

Pharmaprojects Therapeutic Class Codes (Dialog Files 128*,928*; DataStar PHAR*)

*(Subscriber access.)

This appendix from *Therapy Profiles* lists the therapeutic categories in order of their description codes. This allows you to see the hierarchy involved in the classification.

A brief definition of what is included in each category is also given as a quick reference guide. For more information on therapeutic definition, current therapy, market values and trends, please consult the full *Therapy Profiles*.

A ALIMENTARY/METABOLIC PRODUCTS

A1A STOMATOLOGICAL

Products for use in the anterior part of the mouth i.e. periodontium (teeth), gingivae (gums), tongue, palate etc, but not the throat. It includes treatments for gingivitis (inflammation of the gums), pyorrhea (periodontitis) and oral ulcers. Compounds in development include antibacterial formulations, inhibitors of the immune system, and bone morphogenetic protein-2 and osteogenic protein.

A2A ANTACID/ANTIPLATULENT

Generally simple basic compounds that neutralize excess acidity in the stomach for the treatment of indigestion (dyspepsia). Combinations of the antacids aluminium and magnesium are in development.

A2B ANTIULCER

Products for the treatment of duodenal, gastric, peptic ulcers and ulcers caused by Zollinger-Ellison syndrome. Includes prostaglandins, H₂-antagonists, proton pump (H⁺/K⁺-ATPase inhibitors) and phosphodiesterase inhibitors.

A3 ANTISPASMODIC

Products for the treatment of symptomatic diffuse oesophageal spasm, which may cause chest pain (oesophagitis reflux, heartburn) and gastro-oesophageal reflux. Drugs undergoing investigation include selective antimuscarinic agents and atypical b₃-agonists.

A4A ANTIEMETIC

Products for emesis, nausea and vomiting, including improved 5-HT₃ antagonists, cannabinoids, selective vasopressin V₁ receptor antagonists, as well as dopamine D₂, tachykinin and 5-HT₄ antagonists.

A4B GASTROPROKINETIC

Products for delayed emptying of the contents of the stomach due to gastric hypomotility, which can lead to several gastrointestinal disorders, and compounds for pancreatic and biliary dyskinesias. Drug strategies include dopamine antagonistic activity, the indirect enhancement of acetylcholine release, k opioid agonists and 5-HT₄ agonists. Cholecystokinin (CCK) antagonists for biliary dyskinesias.

A5B HEPATOPROTECTIVE

Products for jaundice (hyperbilirubinaemia), liver cirrhosis, liver fibrosis and hepatic (portal-systemic) encephalopathy. Also includes products that protect against the degradation of liver tissues by by-products of detoxification and liver metabolism and by other liver-damaging diseases. Enzyme inducers of bilirubin oxidase, immunosuppressants and inhibitors of hydroxylases and transaminases are being investigated. Also includes compounds for the treatment of hepatic dysfunction and hepatic insufficiency.

A5D GALLSTONE THERAPY

Products for use in gallstones (biliary calculi) therapy include bile salt re-uptake inhibitors.

A6 LAXATIVE

Laxatives promote defaecation and are indicated for the treatment of constipation. Formulations of existing laxatives, and opioid antagonists are being investigated.

A7 ANTIDIARRHOEAL

Products in development for diarrhoea - the excessive faecal loss of fluid and electrolytes - include specific opioid agonists (both m and d receptors), enkephalinase inhibitors, somatostatin analogues and chelating agents.

A8A3 ANORECTIC/ANTIOBESITY

Most anorectics suppress appetite via an effect on the central nervous system. They affect the dopamine, opioid, norepinephrine and 5-HT-mediated pathways of appetite control. Products under investigation include 5-HT reuptake inhibitors, cholecystokinin agonists, as well as β 3-adrenoceptor agonists which stimulate thermogenesis and also β 3-adrenoceptor antagonists which suppress endogenous glucose production.

A9 DIGESTIVE

Digestants promote the process of digestion in the gastrointestinal tract where there is a lack of one or more specific substances that are involved in the digestion of food, including formulations of pancreatin with high lipase content.

A10B ANTIDIABETIC

Products for the treatment of diabetes mellitus include recombinant human insulin, encapsulated insulin-producing cells, and hypoglycaemic agents, such as α 2-adrenoceptor antagonists, somatomedins (somatomedin-C, insulin-like growth factor-1; somatomedin-A, IGF-2) and α -glucosidase inhibitors.

A10C SYMPTOMATIC ANTIDIABETIC

Products for the treatment of secondary complications of diabetes, such as glycosuria, polydipsia, ketosis, microangiopathy, nephropathy, retinopathy and neuropathy include aldose reductase inhibitors glycosylation inhibitors, ciliary neurotrophic factors and regeneration of nerve cells.

A11A NUTRITIONAL SUPPLEMENT

Mineral supplements, preparations of amino acids or trace elements, parenteral nutrition preparations and vitamin preparations for a variety of conditions are being developed.

A14 ANABOLIC

Anabolics are primarily of use in the rapid recovery from cachexia and protein-wasting disorders. Products include those which reduce plasma tumour necrosis factor levels.

A15 APPETITE STIMULANT

Products which stimulate appetite are of use in anorexia (loss of appetite, not the mental disorder, anorexia nervosa (see Antineurosis (N5D))). Compounds in development include inhibitors of gastrin release, cannabinoids, and cholecystokinin (CCK) antagonists.

A16 INFLAMMATORY AND BOWEL DISORDERS

Includes compounds for the treatment of colitis, ulcerative colitis, Crohn's disease, inflammatory bowel disease, irritable bowel syndrome, pancreatitis, gastritis, gastroenteritis, gastroparesis, GI motility dysfunction and short bowel syndrome.

A17 METABOLIC AND ENZYME DISORDERS

Includes products for the treatment of Coeliac disease, Fabry's disease, Gaucher's disease, homocystinuria, hyperammonaemia, hyperbilirubinaemia, hyperkalaemia, hyperoxaluria, hyperphosphataemia, hyperprolactinaemia, hyponatraemia, acidosis, cystinosis, Pompe's disease, Tay-Sachs disease, sucrase isomaltase deficiency and Wilson's disease.

A18Z ALIMENTARY/METABOLIC GENERAL

Anything that cannot be placed in any of the other alimentary categories. Includes cholagogues which stimulate the secretion of bile.

B BLOOD AND CLOTTING PRODUCTS**B1A ANTICOAGULANT**

Products being developed that prevent the formation of blood clots include inhibitors of Factor VIIa and Factor Xa, a 1-antitrypsins, low molecular weight heparins, and recombinant versions of hirudin.

B1B1 FIBRINOLYTIC

Fibrinolysis is the process by which blood clots are dissolved in the body. Products that are being developed include anistreplase, recombinant versions of urokinase and pro-urokinase (PUK), and second-generation tPA products (tPA-2).

B1B9 ANTITHROMBOTIC

An antithrombotic prevents the aggregation of platelets (thrombocytes). Thrombin inhibitors in development include purified forms of the fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) and recombinant versions of antithrombin III. Inhibitors of platelet aggregation include calcium antagonists, PAF-antagonists, prostaglandin (PG) derivatives and glycoprotein (GPIIb/IIIa) antagonists.

B2A ANTIFIBRINOLYTIC

Antifibrinolytics are used to treat disorders resulting from overactivity of the fibrinolytic system and in cases of haemorrhage resulting from hyperfibrinolysis. Recombinant plasminogen activator inhibitor-1 (rPAI-1) is being investigated.

B2B HAEMOSTATIC

Haemostatic compounds speed up the time it takes for bleeding to stop. Purified and recombinant versions of Factor VIII and Factor IX are being developed as are Factor VIII fragments, Factor VIIa, Factor XIIa and Tissue Factor. Other haemostatics in development include recombinant kallikrein antagonists and human polymorphonuclear (PMN) elastase inhibitors.

B3C1 ANTISICKLING

Products in development for sickle cell anaemia include stabilizers of the oxy-conformation of haemoglobin as well as polyethylene glycol (PEG)-conjugated forms of haemoglobin.

B3C9 ANTIANAEMIC

Products for the treatment or prevention of anaemia (such as iron-deficiency anaemia, aplastic (hypoplastic) anaemia, pernicious anaemia and thalassaemia) include iron formulations, interleukins-3, 4 and 6, granulocyte macrophage colony stimulating factor, cAMP phosphodiesterase inhibitors and formulations of vitamin B12.

B5A1 PLASMA SUBSTITUTE

New developments for plasma substitutes are focusing on suitable oxygen-carrying fluids and include perfluoro chemicals and inulin (polyfructan) combined with haemoglobin.

B5A2 BLOOD FRACTION

Various blood clotting factors are under investigation for the treatment of haemophilias and other diseases.

B6A SEPTIC SHOCK TREATMENT

Products under investigation for systemic inflammatory response syndrome (SIRS), sepsis, severe sepsis, septic shock and sepsis-induced hypotension include tumour necrosis factor (TNF) and interleukin-1 (IL-1) inhibitors, various monoclonal antibodies fragments of Bactericidal Permeability Increasing (BPI) protein and nitric oxide inhibitors.

B7Z HAEMATOLOGICAL

This section includes products with a haematological action which is either unknown to Pharmaprojects, or is not specified by any of the other "B" categories. Products for the treatment of thrombocytopenia. Products being investigated include interleukin-6 (B-cell stimulating factor-2), and fusion molecules of granulocyte macrophage colony stimulating factor (GM-CSF) with interleukin-3.

C CARDIOVASCULAR PRODUCTS**C1B ANTIARRHYTHMIC**

An arrhythmia is any variation from the normal rhythm of the heart beat and includes sinus arrhythmia, heart block, atrial and ventricular fibrillation, ventricular tachycardia, and atrial flutter. Products under investigation include agents that act as Class I antiarrhythmics (sodium channel blockers), Class II (β -adrenergic blockers), Class III (prolong repolarization) and Class IV (calcium channel blockade). Other compounds include adenosine receptor agonists, inhibitors of the sodium/hydrogen ion pump and cardioglycosides.

C1C1 CARDIOSTIMULANT

Products in development for the treatment of heart failure (cardiac failure, congestive heart failure (CHF)) include positive inotropic agents, cardiac glycosides, cardioselective phosphodiesterase III and IV inhibitors.

C1D1 VASODILATOR, CORONARY

Coronary vasodilators are used for the treatment of coronary insufficiency, heart failure (see C1C1) and angina (see C1D3). Products include selective adenosine A₂ receptor agonists, calcium antagonists and potassium channel activators.

C1D3 ANTIANGINAL

Antianginal treatment aims to restore the balance of myocardial oxygen supply and demand. Products under development for all types of angina include nitrates, calcium antagonists and β -blockers. The role of the GPIIb/IIIa receptor is also being investigated.

C2B1 ANTIHYPERTENSIVE, ADRENERGIC

The products in this category exert their antihypertensive activity through their action on the adrenergic system and include β -blockers, α -agonists/antagonists, mixed α + β -antagonists and adrenergic neurone blockers.

C2B2 ANTIHYPERTENSIVE, RENIN SYSTEM

The products in this category exert their antihypertensive activity through their action on the renin-angiotensin system and includes inhibitors of angiotensin converting enzyme (ACE) and renin and also angiotensin II antagonists.

C2B6 ANTIHYPERTENSIVE, DIURETIC

The products in this category exert their antihypertensive activity through their action on kidney function and include thiazide, potassium-sparing and loop diuretics, carbonic anhydrase inhibitors and anaritides. For uricosuric diuretics that are not used as antihypertensive agents, see antigout (M4A).

C2B9 ANTIHYPERTENSIVE, OTHER

The products in this category include calcium antagonists and vasodilators that are used as antihypertensives. Also included are antihypertensives with an unknown or not easily classified mode of antihypertensive action.

C4A VASODILATOR, PERIPHERAL

Peripheral vasodilators are mainly used in the treatment of hypertension in patients who are refractory to b-blockers and diuretics. They are also used in peripheral vascular disease, such as in Raynaud's syndrome. Vasodilators for hypertension or peripheral vascular disease include non-selective b-blockers and adenosine A1-antagonists. Other products include recombinant human calcitonin gene-related peptides and potassium channel activators.

C4B VASODILATOR, RENAL

Vasodilators that act by reducing renal vascular resistance are mainly used in hypertension, impaired renal function and renal calculi (stones) and those in development include dopamine prodrugs, recombinant a-human atrial natriuretic peptides and adenosine A2 antagonists.

C5A VASOPROTECTIVE, TOPICAL

Products for the topical treatment of the symptoms of chronic venous insufficiency and include antihaemorrhoidal and topical antivaricose preparations.

C5C VASOPROTECTIVE, SYSTEMIC

Products for the therapy of chronic venous insufficiency and post-thrombotic syndrome and those which reduce vascular permeability. Products under investigation include flavonoids with vasoprotective and healing promoting properties and potent free radical scavengers.

C6C HYPERTENSIVE

Products used in the treatment of hypotension include sympathomimetic agents which stimulate vascular a- and cardiac b-adrenoceptors and nitric oxide inhibitors for potential in interleukin-2-associated hypotension.

C9Z CARDIOVASCULAR

Products with cardiovascular activity which is either unknown to Pharmaprojects or not easily classified elsewhere. Products for myocardial infarction (whose mode of action cannot be classified elsewhere), systemic inflammatory response syndrome (SIRS) and cardiovascular shock (associated with trauma or burns). New agents for use in shock include monoclonal antibodies, PAF-antagonists and directly-acting a-adrenoceptor agonists. New compounds for use in myocardial infarction include selective 5-lipoxygenase inhibitors and inhibitors of membrane-bound phospholipase A2.

C10 HYPOLIPAEMIC/ANTIATHEROSCLEROSIS

Hyperlipoproteinaemias is when concentrations of triglycerides and cholesterol-carrying lipoproteins in the plasma are elevated. Products in development include HMG-CoA reductase inhibitors, acyl-CoA cholesterol transferase (ACAT) inhibitors, non-enzymatic glycosylation inhibitors and selective inhibitors of gastric lipase.

D DERMATOLOGICAL PRODUCTS**D3A VULNERARY**

Vulneraries are agents which stimulate wound healing and are mainly used in the treatment of burns, scars, bedsores and other wounds which are difficult to heal. New compounds being investigated include fibroblast growth factor (FGF), recombinant granulocyte macrophage colony stimulating factor (GM-CSF), recombinant epidermal growth factor (EGF) and recombinant platelet-derived growth factor (PDGF).

D4A ANTIPRURITIC/INFLAMM, ALLERGIC

Topically and systemically administered compounds which relieve pruritus (itching) and inflammation caused by allergens, such as H1-receptor antagonists, topical steroids and monoclonal antibodies (MAbs) against immunoglobulin E (IgE), IgE and IgG.

D4B ANTIPRURITIC/INFLAMM, NON-ALLERGIC

Topically and systemically administered compounds which relieve non-allergic pruritus (itching) and inflammation, such as steroids and selective inhibitors of lipoxygenase enzymes.

D5A ANTIPSORIASIS

Psoriasis is a disease caused by non-malignant proliferation of epidermal cells. New products being developed include vitamin D analogues, topical steroids, lipoxygenase and cyclooxygenase inhibitors, leucotriene biosynthesis inhibitors, protein kinase C inhibitors and photodynamic agents.

D10A ANTIACNE

Products in development as antiacne agents include keratolytics, vitamin and retinoid derivatives and antibiotics.

D11Z DERMATOLOGICAL

Compounds with a dermatological action which is either unknown or cannot be classified in any of the other categories in the dermatology section. Products that are ablating agents for warts, hair growth promoters or used to specifically treat lupus erythematosus affecting the skin. New compounds under investigation antiandrogens and 5 α -reductase inhibitors for alopecia and vitamin D analogues for cutaneous lupus erythematosus.

F FORMULATIONS**F1A1 FORMULATION, INHALABLE, DRY POWDER**

Dry powder formulations delivered by inhalation.

F1A2 FORMULATION, INHALABLE, SOLUTION

Aqueous formulations delivered by inhalation.

F1B1 FORMULATION, INHALABLE, SYSTEMIC

Inhaled formulations for the treatment of non-pulmonary disorders.

F1B2 FORMULATION, INHALABLE, TOPICAL

Inhaled formulations for the treatment of pulmonary disorders.

F1Z9 FORMULATION, INHALABLE, OTHER

All products that cannot be placed in any of the inhalable formulation categories (F1A-F1B2).

F2A1 FORMULATION, MODIFIED-RELEASE, <=24HR

Extended release formulations that exert their effects over a time period less than or equal to 24hr.

F2A2 FORMULATION, MODIFIED-RELEASE, >24HR

Extended release formulations that exert their effects over a time period greater than 24hr.

F2B FORMULATION, MODIFIED-RELEASE, MULTI

Tablets or capsules which contain 2 or more layers of a drug (or drugs) which degrade at different rates, resulting in a multiple dosing schedule through a single administration.

F2C FORMULATION, MODIFIED-RELEASE, IMMEDIATE

Formulations of drugs that are active immediately upon administration. The formulations are administered by a method which is unconventional compared to traditional route of administration.

F2Z9 FORMULATION, MODIFIED-RELEASE, OTHER

All modified release formulations that cannot be placed in any of the other modified release formulation categories (F2A1-F2C).

F3A1 FORMULATION, OPTIMIZED, MICROPARTICLES

Formulations where drug particles are fabricated with dimensions greater than or equal to 100 nanometres.

F3A2 FORMULATION, OPTIMIZED, NANOPARTICLES

Formulations where drug particles are fabricated with dimensions of less than 100 nanometres.

F3C1 FORMULATION, OPTIMIZED, MICROENCAPSULATE

Drugs that are packaged (as solids or liquids) in the form of capsules. The capsule wall material can be formulated by using a variety of materials, including natural and synthetic molecules. Includes microcapsules, microcells, microspheres. Does not include liposomes. For liposomes see F3C9.

F3C2 FORMULATION, OPTIMIZED, LIPOSOMES

A type of microencapsulation technique, where the walls of the capsule are made of layers of phospholipids, the major component of cell membranes.

F3D FORMULATION, OPTIMIZED, DRUG-LOADED

Where the drug is adsorbed to the outside of a particle (as opposed to being contained within a structure as with microencapsulation).

F3E FORMULATION, OPTIMIZED, MICROEMULSION

A microemulsion is a thermodynamically-stable dispersion of one liquid phase into another, stabilized by an interfacial film of surfactant. This dispersion may be either oil-in-water or water-in-oil. Microemulsions are typically clear solutions, as the droplet diameter is approximately 100 nanometers or less.

F4A FORMULATION, ORAL, SOLUBILITY-ENHANCED

Drugs formulated in vehicles/excipients that improve the solubility of the product.

F4B FORMULATION, ORAL, ENTERIC COATED

Products in the form of a capsule or tablet that are covered with a special coating so that the release of their contents is delayed until they reach the intestines.

F4C FORMULATION, ORAL, TARGETED

Products that exert their effects or become activated at a specific location in the body. Does not include enteric coated products (see F4B).

F4D FORMULATION, ORAL, ORALLY-DISINTEGRATING

Products which dissolve within seconds when placed in mouth.

F4Z9 FORMULATION, ORAL, OTHER

All oral formulations that cannot be placed in any of the other oral formulation categories (F4A-F4C).

F5A FORMULATION, PARENTERAL, NEEDLE-FREE

Products formulated as dry powders or liquids that are propelled through the skin via a needle-free injection device.

F5B FORMULATION, PARENTERAL, TARGETED

Parenteral products that use a targeting system to localize the active drug to a specific location in the body.

F5Z9 FORMULATION, PARENTERAL, OTHER

All parenteral formulations that cannot be placed in any of the parenteral formulation categories (F5A1-F5B).

F6A1 FORMULATION, DERMAL, TOPICAL

Formulations that are applied to the skin for the treatment of demal/dermatological conditions.

F6A2 FORMULATION, TRANSDERMAL, SYSTEMIC

Formulations that are applied to the skin for transdermal delivery to other organs.

F6B FORMULATION, TRANSDERMAL, PATCH

Products integrated into patches to pass across the dermal layer.

F6C FORMULATION, TRANSDERMAL, ENHANCED

Products integrated into transdermal vehicles or delivered by heat- or electricity-assisted systems for enhanced dermal penetration.

F6Z9 FORMULATION, TRANSDERMAL, OTHER

All transdermal formulations that cannot be placed in any of the transdermal formulation categories (F6A1-F6C).

F7Z FORMULATION, TECHNOLOGY

Novel formulation systems and delivery devices.

F8A1 FORMULATION, MUCOSAL, TOPICAL

Formulations that are applied to mucosal membranes for the treatment of local conditions.

F8A2 FORMULATION, TRANSMUCOSAL, SYSTEMIC

Formulations that are applied to mucosal membranes for transmucosal delivery to other organs.

F8B FORMULATION, TRANSMUCOSAL, NASAL

Formulations that are absorbed through the nasal mucosa for the treatment of systemic or topical conditions.

F9A FORMULATION, IMPLANT

Depot formulations of active ingredient where there is a need to limit high drug concentration to the immediate area surrounding the pathology or to provide sustained drug release for systemic therapy.

F9B FORMULATION, FIXED-DOSE COMBINATION

Formulations using standard drug combinations.

F9C1 FORMULATION, CONJUGATE, PEGYLATED

Pegylation is a process whereby a substance called polyethylene glycol (PEG) is attached to a protein in order to extend its activity.

F9C2 FORMULATION, CONJUGATE, CARBOHYDRATE

Carbohydrate conjugation is a process whereby a carbohydrate moiety is attached to a drug in order to extend its duration of activity or to allow carbohydrate-specific targeting.

F9Z9 FORMULATION, OTHER

All formulations that cannot be placed in any of the other formulation categories (F1A1-F9C2).

G GENITOURINARY (including sex hormones)**G1C FERTILITY ENHANCER**

Products for the treatment of male or female infertility. Products for female infertility include gonadotrophin derivatives such as recombinant HCG, LH and FSH, erythroid differentiation factors and prostaglandin E2. Agents for male infertility include melatonin antagonists, gonadorelin analogues and recombinant somatotropin (human growth hormone).

G2A LABOUR INDUCER

Drugs acting on the myometrium are classified as oxytocics (uterus-contracting drugs) or as tocolytics (uterine relaxants, see G2B). New oxytocic agents include preparations of dinoprostone and the peptide hormone, relaxin.

G2B LABOUR INHIBITOR

Drugs acting on the myometrium are classified as tocolytics (uterine relaxants) or as oxytocics (uterus-contracting drugs, see G2A). New tocolytics include oxytocin antagonists, antimuscarinic agents and calcium channel blockers.

G3A MENSTRUATION DISORDERS

Products in development for the treatment of amenorrhoea, dysmenorrhoea, endometriosis and abnormal uterine bleeding which includes hypermenorrhoeas, menorrhagia, polymenorrhoea, metrorrhagia and postmenopausal bleeding include LHRH (gonadorelin) analogues, progestogens and synthetic steroids.

G3B MENOPAUSAL DISORDERS

Products for the prevention and treatment of menopausal symptoms include hormone replacement therapies, such as estrogen alone, progesterone alone, and estrogen and progesterone combined.

G3C FEMALE CONTRACEPTIVE

Agents that are used as female contraceptive products including combined compounds that contain ethinylestradiol and norethisterone, progestogen-only agents, contraceptive vaccines, antiestrogens and gonadorelin (LHRH) antagonists.

G3D ABORTIFACIENT

Abortifacients in development for the premature expulsion from the uterus of the embryo or foetus include prostaglandin analogues.

G3E FEMALE SEXUAL DYSFUNCTION

Products involved in the treatment of female sexual dysfunction, which includes the following disorders: female sexual arousal disorder (FSAD), hypoactive sexual desire disorder (HSDD), anorgasmia and dyspareunia.

G4Z UROLOGICAL

Products for the treatment of renal insufficiency (eg atrial natriuretic factor analogues), dysuria (eg α -adrenoceptor antagonists), enuresis (eg desmopressin formulations), incontinence (eg m opioid receptor agonists), urinary calculi (eg urease inhibitors) and for urological (non-reproductive/gonadal) applications that cannot be classified elsewhere.

G5A PROSTATE DISORDERS

Products that are used in the treatment of benign prostatic hyperplasia (BPH), including 5 α -reductase inhibitors, antiandrogens and a 1 α -adrenoceptor antagonists.

G5B MALE SEXUAL DYSFUNCTION

Products that are involved in the treatment of male sexual dysfunction including α -adrenoceptor antagonists and androgens.

G5C MALE CONTRACEPTIVE

Agents in development as male contraceptives include recombinant forms of bovine, porcine and human inhibin and gonadorelin agonists which may be used with supplementary androgens.

G6Z REPRODUCTIVE/GONADAL, GENERAL

Products that are being developed for the treatment of reproductive/gonadal disorders, which are not easily classified elsewhere. (For urological disorders, see G4Z). Products for the treatment of hypogonadism (eg testosterone formulations), Turner's syndrome (eg androgen agonists), and precocious puberty (eg gonadorelin analogues).

H HORMONAL PRODUCTS (excluding sex hormones)**H1A ACTH**

Human adrenocorticotrophin hormone (ACTH, corticotrophin) stimulates the adrenal cortex to secrete cortisol, corticosterone, aldosterone, and a number of weakly androgenic substances. ACTH also maintains adrenal cortex morphology.

H3A THYROID HORMONE

The two hormones, thyroxine and triiodothyronine, are essential for normal growth and development and also play an important role in energy metabolism. Deficiency of these hormones is involved in hypothyroidism (myxoedema), cretinism and goitre. Human thyroid preparations are now being investigated as are thyrotrophin releasing hormone (protirelin) analogues.

H3B ANTITHYROID

Hyperthyroidism is the excessive secretion of thyroid hormones. The major forms of thyroid hyperfunction are Graves' disease and Plummer's disease.

H4B PROSTAGLANDIN

The eicosanoids are formed from certain polyunsaturated fatty acids - principally arachidonic acid - and include the prostaglandins, prostacyclins, thromboxane A₂ and the leukotrienes. A number of prostaglandin (PG) analogues are under development.

H4C RELEASING HORMONE

Releasing hormones stimulate the secretion of pituitary hormones and include thyrotrophin-releasing hormone (TRH), luteinising hormone-releasing hormone (LHRH), growth hormone-releasing hormone (GHRH) and corticotrophin-releasing hormone (corticoliberin; CRH).

H4D2 ANTIPROLACTIN

The control of hyperprolactinaemia is important for the maintenance of normal reproductive function. New products include D₂-receptor agonists and ergot alkaloid derivatives.

H4E1 INSULIN

Human insulins and encapsulated insulin-producing cells are under development for use in diabetes.

H4E2 GLUCAGON

New glucagon preparations under development include intranasal formulations for the treatment of hypoglycaemia.

H4F1 GROWTH HORMONE

Human growth hormone (recombinant somatropin or synthetic somatrem) formulations and insulin-like growth factors (IGF-1 and IGF-2) - which appear to function as principal mediators of the action of growth hormone - are in development.

H4F2 SOMATOSTATIN

Somatostatin analogues that inhibit the secretion of all the hormones of the pancreas (eg insulin, glucagon), growth hormone and thyroid-stimulating hormone (TSH) from the pituitary, and most gastrointestinal peptide hormones.

H4Z HORMONE

Hormones or hormone-related products (excluding sex hormones) which are not covered by any other category. Products which act on the parathyroid glands and also calcitonin preparations, which regulate calcium concentrations.

I IMMUNOLOGICAL PRODUCTS**I1A IMMUNOSTIMULANT, ANTI-AIDS**

General immunostimulants for use in AIDS include oligopeptides related to thymus hormones, polynucleotide preparations and polysaccharides.

I1Z IMMUNOSTIMULANT, OTHER

Products which boost the activity of, or stimulate production of, cells of the immune system, and those which non-specifically boost antibody production. Adjuvants are also included here.

I2 CYTOKINE

Cytokines are small, non-antibody proteins which act as intercellular mediators between an activated cell and another cell involved with the immune response. Cytokines in development include interferon preparations, colony stimulating factors and transforming growth factors.

I4A2 IMMUNOGLOBULIN, NON-MAB

Immunoglobulin preparations which are not targeted against specific antigens, as monoclonals are. Such preparations provide a boost to the immune system in the fight against an infection and may also be used prophylactically.

I5 IMMUNOSUPPRESSANT

Immunosuppressants have two major therapeutic functions. They may be used in the treatment of rejection following allogenic transplant, and they have potential in the therapy of autoimmune diseases.

I6Z IMMUNOLOGICAL

Compounds known to have an immunological action which has not yet been defined. Immunologically acting compounds which cannot easily be placed in one of the other categories in the I section.

J ANTI-INFECTIVE PRODUCTS**J1A TETRACYCLINE**

Tetracyclines are bacteriostatic antibiotics and act by inhibiting bacterial protein synthesis by reversibly binding to the 30S portion of the bacterial ribosome.

J1C1 PENICILLIN, ORAL

Orally-active natural and semisynthetic derivatives of penicillanic acid. Penicillins are bactericidal, and act by inhibiting the formation of peptide cross-linkages in the final stage of bacterial cell wall synthesis.

J1C2 PENICILLIN, INJECTABLE

Injectable natural and semisynthetic derivatives of penicillanic acid. Penicillins are bactericidal, and act by inhibiting the formation of peptide cross-linkages in the final stage of bacterial cell wall synthesis.

J1D1 CEPHALOSPORIN, ORAL

Orally-active cephalosporins which are bacteriocidal and act by inhibiting the synthesis of the bacterial cell wall, critical for growth and development. Carbadethiacephalosporins and cephamycins are also classified here.

J1D2 CEPHALOSPORIN, INJECTABLE

Injectable cephalosporins which are bacteriocidal and act by inhibiting the synthesis of the bacterial cell wall, critical for growth and development. Carbadethiacephalosporins and cephamycins are also classified here.

J1E TRIMETHOPRIM AND ANALOGUE

Formulations, analogues and prodrugs of the dihydrofolate reductase inhibitor, trimethoprim. Trimethoprim is a bacteriostatic agent and acts by inhibiting the conversion of bacterial

dihydrofolic acid to tetrahydrofolic acid which is necessary for the synthesis of bacterial DNA.

J1F MACROLIDE ANTIBIOTIC

Macrolide antibiotics, eg erythromycin, are mainly derived from streptomyces spp. and are bacteriostatic agents that act by inhibiting bacterial protein synthesis by reversibly binding to the 50S portion of the bacterial ribosome.

J1L AMINOGLYCOSIDE ANTIBIOTIC

Aminoglycoside antibiotics eg gentamicin, are mainly derived from streptomyces sp. and micromonospora and act by binding to the 30S portion of the bacterial ribosome and although they inhibit microbial protein synthesis, they are described as being bactericidal.

J1M PEPTIDE ANTIBIOTIC

Natural and semisynthetic antibiotics with a peptide structure, including glycopeptides. Glycopeptides are bactericidal agents which act by inhibiting bacterial cell wall synthesis. Other peptides have varied mechanisms of action.

J1N BETA-LACTAM ANTIBIOTIC

Antibiotics with a beta-lactam (penem) ring structure which are not penicillins, cephalosporins, or cephamycins. Beta-lactam antibiotics are bactericidal agents which act by binding to penicillin-binding proteins, and disrupting bacterial cell wall synthesis.

J1Z ANTIBIOTIC, OTHER

Novel antibiotics which cannot be placed in any of the antibiotic categories J1A to J1N or antibiotics for which the structure or mode of action is unknown. Beta-lactamase inhibitors are also found here.

J2A ANTIFUNGAL

Topical (dermatological) and systemic antifungal agents including squalene epoxidase inhibitors and mepartricin derivatives.

J3C QUINOLONE ANTIBACTERIAL

Antibacterial compounds which contain a quinolone or naphthyridine structure. Quinolones, eg ofloxacin, are bactericidal and act by inhibiting DNA gyrase - the enzyme responsible for maintaining the structure of DNA.

J3Z ANTIBACTERIAL, OTHER

Antibacterial compounds not classified under Quinolone antibacterial (J3C) and which are not antibiotics (J1 categories).

J4A ANTIMYCOBACTERIAL

Products that treat infections caused by mycobacteria which are responsible for tuberculosis, leprosy and MAC disease. New antimycobacterial products include isoniazid derivatives, rifamycin derivatives - such as rifabutin which inhibits the protein 50S ribosomal subunit - and inhibitors of mycobacterial dihydrofolate reductase (DHFR).

J5A ANTIVIRAL, ANTI-HIV

Compounds for the treatment of infection with HIV including nucleoside analogues, non-nucleoside inhibitors of reverse transcriptase, inhibitors of the RNase actions of reverse transcriptase, TAT and HIV protease inhibitors.

J5B ANTIVIRAL, INTERFERON

All interferons, recombinant, natural and synthetic, and interferon inducers which are used against viral infections. New interferons under development for the treatment or prevention of viral infections include α -, β - and γ -interferons, and also interferon inducers.

J5Z ANTIVIRAL, OTHER

Compounds that act specifically against viruses, except interferons and their analogues (see J5B), antivirals acting exclusively against HIV (J5A) and vaccines (J7A). Antivirals in development include inhibitors of herpes simplex ribonucleotide reductase, thymidine kinase inhibitors and rhinovirus protease inhibitors. Other new agents include humanized monoclonal antibodies and oligonucleotides.

J7A1 PROPHYLACTIC VACCINE

All preparations of antigenic materials which induce an immune response to specific bacteria or viruses which are used to prevent disease. It does not include therapeutic vaccines (J7A2), which are administered post-infection to limit disease. Cancer vaccines (K3) and contraceptive vaccines (G3C, G5C) are also not included in this section. Vaccines are inactivated live, attenuated, killed or recombinant forms of bacteria or viruses, in which infectivity is lost or reduced but antigenicity remains. They are often co-administered with adjuvant (see Immunostimulant, other (I1Z)) to boost or prolong the immune response.

J7A2 THERAPEUTIC VACCINE

All preparations of antigenic materials which are administered post-infection to induce an immune response to limit disease. Prophylactic vaccines (J7A1), cancer vaccines (K3) and contraceptive vaccines (G3C, G5C) are not included in this section. Vaccines are inactivated live, attenuated, killed or recombinant forms of bacteria or viruses, in which infectivity is lost or reduced but antigenicity remains. They are often co-administered with adjuvant (see Immunostimulant, other (I1Z)) to boost or prolong the immune response.

J7B IMMUNOMODULATOR, ANTI-INFECTIVE

Anti-infective compounds which also have immunostimulant, immunosuppressant or immunomodulatory activity. Includes antibodies linked to an anti-infective agent, cytokines with anti-infective immunomodulatory activity (except interferons and interferon-inducers (see J5B)) and anti-infective monoclonals (except anti-HIV monoclonals and monoclonals against HIV-infected cells (J5A) and other antiviral monoclonals (J5Z)). Does not include immunostimulants for which a specific activity has not yet been ascertained (see I1Z) or immunostimulants for use in AIDS (I1A).

J8Z ANTI-INFECTIVE, OTHER

All products that cannot be placed in any of the other anti-infective categories (J1A-J7B). These products act against microbial organisms, but it is not specified whether these products act against bacteria, fungi and/or viruses. Also included are agents which protect against prion (infectious proteins) infection.

K ANTICANCER PRODUCTS**K1A ANTICANCER, ANTIBIOTIC**

Natural and semisynthetic antibiotics and their derivatives, which have anticancer activity. Agents under investigation include actinomycins eg topoisomerase II inhibitors, anthracyclines eg doxorubicin analogues, bleomycin derivatives and mitomycin analogues.

K1B ANTICANCER, ALKYLATING

Alkylating anticancer compounds act by forming highly reactive carbonium ions which replace an H-atom with an alkyl radical, causing cross-linking and abnormal base-pairing in DNA molecules. Agents under development include nitrogen mustards, alkyl sulfonates, nitroureas, triazines and platinum-containing products.

K1C ANTICANCER, ANTIMETABOLITE

Antimetabolites impair the synthesis of purine and pyrimidine bases by interfering with folic acid metabolism or by preventing the incorporation of the bases into nucleic acids. Products under investigation include antifolates eg dihydrofolate reductase (DHFR) inhibitors, pyrimidine analogues eg thymidylate synthetase inhibitors, purine analogues and inhibitors of S-adenosylmethionine decarboxylase and tyrosine kinase.

K2 ANTICANCER, HORMONAL

Hormones or their analogues which have anticancer activities and also compounds which have antagonist activity to hormones. Agents which are specifically under development for the treatment of hormone-dependent tumours. Products under development include estrogens, antiestrogens, progestogens, anti-progestogens, antiandrogens, releasing hormone analogues and somatostatin analogues.

K3 ANTICANCER, IMMUNOLOGICAL

Immunomodulating compounds which are being developed as anticancer agents (except for interferons (K4)) including cytokines, such as interleukins, transforming growth factors (TGF), tumour necrosis factors (TNF) and colony stimulating factors (CSF). Also includes monoclonal antibodies (MAbs) and immunotoxins which are used to target and treat cancer, and conjugates of anticancer agents with MAbs.

K4 ANTICANCER, INTERFERON

Recombinant, natural and synthetic interferons used in the treatment of cancer including α -, β - and γ -interferons and interferon inducers.

K5A RADIO/CHEMOSENSITIZER

Compounds that improve the efficacy of radiotherapy and chemotherapy by sensitizing the cells. Also multidrug-resistance inhibitors (MDRI) for use in combination with cancer chemotherapy.

K5B RADIO/CHEMOPROTECTIVE

Products which protect tissues or organs from the damaging effects of radiation and chemotherapy. Growth factors and interleukins which stimulate red and white blood cell production and thus protect against chemotherapy- or radiation-induced anaemia and leucopenias. A number of cytokines are being developed as radio/chemoprotectants including various recombinant granulocyte macrophage CSF (GM-CSF), M-CSF and CSF, recombinant IL-1 α , IL-3 and IL-7.

K6Z ANTICANCER, OTHER

General anticancer agents for which the mode of action is unknown or those which do not come under the other anticancer categories (except Radio/chemosensitizer (K5A) and Radio/chemoprotective (K5B)). Products in development include vinka alkaloids and asparaginase carriers.

M MUSCULOSKELETAL PRODUCTS

M1A1 ANTI-INFLAMMATORY

Products that are used in the treatment of unspecified inflammation. For products that are only used to treat arthritis see the Antiarthritic (M2) sections. Agents under development include salicylates eg ASA thioesters, indometacin-like products, propionic acid derivatives eg ibuprofen, 5-lipoxygenase and cyclo-oxygenase inhibitors, steroids eg glucocorticoid agonists, monoclonal antibodies and phosphodiesterase (PDEs) inhibitors.

M1A2 ANTI-INFLAMMATORY, TOPICAL

Topically-applied treatments for musculoskeletal disorders including topical formulations of NSAIDs and steroids. If the products are also used in the treatment of arthritis, they will also appear in the Antiarthritic sections (M2C or M2Z).

M2C ANTIARTHRITIC, IMMUNOLOGICAL

Compounds which act via the immune system to alleviate the symptoms of arthritis. Some of these products may also be used in the treatment of muscular dystrophy, psoriatic arthritis and other general autoimmune diseases. Products in development include immunosuppressants, antibodies, cytokines receptor antagonists and inhibitors to the selectins - endothelial-leucocyte adhesion molecule-1 (ELAM-1), vascular cell adhesion molecule-1 (VCAM-1) and intercellular adhesion molecule-1 (ICAM-1).

M2Z ANTIARTHRITIC, OTHER

Compounds for the treatment of arthritis including rheumatoid arthritis, osteoarthritis and ankylosing spondylitis, which do not act via the immune system (see M2C). Products under investigation include NSAIDs eg inhibitors of cyclo-oxygenase and lipoxygenase, corticosteroids and metalloprotease inhibitors.

M3 MUSCLE RELAXANT

Centrally- and peripherally-acting muscle relaxants including neuromuscular blockers, centrally-acting drugs eg GABA analogues and dopaminergic derivatives, non-centrally-acting compounds eg vanilloids and purified forms of botulinum toxin A.

M4A ANTIGOUT

Gout is an inflammatory condition produced by hyperuricaemia and subsequent deposition of urate crystals in and around joints and tendons. Products under development include xanthine oxidase inhibitors and dual cyclo-oxygenase and lipoxygenase inhibitors.

M5A OSTEOPOROSIS TREATMENT

Drugs that are used for the treatment of plasma hypercalcaemia, a condition associated with osteoporosis, osteodystrophy and Paget's disease, amongst others. Compounds in development include gonadal hormones eg HRT combinations, formulations of calcitonin, diphosphates, vitamin D3 derivatives, growth hormone peptides, human parathyroid hormone (PTH) and insulin-like growth factor (IGF) carrier protein.

M5Z MUSCULOSKELETAL

Compounds with a musculoskeletal action not covered by any other category in Pharmaprojects including products for muscular dystrophy, myasthenia gravis and for fractures and bone repair (see also M5A). Agents under investigation include bone cell stimulating substances, growth hormone releasing peptides and thiolprotease inhibitors.

N NEUROLOGICAL PRODUCTS

N1A1 ANAESTHETIC, INHALATION

General anaesthetics administered by inhalation and act on the brain to produce loss of consciousness.

N1A2 ANAESTHETIC, INJECTABLE

General anaesthetics administered by parenteral routes which produce a rapid induction of anaesthesia. Products include barbiturates and opioids eg m opioid agonists.

N1B ANAESTHETIC, LOCAL

Local anaesthetics act by blocking conduction in nerve trunks and thus decrease the sensation of pain. These compounds belong to the class of membrane stabilising drugs.

N2B ANALGESIC, NSAID

Analgesics that are classified as non-steroidal anti-inflammatory drugs (NSAIDs). NSAIDs inhibit the formation of prostaglandins from arachidonic acid via the cyclo-oxygenase pathway. Products in development include salicylates eg ASA thioesters, indometacin-like drugs and propionic acid derivatives eg ibuprofen.

N2Z ANALGESIC, OTHER

Analgesic drugs that are not classified as non-steroidal anti-inflammatory drugs (NSAIDs). The majority of the products included in this section act on pain perception within the central nervous system. Compounds under investigation include opioids eg partial and mixed agonist/antagonist m opioids and short-acting m agonists, enkephalins, enkephalinase inhibitors, antagonists of endogenous kallikreins, kinins, 5-HT and substance P, and paracetamol formulations.

N3A ANTIEPILEPTIC

Epilepsies are a group of central nervous system (CNS) disorders having in common the repeated occurrence of sudden and transitory episodes (seizures) of abnormal phenomena of motor (convulsion), sensory, autonomic, or psychic origin. Products in development include hydantoins, barbiturates, iminostilbines, benzodiazepines and excitatory amino acids (EAA) antagonists eg NMDA antagonists.

N4A ANTIPARKINSONIAN

Drugs that are effective in Parkinson's disease and in the dyskinesias, hyperkinesias (Sydenham's chorea and Huntingdon's chorea), athetosis, ballism, Wilson's disease, hypertonicity (hemiplegia, monoplegia, tetanus and stiff-man syndrome) and cerebellar diseases (dysmetria, dysdiadochokinesia and ataxia). Products in development include formulations of dopamine and dopamine potentiating agents, and MAO inhibitors.

N5A1 NEUROLEPTIC

Neuroleptic (antipsychotic, or major tranquillisers) agents are used in the treatment of psychoses such as schizophrenia, paranoia, and delirium. Drugs under investigation include dopamine autoreceptor agonists, 5-HT₃ antagonists, 5-HT_{1A} antagonists and 5-HT reuptake inhibitors, triazolobenzodiazepines and selective sigma opioid ligands.

N5B HYPNOTIC/SEDATIVE

Hypnotics are drugs used to produce drowsiness and sleep, whereas sedatives are used to calm anxious and restless patients, thus allowing sleep without actually producing it. Drugs under development include benzodiazepines, barbiturates, 5-HT₂ antagonists and non-indolic melatonin (ML-1) receptor agonists.

N5C ANXIOLYTIC

Drugs that are used to treat anxiety and panic attacks including benzodiazepines, benzodiazepine-like products eg α -carboline derivatives, selective monocyclic 5-HT reuptake inhibitors, 5-HT₂ and 5-HT₃ antagonists, selective ω 1-agonists and MAO-A inhibitors.

N5D ANTINEUROTIC

Drugs that are being developed for the treatment of neuroses, including phobias, obsessive-compulsive disorders and eating neuroses such as anorexia nervosa and bulimia. Compounds under investigation include selective monocyclic 5-HT reuptake inhibitors, 5-HT_{1A} agonists and MAO-A inhibitors.

N6B PSYCHOSTIMULANT

Products that increase psychomotor activity for the treatment of narcolepsy, cataplexy, sleep paralysis and attention-deficit hyperactivity disorders. Agents under development include α 1-agonists, 5-HT antagonists, competitive melatonin antagonists and thyrotrophin releasing hormone (protirelin) analogues.

N6D COGNITION ENHANCER

Products that are used in the treatment of a variety of dementias including Alzheimer's disease. These cognition enhancers are sometimes called nootropic agents. Approaches under investigation include antagonists that act at a unique β -amyloid peptide receptor site on neuroglia, neural stem cells, nerve growth factors, acetylcholinesterase inhibitors and NMDA antagonists

N7A MULTIPLE SCLEROSIS TREATMENT

Multiple sclerosis is a demyelinating disease in which nerves are stripped of their myelin "covering". Products under investigation include humanised anti-Tac antibodies, recombinant human β -interferon, immunosuppressant agents, myelin basic protein (MBP) and proteolipid protein (PLP) and glial growth factors.

N7C NEUROPROTECTIVE

Products that are used for the treatment of cerebrovascular disease, including cerebral ischaemia, anoxia, cerebral/subarachnoid haemorrhage and stroke. Treatments for amyotrophic lateral sclerosis (Lou Gehrig's disease). Compounds under investigation include calcium antagonists, 5-HT₂ antagonists, NMDA receptor antagonists, calpain inhibitors, protein kinase inhibitors, adenosine agonists and growth factors.

N8A ANTIMIGRAINE

Drug treatment of migraine has two main aims, to relieve symptoms of an attack, and prophylactically to reduce the frequency and intensity of the attacks. Products include selective 5-HT₁-like agonists, 5-HT₂ antagonists, calcium antagonists, semisynthetic ergot alkaloids, nitric oxide (NO) synthetase inhibitors and bradykinin antagonists.

N9A DEPENDENCE TREATMENT

Products to reduce the craving including selective μ opioid receptor antagonists and δ opioid agonists, 5-HT₃ antagonists, non-addictive non-nicotine compounds and transdermal nicotine patches.

N10A ANTIDEPRESSANT

Depression is associated with imbalances between various neurotransmitters produced in the brain, such as norepinephrine, dopamine and 5-HT. Products in development include tricyclic antidepressants, MAO-A and MAO-B inhibitors, selective 5-HT reuptake inhibitors, norepinephrine uptake inhibitors, selective 5-HT₂, 5-HT₃ and 5-HT_{1D} antagonists, α 2-antagonists and competitive melatonin receptor antagonists.

N11Z NEUROLOGICAL

Neurological compounds which are being developed for unspecific CNS indications or cannot be classified in any of the "N" categories. Drugs that are used in the treatment of diabetic neuropathy eg ciliary neurotrophin factor analogues. Products in development include various nerve growth factors, proteolytic enzyme inhibitors, NMDA antagonists and tyrosine kinase inhibitors.

P ANTIPARASITIC PRODUCTS**P1A AMOEBICIDE**

Products that are used in the treatment of amoebiasis (especially by *Entamoeba histolytica*).

P1B ANTHELMINTIC

Drugs active against Nematelminthes (nematodes or roundworms) and Platyhelminthes (flatworms). Products under development include inhibitors of parasitic catalase, glutathione peroxidase and transglutaminase.

P1C SCHISTOSOMICIDE

Drugs that are active against schistosomiasis (bilharziasis).

P1D ANTIMALARIAL

Products in development for the treatment of malaria, caused by four species of intracellular Protozoa of the genus *Plasmodium*, include protozoan electron transport inhibitors and antisense oligonucleotides. For malarial vaccines being developed, see the Vaccine (J7A) section.

P1G PROTOZOACIDE

Products used for the treatment of the protozoan infections giardiasis, trichomoniasis, trypanosomiasis, leishmaniasis, pneumocystosis and balantidiasis. Compounds in development include inhibitors of ornithine decarboxylase, trypanosomal S-adenosyl-L-methionine decarboxylase and hyperimmune g -globulin antibodies.

P1Z PARASITICIDE

Antiparasitic drugs that cannot be classified elsewhere in Pharmaprojects including recombinant g -interferon and macrolides isolated from *streptomyces* sp.

R RESPIRATORY PRODUCTS**R3A LUNG SURFACTANT**

Surfactants are used mainly to treat adult and infant respiratory distress syndrome (hyaline membrane disease) and also, to a lesser degree, emphysema, pneumonia and bronchitis.

R4A COPD TREATMENT

Chronic obstructive pulmonary disorder (COPD) is an umbrella term covering persistent respiratory diseases characterised by airflow obstruction and loss of expiratory force. The main diseases categorised as COPD are emphysema and chronic bronchitis. Products under investigation include elastase inhibitors, recombinant a 1-antitrypsin, recombinant antileukoproteinases and monocyclic b -lactams that inhibit human PMN elastase.

R4B CYSTIC FIBROSIS TREATMENT

Cystic fibrosis is a genetic disease of infants, children and young adults, in which there is widespread dysfunction of the exocrine glands. Treatments under investigation include pancreatic enzymes eg human gastric lipase, elastase inhibitors and recombinant versions of the human protein, cystic fibrosis transmembrane regulator (CFTR).

R5D ANTITUSSIVE

Antitussives are products that relieve or prevent cough, ie cough suppressants. Products being investigated include non-narcotic drugs that act via opiate receptors and catecholamine neurones.

R8A ANTI-ASTHMA

Products in development for asthma including allergic/extrinsic and intrinsic/non-atopic asthma. Drugs in development include corticosteroids, mast cell stabilisers eg calmodulin antagonists, histamine H1-receptor antagonists, PAF-antagonists, b2-agonists, xanthine derivatives, muscarinic M1 and M3 antagonists and inhibitors of the arachidonic acid cascade.

R8B ANTI-ALLERGIC, NON-ASTHMA

Preparations that are indicated for rhinitis, sinusitis, catarrh, nasal congestion and similar conditions including sympathomimetics, mast cell stabilisers, antihistamines and IgE related agents.

R9A RESPIRATORY STIMULANT

Respiratory stimulants increase pulmonary ventilation by their effects on the depth and rate of respiration.

R9Z RESPIRATORY

Preparations which cannot be classified in any of the other codes in the R section. Products used in the treatment of respiratory distress syndrome (both adult (ARDS) and infant) that are not lung surfactants (R3A). Products in development include prostaglandin E1 (PGE1) agonists, human leucocyte elastase inhibitors, monoclonal antibodies and epidermal growth factor-like factors.

S SENSORY PRODUCTS**S1G ANTIGLAUCOMA**

Glaucoma is a disease complex characterised by an increase in intraocular pressure that may damage the optic disc leading to irreversible blindness. Products being investigated include b-blockers, miotics, a2-agonists, carbonic anhydrase inhibitors and proteoglycanase inhibitors.

S1Z OPHTHALMOLOGICAL

Ophthalmological formulations of anti-infective agents (antivirals and antibacterials) that are used to treat eye infections. Products such as anti-inflammatories for use in ophthalmological disease states, cataracts and post-operative treatment, antiallergics, ocular lubricants, treatments for diabetic retinopathy eg aldose reductase inhibitors, and wound healing compounds.

S2 OTOLOGICAL

Products that are used in the treatment of otological (ear) disorders. It includes anti-infectives (antibiotics and antifungals) that are administered directly into or onto the ear.

T BIOTECHNOLOGY PRODUCTS**T2A1 RECOMBINANT INTERFERON**

Interferons which have been produced using recombinant DNA technology (genetic engineering).

T2A2 RECOMBINANT INTERLEUKIN

Interleukins which have been produced using recombinant DNA technology (genetic engineering).

T2A3 RECOMBINANT GROWTH FACTOR

Growth factors which have been produced using recombinant DNA technology (genetic engineering) including colony stimulating factors, transforming growth factor, epidermal growth factor, fibroblast growth factor, platelet-derived growth factor, nerve growth factor and ciliary neurotrophic factor.

T2B RECOMBINANT VACCINE

Vaccines, including cancer vaccines and contraceptive vaccines, which have been produced using recombinant DNA technology (genetic engineering). This includes prophylactic nucleic acid vaccines ('naked DNA' vaccines).

T2C RECOMBINANT HORMONE

Animal hormones which have been produced using recombinant DNA technology (genetic engineering) including calcitonin and somatomedin.

T2D LYTIC VIRUS

Replication-competent viruses, which lyse pathogenic cells directly, particularly oncolytic viruses which specifically attack cancer cells. These are normally genetically modified to render them harmless to normal tissues.

T2Z RECOMBINANT, OTHER

Proteins and their derivatives which have been produced using recombinant DNA technology (genetic engineering), except interferons, interleukins, growth factors, vaccines and hormones, which have their own sections as shown above. Recombinant molecules in development include clotting factors, cell adhesion molecules, cytokine antagonists, enzyme replacement therapies and chimaeric molecules.

T3A1 MONOCLONAL ANTIBODY, MURINE

Monoclonal antibodies which are not conjugated to another agent and which are derived from immunization of mice and rats.

T3A2 MONOCLONAL ANTIBODY, HUMAN

Monoclonal antibodies which are not conjugated to another agent and which are completely derived from humans, or have fully-human sequences.

T3A4 MONOCLONAL ANTIBODY, CHIMAERIC

Monoclonal antibodies which are not conjugated to another agent and which are engineered to contain portions derived from both human and animal sources, but are less than 70% human. This section does not include humanized antibodies (see T3A5).

T3A5 MONOCLONAL ANTIBODY, HUMANIZED

Monoclonal antibodies which are not conjugated to another agent and which are engineered to contain 90-95% human sequences, with the remainder usually consisting of rodent sequences. Fully-human monoclonal antibodies are classified separately in T3A2.

T3A9 MONOCLONAL ANTIBODY, OTHER

Monoclonal antibodies which are not conjugated to another agent and which are derived from an unknown source, or cannot be classified in other T3A categories.

T3B1 IMMUNOTOXIN

Immunotoxins are conjugates or fusion proteins of immunoglobulins (usually monoclonal antibodies) and toxins. The immunoglobulin will deliver the toxin to cells exhibiting the appropriate antigen, without the toxin coming into contact with normal cells.

T3B9 IMMUNOCONJUGATE, OTHER

Conjugates of immunoglobulins with other agents, excluding toxins, which are listed in Immunotoxin (T3B1). With all of these agents the antibody part of the molecule is used to direct it to its target, where the effector part of the molecule will perform its action.

T4A GENE THERAPY

Gene therapy is a term used to describe vector-mediated introduction of a therapeutic genetic sequence into target cells in vivo or ex vivo. Vectors may be viral or non-viral (eg plasmids). Strategies include replacement of defective or missing genes (eg for cystic fibrosis), or introduction of more broadly-acting (eg immunostimulant) sequences for the treatment of multifactorial diseases (eg cancer). Gene therapy vectors may also be used to deliver antisense and RNA interference sequences (see T4B and T4F). Lytic viruses which do not deliver therapeutic DNA are covered in T2D, and non-recombinant mammalian cells are covered in T5A (stem cells) and T5Z (other types). Direct administration of oligonucleotides without using vectors is covered separately in T4B (for antisense), T4F (for RNA interference) or T4E (for other oligonucleotide types). Platform technologies for gene delivery are covered separately in T4D.

T4B ANTISENSE THERAPY

Includes all entries for antisense compounds under development as potential therapeutics. Antisense compounds may be synthetic oligonucleotides, or antisense RNA may be expressed from a vector as a form of gene therapy (see T4A). They may prevent the expression of a specific protein in vivo by binding to and inhibiting the action of mRNA, since they have a specific oligonucleotide sequence which is complementary to the DNA or RNA sequence which codes for the protein.

T4D GENE DELIVERY VECTOR

Platform technologies for the delivery of therapeutic genes or nucleic acid vaccines. Viral and non-viral vectors (eg liposome systems) are included. Actual therapies and vaccines using these technologies are covered separately in T4A (for gene therapy) and T2B (for nucleic acid vaccines).

T4E OLIGONUCLEOTIDE, NON-ANTISENSE, NON-RNAI

Synthetic therapeutic oligonucleotides which operate by a mechanism other than antisense or RNA interference (RNAi). This includes ribozymes, aptamers, decoys, CpGs, and mismatched and immunostimulant oligonucleotides. Sequences delivered using vectors (gene therapy) are covered separately in T4A. Antisense and RNAi oligonucleotides are covered separately in T4B and T4F, respectively.

T4F RNA INTERFERENCE

Includes all entries for products which act therapeutically via an RNA interference (RNAi) mechanism, including small interfering RNAs (siRNAs). These may be synthetic oligonucleotides, or RNAi sequences may be expressed from a vector as a form of gene therapy (see T4A). In vivo, these sequences block the expression of a specific protein by forming an RNA-induced silencing complex, which then specifically binds to and degrades a complementary mRNA encoding the target protein. The use of RNAi purely as a drug discovery tool (eg in transgenic animal model production or in target validation) is not covered in this section.

T5A STEM CELL THERAPY

Non-recombinant cultured mammalian stem cells used as therapeutics. Recombinant stem cells are classified separately as ex vivo gene therapy (in T4A).

T5Z CELLULAR THERAPY, OTHER

Non-recombinant cultured mammalian therapeutic cells other than stem cells. Includes products such as dendritic cells, pancreatic islet implants, cultured wound healing products, and cultured T-lymphocytes.

V MISCELLANEOUS PRODUCTS**V3D ANTIDOTE**

Antidotes are used to counteract drug poisoning or overdose. Agents given prophylactically before radiotherapy or chemotherapy to reduce toxic effects are categorized under Radio/chemoprotective (K5B). Products used in the treatment of narcotic or benzodiazepine dependence and overdose will be found under Dependence treatment (N9A). Products in development include chelating agents, acetylcholinesterase reactivators and cardioselective muscarinic antagonists.

V4A IMAGING AGENT

Imaging agents, including those that utilize radiolabels and immunological labels and all contrast media.

V4Z DIAGNOSTIC

Diagnostic agents, which do not act as imaging agents. It does not include diagnostic kits that are used outside the body. The compounds appearing in this category will usually be under development primarily for therapeutic use.

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