platelet aggregation inhibitor by antagonising the $P2Y_{12}$ receptor.[1] Like the thienopyridines prasugrel, clopidogrel and ticlopidine, ticagrelor blocks adenosine diphosphate (ADP) receptors of subtype $P2Y_{12}$. In contrast to the other antiplatelet drugs, ticagrelor has a binding site different from ADP, making it an allosteric antagonist, and the blockage is reversible.[33] Moreover, the drug does not need hepatic activation, which might work better for patients with genetic variants regarding the enzyme CYP2C19 (although it is not certain whether clopidogrel is significantly influenced by such variants).[34][35][36]
212.	API, Pharmaceutical	Anti-Arrhythmia Agents Adrenergic beta-Antagonists Antihypertensive Agents Antiglaucoma agent Antihypertensive	Timolol Maleate CAS Number: 26921-17-5 https://en.wikipedia.org/wiki/Timolol Timolol is a beta blocker medication used either by mouth or as eye drops.[2][3] As eye drops it is used to treat increased pressure inside the eye such as in ocular hypertension and glaucoma.[2] By mouth it is used for high blood pressure, chest pain due to insufficient blood flow to the heart, to prevent further complications after a heart attack, and to prevent migraines.[3]
213.	API, Pharmaceutical	Antitussive Cough suppressants	Tipepidine Hibenzate CAS Number: 31139-87-4 https://en.wikipedia.org/wiki/Tipepidine Tipepidine (INN) (brand names Asverin, Antupex, Asvelik, Asvex, Bitiodin, Cofdenin A, Hustel, Nodal, Sotal), also known as tipepidine hibenzate (JAN), is a synthetic, non-opioid antitussive and expectorant of the thiambutene class.[1][2] It acts as an inhibitor of G protein-coupled inwardly-rectifying potassium channels (GIRKs).[3] Tipepidine has recently garnered interest as a potential psychiatric drug. It is being

			investigated in depression,[3][6][7] obsessive-compulsive disorder,[8] and attention-deficit hyperactivity disorder (ADHD).[9][10][11] Through inhibition of GIRK channels, tipepidine increases dopamine levels in the nucleus accumbens, but without increasing locomotor activity or producing methamphetamine-like behavioral sensitization, and this action appears to be at least partly responsible for its antidepressant-like effects in rodents.[12][13]
214.	API, Pharmaceutical	Protein Kinase Inhibitors	Tofacitinib Citrate CAS Number: 540737-29-9 https://en.wikipedia.org/wiki/Tofacitinib Tofacitinib, sold under the brand Xeljanz among others, is a medication used to treat rheumatoid arthritis, psoriatic arthritis, and ulcerative colitis.[4][5][6][7] It is an inhibitor of the enzyme janus kinase 1 (JAK1) and janus kinase 3 (JAK 3), which means that it interferes with the JAK-STAT signaling pathway, which transmits extracellular information into the cell nucleus, influencing DNA transcription.[17] In a mouse model of established arthritis, tofacitinib rapidly improved disease by inhibiting the production of inflammatory mediators and suppressing STAT1-dependent genes in joint tissue. This efficacy in this disease model correlated with the inhibition of both JAK1 and JAK3 signaling pathways, suggesting that tofacitinib may exert therapeutic benefit via pathways that are not exclusive to inhibition of JAK3.[18]
215.	API, Pharmaceutical	Muscle Relaxants, Central	Tolperisone HCl CAS Number: 3644-61-9 https://en.wikipedia.org/wiki/Tolperisone Tolperisone (trade name Mydocalm among others) is a centrally acting skeletal muscle relaxant used for the treatment of increased muscle tone associated with neurological diseases. It has been used since the 1960s. Tolperisone is a centrally acting muscle relaxant that acts at the reticular formation in the brain stem[1] by blocking voltage-gated sodium and calcium channels.[9][10]
216.	API, Pharmaceutical	Antidiuretic Hormone Receptor Antagonists Hyponatremia	Tolvaptan CAS Number: 150683-30-0 https://en.wikipedia.org/wiki/Tolvaptan

			Tolvaptan, sold under the brand name Samsca among others, is an aquaretic drug that functions as a selective, competitive vasopressin receptor 2 (V_2) antagonist used to treat hyponatremia (low blood sodium levels) associated with congestive heart failure, cirrhosis, and the syndrome of inappropriate antidiuretic hormone (SIADH). Tolvaptan is a selective vasopressin V_2 receptor antagonist.[13][14] Tolvaptan is a racemate, a 1:1 mixture of the following two enantiomers:[17]
217.	API, Pharmaceutical	Hypoglycemic Agents Anticonvulsants	Topiramate CAS Number: 97240-79-4 https://en.wikipedia.org/wiki/Topiramate opiramate, sold under the brand name Topamax among others, is a Carbonic anhydrase inhibitor medication used to treat epilepsy and prevent migraines.[1] It has also been used in alcohol dependence.[1] Several cellular targets have been proposed to be relevant to the therapeutic activity of topiramate.[40] These include (1) voltage-gated sodium channels; (2) high-voltage-activated calcium channels; (3) GABA-A receptors; (4) AMPA/kainate receptors; and (5) carbonic anhydrase isoenzymes. There is evidence that topiramate may alter the activity of its targets by modifying their phosphorylation state instead of by a direct action.[41] Topiramate inhibits maximal electroshock and pentylenetetrazol-induced seizures as well as partial and secondarily generalized tonic-clonic seizures in the kindling model, findings predictive of a broad spectrum of activities clinically. Its action on mitochondrial permeability transition pores has been proposed as a mechanism.[42] While many anticonvulsants have been associated with apoptosis in young animals, animal experiments have found that topiramate is one of the very few anticonvulsants [see: levetiracetam, carbamazepine, lamotrigine] that do not induce apoptosis in young animals at doses needed to produce an anticonvulsant effect.[43]
218.	API, Pharmaceutical	Topoisomerase I Inhibitors	Topotecan hydrochloride CAS Number: 119413-54-6 https://en.wikipedia.org/wiki/Topotecan

			Topotecan (trade name Hycamtin) is a chemotherapeutic agent that is a topoisomerase inhibitor. It is a synthetic, water-soluble analog of the natural chemical compound camptothecin. It is used in the form of its hydrochloride salt to treat ovarian cancer, lung cancer and other cancer types. Topotecan is a semi-synthetic derivative of camptothecin. Camptothecin is a natural product extracted from the bark of the tree Camptotheca acuminata. Topotecan's active lactone form intercalates between DNA bases in the topoisomerase-I cleavage complex.[18] The binding of topotecan in the cleavage complex prevents topoisomerase-I from religating the nicked DNA strand after relieving the strain.[18] This intercalation therefore traps the topoisomerase-I in the cleavage complex bound to the DNA.[18] When the replication-fork collides with the trapped topoisomerase-I, DNA damage occurs.[18] The unbroken DNA strand breaks and mammalian cells cannot efficiently repair these double strand breaks.[19] The accumulation of trapped topoisomerase-I complexes is a known response to apoptotic stimuli.[20] This disruption prevents DNA replication and ultimately leads to cell death.
219.	API, Pharmaceutical	Cancer HER2	Trastuzumab Biosimilar https://en.wikipedia.org/wiki/Trastuzumab Trastuzumab, sold under the brand name Herceptin among others, is a monoclonal antibody used to treat breast cancer and stomach cancer.[3][4][5][6] It is specifically used for cancer that is HER2 receptor positive.[3] It may be used by itself or together with other chemotherapy medication.[3] The HER2 gene (also known as HER2/neu and ErbB2 gene) is amplified in 20–30% of early-stage breast cancers.[21] Trastuzumab is a monoclonal antibody targeting HER2, inducing an immune-mediated response that causes internalization and downregulation of HER2. It may also upregulate cell cycle inhibitors such as $p21^{Waf1}$ and $p27^{Kip1}$.[33] The HER2 pathway promotes cell growth and division when it is functioning normally; however, when it is overexpressed, cell growth accelerates beyond its normal limits.

220.	API, Pharmaceutical	Antihypertensive Agents	Travoprost CAS Number157283-68-6 https://en.wikipedia.org/wiki/Travoprost Travoprost, sold under the brand name Travatan among others, is a medication used to treat high pressure inside the eye including glaucoma.[2] Specifically it is used for open angle glaucoma when other agents are not sufficient.[3][2] It is used as an eye drop.[2] It is a synthetic prostaglandin analog (or more specifically, an analog of prostaglandin $F_{2\alpha}$)[9][10] that works by increasing the outflow of aqueous fluid from the eyes.[11] Like other analogs of prostaglandin $F_{2\alpha}$ such as tafluprost and latanoprost, travoprost is an ester prodrug of the free acid, which acts as an agonist at the prostaglandin F receptor, increasing outflow of aqueous fluid from the eye and thus lowering intraocular pressure.[7]
221.	API, Pharmaceutical	Antihypertensive Agents Antiglaucoma Preparations And Miotics Prostaglandin Analogues	Travoprost CAS Number: 157283-68-6 https://en.wikipedia.org/wiki/Travoprost Travoprost, sold under the brand name Travatan among others, is a medication used to treat high pressure inside the eye including glaucoma.[2] Specifically it is used for open angle glaucoma when other agents are not sufficient.[3][2] It is used as an eye drop.[2] It is a synthetic prostaglandin analog (or more specifically, an analog of prostaglandin $F_{2\alpha}$)[9][10] that works by increasing the outflow of aqueous fluid from the eyes.[11] Like other analogs of prostaglandin $F_{2\alpha}$ such as tafluprost and latanoprost, travoprost is an ester prodrug of the free acid, which acts as an agonist at the prostaglandin F receptor, increasing outflow of aqueous fluid from the eye and thus lowering intraocular pressure.[7]
222.	API, Pharmaceutical	Antihypertensive Agents	Treprostinil Sodium Treprostinil Diethanolamine CAS Number: 289480-64-4, 830354-48-8 https://en.wikipedia.org/wiki/Treprostinil Treprostinil, sold under the brand names Remodulin for infusion, Orenitram for oral, and Tyvaso for inhalation, is

			a vasodilator that is used for the treatment of pulmonary arterial hypertension.[1] Treprostinil is a synthetic analog of prostacyclin (PGI_2).
223.	API, Pharmaceutical	Antiviral Agents	Valacyclovir Hydrochloride CAS Number: 124832-27-5 https://en.wikipedia.org/wiki/Valaciclovir Valaciclovir, also spelled valacyclovir, is an antiviral medication used to treat outbreaks of herpes simplex or herpes zoster (shingles).[1] It is also used to prevent cytomegalovirus following a kidney transplant in high risk cases.[1] Aciclo-GTP, the active triphosphate metabolite of aciclovir, is a very potent inhibitor of viral DNA replication. Aciclo-GTP competitively inhibits and inactivates the viral DNA polymerase.[11] Its monophosphate form also incorporates into the viral DNA, resulting in chain termination. It has also been shown that the viral enzymes cannot remove aciclo-GMP from the chain, which results in inhibition of further activity of DNA polymerase. Aciclo-GTP is fairly rapidly metabolized within the cell, possibly by cellular phosphatases.[17]
224.	API, Pharmaceutical	Antimanic Agents Enzyme Inhibitors Anticonvulsants GABA Agents	Valproic Acid CAS Number: 99-66-1 https://en.wikipedia.org/wiki/Valproate Valproate (VPA) and its valproic acid, sodium valproate, and valproate semisodium forms are medications primarily used to treat epilepsy and bipolar disorder and prevent migraine headaches.[2] They are useful for the prevention of seizures in those with absence seizures, partial seizures, and generalized seizures.[2] Although the mechanism of action of valproate is not fully understood,[50] traditionally, its anticonvulsant effect has been attributed to the blockade of voltage-gated sodium channels and increased brain levels of gamma-aminobutyric acid (GABA).[50] The GABAergic effect is also believed to contribute towards the anti-manic properties of valproate.[50] In animals, sodium valproate raises cerebral and cerebellar levels of the inhibitory synaptic neurotransmitter, GABA, possibly by inhibiting GABA degradative enzymes, such as GABA transaminase, succinate-semialdehyde

			dehydrogenase and by inhibiting the re-uptake of GABA by neuronal cells.[50]
225.	API, Pharmaceutical	Angiotensin Ii Receptor Blockers (Arbs), Plain	Valsartan/sacubitril (LCZ696) CAS Number: 936623-90-4 https://en.wikipedia.org/wiki/Sacubitril/valsartan Sacubitril/valsartan, sold under the brand name Entresto among others, is a fixed-dose combination medication for use in heart failure. It consists of the neprilysin inhibitor sacubitril and the angiotensin receptor blocker valsartan. It is recommended for use as a replacement for an ACE inhibitor or an angiotensin receptor blocker in people with heart failure with reduced ejection fraction.[7] Valsartan blocks the angiotensin II receptor type 1 (AT_1). This receptor is found on both vascular smooth muscle cells, and on the zona glomerulosa cells of the adrenal gland which are responsible for aldosterone secretion. In the absence of AT_1 blockade, angiotensin causes both direct vasoconstriction and adrenal aldosterone secretion, the aldosterone then acting on the distal tubular cells of the kidney to promote sodium reabsorption which expands extracellular fluid (ECF) volume. Blockade of (AT_1) thus causes blood vessel dilation and reduction of ECF volume.[17][18] Sacubitril is a prodrug that is activated to sacubitrilat (LBQ657) by de-ethylation via esterases.[19] Sacubitrilat inhibits the enzyme neprilysin,[20] a neutral endopeptidase that degrades vasoactive peptides, including natriuretic peptides, bradykinin, and adrenomedullin. Thus, sacubitril increases the levels of these peptides, causing blood vessel dilation and reduction of ECF volume via sodium excretion.[21]
226.	API, Pharmaceutical	Dipeptidyl-Peptidase IV Inhibitors Hypoglycemic Agents Dipeptidyl peptidase 4 Inhibitor	Vildagliptin CAS Number: 274901-16-5 https://en.wikipedia.org/wiki/Vildagliptin Vildagliptin, sold under the brand name Galvus among others, is an oral anti-hyperglycemic agent (anti-diabetic drug) of the dipeptidyl peptidase-4 (DPP-4) inhibitor class of drugs. Vildagliptin inhibits the inactivation of GLP-1[2][3] and GIP[3] by DPP-4, allowing GLP-1 and GIP to potentiate the secretion of insulin in the beta cells and

			suppress glucagon release by the alpha cells of the islets of Langerhans in the pancreas. Vildagliptin has been shown to reduce hyperglycemia in type 2 diabetes mellitus.[2]
227.	API, Pharmaceutical	14-alpha Demethylase Inhibitors Cytochrome P-450 CYP3A Inhibitors Antifungal Agents	Voriconazole CAS Number: 137234-62-9 https://en.wikipedia.org/wiki/Voriconazole Voriconazole, sold under the brand name Vfend among others, is an antifungal medication used to treat a number of fungal infections.[2] This includes aspergillosis, candidiasis, coccidioidomycosis, histoplasmosis, penicilliosis, and infections by Scedosporium or Fusarium.[2] Voriconazole is used to treat invasive aspergillosis and candidiasis and fungal infections caused by Scedosporium and Fusarium species, which may occur in immunocompromised patients, including people undergoing allogeneic bone marrow transplant (BMT), who have hematologic cancers or who undergo organ transplants.[6][7][8][9] It is also used to prevent fungal infection in people as they undergo BMT.[8][6] It is also the recommended treatment for the CNS fungal infections transmitted by epidural injection of contaminated steroids.[10]
228.	API, Pharmaceutical	Bone Density Conservation Agents	Zoledronic acid CAS Number: 118072-93-8 https://en.wikipedia.org/wiki/Zoledronic_acid Zoledronic acid, also known as zoledronate, is a medication used to treat a number of bone diseases.[3] These include osteoporosis, high blood calcium due to cancer, bone breakdown due to cancer, and Paget's disease of bone.[3] Zoledronic acid is used to prevent skeletal fractures in patients with cancers such as multiple myeloma and prostate cancer, as well as for treating osteoporosis.[6] It can also be used to treat hypercalcemia of malignancy and can be helpful for treating pain from bone metastases.[7] It can be given at home rather than in hospital. Such use has shown safety and quality-of-life

			benefits in people with breast cancer and bone metastases.[8] Zoledronic acid may be given as a 5 mg infusion once per year for treatment of osteoporosis in men and post-menopausal women at increased risk of fracture.[9] In 2007, the U.S. Food and Drug Administration (FDA) also approved it for the treatment of postmenopausal osteoporosis.[10][11]
229.	API, Pharmaceutical	Bone Density Conservation Agents	Zoledronic Acid Monohydrate CAS Number: 165800-06-6 https://en.wikipedia.org/wiki/Zoledronic_acid Zoledronic acid, also known as zoledronate, is a medication used to treat a number of bone diseases.[3] These include osteoporosis, high blood calcium due to cancer, bone breakdown due to cancer, and Paget's disease of bone.[3] Zoledronic acid is used to prevent skeletal fractures in patients with cancers such as multiple myeloma and prostate cancer, as well as for treating osteoporosis.[6] It can also be used to treat hypercalcemia of malignancy and can be helpful for treating pain from bone metastases.[7] It can be given at home rather than in hospital. Such use has shown safety and quality-of-life benefits in people with breast cancer and bone metastases.[8] Zoledronic acid may be given as a 5 mg infusion once per year for treatment of osteoporosis in men and post-menopausal women at increased risk of fracture.[9] In 2007, the U.S. Food and Drug Administration (FDA) also approved it for the treatment of postmenopausal osteoporosis.[10][11]
230.	API, Pharmaceutical	Serotonin 5-HT1 Receptor Agonists Antimigraine	Zolmitriptan CAS Number: 139264-17-8 https://en.wikipedia.org/wiki/Zolmitriptan Zolmitriptan, sold under the brand name Zomig among others, is a triptan used in the acute treatment of migraine attacks with or without aura and cluster headaches. It is a selective serotonin receptor agonist of the 1B and 1D subtypes.

			Zolmitriptan is a selective 5-hydroxytryptamine 1B/1D receptor agonist with a weak affinity for the 5-HT 1A receptor subtypes. Its action on 5-HT 1B/1D receptors causes vasoconstriction in intracranial blood vessels; as well it can inhibit the release of pro-inflammatory neuropeptides from trigeminal perivascular nerve endings. It crosses the blood-brain-barrier as evidenced by the presence of radioactive [3H]-zolmitriptan labels within the cells of the trigeminal nucleus caudalis and nucleus tractus solitaries.[5]
231.	API, Pharmaceutical	GABA-A Receptor Agonists Sleep Aids, Pharmaceutica	Zolpidem Tartrate CAS Number: 99294-93-6 https://en.wikipedia.org/wiki/Zolpidem Zolpidem, sold under the brand name Ambien, among others, is a medication primarily used for the short-term treatment of sleeping problems.[7][8] Guidelines recommend that it be used only after cognitive behavioral therapy for insomnia and behavioral changes, such as sleep hygiene, have been tried.[9][10][11] It decreases the time to sleep onset by about fifteen minutes and at larger doses helps people stay asleep longer.[5] Zolpidem is a ligand of high-affinity positive modulator sites of $GABA_A$ receptors, which enhances GABAergic inhibition of neurotransmission in the central nervous system. It selectively binds to α_1 subunits of this pentameric ion channel. Accordingly, it has strong hypnotic properties and weak anxiolytic, myorelaxant, and anticonvulsant properties.[42] Opposed to diazepam, zolpidem is able to bind to binary αβ GABA receptors, where it was shown to bind to the α1–α1 subunit interface.[43]
232.	Food Dietary	Aromatic Beverage Personal care Cosmetics Culture Ceremonies	High-Mountain Tea https://en.wikipedia.org/wiki/High-mountain_tea https://en.wikipedia.org/wiki/Tea High-mountain tea (HM) or gaoshan tea (Chinese: 高山茶; pinyin: gāoshān chá; pronounced [káu.ʂán ʈʂʰǎ]) refers to several varieties of oolong tea grown in the mountains of central Taiwan. It is grown at altitudes higher than 1,000 metres (3,300 ft) above sea level, and includes varieties such as Alishan, Dayuling, Yu Shan, Wushe, and Lishan.[1] The high humidity and natural precipitation in the high mountain ranges of Nantou and Chiayi Counties make the region a suitable environment for growing tea plants.[1] High Mountain Oolong is

			a tea that holds all of its original nutrients that are within the unfermented green tea. It does not hold the usual grass-like taste, but the fermentation process that removes the harsh ingredients allows the tea to taste flavorful.[3] The difference in the chemical constituents among these lea samples of different grades was investigated and discriminated by using principal component analysis (PCA) and linear discriminant analysis (LDA). The results showed that the relatively higher pH value and higher contents of free amino acids and free-type catichins were the characteristics of HM as compared to Dongding-Oolong tea (DDO) and Tiehkuanyin tea (TKY). The pH (5.61) of HM was higher than that of DDO (5.40) and TKY (5.11). The average content of free amino acids in HM was 1.92% and also higher than in DDO (1.37%) and TKY (0.50%). The average content of total free-type catechins in HM was 7.38%, which was close to DDO (7.73%) but higher than TKY (6.22%). Applications of Tea (Camellia sinensis) and Its Active Constituents in Cosmetics Chemical Characteristics and Discrimination of Different Grades of Taiwan High-mountain Tea Studies on the Rapid Analysis and Classification of Taiwan Oolong Tea by Near Infrared Spectroscopy Studies on Adulteration Detection Methods for Taiwan Honey Relationship between Sensory Characteristics and Electronic Tongue / Electronic Nose Analyses of Taiwan Special Tea Study on the composition analysis and antioxidant activity of tea after high temperature and high pressure treatment and Antrodia camphorata mycelial fermentation
233.	Food Dietary	Nutraceuticals Dietary supplement	Adenine CAS Number: 73-24-5 https://en.wikipedia.org/wiki/Adenine Adenine /ˈædɪnɪn/ (A, Ade) is a nucleobase (a purine derivative). It is one of the four nucleobases in the nucleic acid of DNA that are represented by the letters

			G–C–A–T. The three others are guanine, cytosine and thymine. Its derivatives have a variety of roles in biochemistry including cellular respiration, in the form of both the energy-rich adenosine triphosphate (ATP) and the cofactors nicotinamide adenine dinucleotide (NAD) and flavin adenine dinucleotide (FAD). It also has functions in protein synthesis and as a chemical component of DNA and RNA.[2] The shape of adenine is complementary to either thymine in DNA or uracil in RNA. In older literature, adenine was sometimes called Vitamin B_4.[5] Due to it being synthesized by the body and not essential to be obtained by diet, it does not meet the definition of vitamin and is no longer part of the Vitamin B complex. However, two B vitamins, niacin and riboflavin, bind with adenine to form the essential cofactors nicotinamide adenine dinucleotide (NAD) and flavin adenine dinucleotide (FAD), respectively. Hermann Emil Fischer was one of the early scientists to study adenine.
234.	Food Dietary	Mushroom Mycelium	Agaricus blazei https://en.wikipedia.org/wiki/Agaricus_subrufescens Agaricus subrufescens (syn. Agaricus blazei, Agaricus brasiliensis or Agaricus rufotegulis) is a species of mushroom, commonly known as almond mushroom, mushroom of the sun, God's mushroom, mushroom of life, royal sun agaricus, jisongrong, or himematsutake (Chinese: 姬松茸, Japanese: 姫まつたけ, "princess matsutake") and by a number of other names. Agaricus subrufescens is edible, with a somewhat sweet taste and a fragrance of almonds. Antitumor, Anti-Inflammatory and Antiallergic Effects of Agaricus blazei Mushroom Extract and the Related Medicinal Basidiomycetes Mushrooms, Hericium erinaceus and Grifola frondosa: A Review of Preclinical and Clinical Studies https://pubmed.ncbi.nlm.nih.gov/32397163/Z
235.	Food Dietary	Mushroom Mycelium	Agaricus blazei Murrill Mycelia Agaricus blazei

			https://en.wikipedia.org/wiki/Agaricus_subrufescens Agaricus subrufescens (syn. Agaricus blazei, Agaricus brasiliensis or Agaricus rufotegulis) is a species of mushroom, commonly known as almond mushroom, mushroom of the sun, God's mushroom, mushroom of life, royal sun agaricus, jisongrong, or himematsutake (Chinese: 姬松茸, Japanese: 姫まつたけ, "princess matsutake") and by a number of other names. Agaricus subrufescens is edible, with a somewhat sweet taste and a fragrance of almonds. Antitumor, Anti-Inflammatory and Antiallergic Effects of Agaricus blazei Mushroom Extract and the Related Medicinal Basidiomycetes Mushrooms, Hericium erinaceus and Grifola frondosa: A Review of Preclinical and Clinical Studies https://pubmed.ncbi.nlm.nih.gov/32397163/Z
236.	Food Dietary	Dietary supplements Food additives	Anka (Monascus purpureus) https://en.wikipedia.org/wiki/Monascus_purpureus Monacolin K or lovastatin https://en.wikipedia.org/wiki/Lovastatin Monascus purpureus (syn. M. albidus, M. anka, M. araneosus, M. major, M. rubiginosus, and M. vini; simplified Chinese: 红曲霉; traditional Chinese: 紅麴黴; pinyin: hóng qū méi, lit. "red yeast") is a species of mold that is purplish-red in color. It is also known by the names ang-khak rice mold, corn silage mold, maize silage mold, and rice kernel discoloration. This fungus is most important because of its use, in the form of red yeast rice, in the production of certain fermented foods in China. However, discoveries of cholesterol-lowering statins produced by the mold has prompted research into its possible medical uses. It produces a number of statins. The naturally occurring lovastatins and analogs are called monacolins K, L, J, and also occur in their hydroxyl acid forms along with dehydroxymonacolin and compactin (mevastatin). The prescription drug lovastatin, identical to monacolin K, is the principal statin produced by M. purpureus. Only the open-ring

			(hydroxy acid) form is pharmacologically active.[3][4][5][6]
237.	Food Dietary	Dietary supplements Food additives Nutraceuticals	Antrodia cinnamomea https://en.wikipedia.org/wiki/Antrodia_cinnamomea Antrodia cinnamomea is a fungus species, also known as AC fungus, or AC mushroom .[1] It causes brown heart rot of aromatic tree Cinnamomum kanehirai. It is used in Taiwan medicine as a supposed remedy for cancer, hypertension, and hangover.[2] Annual market is worth over $100 million (US) in Taiwan alone. Recently, the 32.15 Mb genome containing 9,254 genes was sequenced.[3] Other than being a fancied remedy for cancer, hypertension, and hangover, AC fungus has been found to produce anti-obesogenic, anti-inflammatory and antidiabetic effects in high-fat diet-fed mice.[4] Antrodia cinnamomea-An updated minireview of its bioactive components and biological activity https://pubmed.ncbi.nlm.nih.gov/31368557/
238.	Food Dietary	Mushroom Mycelium	Antrodia cinnamomea https://en.wikipedia.org/wiki/Antrodia_cinnamomea Antrodia cinnamomea is a fungus species, also known as AC fungus, or AC mushroom .[1] It causes brown heart rot of aromatic tree Cinnamomum kanehirai. It is used in Taiwan medicine as a supposed remedy for cancer, hypertension, and hangover.[2] Annual market is worth over $100 million (US) in Taiwan alone. Recently, the 32.15 Mb genome containing 9,254 genes was sequenced.[3] Other than being a fancied remedy for cancer, hypertension, and hangover, AC fungus has been found to produce anti-obesogenic, anti-inflammatory and antidiabetic effects in high-fat diet-fed mice.[4] Antrodia cinnamomea-An updated minireview of its bioactive components and biological activity https://pubmed.ncbi.nlm.nih.gov/31368557/
239.	Food Dietary	Mushroom Mycelium	Antrodia cinnamomea Mycelia https://en.wikipedia.org/wiki/Antrodia_cinnamomea

			Antrodia cinnamomea is a fungus species, also known as AC fungus, or AC mushroom .[1] It causes brown heart rot of aromatic tree Cinnamomum kanehirai. It is used in Taiwan medicine as a supposed remedy for cancer, hypertension, and hangover.[2] Annual market is worth over $100 million (US) in Taiwan alone. Recently, the 32.15 Mb genome containing 9,254 genes was sequenced.[3] Other than being a fancied remedy for cancer, hypertension, and hangover, AC fungus has been found to produce anti-obesogenic, anti-inflammatory and antidiabetic effects in high-fat diet-fed mice.[4] Antrodia cinnamomea-An updated minireview of its bioactive components and biological activity https://pubmed.ncbi.nlm.nih.gov/31368557/
240.	Food Dietary	Dietary supplements Food additives	Aquamin https://pubmed.ncbi.nlm.nih.gov/31771942/ A Calcium-Rich Multimineral Intervention to Modulate Colonic Microbial Communities and Metabolomic Profiles in Humans: Results from a 90-Day Trial Aquamin is a calcium-, magnesium-, and multiple trace element-rich natural product with colon polyp prevention efficacy based on preclinical studies. The goal of this study was to determine the effects of Aquamin on colonic microbial community and attendant metabolomic profile. We conclude that Aquamin is safe and tolerable in healthy human participants and may produce beneficial alterations in the colonic microbial community and the attendant metabolomic profile. Because the number of participants was small, the findings should be considered preliminary.
241.	Food Dietary	Mushroom Mycelium	Armillaria mellea https://en.wikipedia.org/wiki/Armillaria_mellea Armillaria mellea, commonly known as honey fungus, is a basidiomycete fungus in the genus Armillaria. It is a plant pathogen and part of a cryptic species complex of closely related and morphologically similar species. The mushrooms have a taste that has been described as slightly sweet and nutty, with a texture ranging from chewy to crunchy, depending on the method of

			preparation. Parboiling mushrooms before consuming removes the bitter taste present in some specimens, and may reduce the amount of gastrointestinal irritants.[26] Proteomic Characterization of Armillaria mellea Reveals Oxidative Stress Response Mechanisms and Altered Secondary Metabolism Profiles https://pubmed.ncbi.nlm.nih.gov/28926970/
242.	Food Dietary	Mushroom Mycelium	Armillaria mellea Mycelia https://en.wikipedia.org/wiki/Armillaria_mellea Armillaria mellea, commonly known as honey fungus, is a basidiomycete fungus in the genus Armillaria. It is a plant pathogen and part of a cryptic species complex of closely related and morphologically similar species. The mushrooms have a taste that has been described as slightly sweet and nutty, with a texture ranging from chewy to crunchy, depending on the method of preparation. Parboiling mushrooms before consuming removes the bitter taste present in some specimens, and may reduce the amount of gastrointestinal irritants.[26] Proteomic Characterization of Armillaria mellea Reveals Oxidative Stress Response Mechanisms and Altered Secondary Metabolism Profiles https://pubmed.ncbi.nlm.nih.gov/28926970/
243.	Food Dietary	Dietary supplements Food additives	Astaxanthin https://en.wikipedia.org/wiki/Astaxanthin Astaxanthin /æstəˈzænθɪn/ is a keto-carotenoid.[3][4] It belongs to a larger class of chemical compounds known as terpenes (as a tetraterpenoid) built from five carbon precursors, isopentenyl diphosphate, and dimethylallyl diphosphate. Astaxanthin is a blood-red pigment and is produced naturally in the freshwater microalgae Haematococcus pluvialis and the yeast fungus Xanthophyllomyces dendrorhous (also known as Phaffia). When the algae is stressed by lack of nutrients, increased salinity, or excessive sunshine, it creates astaxanthin. [clarification needed] Astaxanthin can also be used as a dietary supplement intended for human, animal, and aquaculture consumption. The industrial production of astaxanthin comes from plant- or

			animal-based and synthetic sources. The U.S. Food and Drug Administration has approved astaxanthin as a food coloring (or color additive) for specific uses in animal and fish foods.[6]
244.	Food Dietary	Nutraceuticals Probiotic (GI Health) Dietary supplements Food additives	Bacillus coagulans https://en.wikipedia.org/wiki/Bacillus_coagulans Bacillus coagulans is a lactic acid-forming bacterial species. The organism was first isolated and described as Bacillus coagulans in 1915 by B.W. Hammer at the Iowa Agricultural Experiment Station as a cause of an outbreak of coagulation in evaporated milk packed by an Iowa condensary.[1] Bacillus coagulans has been added by the EFSA to their Qualified Presumption of Safety list[4] and has been approved for veterinary purposes as GRAS by the U.S. Food and Drug Administration's Center for Veterinary Medicine, as well as by the European Union, and is listed by AAFCO for use as a direct-fed microbial in livestock production. It is often used in veterinary applications, especially as a probiotic in pigs, cattle, poultry, and shrimp. Many references to use of this bacterium in humans exist, especially in improving the vaginal flora,[5][6][7] improving abdominal pain and bloating in irritable bowel syndrome patients,[8] and increasing immune response to viral challenges.[9]
245.	Food Dietary	Probiotic Dietary supplements Food additives	Bacillus coagulans https://en.wikipedia.org/wiki/Bacillus_coagulans Bacillus coagulans is a lactic acid-forming bacterial species. The organism was first isolated and described as Bacillus coagulans in 1915 by B.W. Hammer at the Iowa Agricultural Experiment Station as a cause of an outbreak of coagulation in evaporated milk packed by an Iowa condensary.[1] Bacillus coagulans has been added by the EFSA to their Qualified Presumption of Safety list[4] and has been approved for veterinary purposes as GRAS by the U.S. Food and Drug Administration's Center for Veterinary Medicine, as well as by

			the European Union, and is listed by AAFCO for use as a direct-fed microbial in livestock production. It is often used in veterinary applications, especially as a probiotic in pigs, cattle, poultry, and shrimp. Many references to use of this bacterium in humans exist, especially in improving the vaginal flora,[5][6][7] improving abdominal pain and bloating in irritable bowel syndrome patients,[8] and increasing immune response to viral challenges.[9]
246.	Food Dietary	Probiotic Dietary supplements Food additives	Bacillus coagulans https://en.wikipedia.org/wiki/Bacillus_coagulans Bacillus coagulans is a lactic acid-forming bacterial species. The organism was first isolated and described as Bacillus coagulans in 1915 by B.W. Hammer at the Iowa Agricultural Experiment Station as a cause of an outbreak of coagulation in evaporated milk packed by an Iowa condensary.[1] Bacillus coagulans has been added by the EFSA to their Qualified Presumption of Safety list[4] and has been approved for veterinary purposes as GRAS by the U.S. Food and Drug Administration's Center for Veterinary Medicine, as well as by the European Union, and is listed by AAFCO for use as a direct-fed microbial in livestock production. It is often used in veterinary applications, especially as a probiotic in pigs, cattle, poultry, and shrimp. Many references to use of this bacterium in humans exist, especially in improving the vaginal flora,[5][6][7] improving abdominal pain and bloating in irritable bowel syndrome patients,[8] and increasing immune response to viral challenges.[9]
247.	Food Dietary	Probiotics Dietary supplements Food additives	Bacillus coagulans https://en.wikipedia.org/wiki/Bacillus_coagulans Bacillus coagulans is a lactic acid-forming bacterial species. The organism was first isolated and described as Bacillus coagulans in 1915 by B.W. Hammer at the Iowa Agricultural Experiment Station as a cause of an outbreak of coagulation in evaporated milk packed by an Iowa condensary.[1]

			Bacillus coagulans has been added by the EFSA to their Qualified Presumption of Safety list[4] and has been approved for veterinary purposes as GRAS by the U.S. Food and Drug Administration's Center for Veterinary Medicine, as well as by the European Union, and is listed by AAFCO for use as a direct-fed microbial in livestock production. It is often used in veterinary applications, especially as a probiotic in pigs, cattle, poultry, and shrimp. Many references to use of this bacterium in humans exist, especially in improving the vaginal flora,[5][6][7] improving abdominal pain and bloating in irritable bowel syndrome patients,[8] and increasing immune response to viral challenges.[9]
248.	Food Dietary	Probiotic Dietary supplements Food additives	Bacillus subiltis https://en.wikipedia.org/wiki/Bacillus_subtilis Bacillus subiltis natto https://www.sciencedirect.com/science/article/pii/S0022030210006363 Bacillus subtilis, known also as the hay bacillus or grass bacillus, is a Gram-positive, catalase-positive bacterium, found in soil and the gastrointestinal tract of ruminants and humans. A member of the genus Bacillus, B. subtilis is rod-shaped, and can form a tough, protective endospore, allowing it to tolerate extreme environmental conditions. B. subtilis has historically been classified as an obligate aerobe, though evidence exists that it is a facultative anaerobe. B. subtilis is considered the best studied Gram-positive bacterium and a model organism to study bacterial chromosome replication and cell differentiation. It is one of the bacterial champions in secreted enzyme production and used on an industrial scale by biotechnology companies. Uses : 1900s, 2000s, Novel and artificial substrains Recently, the fibrinolytic (anti-clotting) capacity of NK has been recognized by Western medicine. The National Science Foundation in the United States has investigated and evaluated the safety of NK. NK is currently undergoing a clinical trial study (Phase II) in the USA for atherothrombotic prevention. Multiple NK genes have been cloned, characterized, and produced in various expression system studies. Recombinant

			technology represents a promising approach for the production of NK with high purity for its use in antithrombotic applications. This review covers the history, benefit, safety, and production of NK. Opportunities for utilizing plant systems for the large-scale production of NK, or for the production of edible plants that can be used to provide oral delivery of NK without extraction and purification are also discussed. https://pubmed.ncbi.nlm.nih.gov/28264497/
249.	Food Dietary	Dietary supplements Food additives	Beta-Glucan https://en.wikipedia.org/wiki/Beta-glucan β-Glucans (beta-glucans) comprise a group of β-D-glucose polysaccharides naturally occurring in the cell walls of cereals, bacteria, and fungi, with significantly differing physicochemical properties dependent on source. Typically, β-glucans form a linear backbone with 1–3 β-glycosidic bonds but vary with respect to molecular mass, solubility, viscosity, branching structure, and gelation properties, causing diverse physiological effects in animals. At dietary intake levels of at least 3 g per day, oat fiber β-glucan decreases blood levels of LDL cholesterol and so may reduce the risk of cardiovascular diseases.[1] β-glucans are used as texturing agents in various nutraceutical and cosmetic products, and as soluble fiber supplements.
250.	Food Dietary	Feed additives Food additives Cellulosic bio-fuel Bio-diesel	Beta-Glucosidase https://en.wikipedia.org/wiki/Beta-glucosidase Beta-glucosidase is an enzyme that catalyzes the hydrolysis of the glycosidic bonds to terminal non-reducing residues in beta-D-glucosides and oligosaccharides, with release of glucose.[2] Net-Immobilization of β-glucosidase on Nonwoven Fabrics to Lower the Cost of "Cellulosic Ethanol" and Increase Cellulose Conversions https://pubmed.ncbi.nlm.nih.gov/27009788/ Effect of β-glucosidase on the meat quality and digestibility in broilers https://pubmed.ncbi.nlm.nih.gov/21554407/
251.	Food Dietary	Probiotic	Bifidobacterium bifidum https://en.wikipedia.org/wiki/Bifidobacterium_bifidum

			Bifidobacterium bifidum is a bacterial species of the genus Bifidobacterium. B. bifidum is one of the most common probiotic bacteria that can be found in the body of mammals, including humans. The use of B. bifidum in probiotic applications may reduce the chances of acute diarrhea and the risk of E. coli infections, and contributes to the maintenance of vaginal homeostasis.[6] Intestinal microbial balance is important for an individuals digestive system. Some people keep this balance through diet alone where others take probiotics, which are microbial supplements. Consuming dairy products seem to be the most efficient way to keep a healthy gut flora. B. bifidum is an important intestinal microbe. One study shows that because hard cheese has a higher pH, higher fat content and is more solid, it is more effective in carrying probiotics such as B. bifidum to a person through ingestion.[7]
252.	Food Dietary	Probiotic Dietary supplements Food additives	Bifidobacterium bifidum https://en.wikipedia.org/wiki/Bifidobacterium_bifidum Bifidobacterium bifidum is a bacterial species of the genus Bifidobacterium. B. bifidum is one of the most common probiotic bacteria that can be found in the body of mammals, including humans. The use of B. bifidum in probiotic applications may reduce the chances of acute diarrhea and the risk of E. coli infections, and contributes to the maintenance of vaginal homeostasis.[6] Intestinal microbial balance is important for an individuals digestive system. Some people keep this balance through diet alone where others take probiotics, which are microbial supplements. Consuming dairy products seem to be the most efficient way to keep a healthy gut flora. B. bifidum is an important intestinal microbe. One study shows that because hard cheese has a higher pH, higher fat content and is more solid, it is more effective in carrying probiotics such as B. bifidum to a person through ingestion.[7]
253.	Food Dietary	Probiotic Dietary supplements Food additives	Bifidobacterium breve https://en.wikipedia.org/wiki/Bifidobacterium_breve Bifidobacterium breve is a bacterial species of the genus Bifidobacterium which

			has probiotic properties.[1][2] Bifidobacteria are a type of bacteria that live symbiotically in the intestines of humans. They have been used to treat a number of conditions including constipation, diarrhea, irritable bowel syndrome and even the cold and flu. Some of these uses have been backed up by scientific research, but others have not.[3] B. breve is a gram positive, anaerobic, rod shaped organism that is non motile and forms branches with its neighbors.[4] B. breve has been researched and linked to a number of conditions. Bifidobacterium breve administered in combination with prebiotics or other probiotics and standard therapy has shown some beneficial effect.[5] B. breve is a constituent in the therapeutic, nutritional treatment of IBD. This proprietary, standardized, formulation of live bacteria is used to treat ulcerative colitis and may require a prescription.[5][6] Taking Bifidobacteria in combination with Lactobacillus and normal Helicobacter pylori therapy makes the treatment twice as effective while reducing the negative side effects. Bifidobacteria can also be used to treat IBS as well, reducing pain, bloating and constipation.[3] B. breve may be linked to chronic obesity. A growing pool of evidence suggests that variations in the human gut microbiome correlate with excess weight gain. B.breve is a strong candidate for research concerning this issue. A study conducted by Bioscience of Microbiota, Food and Heath(BMFH) suggests that treating pre-obese patients with the B-3 strain of B. breve may stop or reverse obesity.[7] However larger studies need to be performed to confirm these results. Bifidobacteria and its link to stomach health are being researched along with its link to the brain through the microbiota gut–brain axis. Strain A1 of B. Breve has undergone research concerning its effect on Alzheimer's. This research has consisted of mouse trials, and to date, shows promise in slowing or reversing the disease.[8]
254.	Food Dietary	Probiotic Dietary supplements Food additives	Bifidobacterium breve https://en.wikipedia.org/wiki/Bifidobacterium_breve Bifidobacterium breve is a bacterial species of the genus Bifidobacterium which has probiotic properties.[1][2] Bifidobacteria are a type of bacteria that live symbiotically in the

			intestines of humans. They have been used to treat a number of conditions including constipation, diarrhea, irritable bowel syndrome and even the cold and flu. Some of these uses have been backed up by scientific research, but others have not.[3] B. breve is a gram positive, anaerobic, rod shaped organism that is non motile and forms branches with its neighbors.[4] B. breve has been researched and linked to a number of conditions. Bifidobacterium breve administered in combination with prebiotics or other probiotics and standard therapy has shown some beneficial effect.[5] B. breve is a constituent in the therapeutic, nutritional treatment of IBD. This proprietary, standardized, formulation of live bacteria is used to treat ulcerative colitis and may require a prescription.[5][6] Taking Bifidobacteria in combination with Lactobacillus and normal Helicobacter pylori therapy makes the treatment twice as effective while reducing the negative side effects. Bifidobacteria can also be used to treat IBS as well, reducing pain, bloating and constipation.[3] B. breve may be linked to chronic obesity. A growing pool of evidence suggests that variations in the human gut microbiome correlate with excess weight gain. B.breve is a strong candidate for research concerning this issue. A study conducted by Bioscience of Microbiota, Food and Heath(BMFH) suggests that treating pre-obese patients with the B-3 strain of B. breve may stop or reverse obesity.[7] However larger studies need to be performed to confirm these results. Bifidobacteria and its link to stomach health are being researched along with its link to the brain through the microbiota gut–brain axis. Strain A1 of B. Breve has undergone research concerning its effect on Alzheimer's. This research has consisted of mouse trials, and to date, shows promise in slowing or reversing the disease.[8]
255.	Food Dietary	Probiotic Dietary supplements Food additives	Bifidobacterium infantis Bifidobacterium longum https://en.wikipedia.org/wiki/Bifidobacterium_longum Bifidobacterium longum is a Gram-positive, catalase-negative, rod-shaped bacterium present in the human gastrointestinal tract and one of the 32 species that belong to the genus Bifidobacterium.[2][3] It

			is a microaerotolerant anaerobe and considered to be one of the earliest colonizers of the gastrointestinal tract of infants.[2] When grown on general anaerobic medium, B. longum forms white, glossy colonies with a convex shape.[4] While B. longum is not significantly present in the adult gastrointestinal tract, it is considered part of the gut microbiota and its production of lactic acid is believed to prevent growth of pathogenic organisms.[5] B. longum is non-pathogenic and is often added to food products.[2][6] B. longum is a constituent in VSL#3. This proprietary, standardized, formulation of live bacteria may be used in combination with conventional therapies to treat ulcerative colitis, and requires a prescription.[23] The use of B. longum was shown to shorten the duration and minimize the severity of symptoms associated with the common cold with a similar effect to that of neuraminidase inhibitors for influenza.[24]
256.	Food Dietary	Probiotic Dietary supplement Food additives	Bifidobacterium infantis Bifidobacterium longum https://en.wikipedia.org/wiki/Bifidobacterium_longum Bifidobacterium longum is a Gram-positive, catalase-negative, rod-shaped bacterium present in the human gastrointestinal tract and one of the 32 species that belong to the genus Bifidobacterium.[2][3] It is a microaerotolerant anaerobe and considered to be one of the earliest colonizers of the gastrointestinal tract of infants.[2] When grown on general anaerobic medium, B. longum forms white, glossy colonies with a convex shape.[4] While B. longum is not significantly present in the adult gastrointestinal tract, it is considered part of the gut microbiota and its production of lactic acid is believed to prevent growth of pathogenic organisms.[5] B. longum is non-pathogenic and is often added to food products.[2][6] B. longum is a constituent in VSL#3. This proprietary, standardized, formulation of live bacteria may be used in combination with conventional therapies to treat ulcerative colitis, and requires a prescription.[23] The use of B. longum was shown to shorten the duration and minimize the severity of symptoms associated with the common

			cold with a similar effect to that of neuraminidase inhibitors for influenza.[24]
257.	Food Dietary	Probiotic Dietary supplements Food additives	Bifidobacterium lactis https://en.wikipedia.org/wiki/Bifidobacterium_animalis Bifidobacterium animalis is a gram-positive, anaerobic, rod-shaped bacterium of the Bifidobacterium genus which can be found in the large intestines of most mammals, including humans. Bifidobacterium animalis and Bifidobacterium lactis were previously described as two distinct species. Presently, both are considered B. animalis with the subspecies Bifidobacterium animalis subsp. animalis and Bifidobacterium animalis subsp. lactis.[1][2][3] Both old names B. animalis and B. lactis are still used on product labels, as this species is frequently used as a probiotic. In most cases, which subspecies is used in the product is not clear. B. animalis is present in many food products and dietary supplements. The probiotic is mostly found in dairy products.[10]
258.	Food Dietary	Probiotic Dietary supplements Food additives	Bifidobacterium lactis https://en.wikipedia.org/wiki/Bifidobacterium_animalis Bifidobacterium animalis is a gram-positive, anaerobic, rod-shaped bacterium of the Bifidobacterium genus which can be found in the large intestines of most mammals, including humans. Bifidobacterium animalis and Bifidobacterium lactis were previously described as two distinct species. Presently, both are considered B. animalis with the subspecies Bifidobacterium animalis subsp. animalis and Bifidobacterium animalis subsp. lactis.[1][2][3] Both old names B. animals and B. lactis are still used on product labels, as this species is frequently used as a probiotic. In most cases, which subspecies is used in the product is not clear. B. animalis is present in many food products and dietary supplements. The probiotic is mostly found in dairy products.[10]
259.	Food Dietary	Dietary supplements Food aditives	Calendula Extract (Lutein) https://en.wikipedia.org/wiki/Calendula

			Calendula (/kəˈlɛndjuːlə/)[1] is a genus of about 15–20 species[2] of annual and perennial herbaceous plants in the daisy family Asteraceae that are often known as marigolds.[3] Calendula oil is still used medicinally. The oil of C. officinalis is used as an anti-inflammatory and a remedy for healing wounds.[10] Effects of Calendula officinalis on human gingival fibroblasts Calendula officinalis is commonly called the marigold. It is a staple topical remedy in homeopathic medicine. It is rich in quercetin, carotenoids, lutein, lycopene, rutin, ubiquinone, xanthophylls, and other anti-oxidants. It has anti-inflammatory properties. https://pubmed.ncbi.nlm.nih.gov/22487368/ As a pigment, Role in human eyes, Macular degeneration, Cataract research, In diet, Commercial value. https://en.wikipedia.org/wiki/Lutein#Role_in_human_eyes
260.	Food Dietary	Nutraceuticals Dietary supplement	Calendula Folmulations (Lutein) https://en.wikipedia.org/wiki/Calendula Calendula (/kəˈlɛndjuːlə/)[1] is a genus of about 15–20 species[2] of annual and perennial herbaceous plants in the daisy family Asteraceae that are often known as marigolds.[3] Calendula oil is still used medicinally. The oil of C. officinalis is used as an anti-inflammatory and a remedy for healing wounds.[10] Effects of Calendula officinalis on human gingival fibroblasts Calendula officinalis is commonly called the marigold. It is a staple topical remedy in homeopathic medicine. It is rich in quercetin, carotenoids, lutein, lycopene, rutin, ubiquinone, xanthophylls, and other anti-oxidants. It has anti-inflammatory properties. https://pubmed.ncbi.nlm.nih.gov/22487368/ As a pigment, Role in human eyes, Macular degeneration, Cataract research, In diet, Commercial value. https://en.wikipedia.org/wiki/Lutein#Role_in_human_eyes

261.	Food Dietary	Dietary supplements Food additives Nutraceuticals Wound Healing Anti-Tumor Anti-Oxidant	Caulerpa https://en.wikipedia.org/wiki/Caulerpa Caulerpa is a genus of seaweeds in the family Caulerpaceae (among the green algae). They are unusual because they consist of only one cell with many nuclei, making them among the biggest single cells in the world. A species in the Mediterranean can have a stolon more than 3 metres (9.8 ft) long, with up to 200 fronds. This species can be invasive from time to time. Referring to its thalli's crawling habit, the name means 'stem (that) creeps', from the Ancient Greek kaulos (καυλός, 'stalk') and herpo (ἕρπω, 'to creep').[3] Some species of Caulerpa are edible. The two most commonly eaten are Caulerpa lentillifera and Caulerpa racemosa, both called "sea grapes" in English. Both are traditionally harvested in the wild and sold in local markets in Southeast Asia, Oceania, and East Asia. They are eaten raw in salads and have a characteristic "sea" flavor and a crunchy texture.[6] Only C. lentillifera is cultivated in aquaculture. Its cultivation began in the 1950s in Cebu, Philippines, after accidental introduction of C. lentillifera to fish ponds.[7] This was followed by Japan in 1986, where it was cultivated in tanks in the tropical waters of Okinawa.[8] Commercial cultivation has since spread to other countries, including Vietnam, Taiwan, and China (in Fujian and Hainan). Most are for domestic consumption, but they are also exported to Japan.[9]. Metabolic reprogramming and AMPKα1 pathway activation by caulerpin in colorectal cancer cells https://pubmed.ncbi.nlm.nih.gov/27922662/ Marine macroalga Caulerpa: role of its metabolites in modulating cancer signaling https://pubmed.ncbi.nlm.nih.gov/30980271/ Antioxidant properties of topical Caulerpa sp. extract on UVB-induced photoaging in mice https://pubmed.ncbi.nlm.nih.gov/30555666/
262.	Food Dietary	Food additives Personal care Ingredients	Chitosanase https://en.wikipedia.org/wiki/Chitosanase

		Cosmetics Agriculture	Chitosanase (EC 3.2.1.132) is an enzyme with systematic name chitosan N-acetylglucosaminohydrolase.[1][2][3][4] This enzyme catalyses the following chemical reaction Endohydrolysis of beta-(1->4)-linkages between D-glucosamine residues in a partly acetylated chitosan A whole spectrum of chitosanases are known. Identification of a chitosanase from the marine metagenome and its molecular improvement based on evolution data https://pubmed.ncbi.nlm.nih.gov/32548690/ Antifungal activity of chitooligosaccharides against the dermatophyte Trichophyton rubrum https://pubmed.ncbi.nlm.nih.gov/25841377/
263.	Food Dietary	Nutraceuticals Dietary supplement	Chlorella https://en.wikipedia.org/wiki/Chlorella Chlorella is a genus of about thirteen species of single-celled green algae belonging to the division Chlorophyta. The cells are spherical in shape, about 2 to 10 μm in diameter, and are without flagella. Their chloroplasts contain the green photosynthetic pigments chlorophyll-a and -b. In ideal conditions cells of Chlorella multiply rapidly, requiring only carbon dioxide, water, sunlight, and a small amount of minerals to reproduce.[1] Chlorella has been considered as a source of food and energy because its photosynthetic efficiency can reach 8%,[2] which exceeds that of other highly efficient crops such as sugar cane.
264.	Food Dietary	Beverage Personal care	Citrus depressa https://en.wikipedia.org/wiki/Citrus_depressa Taiwan tangerine Citrus depressa (Citrus × depressa, formerly C. pectinifera, Okinawan: シークヮーサー/シークァーサー shiikwaasa, Japanese: ヒラミレモン hirami remon or シークワーサー shīkuwāsā), in English sometimes called shiikuwasha, shequasar, Taiwan tangerine, Okinawa lime,[1] flat lemon, hirami lemon, or thin-skinned flat lemon[citation needed], is a small, green citrus fruit rich in flavonoids and native to East Asia (Taiwan Island and Okinawa Islands, Japan). Very sour, it is often used like lemon or lime to garnish dishes, but is also

			used to make jam, or a yellow juice, which can be thinned or sweetened. Citrus depressa is grown in Okinawa and Taiwan. Shikuwasa is grown in Okinawa. Shiikuwasha is often used as a fruit juice and has been used for alternative health practices frequently. Though the pulp has some beneficial nutrients, most health-benefitting compounds present in the fruit's peel are: Synephrine, a compound known to enhance lipid metabolism[3] and increase metabolic rate.[4] Nobiletin (NBL), tangeretin and sinensetin, where nobiletin is predominate. NBL has been linked to anti-carcinogenic and anti-inflammatory biological properties.[3] Similarly, there is a high concentration of anti-tumorous compounds limonin glucoside and nomilin glucoside in the fruits' seed.[3] NBL in C. depressa is also linked to hepatoprotective activities in liver-injuries induced by acetaminophen.[5]
265.	Food Dietary	Mushroom Mycelium	Clitocybe nuda https://en.wikipedia.org/wiki/Clitocybe_nuda Clitocybe nuda, commonly known as the wood blewit[2][3] and alternately described as Lepista nuda, is an edible mushroom native to Europe and North America. Described by Pierre Bulliard in 1790, it was also known as Tricholoma nudum for many years. It is found in both coniferous and deciduous woodlands. It is a fairly distinctive mushroom that is widely eaten, though there is some caution about edibility. Nevertheless, it has been cultivated in Britain, the Netherlands and France. The objective of this study was to evaluate the antihyperlipidemic and antihyperglycemic effects and mechanism of the extract of Clitocybe nuda (CNE), in high-fat- (HF-) fed mice. https://pubmed.ncbi.nlm.nih.gov/24550994/
266.	Food Dietary	Dietary supplements Food additives	Coenzyme Q10 https://en.wikipedia.org/wiki/Coenzyme_Q10 Coenzyme Q, also known as ubiquinone, is a coenzyme family that is ubiquitous in animals and most bacteria (hence the name

			ubiquinone). In humans, the most common form is Coenzyme Q_{10} or ubiquinone-10. CoQ_{10} is not approved by the U.S. Food and Drug Administration (FDA) for the treatment of any medical condition;[1] however, it is sold as a dietary supplement and is an ingredient in some cosmetics.[2][3] It is a 1,4-benzoquinone, where Q refers to the quinone chemical group and 10 refers to the number of isoprenyl chemical subunits in its tail. In natural ubiquinones, the number can be anywhere from 6 to 10. This family of fat-soluble substances, which resemble vitamins, is present in all respiring eukaryotic cells, primarily in the mitochondria. It is a component of the electron transport chain and participates in aerobic cellular respiration, which generates energy in the form of ATP. Ninety-five percent of the human body's energy is generated this way.[4][5]
267.	Food Dietary	Nutraceuticals Dietary supplement Nice flavor enhancer with fried dish seasoning and sour beverage Mainly used on meat food Mainly used in soup and sauce making used as any other cooking base Nice for chicken and pork Roast chicken and marinade Marinade, good for pork Mainly for sprinkling, many kind of foods Base with other seasoning, or direct use on cuisine Dip, soup, and main dish seasoning Soup and seasoning base	Complete / Non-complete Natural Spices & Seasoning Recipes https://en.wikipedia.org/wiki/Spice Taiwan multi-spices powder Five-spices powder Pork stock soup powder Chicken stock soup Multi-flavor msg New Orleans chicken marinade Roast chicken marinade Taiwan roast pork marinade Taiwan salty-crispy chicken seasoning Shallot seasoning oil Garlic seasoning oil Spicy seasoning oil Siang la sauce Mala sauce Chicken paste(02) Beef paste ck-01 Beef paste (beef stock) Unique Features Traditional Taiwanese flavor enhancer With pork and onion aroma, nice option to make stock soup Nice option to make chicken stock soup Provide umami flavor With special western style taste, fits chicken perfectly With typical barbecue taste Special Taiwanese pork barbecue taste Special Taiwanese fried chicken taste High reacted, rich onion flavor

			High reacted, rich garlic flavor High reacted, rich chillis flavor Sauce with spicy taste and aroma Sauce with Sichuan pepper taste and aroma High % Meat Ingredient, with rich and thick taste
268.	Food Dietary	Mushroom Mycelium	Cordyceps cicadae https://en.wikipedia.org/wiki/Cordyceps Cordyceps /ˈkɔːrdɪsɛps/ is a genus of ascomycete fungi (sac fungi) that includes about 600 species. Most Cordyceps species are endoparasitoids, parasitic mainly on insects and other arthropods (they are thus entomopathogenic fungi); a few are parasitic on other fungi.[2] The generic name Cordyceps is derived from the Greek word κορδύλη kordýlē, meaning "club", and the Greek word κεφαλή cephali, meaning "head". When a Cordyceps fungus attacks a host, the mycelium invades and eventually replaces the host tissue, while the elongated fruit body (ascocarp) may be cylindrical, branched, or of complex shape. The ascocarp bears many small, flask-shaped perithecia containing asci. These, in turn, contain thread-like ascospores, which usually break into fragments and are presumably infective. Retraction Note: Optimized extraction, composition, antioxidant and antimicrobial activities of exo and intracellular polysaccharides from submerged culture of Cordyceps cicadae https://pubmed.ncbi.nlm.nih.gov/30326910/
269.	Food Dietary	Mushroom Mycelium	Cordyceps militaris https://en.wikipedia.org/wiki/Cordyceps_militaris Cordyceps militaris is a species of fungus in the family Cordycipitaceae, and the type species of the genus Cordyceps. It was originally described by Carl Linnaeus in 1753 as Clavaria militaris.[1] C. militaris can be cultivated in a variety of media including silkworm pupae, rice, or liquid nutrition.[3][4] It is considered inedible in American sources,[5] but in Asia the fruiting body is cooked as a mushroom in dishes like chicken soup.[6]

			C. militaris is a potential harbour of bio-metabolites for herbal drugs and evidences are available about its applications for revitalization of various systems of the body from ancient times.[7] In traditional Chinese medicine, this fungi can serve as a cheap substitute of Ophiocordyceps sinensis. Both contain cordycepin.[3] C. militaris contains a protein CMP18 that induces apoptosis in vitro via a mitochondrion-dependent pathway. It is thought that it might be toxic when eaten. Cooking destroys this protein. Cordyceps militaris Improves Chronic Kidney Disease by Affecting TLR4/NF- κ B Redox Signaling Pathway https://pubmed.ncbi.nlm.nih.gov/31049139/.
270.	Food Dietary	Dietary supplements Food additives Nutraceuticals Medicinal Mycelia Mutagens Antineoplastic Agents Antifungal Agents	Cordyceps sinensis Ophiocordyceps sinensis https://en.wikipedia.org/wiki/Ophiocordyceps_sinensis https://en.wikipedia.org/wiki/Cordycepin Ophiocordyceps sinensis (formerly known as Cordyceps sinensis) is known in English colloquially as caterpillar fungus, or by its more prominent names yartsa gunbu (Tibetan: དབྱར་རྩྭ་དགུན་འབུ་, Wylie: dbyar rtswa dgun 'bu, literally "summer grass, winter worm"), or dōng chóng xià cǎo (Chinese: 冬蟲夏草) or Yarsha-gumba or Yarcha-gumba, यार्सागुम्बा (in Nepali language) or Keeda Jadi, or ရှိုးပတီး (in Burmese language). It is an entomopathogenic fungus (a fungus that grows on insects) in the family Ophiocordycipitaceae. The use of caterpillar fungus as folk medicine apparently originated in Tibet and Nepal. So far the oldest known text documenting its use was written in the late 15th century by the Tibetan doctor Zurkhar Nyamnyi Dorje (Wylie: Zur mkhar mnyam nyid rdo rje)[1439-1475]) in his text Cordyceps cicadae mycelia and its active compound HEA exert beneficial effects on blood glucose in type 2 diabetic db/db mice https://pubmed.ncbi.nlm.nih.gov/29952113/ Protective effects of polysaccharides from Cordyceps gunnii mycelia against

			cyclophosphamide-induced immunosuppression to TLR4/TRAF6/NF-κB signalling in BALB/c mice https://pubmed.ncbi.nlm.nih.gov/31089650/ Cordycepin prevents oxidative stress-induced inhibition of osteogenesis https://pubmed.ncbi.nlm.nih.gov/26462178/
271.	Food Dietary	Nutraceuticals Mutagens Antineoplastic Agents Antifungal Agents	Cordyceps sinensis Ophiocordyceps sinensis https://en.wikipedia.org/wiki/Ophiocordyceps_sinensis https://en.wikipedia.org/wiki/Cordycepin Ophiocordyceps sinensis (formerly known as Cordyceps sinensis) is known in English colloquially as caterpillar fungus, or by its more prominent names yartsa gunbu (Tibetan: དབྱར་རྩྭ་དགུན་འབུ་, Wylie: dbyar rtswa dgun 'bu, literally "summer grass, winter worm"), or dōng chóng xià cǎo (Chinese: 冬蟲夏草) or Yarsha-gumba or Yarcha-gumba, यार्सागुम्बा (in Nepali language) or Keeda Jadi, or ရှိုးပတီး (in Burmese language). It is an entomopathogenic fungus (a fungus that grows on insects) in the family Ophiocordycipitaceae. The use of caterpillar fungus as folk medicine apparently originated in Tibet and Nepal. So far the oldest known text documenting its use was written in the late 15th century by the Tibetan doctor Zurkhar Nyamnyi Dorje (Wylie: Zur mkhar mnyam nyid rdo rje)[1439-1475]) in his text Cordyceps cicadae mycelia and its active compound HEA exert beneficial effects on blood glucose in type 2 diabetic db/db mice https://pubmed.ncbi.nlm.nih.gov/29952113/ Protective effects of polysaccharides from Cordyceps gunnii mycelia against cyclophosphamide-induced immunosuppression to TLR4/TRAF6/NF-κB signalling in BALB/c mice https://pubmed.ncbi.nlm.nih.gov/31089650/ Cordycepin prevents oxidative stress-induced inhibition of osteogenesis https://pubmed.ncbi.nlm.nih.gov/26462178/
272.	Food Dietary	Mushroom Mycelium	Cordyceps sobolifera https://en.wikipedia.org/wiki/Ophiocordyceps

			Ophiocordyceps is a genus of fungi within the family Ophiocordycipitaceae.[2] The widespread genus, first described scientifically by British mycologist Tom Petch in 1931,[3] contains about 140 species that grow on insects.[4] Anamorphic genera that correspond with Ophiocordyceps species are Hirsutella, Hymenostilbe, Isaria, Paraisaria, and Synglíocladium.[5] One species complex, Ophiocordyceps unilateralis, is known for its parasitism on ants, in which it alters the behavior of the ants in such a way as to propagate itself more effectively, killing the ant and then growing its fruiting bodies from the ant's head and releasing its spores.[6][7][8] A 48-million-year-old fossil of an ant in the death grip of Ophiocordyceps unilateralis was discovered in Germany.[9] Antioxidant Activity of Water Extract from Fermented Mycelia of Cordyceps sobolifera (Ascomycetes) in Caenorhabditis elegans https://pubmed.ncbi.nlm.nih.gov/29604913/
273.	Food Dietary	Mushroom Mycelium	Coriolus versicolor https://en.wikipedia.org/wiki/Trametes_versicolor Trametes versicolor – also known as Coriolus versicolor and Polyporus versicolor – is a common polypore mushroom found throughout the world. Meaning 'of several colours', versicolor reliably describes this fungus that displays different colors. For example, because its shape and multiple colors are similar to those of a wild turkey, T. versicolor is commonly called turkey tail. Trametes versicolor contains polysaccharides under basic research, including the protein-bound PSP and β-1,3 and β-1,4 glucans. The lipid fraction contains the lanostane-type tetracyclic triterpenoid sterol ergosta-7,22,dien-3β-ol as well as fungisterol and β-sitosterol.[4][5] Trametes versicolor (Synn. Coriolus versicolor) Polysaccharides in Cancer Therapy: Targets and Efficacy https://pubmed.ncbi.nlm.nih.gov/32466253/
274.	Food Dietary	Mushroom Mycelium	Coriolus versicolor https://en.wikipedia.org/wiki/Trametes_versicolor

			Trametes versicolor – also known as Coriolus versicolor and Polyporus versicolor – is a common polypore mushroom found throughout the world. Meaning 'of several colours', versicolor reliably describes this fungus that displays different colors. For example, because its shape and multiple colors are similar to those of a wild turkey, T. versicolor is commonly called turkey tail. Trametes versicolor contains polysaccharides under basic research, including the protein-bound PSP and β-1,3 and β-1,4 glucans. The lipid fraction contains the lanostane-type tetracyclic triterpenoid sterol ergosta-7,22,dien-3β-ol as well as fungisterol and β-sitosterol.[4][5] Trametes versicolor (Synn. Coriolus versicolor) Polysaccharides in Cancer Therapy: Targets and Efficacy https://pubmed.ncbi.nlm.nih.gov/32466253/
275.	Food Dietary	Dietary supplements Food additives Nutraceuticals Functional Beverage Personal care Ingredients Pharmaceutical	Deep Ocean Water (Concentrate, Powder) https://en.wikipedia.org/wiki/Deep_ocean_water Deep ocean water (DOW) is the name for cold, salty water found deep below the surface of Earth's oceans. Ocean water differs in temperature and salinity. Warm surface water is generally saltier than the cooler deep or polar waters;[1] in polar regions, the upper layers of ocean water are cold and fresh.[2] Deep ocean water makes up about 90% of the volume of the oceans. Deep ocean water has a very uniform temperature, around 0-3 °C, and a salinity of about 3.5% or as oceanographers state as 35 ppt (parts per thousand).[3] In specialized locations such as the Natural Energy Laboratory of Hawaii NELHA ocean water is pumped to the surface from approximately 900 metres (3000 feet) deep for applications in research, commercial and pre-commercial activities. DOW is typically used to describe ocean water at sub-thermal depths sufficient to provide a measurable difference in water temperature. Enhanced Hypolipidemic Effect and Safety of Red Mold Dioscorea Cultured in Deep Ocean Water

			Drinking Deep Seawater Decreases Serum Total and LowDensity Lipoprotein–Cholesterol in Hypercholesterolemic Subjects Deep Sea Water Modulates Blood Pressure and Exhibits Hypolipidemic Effects via the AMPK-ACC Pathway: An in Vivo Study Potential Osteoporosis Recovery by Deep Sea Water through Bone Regeneration in SAMP8 Mice Deep ocean mineral water accelerates recovery from physical Enhanced Anti-Obesity Activities of Red Mold Dioscorea When Fermented Using Deep Ocean Water as the Culture Water Deep Sea Water Prevents Balloon Angioplasty-Induced Hyperplasia through MMP-2: An In Vitro and In Vivo Study Deep seawater concentrate enhances the treadmill exercise performance of gerbils Deep sea minerals prolong life span of streptozotocin-induced diabetic rats by compensatory augmentation of the IGF-I-survival signaling and inhibition of apoptosis Attenuated Effects of Deep-Sea Water on Hepatic Apoptosis in STZ-Induced Diabetic Rats Effects of deep sea water and Lactobacillus paracasei subsp. paracasei NTU 101 on hypercholesterolemia hamsters gut microbiota Deep Sea Water Improves Abnormalities in Lipid Metabolism through Lipolysis and Fatty Acid Oxidation in High-Fat Diet-Induced Obese Rats Deep Sea Water can inhibit exercise-Induced inflammatory Deep Ocean Minerals Minimize Eccentric Exercise-Induced Inflammatory Response of Rat Skeletal Muscle Lower tumorigenesis without life extension in rats
276.	Food Dietary	Dietary supplements Food additives	D-Glucosamine https://en.wikipedia.org/wiki/Glucosamine

			Glucosamine ($C_6H_{13}NO_5$) is an amino sugar and a prominent precursor in the biochemical synthesis of glycosylated proteins and lipids. Glucosamine is part of the structure of two polysaccharides, chitosan and chitin. Glucosamine is one of the most abundant monosaccharides.[1] Produced commercially by the hydrolysis of shellfish exoskeletons or, less commonly, by fermentation of a grain such as corn or wheat, glucosamine has many names depending on country.[2] Chondroprotective action of glucosamine, a chitosan monomer, on the joint health of athletes https://pubmed.ncbi.nlm.nih.gov/30940583/
277.	Food Dietary	Probiotic Dietary supplements Food additives	Enterococcus faecalis https://en.wikipedia.org/wiki/Enterococcus_faecalis Enterococcus faecalis – formerly classified as part of the group D Streptococcus system – is a Gram-positive, commensal bacterium inhabiting the gastrointestinal tracts of humans and other mammals.[1] Like other species in the genus Enterococcus, E. faecalis is found in healthy humans, but can cause life-threatening infections, especially in the nosocomial (hospital) environment, where the naturally high levels of antibiotic resistance found in E. faecalis contribute to its pathogenicity.[1] E. faecalis has been frequently found in reinfected, root canal-treated teeth in prevalence values ranging from 30% to 90% of the cases.[2] Re-infected root canal-treated teeth are about nine times more likely to harbor E. faecalis than cases of primary infections.[3]
278.	Food Dietary	Probiotic Dietary supplements Food additives	Enterococcus faecium https://en.wikipedia.org/wiki/Enterococcus_faecium Enterococcus faecium is a Gram-positive, gamma-hemolytic or non-hemolytic bacterium in the genus Enterococcus.[1] It can be commensal (innocuous, coexisting organism) in the gastrointestinal tract of humans and animals,[2] but it may also

			be pathogenic, causing diseases such as neonatal meningitis or endocarditis. Vancomycin-resistant E. faecium is often referred to as VRE.[3]
279.	Food Dietary	Dietary supplements Food additives	Fish Mucus and Algae Collagen Peptide and Amino acids Marine Collagen Peptide https://en.wikipedia.org/wiki/Peptide Peptides (from Greek language πεπτός, peptós "digested"; derived from πέσσειν, péssein "to digest") are short chains of between two and fifty amino acids, linked by peptide bonds.[1][2] Chains of fewer than ten or fifteen amino acids are called oligopeptides, and include dipeptides, tripeptides, and tetrapeptides. Marine collagen and its derivatives: Versatile and sustainable bio-resources for healthcare https://pubmed.ncbi.nlm.nih.gov/32487384/ Oral Ingestion of Collagen Hydrolysate Leads to the Transportation of Highly Concentrated Gly-Pro-Hyp and Its Hydrolyzed Form of Pro-Hyp into the Bloodstream and Skin https://pubmed.ncbi.nlm.nih.gov/28244315/ Microbes that live in fishes' slimy mucus coating could lead chemists to new antibiotic drugs Sandra Loesgen - Assistant Professor of Chemistry, Oregon State University Disclosure statement Evaluation of the antibacterial activity of skin mucus of three carp species Sunil Kumari . Anil Kumar Tyor . Anita Bhatnagar Received: 29 December 2018 / Accepted: 1 July 2019 Antibacterial properties of fish mucus from Channa punctatus and Cirrhinus mrigala C. KUPPULAKSHMI, M. PRAKASH, G. GUNASEKARAN, G. MANIMEGALAI, S. SAROJINI Department of Zoology, Annamalai University-Annamalainagar, Tamilnadu (India) 2008 Featured 20 Amino Acids 30 Peptides Contents

			5-mer Peptide: Unknown Protein C(D,F,A)/Oococcus Calcidiaceae 5-mer Peptide: Acetyl-CoA carboxylase 5-mer Peptide: Acetyl-CoA carboxylase 5-mer Peptide: Hypothetical central apparatus protein 5-mer Peptide: 30S ribosomal protein S9, chloroplastic 6-mer Peptide: DEAD-like RNA helicase, superfamily II 6-mer Peptide: Intein containing ATP-dependent Lon peptidase 6-mer Peptide: Unknown Protein E(B,G)/Oococcus Calcidiaceae 6-mer Peptide: DEAD-like RNA helicase, superfamily II 6-mer Peptide: Intein containing ATP-dependent Lon peptidase 6-mer Peptide: Long-chain acyl-coenzyme A synthetase 8-mer Peptide: Adenosine deaminase acting on RNA type 2-Adenosine deaminase immune cell manufacturing 9-mer Peptide: Interleukin 17 receptor D - Interleukin 17 receptor, angiogenesis and immunity 13-mer Peptide: Cluster of differentiation-Leukocyte differentiation antigen builds the immune system and improves immunity 14-mer Peptide: Sodium/potassium ATPase alpha subunit isoform 1-Sodium potassium pump, hemodialysis index 14-mer Peptide: Serine/threonine-protein kinase receptor -Serine/threonine protein kinase receptor, reduce inflammation, reduce allergic reactions, and resist virus and bacterial invasion 14-mer Peptide: UDP-glucose 6-dehydrogenase 15-mer Peptide: NADH-ubiquinone oxidoreductase chain 5 -NADH-ubiquinone oxidoreductase provides energy generation 17-mer Peptide: Serine/threonine-protein kinase receptor -Serine/threonine protein kinase receptor, reduce inflammation, reduce allergic reactions, and resist virus and bacterial invasion 18-mer Peptide: Fetuin B 18-mer Peptide: Nuclear pore complex protein Nup85 20-mer Peptide: Collagen type X alpha -X type 1 collagen, repairs epidermis, skin tissue, bone fragility 20-mer Peptide: Glyceraldehyde-3-phosphate dehydrogenase

			20-mer Peptide: Unknown Protein H/Oococcus Calcidiaceae
280.	Food Dietary	Dietary supplements Food additives	Fruit & Vegetable Enzyme https://en.wikipedia.org/wiki/Enzyme Enzymes /ˈɛnzaɪmz/ are proteins that act as biological catalysts (biocatalysts). Catalysts accelerate chemical reactions. The molecules upon which enzymes may act are called substrates, and the enzyme converts the substrates into different molecules known as products. Almost all metabolic processes in the cell need enzyme catalysis in order to occur at rates fast enough to sustain life.[1]:8.1 Metabolic pathways depend upon enzymes to catalyze individual steps. The study of enzymes is called enzymology and a new field of pseudoenzyme analysis has recently grown up, recognising that during evolution, some enzymes have lost the ability to carry out biological catalysis, which is often reflected in their amino acid sequences and unusual 'pseudocatalytic' properties.[2][3] Enzymes are known to catalyze more than 5,000 biochemical reaction types.[4] Other biocatalysts are catalytic RNA molecules, called ribozymes. Enzymes' specificity comes from their unique three-dimensional structures.
281.	Food Dietary	Dietary supplements Food additives Nutraceuticals	Fucoidan Seaweed Oligo/Polysaccharide Brown Seaweeds https://en.wikipedia.org/wiki/Fucoidan Fucoidan is a sulfated polysaccharide (MW: average 20,000) found mainly in various species of brown algae and brown seaweed such as mozuku, kombu, bladderwrack, wakame, and hijiki (variant forms of fucoidan have also been found in animal species, including the sea cucumber).[1] Fucoidan Structure and Activity in Relation to Anti-Cancer Mechanisms https://pubmed.ncbi.nlm.nih.gov/30621045/ Immunomodulatory and Anti-Inflammatory Effects of Fucoidan https://pubmed.ncbi.nlm.nih.gov/33066186/ Fucoidan from Ecklonia maxima is a powerful inhibitor of the diabetes-related enzyme, α-glucosidase

			https://pubmed.ncbi.nlm.nih.gov/32070744/
282.	Food Dietary	Nutraceuticals	Ganoderma Fermentation Broth Lingzhi (mushroom) https://en.wikipedia.org/wiki/Ganoderma https://en.wikipedia.org/wiki/Lingzhi_(mushroom) Lingzhi, Ganoderma lingzhi, also known as reishi, is a polypore fungus ("bracket fungus") belonging to the genus Ganoderma. Its red-varnished, kidney-shaped cap and peripherally inserted stem gives it a distinct fan-like appearance. When fresh, the lingzhi is soft, cork-like, and flat. It lacks gills on its underside, and instead releases its spores via fine pores. Depending on the age, the pores on its underside may be white or brown.[1] A 2015 Cochrane database review found insufficient evidence to justify the use of G. lucidum as a first-line cancer treatment.[4][5] It stated that G. lucidum may have "benefit as an alternative adjunct to conventional treatment in consideration of its potential of enhancing tumour response and stimulating host immunity.
283.	Food Dietary	Mushroom Mycelium	Ganoderma lucidum https://en.wikipedia.org/wiki/Ganoderma_lucidum Ganoderma lucidum is a reddish laccate species of Ganoderma with a limited distribution in Europe and parts of China, where it grows on decaying hardwood trees. Ganoderma lucidum Polysaccharides as An Anti-cancer Agent https://pubmed.ncbi.nlm.nih.gov/29141563/
284.	Food Dietary	Mushroom Mycelium	Ganoderma lucidum Mycelia https://en.wikipedia.org/wiki/Ganoderma_lucidum Ganoderma lucidum is a reddish laccate species of Ganoderma with a limited distribution in Europe and parts of China, where it grows on decaying hardwood trees. Ganoderma lucidum Polysaccharides as An Anti-cancer Agent

			https://pubmed.ncbi.nlm.nih.gov/29141563/
285.	Food Dietary	Mushroom Mycelium	Ganoderma lucidum Mycelia https://en.wikipedia.org/wiki/Ganoderma_lucidum Ganoderma lucidum is a reddish laccate species of Ganoderma with a limited distribution in Europe and parts of China, where it grows on decaying hardwood trees. Ganoderma lucidum Polysaccharides as An Anti-cancer Agent https://pubmed.ncbi.nlm.nih.gov/29141563/
286.	Food Dietary	Dietary supplements Food additives Nutraceuticals	Ginsengnoside Compound K Compound K [C-K; 20-O-(β-d-glucopyranosyl)-20(S)-protopanaxadiol], as a metabolite of ginsenoside, has been verified to have antitumor effects in various cancers, including non-small cell lung cancer (NSCLC). Ginsenoside metabolite compound K induces apoptosis and autophagy in non-small cell lung cancer cells via AMPK-mTOR and JNK pathways https://pubmed.ncbi.nlm.nih.gov/30475650/ Ginsenoside compound-K inhibits the activity of B cells through inducing IgD-B cell receptor endocytosis in mice with collagen-induced arthritis https://pubmed.ncbi.nlm.nih.gov/31165333/ Ginsenoside compound K ameliorates Alzheimer's disease in HT22 cells by adjusting energy metabolism https://pubmed.ncbi.nlm.nih.gov/31364016/
287.	Food Dietary	Dietary supplements Food additives Nutraceuticals	Green Lipped Mussel https://en.wikipedia.org/wiki/Perna_canaliculus Perna canaliculus, the New Zealand green-lipped mussel, also known as the New Zealand mussel, the greenshell mussel, kuku, and kutai, is a bivalve mollusc in the family Mytilidae (the true mussels). P. canaliculus has economic importance as a cultivated species in New Zealand. Dietary supplements for treating osteoarthritis: a systematic review and meta-analysis https://pubmed.ncbi.nlm.nih.gov/29018060/ Effects of different omega-3 sources, fish oil, krill oil, and green-lipped mussel against

			cytokine-mediated canine cartilage degradation https://pubmed.ncbi.nlm.nih.gov/28078500/
288.	Food Dietary	Dietary supplements Food additives	Green Tea Extract https://en.wikipedia.org/wiki/Green_tea#Extracts Polyphenols found in green tea include epigallocatechin gallate (EGCG), epicatechin gallate, epicatechins and flavanols,[1] which are under laboratory research for their potential effects in vivo.[4] Other components include three kinds of flavonoids, known as kaempferol, quercetin, and myricetin.[5] Although green tea may enhance mental alertness due to its caffeine content, there is only weak, inconclusive evidence that regular consumption of green tea affects the risk of cancer or cardiovascular diseases, and there is no evidence that it benefits weight loss.[2] Using green tea as a health supplement is associated with a slight improvement in overall quality of life.
289.	Food Dietary	Mushroom Mycelium	Grifola frondosa https://en.wikipedia.org/wiki/Grifola_frondosa Grifola frondosa is a polypore mushroom that grows at the base of trees, particularly oaks. Also known as hen-of-the-woods, maitake (舞茸, "dancing mushroom"), ram's head or sheep's head. It is typically found in late summer to early autumn. Maitake has been consumed for centuries in China and Japan[5] where it is one of the major culinary mushrooms.[citation needed] The mushroom is used in many Japanese dishes, such as nabemono.[citation needed] The softer caps must be thoroughly cooked.[3] Culinary and medicinal mushrooms are widely used in Asian countries, both as dietary supplements and as nutraceutical foods. They have recently become popular in Europe, as well, for their nutritional and health benefits. In particular, epidemiological studies conducted in Asia suggest that mushroom intake, together with other phytotherapy substances, protects against cancer, specifically gastrointestinal (GI)

			and breast cancers. B-glucans from Grifola frondosa and Ganoderma lucidum in breast cancer: an example of complementary and integrative medicine https://pubmed.ncbi.nlm.nih.gov/29872510/
290.	Food Dietary	Mushroom Mycelium	Grifola frondosa Mycelia https://en.wikipedia.org/wiki/Grifola_frondosa Grifola frondosa is a polypore mushroom that grows at the base of trees, particularly oaks. Also known as hen-of-the-woods, maitake (舞茸, "dancing mushroom"), ram's head or sheep's head. It is typically found in late summer to early autumn. Maitake has been consumed for centuries in China and Japan[5] where it is one of the major culinary mushrooms.[citation needed] The mushroom is used in many Japanese dishes, such as nabemono.[citation needed] The softer caps must be thoroughly cooked.[3] Culinary and medicinal mushrooms are widely used in Asian countries, both as dietary supplements and as nutraceutical foods. They have recently become popular in Europe, as well, for their nutritional and health benefits. In particular, epidemiological studies conducted in Asia suggest that mushroom intake, together with other phytotherapy substances, protects against cancer, specifically gastrointestinal (GI) and breast cancers. B-glucans from Grifola frondosa and Ganoderma lucidum in breast cancer: an example of complementary and integrative medicine https://pubmed.ncbi.nlm.nih.gov/29872510/
291.	Food Dietary	Mushroom Mycelium	Hericium erinaceus https://en.wikipedia.org/wiki/Hericium_erinaceus Hericium erinaceus (also called lion's mane mushroom, monkey head mushroom, bearded tooth mushroom, satyr's beard, bearded hedgehog mushroom, pom pom mushroom, or bearded tooth fungus) is an edible mushroom belonging to the tooth fungus group. Uses : As food, Traditional medicine and phytochemistry

			Improvement of cognitive functions by oral intake of Hericium erinaceus https://pubmed.ncbi.nlm.nih.gov/31413233/
292.	Food Dietary	Mushroom Mycelium	Hericium erinaceus Mycelia https://en.wikipedia.org/wiki/Hericium_erinaceus Hericium erinaceus (also called lion's mane mushroom, monkey head mushroom, bearded tooth mushroom, satyr's beard, bearded hedgehog mushroom, pom pom mushroom, or bearded tooth fungus) is an edible mushroom belonging to the tooth fungus group. Uses : As food, Traditional medicine and phytochemistry Improvement of cognitive functions by oral intake of Hericium erinaceus https://pubmed.ncbi.nlm.nih.gov/31413233/
293.	Food Dietary	Mushroom Mycelium	Hirsutella sinensis https://pubmed.ncbi.nlm.nih.gov/32494871/ Ophiocordyceps sinensis has been used as a traditional medicine or healthy food in China for thousands of years. Hirsutella sinensis was reported as the only correct anamorph of O. sinensis. It is reported that the laboratory-grown H. sinensis mycelium has similar clinical efficacy and less associated toxicity compared to the wild O. sinensis. Hirsutella sinensis inhibits NLRP3 inflammasome activation to block aristolochic acid-induced renal tubular epithelial cell transdifferentiation https://pubmed.ncbi.nlm.nih.gov/31776855/
294.	Food Dietary	Mushroom Mycelium	Hirsutella sinensis Mycelia https://pubmed.ncbi.nlm.nih.gov/32494871/ Ophiocordyceps sinensis has been used as a traditional medicine or healthy food in China for thousands of years. Hirsutella sinensis was reported as the only correct anamorph of O. sinensis. It is reported that the laboratory-grown H. sinensis mycelium has similar clinical efficacy and less associated toxicity compared to the wild O. sinensis. Hirsutella sinensis inhibits NLRP3 inflammasome activation to block aristolochic acid-induced renal tubular epithelial cell transdifferentiation https://pubmed.ncbi.nlm.nih.gov/31776855/

295.	Food Dietary	Mushroom Mycelium	Hirsutella sinensis Mycelia https://pubmed.ncbi.nlm.nih.gov/32494871/ Ophiocordyceps sinensis has been used as a traditional medicine or healthy food in China for thousands of years. Hirsutella sinensis was reported as the only correct anamorph of O. sinensis. It is reported that the laboratory-grown H. sinensis mycelium has similar clinical efficacy and less associated toxicity compared to the wild O. sinensis. Hirsutella sinensis inhibits NLRP3 inflammasome activation to block aristolochic acid-induced renal tubular epithelial cell transdifferentiation https://pubmed.ncbi.nlm.nih.gov/31776855/
296.	Food Dietary	Feed additives Immunomodulating agents Antibiotic-Resistant	IFN-γ stimulator https://en.wikipedia.org/wiki/Interferon_gamma Interferon gamma (IFNγ) is a dimerized soluble cytokine that is the only member of the type II class of interferons.[1] The existence of this interferon, which early in its history was known as immune interferon, was described by E. F. Wheelock as a product of human leukocytes stimulated with phytohemagglutinin, and by others as a product of antigen-stimulated lymphocytes.[2] It was also shown to be produced in human lymphocytes.[3] or tuberculin-sensitized mouse peritoneal lymphocytes[4] challenged with PPD; the resulting supernatants were shown to inhibit growth of vesicular stomatitis virus. Interferon-γ 1b is approved by the U.S. Food and Drug Administration to treat chronic granulomatous disease[23] and osteopetrosis.[24] Interferon gamma is not approved yet for the treatment in any cancer immunotherapy. However, improved survival was observed when Interferon gamma was administrated to patients with bladder carcinoma and melanoma cancers. The most promising result was achieved in patients with stage 2 and 3 of ovarian carcinoma. Epigenetic Control of IFN-γ Host Responses During Infection With Toxoplasma gondii https://pubmed.ncbi.nlm.nih.gov/33072127/ The roles of IFN gamma in protection against tumor development and cancer immunoediting

			https://pubmed.ncbi.nlm.nih.gov/11900986 .
297.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus acidophilus https://en.wikipedia.org/wiki/Lactobacillus_acidophilus Lactobacillus acidophilus (New Latin 'acid-loving milk-bacillus') is a species of gram positive bacteria in the genus Lactobacillus. L. acidophilus is a homofermentative, microaerophilic species, fermenting sugars into lactic acid, and grows readily at rather low pH values (below pH 5.0) and has an optimum growth temperature of around 37 °C (99 °F).[1] L. acidophilus is found in the human and animal gastrointestinal tract and mouth.[2] Some strains of L. acidophilus may be considered to have probiotic characteristics.[3] These strains are commercially used in many dairy products, sometimes together with Streptococcus thermophilus and Lactobacillus delbrueckii subsp. bulgaricus in the production of acidophilus-type yogurt, or acidophiline. Its genome has been sequenced.[4] L. acidophilus was found to lower serum cholesterol and raise cholesterol in fecal matter when fed to pigs.[5]
298.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus acidophilus https://en.wikipedia.org/wiki/Lactobacillus_acidophilus Lactobacillus acidophilus (New Latin 'acid-loving milk-bacillus') is a species of gram positive bacteria in the genus Lactobacillus. L. acidophilus is a homofermentative, microaerophilic species, fermenting sugars into lactic acid, and grows readily at rather low pH values (below pH 5.0) and has an optimum growth temperature of around 37 °C (99 °F).[1] L. acidophilus is found in the human and animal gastrointestinal tract and mouth.[2] Some strains of L. acidophilus may be considered to have probiotic characteristics.[3] These strains are commercially used in many dairy products, sometimes together with Streptococcus thermophilus and Lactobacillus delbrueckii subsp. bulgaricus in the production of acidophilus-type yogurt, or acidophiline. Its genome has been sequenced.[4] L. acidophilus was found to lower serum cholesterol and raise cholesterol in fecal matter when fed to pigs.[5]

299.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus brevis https://en.wikipedia.org/wiki/Lactobacillus_brevis Levilactobacillus brevis (previously Lactobacillus brevis)[1] is a gram-positive, rod shaped species of lactic acid bacteria which is heterofermentative, creating CO_2, lactic acid and acetic acid or ethanol during fermentation. L. brevis is the type species of the genus Levilactobacillus (previously L. brevis group), which comprises 24 species (http://www.lactobacillus.ualberta.ca/, http://www.lactobacillus.uantwerpen.be/).[1][2] It can be found in many different environments, such as fermented foods, and as normal microbiota. L.brevis is found in food such as sauerkraut and pickles. It is also one of the most common causes of beer spoilage. Ingestion has been shown to improve human immune function, and it has been patented several times. Normal gut microbiota L.brevis is found in human intestines, vagina and feces.
300.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus casei https://en.wikipedia.org/wiki/Lactobacillus_casei Lactobacillus casei is a species of genus Lactobacillus. This particular species of Lactobacillus is documented to have a wide pH and temperature range, and complements the growth of L. acidophilus, a producer of the enzyme amylase (a carbohydrate-digesting enzyme). The most common application of L. casei is industrial, specifically for dairy production. Lactobacillus casei is typically the dominant species of nonstarter lactic acid bacteria (i.e. contaminant bacteria[1]) present in ripening cheddar cheese, and, recently, the complete genome sequence of L. casei ATCC 334 has become available. L. casei is also the dominant species in naturally fermented Sicilian green olives.[2] Some L. casei strains are considered to be probiotic, and may be effective in alleviation of gastrointestinal pathogenic bacterial diseases. According to World Health

			Organization, those properties have to be demonstrated on each specific strain—including human clinical studies—to be valid.[4] L.
301.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus casei https://en.wikipedia.org/wiki/Lactobacillus_casei Lactobacillus casei is a species of genus Lactobacillus. This particular species of Lactobacillus is documented to have a wide pH and temperature range, and complements the growth of L. acidophilus, a producer of the enzyme amylase (a carbohydrate-digesting enzyme). The most common application of L. casei is industrial, specifically for dairy production. Lactobacillus casei is typically the dominant species of nonstarter lactic acid bacteria (i.e. contaminant bacteria[1]) present in ripening cheddar cheese, and, recently, the complete genome sequence of L. casei ATCC 334 has become available. L. casei is also the dominant species in naturally fermented Sicilian green olives.[2] Some L. casei strains are considered to be probiotic, and may be effective in alleviation of gastrointestinal pathogenic bacterial diseases. According to World Health Organization, those properties have to be demonstrated on each specific strain—including human clinical studies—to be valid.[4] L.
302.	Food Dietary	Nutraceuticals Probiotic (Oral Health)	Lactobacillus fermentum https://en.wikipedia.org/wiki/Lactobacillus_fermentum Lactobacillus fermentum is a Gram-positive species of bacterium in the genus Lactobacillus. It is associated with active dental caries lesions.[1] It is also commonly found in fermenting animal and plant material.[2] It has been found in sourdough.[3] A few strains are considered probiotic or "friendly" bacteria in animals [4] and at least one strain has been applied to treat urogenital infections in women.[5]
303.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus fermentum https://en.wikipedia.org/wiki/Lactobacillus_fermentum

			Limosilactobacillus fermentum (previously Lactobacillus fermentum[1]) is a Gram-positive species in the heterofermentative genus Limosilactobacillus. It is associated with active dental caries lesions.[2] It is also commonly found in fermenting animal and plant material[3] including sourdough[4][5] and cocoa fermentation.[6] A few strains are considered probiotic or "friendly" bacteria in animals [7] and at least one strain has been applied to treat urogenital infections in women.[8] A microorganism is considered a probiotic by meeting certain characteristics, such as being of human origin, non-pathogenic, having high resistance to passing through the intestine, and being beneficial to the immune system. In general, they are seen as beneficial to the host's body and the human health. L. fermentum has been identified as potential probiotic.[14] The use of gut microbes as probiotics in food is aimed towards preventing and treating various health problems. Among these health problems allergies, neoplastic growth, and inflammatory bowel disease are included. Recent areas of study have focused on the influence of probiotics on metabolic functions of their host. One area has been the metabolism of cholesterol by LABs acting as probiotics. Research has shown that lactobacilli have been proven to remove cholesterol in vitro through various ways such as assimilation, binding to the surface cells, and incorporation into cellular membranes.[14]
304.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus fermentum https://en.wikipedia.org/wiki/Lactobacillus_fermentum Lactobacillus fermentum is a Gram-positive species of bacterium in the genus Lactobacillus. It is associated with active dental caries lesions.[1] It is also commonly found in fermenting animal and plant material.[2] It has been found in sourdough.[3] A few strains are considered probiotic or "friendly" bacteria in animals [4] and at least one strain has been applied to treat urogenital infections in women.[5]
305.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus gasseri https://en.wikipedia.org/wiki/Lactobacillus_gasseri

			Lactobacillus gasseri is a species in the genus Lactobacillus identified in 1980 by François Gasser and his associates.[1] It is part of the vaginal flora.[2] Its genome has been sequenced.[3] L. gasseri is a normal inhabitant of the lower reproductive tract in healthy women.[4] It also produces Lactocillin.[5] L. gasseri produces gassericin A, a bacteriocin.[6]
306.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus gasseri https://en.wikipedia.org/wiki/Lactobacillus_gasseri Lactobacillus gasseri is a species in the genus Lactobacillus identified in 1980 by François Gasser and his associates.[1] It is part of the vaginal flora.[2] Its genome has been sequenced.[3] L. gasseri is a normal inhabitant of the lower reproductive tract in healthy women.[4] It also produces Lactocillin.[5] L. gasseri produces gassericin A, a bacteriocin.[6]
307.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus helveticus https://en.wikipedia.org/wiki/Lactobacillus_helveticus Lactobacillus helveticus is a lactic-acid producing, rod-shaped bacterium of the genus Lactobacillus. It is most commonly used in the production of American Swiss cheese and Emmental cheese, but is also sometimes used in making other styles of cheese, such as Cheddar, Parmesan, Romano, provolone, and mozzarella. The primary function of L. helveticus culture is to prevent bitterness and produce nutty flavors in the final cheese. In Emmental cheese production, L. helveticus is used in conjunction with a Propionibacterium culture, which is responsible for developing the holes (known as "eyes") through production of carbon dioxide gas.
308.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus helveticus https://en.wikipedia.org/wiki/Lactobacillus_helveticus Lactobacillus helveticus is a lactic-acid producing, rod-shaped bacterium of the genus Lactobacillus. It is most commonly used in the production of American Swiss cheese and Emmental cheese, but is also sometimes used in making other styles of cheese, such as Cheddar, Parmesan, Romano, provolone,

			and mozzarella. The primary function of L. helveticus culture is to prevent bitterness and produce nutty flavors in the final cheese. In Emmental cheese production, L. helveticus is used in conjunction with 7a Propionibacterium culture, which is responsible for developing the holes (known as "eyes") through production of carbon dioxide gas.
309.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus johnsonii https://en.wikipedia.org/wiki/Lactobacillus_johnsonii Lactobacillus johnsonii is a species in the genus Lactobacillus[1] identified in 1980 by John L. Johnson, an American microbiologist and his associates.[2] Its type strain is ATCC 33200. It is part of the healthy vaginal microbiota and has been identified as having probiotic properties.[3] The L. johnsonii strain La1 was one of the first cultures to be proposed as a probiotic dairy supplement in 1995 at the Nestlé Research Center, Lausanne.[4] Although yeast and bacteria have been used in dairy products for fermenting purposes for centuries, the investigation and choice of a microorganism as a fermenting agent based on its health benefits was novel at the time.[5] Today the probiotic culture is used in the LC1 yogurt products by Nestlé.
310.	Food Dietary	Nutraceuticals Probiotic (Allergy Care) Dietary supplements Food additives	Lactobacillus paracasei https://en.wikipedia.org/wiki/Lactobacillus_paracasei Lactobacillus paracasei (commonly abbreviated as L. paracasei) is a gram-positive, facultatively heterofermentative species of lactic acid bacteria that are commonly used in dairy product fermentation and probiotics. L. paracasei is a bacterium that operates by commensalism. It is commonly found in many human habitats such as human intestinal tracts and mouths as well as sewages, silages, and previously mentioned dairy products.[1] So far, thirty four different strains of L. paracasei have been isolated from a variety of environments. Sixteen of those strains have been isolated from dairy, ten from plants, and eight from human and animal gastrointestinal tracts.[2]
311.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus paracasei https://en.wikipedia.org/wiki/Lactobacillus_paracasei

			Lactobacillus paracasei (commonly abbreviated as L. paracasei) is a gram-positive, facultatively heterofermentative species of lactic acid bacteria that are commonly used in dairy product fermentation and probiotics. L. paracasei is a bacterium that operates by commensalism. It is commonly found in many human habitats such as human intestinal tracts and mouths as well as sewages, silages, and previously mentioned dairy products.[1] The name includes morphology, a rod-shaped (bacillus shape) bacterium with a width of 2.0 to 4.0μm and length of 0.8 to 1.0μm. So far, thirty four different strains of L. paracasei have been isolated from a variety of environments. Sixteen of those strains have been isolated from dairy, ten from plants, and eight from human and animal gastrointestinal tracts.[2] L. paracasei is genotypically and phenotypically indistinguishable from other members of its genus such as Lactobacillus casei and Lactobacillus rhamnosus.[3] However, they are easily differentiated from each other by their fermentation profiles.[4] Its fermentative properties allows it to be used as biological food processors and supplements for diets and medical disorders, especially in the gastrointestinal tract.[5]
312.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus paracasei https://en.wikipedia.org/wiki/Lactobacillus_paracasei Lactobacillus paracasei (commonly abbreviated as L. paracasei) is a gram-positive, facultatively heterofermentative species of lactic acid bacteria that are commonly used in dairy product fermentation and probiotics. L. paracasei is a bacterium that operates by commensalism. It is commonly found in many human habitats such as human intestinal tracts and mouths as well as sewages, silages, and previously mentioned dairy products.[1] So far, thirty four different strains of L. paracasei have been isolated from a variety of environments. Sixteen of those strains have been isolated from dairy, ten from plants, and eight from human and animal gastrointestinal tracts.[2]

313.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus pentosus https://jb.asm.org/content/193/19/5605 Lactobacilli have been largely associated with food fermentations, and more recently, they have been used as probiotics, since they may promote health in humans and animals (6). Lactobacillus pentosus is the lactic acid bacterium most frequently isolated from Spanish-style green olive fermentations, and it has been successfully used as a starter culture for these fermentations (8). In addition, certain strains of L. pentosus have been shown to exert probiotic effects, improving the mucosal immunity and the resistance to bacterial infections (2, 5). The genome sequence of Lactobacillus pentosus IG1, a bile-resistant strain displaying bacteriocin activity against a wide range of spoilage and pathogen bacteria, will allow us to explore its biotechnological and probiotic properties.
314.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus plantarum https://en.wikipedia.org/wiki/Lactobacillus_plantarum Lactiplantibacillus plantarum (previously Lactobacillus plantarum) is a widespread member of the genus Lactiplantibacillus and commonly found in many fermented food products as well as anaerobic plant matter.[1] L. plantarum was first isolated from saliva, based on its ability to temporarily persist in plants, the insect intestine and in the intestinal tract of vertebrate animals, it was designated as nomadic organism. [2] [3] Products : Food products, Therapeutics, Antimicrobial property, Activity against AIDS-defining illnesses Lactobacillus plantarum and Its Probiotic and Food Potentialities https://pubmed.ncbi.nlm.nih.gov/28271469/ Lactobacillus plantarum-derived biosurfactant: Ultrasound-induced production and characterization https://pubmed.ncbi.nlm.nih.gov/32179260/
315.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus plantarum https://en.wikipedia.org/wiki/Lactobacillus_plantarum Lactiplantibacillus plantarum (previously Lactobacillus plantarum) is a widespread member of the

			genus Lactiplantibacillus and commonly found in many fermented food products as well as anaerobic plant matter.[1] L. plantarum was first isolated from saliva, based on its ability to temporarily persist in plants, the insect intestine and in the intestinal tract of vertebrate animals, it was designated as nomadic organism. [2] [3] Products : Food products, Therapeutics, Antimicrobial property, Activity against AIDS-defining illnesses Lactobacillus plantarum and Its Probiotic and Food Potentialities https://pubmed.ncbi.nlm.nih.gov/28271469/ Lactobacillus plantarum-derived biosurfactant: Ultrasound-induced production and characterization https://pubmed.ncbi.nlm.nih.gov/32179260/
316.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus reuteri https://en.wikipedia.org/wiki/Lactobacillus_reuteri L. reuteri is found in a variety of natural environments. It has been isolated from many foods, especially meats and dairy products.[2][5][6] It appears to be essentially ubiquitous in the animal kingdom, having been found in the gastrointestinal tracts and feces of healthy humans,[7] sheep, chickens,[8] pigs,[9] and rodents.[10] It is the only species to constitute a "major component" of the Lactobacillus species present in the gut of each of the tested host animals,[11] and each host seems to harbor its own specific strain of L. reuteri.[10][12] It is possible that L. reuteri contributes to the health of its host organism in some manner.[13] L. reuteri is present as a dominant member of fermenting organisms in type II sourdoughs; several metabolic traits of L. reuteri, including exopolysaccharide formation and conversion of glutamine to glutamate, improve bread quality. [14] Lactobacillus reuteri DSM 17938 and Magnesium Oxide in Children with Functional Chronic Constipation: A Double-Blind and Randomized Clinical Trial https://pubmed.ncbi.nlm.nih.gov/31952280/

			Systematic Review with Meta-Analysis: Lactobacillus reuteri DSM 17938 for Treating Acute Gastroenteritis in Children. An Update https://pubmed.ncbi.nlm.nih.gov/31739457/
317.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus rhamnosus GG https://en.wikipedia.org/wiki/Lactobacillus_rhamnosus It is a short Gram-positive homofermentative facultative anaerobic non-spore-forming rod that often appears in chains. Some strains of L. rhamnosus bacteria are being used as probiotics, and are particularly useful in treating infections of the female urogenital tract, most particularly very difficult to treat cases of bacterial vaginosis (or "BV").[4] The species Lacticaseibacillus rhamnosus and Limosilactobacillus reuteri are commonly found in the healthy female genito-urinary tract and are helpful to regain control of dysbiotic bacterial overgrowth during an active infection. L. rhamnosus sometimes is used in dairy products such as fermented milk and as non-starter-lactic acid bacterium (NSLAB) in long-ripened cheese.[5]
318.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus rhamnosus GG https://en.wikipedia.org/wiki/Lactobacillus_rhamnosus It is a short Gram-positive homofermentative facultative anaerobic non-spore-forming rod that often appears in chains. Some strains of L. rhamnosus bacteria are being used as probiotics, and are particularly useful in treating infections of the female urogenital tract, most particularly very difficult to treat cases of bacterial vaginosis (or "BV").[4] The species Lacticaseibacillus rhamnosus and Limosilactobacillus reuteri are commonly found in the healthy female genito-urinary tract and are helpful to regain control of dysbiotic bacterial overgrowth during an active infection. L. rhamnosus sometimes is used in dairy products such as fermented milk and as non-starter-lactic acid bacterium (NSLAB) in long-ripened cheese.[5]
319.	Food Dietary	Probiotic	Lactobacillus salivarius https://en.wikipedia.org/wiki/Lactobacillus_salivarius Lactobacillus salivarius is a probiotic bacteria species that has been found to live in the gastrointestinal tract and

			exert a range of therapeutic properties including suppression of pathogenic bacteria.[1] Therapeutic research : Irritable bowel syndrome, Pancreatic necrosis, Atopic Dermatitis
320.	Food Dietary	Probiotic Dietary supplements Food additives	Lactobacillus salivarius https://en.wikipedia.org/wiki/Lactobacillus_salivarius Lactobacillus salivarius is a probiotic bacteria species that has been found to live in the gastrointestinal tract and exert a range of therapeutic properties including suppression of pathogenic bacteria.[1] Therapeutic research : Irritable bowel syndrome, Pancreatic necrosis, Atopic Dermatitis
321.	Food Dietary	Probiotic Dietary supplements Food additives	Lactococcus lactis https://en.wikipedia.org/wiki/Lactococcus_lactis Lactococcus lactis is a Gram-positive bacterium used extensively in the production of buttermilk and cheese,[1] but has also become famous as the first genetically modified organism to be used alive for the treatment of human disease.[2] L. lactis is of crucial importance for manufacturing dairy products, such as buttermilk and cheeses. When L. lactis ssp. lactis is added to milk, the bacterium uses enzymes to produce energy molecules (ATP), from lactose. The byproduct of ATP energy production is lactic acid. The lactic acid produced by the bacterium curdles the milk, which then separates to form curds that are used to produce cheese.[11] Therapeutic benefits
322.	Food Dietary	Probiotic Dietary supplements Food additives	Lactococcus lactis subsp. Cremoris subsp. lactis https://en.wikipedia.org/wiki/Lactococcus_lactis Lactococcus lactis is a Gram-positive bacterium used extensively in the production of buttermilk and cheese,[1] but has also become famous as the first genetically modified organism to be used alive for the treatment of human disease.[2] L. lactis is of crucial importance for manufacturing dairy products, such as buttermilk and cheeses. When L. lactis ssp. lactis is added to milk, the bacterium uses enzymes to produce energy molecules (ATP), from lactose. The byproduct of ATP energy production is lactic acid. The lactic acid

			produced by the bacterium curdles the milk, which then separates to form curds that are used to produce cheese.[11] Therapeutic benefits.
323.	Food Dietary	Probiotic Dietary supplements Food additives	Lactococcus lactis subsp. lactis biovar diacetylactis https://en.wikipedia.org/wiki/Lactococcus_lactis Lactococcus lactis is a Gram-positive bacterium used extensively in the production of buttermilk and cheese,[1] but has also become famous as the first genetically modified organism to be used alive for the treatment of human disease.[2] L. lactis is of crucial importance for manufacturing dairy products, such as buttermilk and cheeses. When L. lactis ssp. lactis is added to milk, the bacterium uses enzymes to produce energy molecules (ATP), from lactose. The byproduct of ATP energy production is lactic acid. The lactic acid produced by the bacterium curdles the milk, which then separates to form curds that are used to produce cheese.[11] Therapeutic benefits
324.	Food Dietary	Mushroom Mycelium	Lignosus rhinocerus https://en.wikipedia.org/wiki/Lignosus_rhinocerus Lignosus rhinocerus, commonly known as tiger milk mushroom, belongs to family Polyporaceae in the division Basidiomycota.[2][3][4] Tiger milk mushroom is regarded as a medicinal mushroom with the ability to treat numerous ailments. A 2018 review of the testing of investigations into Lignosus rhinocerotis concluded that "there is a paucity of validation studies including human clinical trials of the mycochemicals of L. rhinocerotis."[10] Traditionally, the Tiger milk mushrooms have been used for more than 400 years as a health tonic by the aborigines or native for its healing properties on more than 15 types of medical ailments, including; treatment of lung and respiratory diseases (including asthma, cough), fever, vomit, breast cancer, chronic hepatitis, gastric ulcer, food poisoning. It's also believed to help with wound healing and indigestion. Aborigines also boil it with Tongkat ali and used it as general tonic to strengthen the body.[11]

			Lignosus rhinocerus (LR) is an edible mushroom with a variety of medicinal properties such as neurostimulation, immunomodulation, anti-inflammation, anti-oxidation, anti-proliferation, anti-diabetes and especially antiviral activity. Human immunodeficiency virus type-1 (HIV-1) needs the HIV-1 protease (PR) and reverse transcriptase (RT) for its replication. Therefore, both HIV-1 PR and RT are important targets for antiretroviral drug development. https://pubmed.ncbi.nlm.nih.gov/32695657/
325.	Food Dietary	Feed additives Food additives Cellulosic bio-fuel Bio-diesel	Lipases https://en.wikipedia.org/wiki/Lipase A lipase (/ˈlaɪpeɪs/, /-peɪz/) is any enzyme that catalyzes the hydrolysis of fats (lipids).[1] Lipases are a subclass of the esterases. Lipases perform essential roles in digestion, transport and processing of dietary lipids (e.g. triglycerides, fats, oils) in most, if not all, living organisms. Genes encoding lipases are even present in certain viruses.[2][3] Medical use, Diagnostic use, Industrial uses Lipases: Sources, Production, Purification, and Applications https://pubmed.ncbi.nlm.nih.gov/30370868/
326.	Food Dietary	Dietary supplements Food additives	Marine Collagen Peptide Functional Peptides (Gelatin) https://en.wikipedia.org/wiki/Gelatin Gelatin or gelatine (from Latin: gelatus meaning "stiff" or "frozen") is a translucent, colorless, flavorless food ingredient, commonly derived from collagen taken from animal body parts. It is brittle when dry and gummy when moist. It may also be referred to as hydrolyzed collagen, collagen hydrolysate, gelatine hydrolysate, hydrolyzed gelatine, and collagen peptides after it has undergone hydrolysis. It is commonly used as a gelling agent in food, beverages, medications, drug and vitamin capsules, photographic films and papers, and cosmetics. Uses : Early history of food applications, Culinary uses, Cosmetics, Other technical uses Marine collagen and its derivatives: Versatile and sustainable bio-resources for healthcare

			https://pubmed.ncbi.nlm.nih.gov/32487384/ Oral Ingestion of Collagen Hydrolysate Leads to the Transportation of Highly Concentrated Gly-Pro-Hyp and Its Hydrolyzed Form of Pro-Hyp into the Bloodstream and Skin https://pubmed.ncbi.nlm.nih.gov/28244315/
327.	Food Dietary	Dietary supplements Food additives Nutraceuticals	Marine Collagen Peptide Functional Peptides (Gelatin) https://en.wikipedia.org/wiki/Gelatin Gelatin or gelatine (from Latin: gelatus meaning "stiff" or "frozen") is a translucent, colorless, flavorless food ingredient, commonly derived from collagen taken from animal body parts. It is brittle when dry and gummy when moist. It may also be referred to as hydrolyzed collagen, collagen hydrolysate, gelatine hydrolysate, hydrolyzed gelatine, and collagen peptides after it has undergone hydrolysis. It is commonly used as a gelling agent in food, beverages, medications, drug and vitamin capsules, photographic films and papers, and cosmetics. Uses : Early history of food applications, Culinary uses, Cosmetics, Other technical uses Marine collagen and its derivatives: Versatile and sustainable bio-resources for healthcare https://pubmed.ncbi.nlm.nih.gov/32487384/ Oral Ingestion of Collagen Hydrolysate Leads to the Transportation of Highly Concentrated Gly-Pro-Hyp and Its Hydrolyzed Form of Pro-Hyp into the Bloodstream and Skin https://pubmed.ncbi.nlm.nih.gov/28244315/
328.	Food Dietary	Dietary supplements Food additives Nutraceuticals Personal care Ingredients Anti-Tumor Anti-Oxidant	Morinda citrifolia Fermented https://en.wikipedia.org/wiki/Morinda_citrifolia Noni Fruit Morinda citrifolia is a fruit-bearing tree in the coffee family, Rubiaceae. Its native range extends across Southeast Asia and Australasia, and was spread across the Pacific by Polynesian sailors.[1] The species is now cultivated throughout the tropics and widely naturalized.[2] Among some 100 names for the fruit across different regions are the more common English names of great morinda, Indian mulberry, noni, beach mulberry, and cheese fruit.[3] The fresh fruit's strong, vomit-like odor has made it a famine food in most regions, but it

			remains a staple food among some cultures, and has been used in traditional medicine. In the consumer market, it has been introduced as a supplement in various formats, such as capsules, skin products, and juices. A variety of beverages (juice drinks), powders (from dried ripe or unripe fruits), cosmetic products (lotions, soaps), oil (from seeds), leaf powders (for encapsulation or pills) have been introduced into the consumer market.[6] Uses : Food, Traditional medicine, Dyes, Nutrients and Phytochemicals
329.	Food Dietary	Anti-Bacterial Agents Protein Synthesis Inhibitors	Mupirocin CAS Number: 12650-69-0 https://en.wikipedia.org/wiki/Mupirocin Mupirocin, sold under the brand name Bactroban among others, is a topical antibiotic useful against superficial skin infections such as impetigo or folliculitis.[3][4][5] It may also be used to get rid of methicillin-resistant S. aureus (MRSA) when present in the nose without symptoms.[4] Due to concerns of developing resistance, use for greater than ten days is not recommended.[5] It is used as a cream or ointment applied to the skin.[4] Pseudomonic acid inhibits isoleucine tRNA synthetase in bacteria,[11] leading to depletion of isoleucyl-tRNA and accumulation of the corresponding uncharged tRNA. Depletion of isoleucyl-tRNA results in inhibition of protein synthesis. The uncharged form of the tRNA binds to the aminoacyl-tRNA binding site of ribosomes, triggering the formation of (p)ppGpp, which in turn inhibits RNA synthesis.[19] The combined inhibition of protein synthesis and RNA synthesis results in bacteriostasis. This mechanism of action is shared with furanomycin, an analog of isoleucine.[20]
330.	Food Dietary	Nutraceuticals Dietary supplement	N-Acetylglucosamine CAS Number: 14131-68-1 https://pubchem.ncbi.nlm.nih.gov/compound/24139 https://en.wikipedia.org/wiki/N-Acetylglucosamine ***N*-Acetylglucosamine** (GlcNAc) is an amide derivative of the monosaccharide glucose. It is a secondary amide between glucosamine and acetic acid. It is significant in several biological systems.

			It is part of a biopolymer in the bacterial cell wall, which is built from alternating units of GlcNAc and *N*-acetylmuramic acid (MurNAc), cross-linked with oligopeptides at the lactic acid residue of MurNAc. This layered structure is called peptidoglycan (formerly called murein). GlcNAc is the monomeric unit of the polymer chitin, which forms the exoskeletons of arthropods like insects and crustaceans. It is the main component of the radulas of mollusks, the beaks of cephalopods, and a major component of the cell walls of most fungi. Polymerized with glucuronic acid, it forms hyaluronan. GlcNAc has been reported to be an inhibitor of elastase release from human polymorphonuclear leukocytes (range 8–17% inhibition), however this is much weaker than the inhibition seen with *N*-acetylgalactosamine (range 92–100%).[1] Ref : https://pubchem.ncbi.nlm.nih.gov/compound/24139 Delivery of Polynucleotides, CGPR Antagonists Glycosidasc inhibitors, Degenerative Cartilage Conditions, Bleaching inorganic persalt or of hydrogen peroxide, etc.
331.	Food Dietary	Dietary supplements Food additives	Natto Extract (Vitamin K2) https://en.wikipedia.org/wiki/Natt%C5%8D Nattō (納豆) is a traditional Japanese food made from soybeans that have been fermented with Bacillus subtilis var. natto.[1] It is often served as a breakfast food.[2] It is served with karashi mustard, soy or tare sauce, and sometimes Japanese bunching onion. Nattō is often considered an acquired taste because of its powerful smell, strong flavor, and sticky, slimy texture.[3][4][5][6][7] Within Japan, nattō is most popular in the eastern regions, including Kantō, Tōhoku, and Hokkaido,[8] and a 2009 survey revealed that 70.2% of Japanese people find the taste pleasant, and others who may not find the taste of the food pleasant still eat it for health benefits. Nattō is an extremely rich source of the MK7 variant of vitamin K2, with one study finding mean concentrations of 998µg MK7 per 100g

			of natto, over 500 times greater concentration than any other food tested. [22] Nattō odor comes from diacetyl and pyrazines, but if it is allowed to ferment too long, then ammonia is released.[23] Enhanced Vitamin K (Menaquinone-7) Production by Bacillus subtilis natto in Biofilm Reactors by Optimization of Glucose-based Medium https://pubmed.ncbi.nlm.nih.gov/30474527/
332.	Food Dietary	Dietary supplements Food additives	Natto Fermented (Nattokinase) https://en.wikipedia.org/wiki/Nattokinase Nattokinase (pronounced nuh-TOH-kin-ayss) is an enzyme extracted and purified from a Japanese food called nattō. Nattō is produced by fermentation by adding the bacterium Bacillus natto, which also produces the enzyme, to boiled soybeans. While other soy foods contain enzymes, it is only the nattō preparation that contains the specific nattokinase enzyme. In spite of its name, nattokinase is not a kinase enzyme (and should not be pronounced as such), but a serine protease of the subtilisin family (99.5% identical with aprE). Rather, it is named for the fact that it is an enzyme produced by nattōkin (納豆菌), the Japanese name for Bacillus subtilis var natto. When in contact with human blood or blood clots, it exhibits a strong fibrinolytic activity and works by inactivating plasminogen activator inhibitor 1 (PAI-1).[2][3][4][5] Although it should be expected to be digested and inactivated in the human gut like other proteins, a few researchers report that nattokinase is active when taken orally.[6] Nattokinase is sold as a dietary supplement. It can now be produced by recombinant means[7][8] and in batch culture,[9][10] rather than relying on extraction from nattō.
333.	Food Dietary	Dietary supplements Food additives Nutraceuticals Chelating Agents Anticholesteremic Agents Biocompatible Materials Hemostatics Aquaculture,	Oligo Chitosan Low Moleculer Chitosan (COS-LM) https://en.wikipedia.org/wiki/Chitosan Chitosan /ˈkaɪtəsæn/ is a linear polysaccharide composed of randomly distributed β-(1→4)-linked D-glucosamine (deacetylated unit) and N-acetyl-D-glucosamine (acetylated unit). It is made by

		Detergents Wound Dressings Medical devices Cosmetics Water Sanitation Textiles/Diapers/Napkins, Produce (Fruits & Vegetables)	treating the chitin shells of shrimp and other crustaceans with an alkaline substance, such as sodium hydroxide. Chitosan has a number of commercial and possible biomedical uses. It can be used in agriculture as a seed treatment and biopesticide, helping plants to fight off fungal infections. In winemaking, it can be used as a fining agent, also helping to prevent spoilage. In industry, it can be used in a self-healing polyurethane paint coating. In medicine, it is useful in bandages to reduce bleeding and as an antibacterial agent; it can also be used to help deliver drugs through the skin. Uses : Agricultural and horticultural use, Natural biocontrol and elicitor, Filtration, Winemaking and fungal source chitosan, Medical use, Research, Bioprinting, Weight loss, Edible antimicrobial film Chitosan- g-oligo(L,L-lactide) Copolymer Hydrogel Potential for Neural Stem Cell Differentiation https://pubmed.ncbi.nlm.nih.gov/32159465/ Chitosan oligosaccharide-mediated attenuation of LPS-induced inflammation in IPEC-J2 cells is related to the TLR4/NF-κB signaling pathway https://pubmed.ncbi.nlm.nih.gov/31151525/ Collagen/Chitosan Complexes: Preparation, Antioxidant Activity, Tyrosinase Inhibition Activity, and Melanin Synthesis https://pubmed.ncbi.nlm.nih.gov/31906476/ Obtaining chitin, chitosan and their melanin complexes from insects https://pubmed.ncbi.nlm.nih.gov/33202268/ Effectiveness of chitosan scaffold in skin, bone and cartilage healing https://pubmed.ncbi.nlm.nih.gov/28684351/
334.	Food Dietary	Mushroom Mycelium	Paecilomyces hepiali https://en.wikipedia.org/wiki/Paecilomyces_hepiali Paecilomyces hepiali is an endoparasitic fungus that commonly exists in the natural Cordyceps sinensis. Ophiocordyceps sinensis (formerly known as Cordyceps sinensis) is known in English

			colloquially as caterpillar fungus, or by its more prominent names yartsa gunbu (Tibetan: དབྱར་རྩྭ་དགུན་འབུ་, Wylie: dbyar rtswa dgun 'bu, literally "summer grass, winter worm"), or dōng chóng xià cǎo (Chinese: 冬蟲夏草) or Yarsha-gumba or Yarcha-gumba, यार्सागुम्बा (in Nepali language) or Keeda Jadi, or ရှိုးပတီး (in Burmese language). It is an entomopathogenic fungus (a fungus that grows on insects) in the family Ophiocordycipitaceae. O. sinensis is classified as a medicinal mushroom, and its use has a long history in traditional Chinese medicine as well as traditional Tibetan medicine.[4] The hand-collected, intact fungus-caterpillar body is valued by herbalists as medicine, and because of its cost, its use is also a status symbol.[5][6] This fruiting bodies of the fungus are not yet cultivated commercially,[7] but the mycelium form can be cultivated in vitro.[8][9] Overharvesting and overexploitation have led to the classification of O. sinensis as an endangered species in China.[10] Antioxidant Activity and Infrared Spectroscopy Analysis of Alcoholic Extracts Obtained from Paecilomyces hepiali (Ascomycetes) https://pubmed.ncbi.nlm.nih.gov/29953355/
335.	Food Dietary	Mushroom Mycelium	Paecilomyces hepiali Mycelia https://en.wikipedia.org/wiki/Paecilomyces_hepiali Paecilomyces hepiali is an endoparasitic fungus that commonly exists in the natural Cordyceps sinensis. Ophiocordyceps sinensis (formerly known as Cordyceps sinensis) is known in English colloquially as caterpillar fungus, or by its more prominent names yartsa gunbu (Tibetan: དབྱར་རྩྭ་དགུན་འབུ་, Wylie: dbyar rtswa dgun 'bu, literally "summer grass, winter worm"), or dōng chóng xià cǎo (Chinese: 冬蟲夏草) or Yarsha-gumba or Yarcha-gumba, यार्सागुम्बा (in Nepali language) or Keeda Jadi, or ရှိုးပတီး (in Burmese language). It is an entomopathogenic fungus (a fungus that grows on insects) in the family Ophiocordycipitaceae. O. sinensis is classified as a medicinal

			mushroom, and its use has a long history in traditional Chinese medicine as well as traditional Tibetan medicine.[4] The hand-collected, intact fungus-caterpillar body is valued by herbalists as medicine, and because of its cost, its use is also a status symbol.[5][6] This fruiting bodies of the fungus are not yet cultivated commercially,[7] but the mycelium form can be cultivated in vitro.[8][9] Overharvesting and overexploitation have led to the classification of O. sinensis as an endangered species in China.[10] Antioxidant Activity and Infrared Spectroscopy Analysis of Alcoholic Extracts Obtained from Paecilomyces hepiali (Ascomycetes) https://pubmed.ncbi.nlm.nih.gov/29953355/
336.	Food Dietary	Probiotic Dietary supplements Food additives	Pediococcus acidilactici https://en.wikipedia.org/wiki/Pediococcus_acidilactici Pediococcus acidilactici is a species of Gram-positive cocci that is often found in pairs or tetrads. P. acidilactici is a homofermentative bacterium that can grow in a wide range of pH, temperature, and osmotic pressure, therefore being able to colonize the digestive tract.[1] It has emerged as a potential probiotic that has shown promising results in animal and human experiments, though some of the results are limited. They are commonly found in fermented vegetables, fermented dairy products, and meat.[2] Potential benefits : Digestive disorders, Alternative medicine, Immune health benefits,Antibiotic treatment
337.	Food Dietary	Probiotic Dietary supplements Food additives	Pediococcus pentosaceus https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/pediococcus-pentosaceus Genetically Modified Microorganisms: Harmful or Helpful? Ortansa Csutak, Ionela Sarbu, in Genetically Engineered Foods, 2018 3.6 Meat Products Bacterial species, such as Lactobacillus sake, Lactobacillus curvatus, Lactobacillus plantarum, Pediococcus pentosaceus, and Pediococcus acidilactici together with Micrococcus and Staphylococcus are used as starter cultures in the fermentation of meat products. The starter cultures release

			flavor compounds during fermentation to provide meat products with specific tastes. The main reactions involved in the generation of flavor compounds are phospholipid hydrolysis followed by free fatty acid oxidation and esterification, carbon source degradation to produce organic acids, and peptide and amino acid conversion into alcohols, aldehydes, and acids (Boyacioglu et al., 2010). Probiotic Pediococcus pentosaceus GS4 shields brush border membrane and alleviates liver toxicity imposed by chronic cadmium exposure in Swiss albino mice https://pubmed.ncbi.nlm.nih.gov/30614180/ Pediococcus pentosaceus B49 from human colostrum ameliorates constipation in mice https://pubmed.ncbi.nlm.nih.gov/32525185/ Physiological studies of the Pediococcus pentosaceus biofilm https://pubmed.ncbi.nlm.nih.gov/33059384/
338.	Food Dietary	Mushroom Mycelium	Phellinus linteus https://en.wikipedia.org/wiki/Phellinus_linteus Phellinus linteus (Japanese "meshimakobu", Chinese "song gen", Korean "sanghwang", English "Mesima", American English "black hoof mushroom") is a mushroom. It is shaped like a hoof, has a bitter taste, and in the wild grows on mulberry trees. The stem's color ranges from dark brown to black. In Korean traditional medicine, the mushroom is consumed in the form of hot tea. Vasodilatory Effect of Phellinus linteus Extract in Rat Mesenteric Arteries https://pubmed.ncbi.nlm.nih.gov/32664327/
339.	Food Dietary	Mushroom Mycelium	Phellinus linteus Mycelia https://en.wikipedia.org/wiki/Phellinus_linteus Phellinus linteus (Japanese "meshimakobu", Chinese "song gen", Korean "sanghwang", English "Mesima", American English "black hoof mushroom") is a mushroom. It is shaped like a hoof, has a bitter taste, and in the wild grows on mulberry trees. The stem's color ranges from dark brown to black. In Korean traditional medicine, the mushroom is consumed in the form of hot tea. Vasodilatory Effect of Phellinus linteus Extract in Rat Mesenteric Arteries https://pubmed.ncbi.nlm.nih.gov/32664327/

340.	Food Dietary	Feed additives Antibody purification Polysaccharide hydrolyzation Fine chemical bio-conversion	Phytase https://en.wikipedia.org/wiki/Phytase A phytase (myo-inositol hexakisphosphate phosphohydrolase) is any type of phosphatase enzyme that catalyzes the hydrolysis of phytic acid (myo-inositol hexakisphosphate) – an indigestible, organic form of phosphorus that is found in many plant tissues, especially in grains and oil seeds – and releases a usable form of inorganic phosphorus.[1] While phytases have been found to occur in animals, plants, fungi and bacteria, phytases have been most commonly detected and characterized from fungi.[2]. Phytase is produced by bacteria found in the gut of ruminant animals (cattle, sheep) making it possible for them to use the phytic acid found in grains as a source of phosphorus.[30] Non-ruminants (monogastric animals) like human beings, dogs, pigs, birds, etc. do not produce phytase. Research in the field of animal nutrition has put forth the idea of supplementing feed with phytase so as to make available to the animal phytate-bound nutrients like calcium, phosphorus, minerals, carbohydrates, amino acids and proteins.[31] In Canada, a genetically modified pig called Enviropig, which has the capability to produce phytase primarily through its salivary glands, was developed and approved for limited production.[32][33] Phytase is used as an animal feed supplement – often in poultry and swine – to enhance the nutritive value of plant material by liberation of inorganic phosphate from phytic acid (myo-inositol hexakisphosphate). Phytase can be purified from transgenic microbes and has been produced recently in transgenic canola, alfalfa and rice plants.[34] Phytase enzymology, applications, and biotechnology https://pubmed.ncbi.nlm.nih.gov/14677699/ Evaluation of high dietary phytase supplementation on performance, bone mineralization, and apparent ileal digestible energy of growing broilers https://pubmed.ncbi.nlm.nih.gov/30169714/

			The impact of age and feeding length on phytase efficacy during the starter phase of broiler chickens https://pubmed.ncbi.nlm.nih.gov/31287893/
341.	Food Dietary	Mushroom Mycelium	Piptoporus betulinus https://en.wikipedia.org/wiki/Fomitopsis_betulina Fomitopsis betulina (previously Piptoporus betulinus), commonly known as the birch polypore, birch bracket, or razor strop, is a common bracket fungus and, as the name suggests, grows almost exclusively on birch trees. The brackets burst out from the bark of the tree, and these fruit bodies can last for more than a year. The velvety cut surface of the fruit body was traditionally used as a strop for finishing the edges on razors,[16] and as a mounting material for insect collections.[6] It has also been used as tinder and anesthetic.[14] Piptoporus betulinus, the mushroom that has been carried by Ötzi the "Iceman", has a long tradition of use in medicinal practice for its antiseptic, anticancer, and immune-enhancing properties. https://pubmed.ncbi.nlm.nih.gov/30806295/
342.	Food Dietary	Mushroom Mycelium Dietary supplements Food additives	Polysaccharide from Trametes versicolor Mycelia https://en.wikipedia.org/wiki/Trametes https://en.wikipedia.org/wiki/Trametes_versicolor Polysaccharide from Trametes versicolor Mycelia Trametes versicolor (Synn. Coriolus versicolor) Polysaccharides in Cancer Therapy: Targets and Efficacy https://pubmed.ncbi.nlm.nih.gov/32466253/
343.	Food Dietary	Probiotics Dietary supplements Food additives	Probiotics Species Formula FU3 https://en.wikipedia.org/wiki/Probiotic
344.	Food Dietary	Probiotics Dietary supplements Food additives	Probiotics Species Formula GF5 https://en.wikipedia.org/wiki/Probiotic
345.	Food Dietary	Probiotics Dietary supplements Food additives	Probiotics Species Formula GFN11 https://en.wikipedia.org/wiki/Probiotic
346.	Food Dietary	Probiotics Dietary supplements Food additives	Probiotics Species Formula LB3 https://en.wikipedia.org/wiki/Probiotic
347.	Food Dietary	Mushroom Mycelium	Sparassis crispa https://en.wikipedia.org/wiki/Sparassis_crispa

			Sparassis crispa is a species of fungus in the genus Sparassis. In English it is sometimes called cauliflower fungus.[1] It is considered a good edible fungus when young and fresh,[3] though it is difficult to clean (a toothbrush and running water are recommended for that process). Our previous study showed that lipopolysaccharide (LPS)-induced tumor necrosis factor (TNF)-α production is inhibited by acute exhaustive exercise in mice, leading to transient immunodepression after exercise. Sparassis crispa (SC), an edible mushroom, has immunopotentiative properties. https://pubmed.ncbi.nlm.nih.gov/31480668/
348.	Food Dietary	Dietary supplements Food additives	Spirulina Peptide https://en.wikipedia.org/wiki/Spirulina_(dietary_supplement) Spirulina is a biomass of cyanobacteria (blue-green algae) that can be consumed by humans and animals. The three species are Arthrospira platensis, A. fusiformis, and A. maxima. Cultivated worldwide, Arthrospira is used as a dietary supplement or whole food.[1] It is also used as a feed supplement in the aquaculture, aquarium, and poultry industries.[2] As an ecologically sound, nutrient-rich dietary supplement, spirulina is being investigated to address food security and malnutrition, and as dietary support in long-term space flight or Mars missions.[10][11] Its advantage for food security is that it needs less land and water than livestock to produce protein and energy.[10] Dried spirulina contains 5% water, 24% carbohydrates, 8% fat, and about 60% (51–71%) protein (table).[12][13] Novel Potent Decameric Peptide of Spirulina platensis Reduces Blood Pressure Levels Through a PI3K/AKT/eNOS-Dependent Mechanism https://pubmed.ncbi.nlm.nih.gov/30595120/
349.	Food Dietary	Probiotic Dietary supplements Food additives	Streptococcus thermophilus https://en.wikipedia.org/wiki/Streptococcus_thermophilus Streptococcus thermophilus also known

			as Streptococcus salivarius subsp. thermophilus[1][2] is a gram-positive bacterium, and a fermentative facultative anaerobe, of the viridans group.[3] It tests negative for cytochrome, oxidase, and catalase, and positive for alpha-hemolytic activity.[3] It is non-motile and does not form endospores.[3] S. thermophilus is fimbriated.[4] S. thermophilus is one of the most widely used bacteria in the dairy industry. USDA statistics from 1998 showed that more than 1.02 billion kilograms of mozzarella cheese and 621 million kilograms of yogurt were produced from S. thermophilus.[10] Although its genus, Streptococcus, includes some pathogenic species, food industries consider S. thermophilus a safer bacterium than many other Streptococcus species. In fact, yogurt and cheese that contain live cultures of S. thermophilus are thought to be beneficial to health.[11] Live cultures of S. thermophilus make it easier for people who are lactose intolerant to digest dairy products. The bacteria break down lactose, the sugar in milk, that lactose-intolerant people find difficult to digest.[12]
350.	Food Dietary	Dietary supplements Food additives	Wild Yam Extract https://en.wikipedia.org/wiki/Yam_(vegetable) Yam is the common name for some plant species in the genus Dioscorea (family Dioscoreaceae) that form edible tubers.[1] Yams are perennial herbaceous vines cultivated for the consumption of their starchy tubers in many temperate and tropical regions, especially in Africa, South America and the Caribbean, Asia, and Oceania.[1] The tubers themselves, also called "yams", come in a variety of forms owing to numerous cultivars and related species.[1] The tubers of certain wild yams, including a variant of 'Kokoro' yam and other species of Dioscorea, such as Dioscorea nipponica, are a source for the extraction of diosgenin, a steroid sapogenin.[33] The extracted diosgenin is used for the commercial synthesis of cortisone, pregnenolone, progesterone, and other steroid products.[34] Such preparations were used in early combined oral contraceptive pills.[35] The unmodified steroid has estrogenic activity.[36]

			Herbal preparations for the menopause: beyond isoflavones and black cohosh https://pubmed.ncbi.nlm.nih.gov/24314619/
351.	Food Dietary	Feed additives Food additives Paper Industry Antibody purification Polysaccharide hydrolyzation Fine chemical bio-conversion	Xylanase https://en.wikipedia.org/wiki/Xylanase Xylanase (EC 3.2.1.8) is any of a class of enzymes that degrade the linear polysaccharide xylan into xylose,[1] thus breaking down hemicellulose, one of the major components of plant cell walls. As such, it plays a major role in micro-organisms thriving on plant sources for the degradation of plant matter into usable nutrients. Xylanases are produced by fungi, bacteria, yeast, marine algae, protozoans, snails, crustaceans, insect, seeds, etc.;[2] mammals do not produce xylanases. However, the principal commercial source of xylanases is filamentous fungi.[2] Commercial applications for xylanase include the chlorine-free bleaching of wood pulp prior to the papermaking process, and the increased digestibility of silage (in this aspect, it is also used for fermentative composting).[3]
352.	Intermediate	Intermediates for Efavirenz	(1R, 2S)-1 Phenyl-2-(pyrrolldin-1-yl)propan-1-ol HCl (1S,2R)-1-Phenyl-2-pyrrolidin-1-yl-propan-1-ol hydrochloride CAS Number: 210588-66-0, 1215194-05-0 https://pubchem.ncbi.nlm.nih.gov/compound/44890859
353.	Intermediate	Intermediates for Efavirenz	(1R, 2S)-1 Phenyl-2-(pyrrolldin-1-yl)propan-1-ol CAS Number: 127641-25-2 https://pubchem.ncbi.nlm.nih.gov/compound/10856631
354.	Intermediate	Intermediates for CBD and Dronabinol	(1S,4R)-1-methyl-4-(prop-1-en-2-yl)cyclohex-2-enol CAS Number: 22972-51-6 https://pubchem.ncbi.nlm.nih.gov/compound/11105550
355.	Intermediate	Intermediates for Atomoxetine HCL	(R)-3-(Methylamino)-1-phenylpropanol R)-3-(Methylamino)-1-phenylpropan-1-ol CAS Number: 115290-81-8 https://pubchem.ncbi.nlm.nih.gov/compound/7020931
356.	Intermediate	Intermediates for Propafenone	1-(2-Hydroxyphenyl)-3-phenylpropan-1-one 2'-Hydroxy-3-Phenylpropiophenone CAS Number: 3516-95-8

			https://pubchem.ncbi.nlm.nih.gov/compound/77052
357.	Intermediate	Intermediates for Pharmaceuticals	1-Benzhydrylazetidin-3-ol CAS Number: 18621-17-5 https://pubchem.ncbi.nlm.nih.gov/compound/330448
358.	Intermediate	Sterilization Antiseptic Surfactants Flame Retardants	2-Phenylphenol CAS Number: 90-43-7 https://en.wikipedia.org/wiki/2-Phenylphenol 2-Phenylphenol, or o-phenylphenol, is an organic compound. In terms of structure, it is one of the monohydroxylated isomers of biphenyl.[1][2] It is a white solid. It is a biocide used as a preservative with E number E231 and under the trade names Dowicide, Torsite, Fungal, Preventol, Nipacide and many others. Ortho-phenylphenol, a white flake crystal, is an important new fine chemical product and organic intermediate. It is widely used in sterilization, antiseptic, printing and dyeing auxiliaries and surfactants, as well as stabilizers for the synthesis of new plastics, resins and polymer materials. And flame retardants
359.	Intermediate	Intermediates for Pharmaceuticals	3-Hydroxyazetidine hydrochloride Azetidin-3-ol hydrogenchloride CAS Number: 18621-18-6 https://pubchem.ncbi.nlm.nih.gov/compound/2759290
360.	Intermediate	Intermediates for CBD and Dronabinol	5-pentylbenzene-1,3-diol Olivetol CAS Number: 500-66-3 https://en.wikipedia.org/wiki/Olivetol https://pubchem.ncbi.nlm.nih.gov/compound/10377
361.	Intermediate	Additives Catalyst	CHMA CAS Number: 101-43-9 Cyclohexyl methacrylate Cyclohexyl methacrylate is mainly used in coating, plastic, textile, leather, and paper making industries as monomer or co-monomer for solution polymerization or suspends polymerization.
362.	Intermediate	Additives Catalyst	DMAEMA CAS Number: 2867-47-2 2-(Dimethylamino)ethyl methacrylate As a monomer. It can be used as Brightener in Automotive and Architectural coatings, Latex paint, Cleaning and Cleaning in Lubricants

			Dispersant, water treatment auxiliary, papermaking auxiliary.
363.	Intermediate	Flame Retardants	DOPO 3,4,5,6-bisphenyl-1,2-oxyphosphorus-2-oxide CAS Number: 35948-25-5 Phosphorus-based halogen-free flame retardants have also received more and more attention: DOPO derivatives, their polyphenol hydroxyl or polyamino derivatives can be used as curing agents for polymers, and the performance of the epoxy resin cured by them is comparable to bromine.
364.	Intermediate	Additives Catalyst	IBMA CAS Number: 97-86-9 Isobutyl methacrylate Isobutyl methacrylate is mainly used as monomer for production of polymers.
365.	Intermediate	Intermediate	Methacrylate CAS Number: 18358-13-9 https://en.wikipedia.org/wiki/Methacrylate Methacrylates are derivatives of methacrylic acid. These derivatives include the parent acid ($CH_2C(CH_3)CO_2H$), salts (e.g., $CH_2C(CH_3)CO^-{}_2Na^+$), esters (e.g. $CH_2C(CH_3)CO_2CH_3$, or methyl methacrylate) and the polymers of these species.[1] Methacrylates are common monomers in polymer plastics, forming the acrylate polymers. Methacrylates easily form polymers because the double bonds are very reactive. They are used as the monomer resin in some windscreen repair kits, dental materials and as bone cement for fixing prosthetic devices in orthopedic surgery. The term (meth)acrylate is frequently used as a generic for acrylate and methacrylate.
366.	Intermediate	Intermediates for Loratadine, Ketotifen	N-Methyl-4-piperidinol 1-Methylpiperidin-4-Ol CAS Number: 106-52-5 https://pubchem.ncbi.nlm.nih.gov/compound/66048
367.	Intermediate	Intermediate	OPPEOF CAS Number: 117344-32-8 9,9-Bis[4-(2-hydroxyethoxy)-3-phenylphenyl]fluorene Chemical raw material synthesis, resin raw material synthesis.

368.	Intermediate	Intermediates for Benzerazide	Pyrogallolaldehyde CAS Number: 2144-8-3 https://www.sigmaaldrich.com/catalog/search?term=2144-53-8&interface=CAS%20No.&N=0+&mode=partialmax&lang=en&region=TW&focus=product
369.	Intermediate	Intermediates for Methylphenidate	Ritalinic acid CAS Number: 19395-41-6 https://en.wikipedia.org/wiki/Ritalinic_acid
370.	Intermediate	Intermediates for Duloxetine	S)-3-(methylmino)-1-(2-thi-enyl)propan-1-ol (S)-(-)-3-(N-Methylamino)-1-(2-thienyl)-1-propanol CAS Number: 116539-55-0 https://pubchem.ncbi.nlm.nih.gov/compound/10095047
371.	Medical Device	Packing Material	Bottle Cap Innovation - for Pharmaceutical & Food Products Aluminum cap for Injection bottle cap (Assemble with PP cap) Injection bottle Cap / Drip bottle Cap Tethered cap, Cap with Check Valve, Hinge Cap with Filter, Cap with Oxygen-absorption Liner, Oxygen Barrier Bottle, Label with Light Barrier, QR-Code, Twin Color Cap, Water dispenser, Eco-friendly PET Bottle, Anti-counterfeit Aluminum Cap, PVC-Free Ring Pull Cap, High Gloss Label, Flexo Printing, Composite Vacuum Cap
372.	Medical Device	Medical device Tissue Engineering Medical Research	Collagen solution https://en.wikipedia.org/wiki/Collagen Collagen (/ˈkɒlədʒɪn/) is the main structural protein in the extracellular matrix found in the body's various connective tissues. As the main component of connective tissue, it is the most abundant protein in mammals,[1] making up from 25% to 35% of the whole-body protein content. Collagen consists of amino acids bound together to form a triple helix of elongated fibril[2] known as a collagen helix. It is mostly found in connective tissue such as cartilage, bones, tendons, ligaments, and skin. Can low frequency electromagnetic field help cartilage tissue engineering Chondrogenesis from immortalized human mesenchymal stem cells: comparison between collagen gel and pellet culture methods.

			Anti-inflammatory effects of hydrophilic and lipophilic statins with hyaluronic acid against LPS-induced inflammation in porcine articular chondrocytes. Tissue engineering-based cartilage repair with mesenchymal stem cells in a porcine model. Cartilage fragments from osteoarthritic knee promote chondrogenesis of mesenchymal stem cells without exogenous growth factor induction. Human acellular cartilage matrix powders as a biological scaffold for cartilage tissue engineering with synovium-derived mesenchymal stem cells. Gelatin-chondroitin-hyaluronan tri-copolymer scaffold for cartilage tissue engineering. TGF-beta1 immobilized tri-co-polymer for articular cartilage tissue engineering.
373.	Medical Device	Tissue engineering Aesthetic Medicine Lipodystrophy / Lipoatrophy Innocuous Degradable Implant Nonsurgical Facial and Dermal Rejuvenation Decomposable Packaging and Container 3D Print Lost PLA Casting	Poly-L-lactic acid PLA (Poly(Lactic acid) PLLA) https://en.wikipedia.org/wiki/Polylactic_acid Lactic acid https://en.wikipedia.org/wiki/Lactic_acid CAS Number: 26100-51-6 **Polylactic acid**, also known as **poly(lactic acid)** or **polylactide** (abbreviation **PLA**) is a thermoplastic polyester with backbone formula ($C_3H_4O_2)_n$ or $[–C(CH_3)HC(=O)O–]_n$, formally obtained by condensation of lactic acid $C(CH_3)(OH)HCOOH$ with loss of water (hence its name). It can also be prepared by ring-opening polymerization of lactide $[–C(CH_3)HC(=O)O–]_2$, the cyclic dimer of the basic repeating unit. PLA has become a popular material due to it being economically produced from renewable resources. In 2010, PLA had the second highest consumption volume of any bioplastic of the world,[3] although it is still not a commodity polymer. Its widespread application has been hindered by numerous physical and processing shortcomings.[4] PLA is the most widely used plastic filament material in 3D printing. PLA is used as a feedstock material in desktop fused filament fabrication 3D

			printers (e.g. RepRap).[34][35] PLA-printed solids can be encased in plaster-like moulding materials, then burned out in a furnace, so that the resulting void can be filled with molten metal. This is known as "lost PLA casting", a type of investment casting.[36] PLA can degrade into innocuous lactic acid, so it is used as medical implants in the form of anchors, screws, plates, pins, rods, and as a mesh.[37] Depending on the exact type used, it breaks down inside the body within 6 months to 2 years. This gradual degradation is desirable for a support structure, because it gradually transfers the load to the body (e.g. the bone) as that area heals. The strength characteristics of PLA and PLLA implants are well documented.[38] PLA can also be used as a decomposable packaging material, either cast, injection-molded, or spun.[37] Cups and bags have been made from this material. In the form of a film, it shrinks upon heating, allowing it to be used in shrink tunnels. It is useful for producing loose-fill packaging, compost bags, food packaging, and disposable tableware. In the form of fibers and nonwoven fabrics, PLA also has many potential uses, for example as upholstery, disposable garments, awnings, feminine hygiene products, and diapers. Thanks to its bio-compatibility and biodegradability, PLA has also found ample interest as a polymeric scaffold for drug delivery purposes. Racemic and regular PLLA has a low glass transition temperature, which is undesirable. A stereocomplex of PDLA and PLLA has a higher glass transition temperatures, lending it more mechanical strength.[39] It has a wide range of applications, such as woven shirts (ironability), microwavable trays, hot-fill applications and even engineering plastics (in this case, the stereocomplex is blended with a rubber-like polymer such as ABS). Such blends also have good form stability and visual transparency, making them useful for low-end packaging applications. Pure poly-L-lactic acid (PLLA), on the other hand, is the main ingredient in Sculptra, a long-lasting facial volume enhancer, primarily used for treating lipoatrophy of cheeks. Progress in biotechnology has resulted in the development of commercial production of the D enantiomer

			form, something that was not possible until recently.[40]
374.	Personal care	Surfactant, Cleaners, Detergent	Ammonium Laureth Sulfate CAS Number 32612-48-9 https://pubchem.ncbi.nlm.nih.gov/compound/61913
375.	Personal care	Surfactant, Cleaners, Detergent	Ammonium Lauryl Sulfate CAS Number 2235-54-3 https://pubchem.ncbi.nlm.nih.gov/compound/16700
376.	Personal care	Surfactant, Cleaners, Detergent	Ammonium Nonoxynol-6 Sulfate CAS Number 31691-97-1 https://pubchem.ncbi.nlm.nih.gov/compound/169348
377.	Personal care	Surfactant, Cleaners, Detergent	Caprylyl glucoside CAS Number 68515-73-1 https://pubchem.ncbi.nlm.nih.gov/compound/3033856
378.	Personal care	Antioxidant Free Radical Scavenging Whitening effects	Centella asiatica https://en.wikipedia.org/wiki/Centella_asiatica Centella asiatica, commonly known as Indian pennywort or Asiatic pennywort, is a herbaceous, perennial plant in the flowering plant family Apiaceae.[1] It is native to the wetlands in Asia.[2][3] It is used as a culinary vegetable and as a medicinal herb.[1] In Burmese cuisine, raw pennywort is used as the main constituent in a salad mixed with onions, crushed peanuts, bean powder and seasoned with lime juice and fish sauce. Centella is used as a leafy green in Sri Lankan cuisine, being the predominantly locally available leafy green, where it is called gotu kola. In traditional medicine, C. asiatica has been used to treat various disorders and minor wounds.[1][9] In the context of phytoremediation, C. asiatica is a potential phytoextraction tool owing to its ability to take up and translocate metals from root to shoot when grown in soils contaminated by heavy metals.[11]
379.	Personal care	Surfactant, Cleaners, Detergent	Cocamide MEA CAS Number 68140-00-1 https://pubchem.ncbi.nlm.nih.gov/compound/8899
380.	Personal care	Surfactant, Cleaners, Detergent	Cocamide Methyl MEA CAS Number 866889-75-0 https://pubchem.ncbi.nlm.nih.gov/substance/381125613
381.	Personal care	Surfactant, Cleaners, Detergent	Cocoamide DEA

			CAS Number 68603-42-9 https://pubchem.ncbi.nlm.nih.gov/substance/363902551
382.	Personal care	Surfactant, Cleaners, Detergent	Cocoamido Propyl Betaine CAS Number 61789-40-0 https://pubchem.ncbi.nlm.nih.gov/compound/20280
383.	Personal care	Surfactant, Cleaners, Detergent	Disodium Laureth Sulfosuccinate CAS Number 42016-08-0 https://pubchem.ncbi.nlm.nih.gov/compound/76871819
384.	Personal care	Epidermal growth factor	EGF, oligopeptide -1 https://en.wikipedia.org/wiki/Epidermal_growth_factor Epidermal growth factor (EGF) is a protein that stimulates cell growth and differentiation by binding to its receptor, EGFR. Human EGF is 6-kDa[5] and has 53 amino acid residues and three intramolecular disulfide bonds.[6] EGF was originally described as a secreted peptide found in the submaxillary glands of mice and in human urine. EGF has since been found in many human tissues, including submandibular gland (submaxillary gland),[7] and parotid gland.[7] Initially, human EGF was known as urogastrone.[8] EGF acts by binding with high affinity to epidermal growth factor receptor (EGFR) on the cell surface. This stimulates ligand-induced dimerization,[13] activating the intrinsic protein-tyrosine kinase activity of the receptor (see the second diagram). The tyrosine kinase activity, in turn, initiates a signal transduction cascade that results in a variety of biochemical changes within the cell – a rise in intracellular calcium levels, increased glycolysis and protein synthesis, and increases in the expression of certain genes including the gene for EGFR – that ultimately lead to DNA synthesis and cell proliferation.[14]
385.	Personal care	Antioxidant Anti-Aging Anti-Wrinkling	Eustoma Grandiflorum https://en.wikipedia.org/wiki/Eustoma_russellianum Eustoma russellianum, is a species of flowering plant in the gentian family. Its previous binomial name was Eustoma grandiflorum. Common names include Texas bluebells, Texas bluebell, bluebell, showy

			prairie gentian, prairie gentian,[1] and Lisianthus. The extract is selected from the beautiful flower Eustoma recognized by ancient Greece, belongs to ornamental flowers have never been used in beauty care products. Using its unique technologies, the TSC research institute has from them, refined and obtained beautiful new elements with anti-aging and wrinkle-reducing effects. In addition to verifying its efficacy, its active ingredients are identified, and raw materials and product quality can be controlled.
386.	Personal care	Antioxidant Whitening effects Anti-inflammatory	Ficus Formosa https://en.wikipedia.org/wiki/Ficus Ficus (/ˈfaɪkəs/[1] or /ˈfiːkəs/[2][3]) is a genus of about 850 species of woody trees, shrubs, vines, epiphytes and hemiepiphytes in the family Moraceae. Collectively known as fig trees or figs, they are native throughout the tropics with a few species extending into the semi-warm temperate zone. Fig fruits, especially the exocarp (skin) and seeds, contain monosaccharide sugars and mixed phytochemicals, such as flavonoids, gallic acid, chlorogenic acid, rutin, and epicatechins, the contents of which are higher in dark figs compared to those in light-colored varieties.[19][20] Ripe fruits contain higher amounts of polyphenols and sugar than unripe fruits, and drying generally increases the contents of these constituents per unit of weight.[19][20]
387.	Personal care	Surfactant, Cleaners, Detergent	Lauramidopropyl Betaine CAS Number 4292-10-8 https://pubchem.ncbi.nlm.nih.gov/compound/20280
388.	Personal care	Surfactant, Cleaners, Detergent	Lauryl Dimethyl Amine Oxide CAS Number 1643-20-5 https://pubchem.ncbi.nlm.nih.gov/compound/15433
389.	Personal care	Surfactant, Cleaners, Detergent	Lauryl/Myristyl Glucoside CAS Number 110615-47-9 https://pubchem.ncbi.nlm.nih.gov/compound/10893439
390.	Personal care	Antioxidant Free Radical Scavenging	Leonurus japonicus https://en.wikipedia.org/wiki/Leonurus_japonicus Leonurus japonicus, commonly called oriental motherwort[3] or Chinese motherwort, is a herbaceous flowering plant native to Asia,

			including Korea and Japan, and China to Cambodia. Leonurus japonicus, contains several compounds with biology activity, such as guanosine (CAS: 118-00-3), rutin (CAS: 153-18-4), syringic acid (CAS: 530-57-4) and stigmasterol (CAS: 83-48-7). Scientists use the purified compound as a standard in drug screening.[6]
391.	Personal care	Antioxidant Anti-Inflammatory Agents	Lonicera japonica (vines and leaves) extract https://en.wikipedia.org/wiki/Lonicera_japonica Lonicera japonica, known as Japanese honeysuckle[2] and golden-and-silver honeysuckle,[3] is a species of honeysuckle native to eastern Asia. It is often grown as an ornamental plant Japanese honeysuckle flowers are edible to humans and appreciated for their sweet-tasting nectar. The flowers can also be a significant source of food for deer, rabbits, hummingbirds, and other wildlife.[14] Lonicera japonica contains methyl caffeate, 3,4-di-O-caffeoylquinic acid, methyl 3,4-di-O-caffeoylquinate, protocatechuic acid, methyl chlorogenic acid, and luteolin. The two biflavonoids, 3′-O-methyl loniflavone and loniflavone, along with luteolin and chrysin, can be isolated from the leaves.[25] Other phenolic compounds present in the plant are hyperoside, chlorogenic acid, and caffeic acid.[26] The two secoiridoid glycosides, loniceracetalides A and B, can be isolated, together with 10 known iridoid glycosides, from the flower buds.[27] The plant also contains the saponins loniceroside A and B[28] and the antiinflammatory loniceroside C.[29]
392.	Personal care	Surfactant, Cleaners, Detergent	Monosodium Cocoyl Glutamate CAS Number 68187-32-6 https://pubchem.ncbi.nlm.nih.gov/compound/23676143
393.	Personal care	Surfactant, Cleaners, Detergent	Monosodium Lauroyl Glutamate CAS Number 29923-31-7 http://dir.cosmeticsandtoiletries.com/detail/tradeName.html?id=21647
394.	Personal care	Surfactant, Cleaners, Detergent	Myristyl glucoside CAS Number 110615-47-9 https://pubchem.ncbi.nlm.nih.gov/compound/10893439

395.	Personal care	Antioxidant Free Radical Scavenging	N-Acetylglucosamine CAS Number: 14131-68-1 https://pubchem.ncbi.nlm.nih.gov/compound/24139 https://en.wikipedia.org/wiki/N-Acetylglucosamine ***N*-Acetylglucosamine** (GlcNAc) is an amide derivative of the monosaccharide glucose. It is a secondary amide between glucosamine and acetic acid. It is significant in several biological systems. It is part of a biopolymer in the bacterial cell wall, which is built from alternating units of GlcNAc and *N*-acetylmuramic acid (MurNAc), cross-linked with oligopeptides at the lactic acid residue of MurNAc. This layered structure is called peptidoglycan (formerly called murein). GlcNAc is the monomeric unit of the polymer chitin, which forms the exoskeletons of arthropods like insects and crustaceans. It is the main component of the radulas of mollusks, the beaks of cephalopods, and a major component of the cell walls of most fungi. Polymerized with glucuronic acid, it forms hyaluronan. GlcNAc has been reported to be an inhibitor of elastase release from human polymorphonuclear leukocytes (range 8–17% inhibition), however this is much weaker than the inhibition seen with *N*-acetylgalactosamine (range 92–100%).[1] Ref : https://pubchem.ncbi.nlm.nih.gov/compound/24139 Delivery of Polynucleotides, CGPR Antagonists Glycosidasc inhibitors, Degenerative Cartilage Conditions, Bleaching inorganic persalt or of hydrogen peroxide, etc.
396.	Personal care	Antioxidant	OGG1-Oxoguanine glycosylase https://en.wikipedia.org/wiki/Oxoguanine_glycosylase 8-Oxoguanine glycosylase also known as OGG1 is a DNA glycosylase enzyme that, in humans, is encoded by the OGG1 gene. It is involved in base excision repair. It is found in bacterial, archaeal and eukaryotic species. Mice without a functional OGG1 gene have about a 5-fold increased level of 8-oxo-dG in

			their livers compared to mice with wild-type OGG1.[9] Mice defective in OGG1 also have an increased risk for cancer.[9] Kunisada et al.[12] irradiated mice without a functional OGG1 gene (OGG1 knock-out mice) and wild-type mice three times a week for forty weeks with UVB light at a relatively low dose (not enough to cause skin redness). Both types of mice had high levels of 8-oxo-dG in their epidermal cells three hours after irradiation. However, 24 hours later, the majority of 8-oxo-dG was absent from the epidermal cells of the wild-type mice but 8-oxo-dG remained elevated in the epidermal cells of the OGG1 knock-out mice. The irradiated OGG1 knock-out mice had more than twice the level of skin tumors compared to irradiated wild-type mice, and the rate of malignancy within the tumors was higher in the OGG1 knock-out mice (73%) than in the wild-type mice (50%). As reviewed by Valavanidis et al.,[13] increased levels of 8-oxo-dG in a tissue can serve as a biomarker of oxidative stress. They also noted that increased levels of 8-oxo-dG are frequently found during carcinogenesis.
397.	Personal care	Surfactant, Cleaners, Detergent	Oleamide DEA CAS Number 93-83-4 https://pubchem.ncbi.nlm.nih.gov/compound/5371728
398.	Personal care	Surfactant, Cleaners, Detergent	Potassium MonoLauryl Phosphate CAS Number 19045-77-3 https://pubchem.ncbi.nlm.nih.gov/compound/22096549
399.	Personal care	Surfactant, Cleaners, Detergent	Potassium N-Cocoyl Glycinate CAS Number 301341-58-2 https://incibeauty.com/en/ingredients/10123-potassium-cocoyl-glycinate
400.	Personal care	Surfactant, Cleaners, Detergent	Potassium Palm Kernelate CAS Number 70969-43-6 https://pubchem.ncbi.nlm.nih.gov/substance/135315702
401.	Personal care	Antioxidant Anti-Inflammatory Agents	Salvia miltiorrhiza (root) extract https://en.wikipedia.org/wiki/Salvia_miltiorrhiza Salvia miltiorrhiza (Chinese: 丹 參; pinyin: dānshēn), also known as red sage, Chinese sage, tan shen, or danshen, is a perennial plant in the genus Salvia, highly valued for its roots in traditional Chinese medicine.[2] Native to China and Japan

			Chemical compounds isolated from Salvia miltiorrhiza include salvianolic acid (or salvianolic acid B),[3][4] dihydrotanshinone, tanshinone I, and tanshinone IIA.[5][6] Tanshinone IIA is one of the most abundant constituents of the root of Salvia miltiorrhiza.[5] Alone or combined with other Chinese herbal medicines, Salvia miltiorrhiza has been used in China and, to a lesser extent, in other countries as a treatment for various cardiovascular and cerebrovascular diseases.[5][9] A 2007 Cochrane review of the use of danshen for acute ischaemic stroke found that the quality of evidence was poor, and there was no evidence of benefit.[11] 1.Decrease ROS production of HFDPC 2.Enhance melanin production 3.Reduce macrophage inflammation Evidence exists in support of a highly cross-linked heteropolymer bound covalently to matrix scaffolding melanoproteins.[54] It has been proposed that the ability of melanin to act as an antioxidant is directly proportional to its degree of polymerization or molecular weight.[55] Suboptimal conditions for the effective polymerization of melanin monomers may lead to formation of lower-molecular-weight, pro-oxidant melanin that has been implicated in the causation and progression of macular degeneration and melanoma.[56] Signaling pathways that upregulate melanization in the retinal pigment epithelium (RPE) also may be implicated in the downregulation of rod outer segment phagocytosis by the RPE. This phenomenon has been attributed in part to foveal sparing in macular degeneration.[57]
402.	Personal care	Anti-Inflammatory Agents Anti-Bacterials Whitening effects Anti-Allergy	Scutellaria baicalensis (root) extract https://en.wikipedia.org/wiki/Scutellaria_baicalensis Scutellaria baicalensis, with the common name Baikal skullcap or Chinese skullcap, is a species of flowering plant in the family Lamiaceae. Several chemical compounds have been isolated from the root; baicalein, baicalin, wogonin, norwogonin,

			oroxylin A[3] and β-sitosterol are the major ones.[4] 1.Reduce keratinocyte and macrophage inflammation 2.Inhibit P. acnes growth 3.Inhibit melanin production 4.Decrease basophil degranulation
403.	Personal care	Surfactant, Cleaners, Detergent	Sodium 2-Ethylhexyl Sulfate CAS Number 126-92-1 https://pubchem.ncbi.nlm.nih.gov/compound/23662383
404.	Personal care	Surfactant, Cleaners, Detergent	Sodium 2-Ethylhexyl Sulfosuccinate CAS Number 577-11-7 https://pubchem.ncbi.nlm.nih.gov/compound/23673837
405.	Personal care	Surfactant, Cleaners, Detergent	Sodium Cocoyl Alaninate https://en.wikipedia.org/wiki/Sodium_lauroyl_sarcosinate CAS Number 90170-45-9
406.	Personal care	Surfactant, Cleaners, Detergent	Sodium Cocoyl Isethionate CAS Number 61789-32-0 https://pubchem.ncbi.nlm.nih.gov/compound/123134487
407.	Personal care	Surfactant, Cleaners, Detergent	Sodium Cumene Sulfonate CAS Number 32073-22-6 https://pubchem.ncbi.nlm.nih.gov/compound/23679813
408.	Personal care	Surfactant, Cleaners, Detergent	Sodium Laureth Sulfate CAS Number 3088-31-1 https://pubchem.ncbi.nlm.nih.gov/compound/23665884
409.	Personal care	Surfactant, Cleaners, Detergent	Sodium Laureth Sulfate CAS Number 3088-31-1 https://pubchem.ncbi.nlm.nih.gov/compound/23682204
410.	Personal care	Surfactant, Cleaners, Detergent	Sodium Lauroyl Sarcosinate CAS Number 137-16-6 https://en.wikipedia.org/wiki/Sodium_lauroyl_sarcosinate
411.	Personal care	Surfactant, Cleaners, Detergent	Sodium Lauryl Sulfate CAS Number 151-21-3 https://pubchem.ncbi.nlm.nih.gov/compound/3423265
412.	Personal care	Surfactant, Cleaners, Detergent	Sodium Methyl Cocoyl Taurate CAS Number 12765-39-8 https://en.wikipedia.org/wiki/Taurates
413.	Personal care	Surfactant, Cleaners, Detergent	Sodium Nonoxynol-6 Sulfate CAS Number 9014-90-8 https://pubchem.ncbi.nlm.nih.gov/compound/5463920
414.	Personal care	Surfactant, Cleaners, Detergent	Sodium Toluene Sulfonate

			CAS Number 12068-03-0 https://pubchem.ncbi.nlm.nih.gov/compound/3720192
415.	Personal care	Surfactant, Cleaners, Detergent	Sodium Xylene Sulfonate CAS Number 1300-72-7 https://pubchem.ncbi.nlm.nih.gov/compound/71775948
416.	Personal care	Surfactant, Cleaners, Detergent	Sodium α-Olefin Sulfonate CAS Number 68439-57-6 https://www.sigmaaldrich.com/catalog/product/sigma/d3412?lang=en&region=TW
417.	Personal care	Surfactant, Cleaners, Detergent	TEA-Lauryl Sarcosinate CAS Number 16693-53-1 https://pubchem.ncbi.nlm.nih.gov/compound/167562
418.	Personal care	Skin hydration Fragrance	Zingiber zerumbet (Flower water) extract https://en.wikipedia.org/wiki/Zingiber_zerumbet 1. Skin hydration 2. Fragrance
419.	Personal care	Anti-aging	Zingiber zerumbet (Inflorescence) extract https://en.wikipedia.org/wiki/Zingiber_zerumbet 1.Anti-aging
420.	Personal care	Antioxidant (DPPH) Reduce macrophage inflammation	Zingiber zerumbet (leaves) extract https://en.wikipedia.org/wiki/Zingiber_zerumbet 1. Antioxidant (DPPH) 2. Reduce macrophage inflammation
421.	Personal care	Hair Growth Anti-Inflammatory Agents	Zingiber zerumbet (rhizome) extract1&2 https://en.wikipedia.org/wiki/Zingiber_zerumbet Zingiber zerumbet[2] is a species of plant in the ginger family[3] with leafy stems growing to about 1.2 m (3.9 ft) tall. It originates from Asia, but can be found in many tropical countries. Common names include: awapuhi, bitter ginger,[4] shampoo ginger (Malay = lempoyang) and pinecone ginger.[5] 1. Increse cell growth of keratinocyte and HFDPC 2. Reduce macrophage and HFDPC inflammation 3. Decrease ROS production of HFDPC (extract2) The rhizomes of Z. zerumbet have been used as food flavoring and appetizers in various cuisines while the rhizome extracts have been used in herbal medicine. The leaves and leaf stalks, which are also fragrant, were used in baking in the imu,

			underground oven, to enhance the flavor of pork and fish as they cooked. Traditionally, the aromatic underground rhizomes were sliced, dried, and pounded to a powder, then added to the folds of stored kapa (tapa) cloth. Perhaps the most common use of the plant awapuhi is as a shampoo and conditioner. The clear fragrant juice present in the mature flower heads that resemble red pine cones is used for softening and bringing shininess to the hair. It can be left in the hair or rinsed out and can also be used as a massage lubricant.
422.	Processing Material and Equipment	Laboratory Instruments, Equipment	Centrifuge machine https://en.wikipedia.org/wiki/Centrifuge A **centrifuge** is a device that uses centrifugal force to separate various components of a fluid. This is achieved by spinning the fluid at high speed within a container, thereby separating fluids of different densities (e.g. cream from milk) or liquids from solids. It works by causing denser substances and particles to move outward in the radial direction. At the same time, objects that are less dense are displaced and move to the centre. In a laboratory centrifuge that uses sample tubes, the radial acceleration causes denser particles to settle to the bottom of the tube, while low-density substances rise to the top A centrifuge can be a very effective filter that separates contaminants from the main body of fluid. A wide variety of laboratory-scale centrifuges are used in chemistry, biology, biochemistry and clinical medicine for isolating and separating suspensions and immiscible liquids. They vary widely in speed, capacity, temperature control, and other characteristics. Laboratory centrifuges often can accept a range of different fixed-angle and swinging bucket rotors able to carry different numbers of centrifuge tubes and rated for specific maximum speeds. Controls vary from simple electrical timers to programmable models able to control acceleration and deceleration rates, running speeds, and temperature regimes. Ultracentrifuges spin the rotors under vacuum, eliminating air resistance and enabling exact temperature control. Zonal rotors and continuous flow systems are capable of handing bulk and larger sample volumes, respectively, in a laboratory-scale instrument. Another application in laboratories

			is blood separation. Blood separates into cells and proteins (RBC, WBC, platelets, etc.) and serum. DNA preparation is another common application for pharmacogenetics and clinical diagnosis. DNA samples are purified and the DNA is prepped for separation by adding buffers and then centrifuging it for a certain amount of time. The blood waste is then removed and another buffer is added and spun inside the centrifuge again. Once the blood waste is removed and another buffer is added the pellet can be suspended and cooled. Proteins can then be removed and the entire thing can be centrifuged again and the DNA can be isolated completely. Specialized cytocentrifuges are used in medical and biological laboratories to concentrate cells for microscopic examination.
423.	Processing Material and Equipment	Sample Preparation	Centrifuge tubes https://en.wikipedia.org/wiki/Laboratory_centrifuge#Centrifuge_tubes **Centrifuge tubes** are precision-made, high-strength tubes of glass or plastic made to fit exactly in rotor cavities. They may vary in capacity from 50 mL down to much smaller capacities used in microcentrifuges used extensively in molecular biology laboratories. Microcentrifuges typically accommodate disposable plastic microcentrifuge tubes with capacities from 250 µL to 2.0 mL. Glass centrifuge tubes can be used with most solvents, but tend to be more expensive. They can be cleaned like other laboratory glassware, and can be sterilized by autoclaving. Small scratches from careless handling can cause failure under the strong forces imposed during a run. Glass tubes are inserted into soft rubber sleeves to cushion them during runs. Plastic centrifuge tubes, especially tend to be less expensive and, with care, can be just as durable as glass. Water is preferred when plastic centrifuge tubes are used. They are more difficult to clean thoroughly, and are usually inexpensive enough to be considered disposable. Disposable plastic "microlitre tubes" of 0.5ml to 2ml are commonly used in microcentrifuges. They are molded from a flexible transparent plastic similar to polythene, are semi-conical in shape, with integral, hinged sealing caps. Larger samples are spun using centrifuge bottles, which range in capacity from 250 to

			1000 millilitres. Although some are made of heavy glass, centrifuge bottles are usually made of shatterproof plastics such as polypropylene or polycarbonate. Sealing closures may be used for added leak-proof assurance. **Centrifuge tubes** are precision-made, high-strength tubes of glass or plastic made to fit exactly in rotor cavities. They may vary in capacity from 50 mL down to much smaller capacities used in microcentrifuges used extensively in molecular biology laboratories. Microcentrifuges typically accommodate disposable plastic microcentrifuge tubes with capacities from 250 µL to 2.0 mL. Glass centrifuge tubes can be used with most solvents, but tend to be more expensive. They can be cleaned like other laboratory glassware, and can be sterilized by autoclaving. Small scratches from careless handling can cause failure under the strong forces imposed during a run. Glass tubes are inserted into soft rubber sleeves to cushion them during runs. Plastic centrifuge tubes, especially tend to be less expensive and, with care, can be just as durable as glass. Water is preferred when plastic centrifuge tubes are used. They are more difficult to clean thoroughly, and are usually inexpensive enough to be considered disposable. Disposable plastic "microlitre tubes" of 0.5ml to 2ml are commonly used in microcentrifuges. They are molded from a flexible transparent plastic similar to polythene, are semi-conical in shape, with integral, hinged sealing caps. Larger samples are spun using centrifuge bottles, which range in capacity from 250 to 1000 millilitres. Although some are made of heavy glass, centrifuge bottles are usually made of shatterproof plastics such as polypropylene or polycarbonate. Sealing closures may be used for added leak-proof assurance.
424.	Processing Material and Equipment	Sample Preparation	Membrane Filter Membrane technology https://en.wikipedia.org/wiki/Membrane_technology Membrane separation processes operate without heating and therefore use less energy than conventional thermal separation processes such as distillation, sublimation or crystallization.

			The separation process is purely physical and both fractions (permeate and retentate) can be used. Cold separation using membrane technology is widely used in the food technology, biotechnology and pharmaceutical industries. Furthermore, using membranes enables separations to take place that would be impossible using thermal separation methods. Membrane filters are surface filters used to remove or collect particulates and microorganism for analysis. They are typically used in both the filtration of liquid and air.
425.	Processing Material and Equipment	Monolith Chromatography Media 3D Cell Culture , Diagnostics, High Throughput Screening Tissue Engineering	Molecularly Imprinted Polymer https://en.wikipedia.org/wiki/Molecularly_imprinted_polymer A molecularly imprinted polymer (MIP) is a polymer that has been processed using the molecular imprinting technique which leaves cavities in the polymer matrix with an affinity for a chosen "template" molecule. The process usually involves initiating the polymerization of monomers in the presence of a template molecule that is extracted afterwards, leaving behind complementary cavities. These polymers have affinity for the original molecule and have been used in applications such as chemical separations, catalysis, or molecular sensors. Published works on the topic date to the 1930s.[1] Nice areas for application of MIPs are in sensors and separation. Despite the current good health of molecular imprinting in general, one difficulty which appears to remain to this day is the commercialization of molecularly imprinted polymers. Despite this, many patents (1035 patents, up to October 2018, according to the Scifinder data base) on molecular imprinting were held by different groups. Commercial interest is also confirmed by the fact that MIP Technologies,[24] offers a range of commercially available MIP products and Sigma-Aldrich produces SupelMIP for beta-agonists, beta-blockers, pesticides and some drugs of abuse such as amphetamine. Additionally, POLYINTELL[25] designs, manufactures and markets AFFINIMIPSPE products[26] for instance for mycotoxins such as patulin, zearalenone, fumonisins, ochratoxin A, for endocrine disruptors (bisphenol A, estrogen derivatives etc...) or for the

			purification of radiotracers before their use in positron emission tomography (PET).
426.	Processing Material and Equipment	Membrane filtration Water treatment Water softening Dye removal Concentration Selective separation of mono-, multi-valent ions Retaining of mineral ions (Ca, Mg, Na, K) for drinking water	Nanofiltration (NF) Membrane Spiral-Wound https://en.wikipedia.org/wiki/Nanofiltration Nanofiltration (NF) is a relatively recent membrane filtration process used most often with low total dissolved solids water such as surface water and fresh groundwater, with the purpose of softening (polyvalent cation removal) and removal of disinfection by-product precursors such as natural organic matter and synthetic organic matter.[1][2] Nanofiltration is also becoming more widely used in food processing applications such as dairy, for simultaneous concentration and partial (monovalent ion) demineralisation. Range of applications[edit] : Historically, nanofiltration and other membrane technology used for molecular separation was applied entirely on aqueous systems. The original uses for nanofiltration were water treatment and in particular water softening. Nanofilters can "soften" water by retaining scale-forming, hydrated divalent ions (e.g. Ca^{2+}, Mg^{2+}) while passing smaller hydrated monovalent ions.[5][6] In recent years, the use of nanofiltration has been extended into other industries such as milk and juice production. Research and development in solvent-stable membranes has allowed the application for nanofiltration membranes to extend into new areas such as pharmaceuticals, fine chemicals, and flavour and fragrance industries.[5]
427.	Processing Material and Equipment	Sample Preparation Life Science	PCR Supplies / PCR PCR Tubes / PCR 8-Strip Tubes / PCR 96 Well plate https://en.wikipedia.org/wiki/Polymerase_chain_reaction **Polymerase chain reaction** (**PCR**) is a method widely used to rapidly make millions to billions of copies (complete copies or partial copies) of a specific DNA sample, allowing scientists to take a very small sample of DNA and amplify it (or a part of it) to a large enough amount to study in detail. PCR was invented in 1983 by the American biochemist Kary Mullis at Cetus Corporation. It is fundamental to many of the procedures used in genetic

			testing and research, including analysis of ancient samples of DNA and identification of infectious agents. Using PCR, copies of very small amounts of DNA sequences are exponentially amplified in a series of cycles of temperature changes. PCR is now a common and often indispensable technique used in medical laboratory research for a broad variety of applications including biomedical research and criminal forensics.
428.	Processing Material and Equipment	Sample Preparation	Pipette Tip https://en.wikipedia.org/wiki/Pipette A **pipette** (sometimes spelled **pipet**) is a laboratory tool commonly used in chemistry, biology and medicine to transport a measured volume of liquid, often as a media dispenser. Pipettes come in several designs for various purposes with differing levels of accuracy and precision, from single piece glass pipettes to more complex adjustable or electronic pipettes. Many pipette types work by creating a partial vacuum above the liquid-holding chamber and selectively releasing this vacuum to draw up and dispense liquid. Measurement accuracy varies greatly depending on the instrument.
429.	Processing Material and Equipment	Chromatography Purification Media	Protein G resin https://en.wikipedia.org/wiki/Protein_G Protein G is an immunoglobulin-binding protein expressed in group C and G Streptococcal bacteria much like Protein A but with differing binding specificities. It is a 65-kDa (G148 protein G) and a 58 kDa (C40 protein G)[1] cell surface protein that has found application in purifying antibodies through its binding to the Fab and Fc region. The native molecule also binds albumin, but because serum albumin is a major contaminant of antibody sources, the albumin binding site has been removed from recombinant forms of Protein G. This recombinant Protein G, either labeled with a fluorophore or a single-stranded DNA strand, was used as a replacement for secondary antibodies in immunofluorescence and super-resolution imaging.[2] Protein A chromatography: Challenges and progress in the purification of monoclonal antibodies https://pubmed.ncbi.nlm.nih.gov/30811843/ Protein A and Protein G Purification of Antibodies https://pubmed.ncbi.nlm.nih.gov/30602558/

430.	Processing Material and Equipment	Membrane filtration Ultrapure water Drinking water Wastewater Food industry Maple syrup production Low alcohol beer Hydrogen production Oiler hydration Aquariums Window cleaning	Reverse Osmosis **Home, Commercial, Industries** **High pressure and high desalination** **Seawater Desalination** https://en.wikipedia.org/wiki/Reverse_osmosis Reverse osmosis (RO) is a water purification process that uses a partially permeable membrane to separate ions, unwanted molecules and larger particles from drinking water. In reverse osmosis, an applied pressure is used to overcome osmotic pressure, a colligative property that is driven by chemical potential differences of the solvent, a thermodynamic parameter. Reverse osmosis can remove many types of dissolved and suspended chemical species as well as biological ones (principally bacteria) from water, and is used in both industrial processes and the production of potable water. The result is that the solute is retained on the pressurized side of the membrane and the pure solvent is allowed to pass to the other side. To be "selective", this membrane should not allow large molecules or ions through the pores (holes), but should allow smaller components of the solution (such as solvent molecules, i.e., water, H_2O) to pass freely.[1].
431.	Processing Material and Equipment	Sample Preparation	Syringe filter Non-Sterile / Sterile https://en.wikipedia.org/wiki/Syringe_filter A **syringe filter** (sometimes called a **wheel filter** if it has a wheel-like shape) is a single-use filter cartridge. It is attached to the end of a syringe for use. Syringe filters may have Luer lock fittings, though not universally so. The use of a needle is optional; where desired it may be fitted to the end of the syringe filter. Syringe filters may be used to remove particles from a sample, prior to analysis by HPLC or other techniques involving expensive instruments. Particles easily damage an HPLC due to the narrow bore and high pressures within. Syringe filters are quite suitable for Schlenk line work, which makes extensive use of needles and syringes (see cannula transfer). Being relatively affordable, they may be used for general purpose filtration, especially of smaller volumes where losses by soaking up filter paper are significant. Syringe filters are also available for the filtration of gases, and for the removal of bacteria from a sample.

			Disk filters are frequently used for the onsite manufacture of parenteral drugs and sterile eye drops, in order to remove microbiological contaminations (sterile filtration).
432.	Processing Material and Equipment	Membrane filtration Drinking water Protein, Paper pulp, Milk, Enzyme Fruit juice, Dialysis Desalting, Solvent-exchange, Radiocarbon dating of bone collagen	Ultrafiltration (UF) Membrane **Spiral-Wound** **Electrophoretic Paint** **Submerged UF (S-UF)** **Membrane Bio-Reactor** https://en.wikipedia.org/wiki/Ultrafiltration Ultrafiltration (UF) is a variety of membrane filtration in which forces like pressure or concentration gradients lead to a separation through a semipermeable membrane. Suspended solids and solutes of high molecular weight are retained in the so-called retentate, while water and low molecular weight solutes pass through the membrane in the permeate (filtrate). This separation process is used in industry and research for purifying and concentrating macromolecular (10^3 - 10^6 Da) solutions, especially protein solutions. Ultrafiltration is not fundamentally different from microfiltration. Both of these separate based on size exclusion or particle capture. It is fundamentally different from membrane gas separation, which separate based on different amounts of absorption and different rates of diffusion. Ultrafiltration membranes are defined by the molecular weight cut-off (MWCO) of the membrane used. Ultrafiltration is applied in cross-flow or dead-end mode. Industries such as chemical and pharmaceutical manufacturing , food and beverage processing, and waste water treatment, employ ultrafiltration in order to recycle flow or add value to later products. Blood dialysis also utilizes ultrafiltration. In many cases UF is used for pre filtration in reverse osmosis (RO) plants to protect the RO membranes. Applications : Drinking water, Protein concentration, Other applications
433.	Processing Material and Equipment	Laboratory Instruments, Equipment	Ultrasonic cleaning / Ultrasonic Clean Machine https://en.wikipedia.org/wiki/Ultrasonic_cleaning **Ultrasonic cleaning** is a process that uses ultrasound (usually from 20–40 kHz) to agitate a fluid. The ultrasound can be used with just water, but use of a solvent appropriate

			for the object to be cleaned and the type of soiling present enhances the effect. Cleaning normally lasts between three and six minutes, but can also exceed 20 minutes, depending on which object has to be cleaned.[1] Ultrasonic cleaners are used to clean many different types of objects, including jewelry, scientific samples, lenses and other optical parts, watches, dental and surgical instruments, tools, coins, fountain pens, golf clubs, fishing reels, window blinds, firearm components, car fuel injectors, musical instruments, gramophone records, industrial machine parts and electronic equipment. They are used in many jewelry workshops, watchmakers' establishments, electronic repair workshops[2] and scientific labs.
434.	Processing Material and Equipment	Laboratory Instruments, Equipment	Vacuum Pump https://en.wikipedia.org/wiki/Vacuum_pump A **vacuum pump** is a device that draws gas molecules from a sealed volume in order to leave behind a partial vacuum. The job of a vacuum pump is to generate a relative vacuum within a capacity. The first vacuum pump was invented in 1650 by Otto von Guericke, and was preceded by the suction pump, which dates to antiquity. Vacuum pumps are used in many industrial and scientific processes including composite plastic moulding processes, production of most types of electric lamps, vacuum tubes, and CRTs where the device is either left evacuated or re-filled with a specific gas or gas mixture, semiconductor processing, notably ion implantation, dry etch and PVD, ALD, PECVD and CVD deposition and so on in photolithography, electron microscopy, medical processes that require suction, uranium enrichment, medical applications such as radiotherapy, radiosurgery and radiopharmacy, analytical instrumentation to analyse gas, liquid, solid, surface and bio materials, mass spectrometers to create a high vacuum between the ion source and the detector, vacuum coating on glass, metal and plastics for decoration, for durability and for energy saving, such as low-emissivity glass, hard coating for engine components (as in Formula One), ophthalmic coating, milking machines and other equipment in dairy sheds, vacuum impregnation of porous products such as wood or electric motor windings, air

			conditioning service (removing all contaminants from the system before charging with refrigerant), trash compactor,[*citation needed*] vacuum engineering, sewage systems (see EN1091:1997 standards), freeze drying, and fusion research.[15] In the field of oil regeneration and re-refining, vacuum pumps create a low vacuum for oil dehydration and a high vacuum for oil purification.[16] Especially in the field of transformer maintenance, vacuum pumps play an essential role in transformer oil purification plants which are used to extend the lifetime of transformers in the field.
435.	Processing Material and Equipment	Sample Preparation	Vial Chromatography / HPLC https://en.wikipedia.org/wiki/Vial A **vial** (also known as a **phial** or **flacon**) is a small glass or plastic vessel or bottle, often used to store medication as liquids, powders or capsules. They can also be used as scientific sample vessels; for instance, in autosampler devices in analytical chromatography. Vial-like glass containers date back to classical antiquity; modern vials are often made of plastics such as polypropylene. There are different types of vials such as a single dose vial and multi-dose vials often used for medications. The single dose vial is only used once whereas a multi-dose vial can be used more than once. The CDC sets specific guidelines on multi-dose vials.
436.	Reagent	Pathogen Screening Detection Kits Desktop PCR based Fish Aquaculture	African Swine Fever (ASF) https://en.wikipedia.org/wiki/African_swine_fever_virus ***African swine fever virus*** (**ASFV**) is a large, double-stranded DNA virus in the *Asfarviridae* family. It is the causative agent of **African swine fever** (ASF). The virus causes a hemorrhagic fever with high mortality rates in domestic pigs; some isolates can cause death of animals as quickly as a week after infection. It persistently infects its natural hosts, warthogs, bushpigs, and soft ticks of the genus *Ornithodoros*, which likely act as a vector, with no disease signs. It does not cause disease in humans.
437.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Candidatus Branchiomonas cysticola (CBc) https://en.wikipedia.org/wiki/Candidatus In prokaryote nomenclature, ***Candidatus*** (Latin for candidate of Roman office) is used to

			name prokaryotic phyla that are well characterized but yet-uncultured. Contemporary sequencing approaches, such as 16S sequencing or metagenomics, provide much information about the analyzed organisms and thus allow to identify and characterize individual species. List of taxa with candidatus status
438.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Desmozoon lepeophtherii / Paranucleospora theridion https://pubmed.ncbi.nlm.nih.gov/31735129/ Desmozoon lepeophtherii is a microsporidian associated with gill disease in farmed Atlantic salmon (Salmo salar). Detection of the parasite in histologic tissue sections is challenging using common histochemical stains given that the small, widely distributed parasite spores typically occur individually or in small clusters.
439.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Infectious pancreatic necrosis virus (IPNV) https://en.wikipedia.org/wiki/Aquabirnavirus ***Aquabirnavirus*** is a genus of viruses, in the family *Birnaviridae*. Salmonid fish serve as natural hosts. There are three species in this genus. A disease associated with this genus, Infectious pancreatic necrosis (IPN) in salmonid fish, causes significant losses to the aquaculture industry. Chronic infection in adults, and acute viral disease in young salmonid fish can occur.
440.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Infectious salmon anemia virus (ISAV) https://en.wikipedia.org/wiki/Salmon_isavirus **Infectious salmon anemia** (**ISA**) is a viral disease of Atlantic salmon (*Salmo salar*) caused by ***Salmon isavirus***. It affects fish farms in Canada, Norway, Scotland and Chile, causing severe losses to infected farms. ISA has been a World Organisation for Animal Health notifiable disease since 1990. In the EU, it is classified as a non-exotic disease, and is monitored by the European Community Reference Laboratory for Fish Diseases.
441.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Koi herpesvirus (KHV) / Cyprinid herpesvirus 3 https://en.wikipedia.org/wiki/Cyprinid_herpesvirus_3 ***Cyprinid herpesvirus 3*** (also **CyHV-3**, **koi herpes virus** or **KHV**) is a species of virus causing a viral disease that is very contagious to the common carp *Cyprinus carpio*.

			KHV is a DNA-based virus. After discovery, it was identified as a strain of herpesvirus. Like other strains, KHV stays with the infected fish for the duration of their lives, making the recovered and exposed fish potential carriers of the virus. Koi fish infected with KHV may die within the first 24–48 hours of exposure. The virus is found in 33 countries.
442.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Lymphocystivirus https://en.wikipedia.org/wiki/Lymphocystivirus#Pathogenesis ***Lymphocystivirus*** is a genus of viruses, in the family *Iridoviridae*.[1] Fish serve as natural hosts. There are four species in this genus. Diseases associated with this genus include: tumor-like growths on the skin. Lymphocystis disease is a chronic disease that rarely causes mortality. Infection causes transformation and hypertrophy (approximately 1000x) of cells in the dermis, forming grossly visible lymphocystis nodules, as well as transformation and hypertrophy in cells of the connective tissues of various internal organs. Fibroblasts and osteoblasts are specifically targeted by the virus. Lymphocystis viruses are not easily grown in cell culture,[4] placing limitations on *in vitro* molecular pathogenesis experiments.
443.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Neoparamoeba perurans (Amoebic gill disease, AGD) https://en.wikipedia.org/wiki/Neoparamoeba_pemaquidensis **Neoparamoeba pemaquidensis** is a single-celled species of marine amoebozoan in the genus Neoparamoeba. The species is also called *Paramoeba pemaquidensis*. Its closely related sister species, *Neoparamoeba perurans,* is the agent of amoebic gill disease, which affects Atlantic salmon and other farmed fishes.[
444.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Nervous necrosis virus (NNV) https://en.wikipedia.org/wiki/Betanodavirus ***Betanodavirus***, or **nervous necrosis virus** (**NNV**), is a genus of noneveloped positive-strand RNA viruses in the family *Nodaviridae.* Member viruses infect fish and cause viral nervous necrosis (VNN) and viral encephalopathy and retinopathy (VER). The genus contains four species.

445.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Photobacterium damselae subsp. piscicida https://en.wikipedia.org/wiki/Photobacterium_damselae_subsp._piscicida ***Photobacterium damselae* subsp. *piscicida*** (previously known as ***Pasteurella piscicida***) is a gram-negative rod-shaped bacterium that causes disease in fish. This pathology is temperature dependent and occurs usually when water temperatures rise above 18-20 °C. Below this temperature, fish can harbour the pathogen as subclinical infection and become carriers for long time periods (Romalde, 2002)
446.	Reagent	Fluorescent Labeling Dye Anti-Oxidant Anti-Aging Anti-Inflammatory Anti-Neurodegenerative	Phycoerythrin https://en.wikipedia.org/wiki/Phycoerythrin Phycoerythrin (PE) is a red protein-pigment complex from the light-harvesting phycobiliprotein family, present in red algae[1] and cryptophytes,[2] accessory to the main chlorophyll pigments responsible for photosynthesis. Like all phycobiliproteins, it is composed of a protein part covalently binding chromophores called phycobilins. In the phycoerythrin family, the most known phycobilins are: phycoerythrobilin, the typical phycoerythrin acceptor chromophore, and sometimes phycourobilin. Phycoerythrins are composed of (αβ) monomers, usually organised in a disk-shaped trimer $(\alpha\beta)_3$ or hexamer $(\alpha\beta)_6$ (second one is the functional unit of the antenna rods). These typical complexes also contain a third type of subunit, the γ chain. R-Phycoerythrin (also known as PE or R-PE) is useful in the laboratory as a fluorescence-based indicator for the presence of cyanobacteria and for labeling antibodies, most often for flow cytometry. Its use is limited in immunofluorescence microscopy due to its rapid photobleaching characteristics. There are also other types of phycoerythrins, such as B-Phycoerythrin, which have slightly different spectral properties. B-Phycoerythrin absorbs strongly at about 545 nm (slightly yellowish green) and emits strongly at 572 nm (yellow) instead and could be better suited for some instruments. B-Phycoerythrin may also be less "sticky" than R-Phycoerythrin and contributes less to background signal due to non-specific

			binding in certain applications.[citation needed] However, R-PE is much more commonly available as an antibody conjugate. R-Phycoerythrin and B-Phycoerythrin are among the brightest fluorescent dyes ever identified. Antioxidant activity and associated structural attributes of Halomicronema phycoerythrin. https://pubmed.ncbi.nlm.nih.gov/29307804/ Antitumor function and mechanism of phycoerythrin from Porphyra haitanensis https://pubmed.ncbi.nlm.nih.gov/23760420/
447.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Piscine myocarditis virus (PMCV) https://onlinelibrary.wiley.com/doi/10.1111/j.1365-2761.2011.01315.x https://works.bepress.com/torstein/35/ Cardiomyopathy syndrome (CMS) is an inflammatory disease of the heart primarily affecting farmed Atlantic salmon, Salmo salar L. (Ferguson, Poppe & Speare 1990). The disease mainly appears in fish 12–15 months after transfer to sea water, and pathological signs include inflammation of the endocardium and spongiosum of the atrium and ventricle. Highest mortality rates are seen in fish weighing 2–5 kg, and the cause of death is generally rupturing of the atrium or sinus venosus. T
448.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Piscine reovirus (PRV) https://en.wikipedia.org/wiki/Piscine_orthoreovirus ***Piscine orthoreovirus*** (**PRV**) is a species in the genus *Orthoreovirus* that infects fish exclusively, PRV was first discovered in 2010 in farmed Atlantic salmon exhibiting Heart and Skeletal Muscle Inflammation (HSMI) and has been found present at higher concentration in fish with various diseases.[1] These diseases include HSMI, jaundice syndrome, proliferative darkening syndrome and erythrocytic body inclusion syndrome.[1][2][3][4] PRV is thought to mainly affect aquacultured and maricultured fish stocks, and recent research has been focused around the susceptibility of wild stock.
449.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based	Piscirickettsia salmonis (Salmon Rickettsial Syndrome, SRS) https://en.wikipedia.org/wiki/Piscirickettsia_salmonis

		Fish Aquaculture	***Piscirickettsia salmonis*** is the bacterial causative agent of an epizootic disease in salmonid fishes, piscirickettsiosis.[1] It has a major impact on salmon populations, with a mortality rate of up to 90% in some species.
450.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Renibacterium salmoninarum (Bacterial kidney disease, BKD) https://en.wikipedia.org/wiki/Renibacterium_salmoninarum https://en.wikipedia.org/wiki/Bacterial_kidney_disease ***Renibacterium salmoninarum*** is a member of the Micrococcaceae family. It is a Gram-positive, intracellular bacterium that causes disease in young salmonid fish. The infection is most commonly known as "bacterial kidney disease" but may also be referred to as BKD, White Boil Disease, Dee Disease, Salmonid Kidney Disease and Corynebacterial Kidney Disease.
451.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Salmon alphavirus (SAV) https://en.wikipedia.org/wiki/Pancreas_disease_in_farmed_salmon **Salmon Pancreas disease** (**PD** or **SPD**) is caused by a species of Salmonid *Alphavirus* (SAV) called ***Salmon pancreas disease virus*** (**SPDV**). The virus was first described in 1976 in Scotland and in 1989 in Norway. It affects farmed Atlantic salmon (*Salmo salar*) caused by Marine SAV2 and SAV3 and has also been identified in Rainbow trout (*Oncorhyncus mykiss*) in the seawater phase caused by SAV2 where the disease is commonly referred to as **Sleeping Disease** (**SD**
452.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Salmon gill poxvirus (SGPV) https://en.wikipedia.org/wiki/Poxviridae https://pubmed.ncbi.nlm.nih.gov/28105681/ Gill diseases cause considerable losses in Norwegian salmon farming. SGPV may be considered a primary pathogen as it was often found prior to identification of complex gill disease. It is hypothesized that SGPV-induced gill damage may impair innate immunity and allow invasion of secondary invaders. The distinct possibility that SGPV has been widely overlooked as a primary pathogen calls for extended use of SGPV

			qPCR in Atlantic salmon gill health management.
453.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	Tilapia lake virus (TiLV) https://en.wikipedia.org/wiki/Tilapia_tilapinevirus ***Tilapia tilapinevirus***, or **Tilapia lake virus** (**TiLV**), is a negative-strand RNA virus that infects both wild and aquacultured populations of tilapia. It is the only species in the monotypic genus ***Tilapinevirus***, which in turn is the only genus in the family ***Amnoonviridae***. Thus far it has been recorded in various regions across Asia, Africa, and South America.[2] The virus was first discovered and identified in 2014 when the Sea of Galilee (Kinneret Lake) in Israel experienced a major noticeable decline in tilapia catch quantities.
454.	Reagent	Pathogen Screening Detection Kits On-Site Portable Desktop PCR based Fish Aquaculture	White spot syndrome virus (WSSV) https://en.wikipedia.org/wiki/White_spot_syndrome **White spot syndrome** (**WSS**) is a viral infection of penaeid shrimp. The disease is highly lethal and contagious, killing shrimp quickly. Outbreaks of this disease have wiped out the entire populations of many shrimp farms within a few days, in places throughout the world. **White spot syndrome virus** (**WSSV**) is the lone virus of the genus ***Whispovirus*** (**white spot**), which is the only genus in the family ***Nimaviridae***. It is responsible for causing white spot syndrome in a wide range of crustacean hosts. The disease is caused by a family of related viruses subsumed as the white spot syndrome baculovirus complex and the disease caused by them as white spot syndrome.
455.	Specialty Chemical	Personal care Ester products	Cetearyl isononanoate CAS Number 111937-03-2 https://pubchem.ncbi.nlm.nih.gov/compound/9821352
456.	Specialty Chemical	Personal care Ester products	Cetyl Ethylhexanoate CAS Number 59130-69-7 https://pubchem.ncbi.nlm.nih.gov/compound/42956
457.	Specialty Chemical	Personal care Ester products	Cetyl Palmitate CAS Number 540-10-3 https://pubchem.ncbi.nlm.nih.gov/compound/10889

458.	Specialty Chemical	Personal care Ester products	Dicaprylyl carbonate CAS Number 1680-31-5 https://pubchem.ncbi.nlm.nih.gov/compound/9904000
459.	Specialty Chemical	Personal care Ester products	Diisostearyl malate CAS Number 81230-05-9 https://pubchem.ncbi.nlm.nih.gov/compound/80276
460.	Specialty Chemical	Personal care Ester products	Fatty acids, C8-10, C12-18-alkyl esters CAS Number 95912-86-0 https://pubchem.ncbi.nlm.nih.gov/compound/133082067 Coco-Caprylate/Caprate
461.	Specialty Chemical	Personal care Ester products	Glyceryl stearate CAS Number 123-94-4,11099-07-3 https://pubchem.ncbi.nlm.nih.gov/compound/24699
462.	Specialty Chemical	Personal care Ester products	Glycol Distearate CAS Number 627-83-8 https://pubchem.ncbi.nlm.nih.gov/compound/61174
463.	Specialty Chemical	Personal care Ester products	Isononyl Isononanoate CAS Number 42131-25-9 https://pubchem.ncbi.nlm.nih.gov/compound/9882283
464.	Specialty Chemical	Personal care Ester products	Isostearyl Isostearate CAS Number 41669-30-1 https://pubchem.ncbi.nlm.nih.gov/compound/162048
465.	Specialty Chemical	Personal care Ester products	Myristyl Myristate CAS Number 3234-85-3 https://pubchem.ncbi.nlm.nih.gov/compound/18605
466.	Specialty Chemical	Personal care Ester products	Octyldodecyl myristate CAS Number 22766-83-2 https://pubchem.ncbi.nlm.nih.gov/compound/90835
467.	Specialty Chemical	Personal care Ester products	PEG-150 Distearate CAS Number 9005-08-7 https://pubchem.ncbi.nlm.nih.gov/compound/67337
468.	Specialty Chemical	Personal care Ester products	PEG-6 Caprylic/Capric Glycerides CAS Number 127281-18-9 https://pubchem.ncbi.nlm.nih.gov/substance/135332714
469.	Specialty Chemical	Personal care Ester products	PEG-7 Glyceryl Cocoate CAS Number 68201-46-7 https://pubchem.ncbi.nlm.nih.gov/substance/135352470
470.	Specialty Chemical	Personal care Ester products	PEG-8 Laurate Ethylene Glycol Monolaurate CAS Number 9004-81-3 https://pubchem.ncbi.nlm.nih.gov/compound/62699

471.	Specialty Chemical	Personal care Ester products	Pentaerythrityl Distearate CAS Number 13081-97-5 https://pubchem.ncbi.nlm.nih.gov/compound/61575
472.	Specialty Chemical	Personal care Ester products	Tetradecyl benzoate CAS Number 70682-72-3 https://pubchem.ncbi.nlm.nih.gov/compound/64671