The use of stems in the selection of International Nonproprietary Names (INN) for pharmaceutical substances

2006
The use of stems in the selection of International Nonproprietary Names (INN) for pharmaceutical substances

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The document "The Use of Common Stems in the Selection of INNs" is intended primarily for persons and companies applying to the WHO INN Programme for the selection of an INN for a new pharmaceutical substance and has been designed to assist in the process of devising a suitable proposal. It will also be of assistance to institutions and specialists involved in the review of proposed INNs, including drug regulatory authorities, pharmaceutical manufacturers, patent offices and trade mark officers as well as for scientists, teachers, health professionals and other persons interested generally in drug nomenclature. The document is composed of four main parts and annexes.

Part I "Introduction" describes the WHO INN Programme, INN selection procedure, and criteria for name selection and gives general information on the INN stem system.

Part II contains the list of all INN stems. It is composed of two indexes, one entitled "Alphabetical List of Common Stems" which presents the list of stems, and another entitled "Alphabetical List of Common Stems and their definitions" which includes a definition for each stem.

Part III presents the stem classification system used by the INN Programme to categorize the main activity of pharmaceutical substances. Each category included in the list is given an appropriate code consisting of a capital letter and three digits. When INNs for substances belonging to a given category include a specific stem, appropriate information is included in the table.

Part IV of the document entitled "Alphabetical List of Stems Together With Corresponding INNs" serves as a listing of all proposed INNs (published in lists 1 - 95) containing INN stems. The list is organized in alphabetical order (as set out in Part II) and includes all INNs containing individual stems. In addition, under each stem heading information is given on INNs in which the preferred stem has been used but not in accordance with its definition as well as on INNs which belong to the same group of pharmaceutical substances but in which no preferred stem has been used. To facilitate the use of Part IV, the lay-out of information is presented as a diagram on page 6 and is complemented by additional information given at the end of part I "Introduction".

Six annexes attached to the document are intended to be of assistance to users. Annex 1 explains the stem system for monoclonal antibodies. Annex 2 reproduces the Procedure for the Selection of Recommended International Nonproprietary Names for Pharmaceutical Substances as approved by the WHO Executive Board in its resolution EB15.R7 as amended by resolution EB115.R4. Annex 3 reproduces General Principles for Guidance in Devising International Nonproprietary Names for Pharmaceutical Substances as approved by the WHO Executive Board in the above-mentioned resolution, as amended. Annex 4 explains the nomenclature scheme for Gene Therapy Products. Annex 5 gives reference to the volumes of the WHO Drug Information in which proposed lists of INNs have been published. Annex 6 "Why INN?" gives general information on the present situation of WHO INN Programme and its achievements.
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PART I
INTRODUCTION

WHO'S INN PROGRAMME
The World Health Organization (WHO) has a constitutional responsibility to "develop, establish and promote international standards with respect to biological, pharmaceutical and similar products". The International Nonproprietary Names (INN) Programme is a core activity embedded in the normative functions of WHO and has served the global public health and medicines community for over fifty years. The Programme was established to assign nonproprietary names to pharmaceutical substances so that each substance would be recognized by a unique name. Such names are needed for the clear identification, safe prescription and dispensing of medicines, and for communication and exchange of information among health professionals. INNs can be used freely because they are in the public domain. In addition to being a basic component of many WHO medicines activities and programmes, INNs are used in regulatory and administrative processes in many countries. They are also intended for use in pharmacopoeias, labelling, and product information and to provide standardized terminology for the international exchange of scientific information.

INN SELECTION PROCEDURE
Each name proposed for designation as an INN is examined and selected in accordance with a formal procedure. Requests for INNs can be submitted directly to WHO (application forms online at http://www.who.int/medicines/services/inn/en/index.html). In some countries where national nomenclature commissions exist, applications may also be made through the national nomenclature authority.

Members of the WHO Expert Panel on the International Pharmacopoeia and Pharmaceutical Preparations (or other Panel as appropriate) are officially designated to select nonproprietary names. Based on the information provided, an agreed name is selected and published as a proposed INN. During a four month period, any person can make comments or lodge a formal objection to the proposed name. If no objection is raised, this agreed name is published as the recommended INN.

In 1993, the World Health Assembly endorsed resolution WHA46 which states that trade marks should not be derived from INNs and INN stems should not be used in trade marks. The Assembly reasoned that such practice could frustrate the rational selection of INNs and ultimately compromise the safety of patients by promoting confusion in drug nomenclature. Above all, INNs are protected for use in the public domain.

CRITERIA FOR SELECTION
International Nonproprietary Names (INN) should be distinctive in sound and spelling. They should not be inconveniently long and not be liable to confusion with names in common use. Information on the selection procedure and general criteria in devising INNs is set out in Annexes 2 and 3.

INN STEMS
Stems define the pharmacologically related group to which the INN belongs. The present document describes stem use procedure and includes, in Parts II and IV, the list of common stems for which chemical and/or pharmacological categories have been established. These stems and their definitions have been selected by WHO experts and are used when selecting new international nonproprietary names. Because the nomenclature process is ongoing and constantly under revision, definitions of older stems are modified as and when newer information becomes available.

Whenever possible, an INN should include the "common stem" expressing the pharmacologically-related group to which the substance belongs. Names that are likely to convey an anatomical, physiological, pathological or therapeutic suggestion are avoided.
In addition, certain rules have been established in devising INNs to facilitate their use internationally. For example, to make pronunciation possible in various languages, the letters "h" and "k" should be avoided; "e" should be used instead of "ae" and "oe", "i" instead of "y", "t" instead of "th" and "f" instead of "ph".

INFORMATION ON USING PART IV "ALPHABETICAL LIST OF STEMS TOGETHER WITH CORRESPONDING INNs"

The following information complements or describes the diagram set out on page 6.

1. The list includes INNs published in *Proposed International Nonproprietary Names Lists 1 - 95* categorized according to the list of stems (see Annex 5).

For each stem, INNs have been classified as:

(a) INNs in which the preferred stem has been used in accordance with its definition;

(b) INNs in which the preferred stem has been used, but not in accordance with its definition;

(c) INNs which belong to the same group of pharmaceutical substances but in which the preferred stem has been used. (This part of the list is not exhaustive).

2. References to nationally used syllables published in the British Approved Names (BAN) Dictionary and the USP Dictionary of USAN and International Drug Names have also been made wherever applicable. Whenever the BAN or USAN definitions are not identical to the INN definition they are set out in brackets under the INN definition.

3. The codes presented on the diagram as Stem Classification refer to the stem classification system used by the INN Programme described in Part III of the document.

4. Symbol (x) indicates stems included as examples in Article 9 of the "General Principles for Guidance in Devising International Nonproprietary Names for Pharmaceutical Substances" (see Annex 3).

5. Symbol (d) indicates stems that were formerly used, but are no longer formally acknowledged by the INN Programme.
### Layout of information

**Stem**
- **Stem classification**
- **Stem definition**
- **National Name(s)**

**calci**
- N.8.0.0

**Vitamin D analogues/derivatives**

- (a) alfalcaldol (40), calcifediol (26), calcipotriol (61), calcitriol (39), colecalficalcerol (13), doxercalficalcerol (82), ergocalcicalcerol (13), falecalficalcerol (74), lexacalcical (71), maxacalcical (75), paricalcical (78), secalcalcerol (62), seocalcalcerol (78), tacalcical (65)
- (b) calcitonin (31) (polypeptide)
- (c) dihydrotachysterol (1)

**List of proposed INN**
- Names in which the preferred stem has been used in accordance with its definition
- Names in which the preferred stem has been used but not in accordance with its definition
- Names which belong to the same group of pharmaceutical substances and in which no preferred stem has been used (this part of the list is not exhaustive)

(x) stems that are included in article 9 of the General Principles
(d) stems deleted from article 9 of the General Principles
### Part II A

#### ALPHABETICAL LIST OF COMMON STEMS

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
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<tbody>
<tr>
<td>-abine (see -arabine and -citabine)</td>
<td>-bactam</td>
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<td>-ac</td>
<td>-bamat</td>
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<td>-acetam (see -racetam)</td>
<td>-babron</td>
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<td>-actide</td>
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<td>-carnil (see -azenil)</td>
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-fenamate (see -fenamic acid)
-fenamic acid
-fenin
-fenine
-fentanyl
-fentrine
-ferin (see -ermin)
-fiban
-fibrate
-filermin (see -ermin)
-flapon
-flurane
-formin
-fos
-fovir (see vir)
-fradil
-frine (see -drine)
-fungin
-fylline

gab
-gado-
-gatran
-gene
gest
-gestr- (see estr)
-giline
-gillin
-gli
-glitzazar (see gli)
-glitazone (see gli)
-glumide
-golide
-gosivir (see vir)
-gramostim (see -stim)
-grastim (see -stim)
-grel-/grel-
guan-

-leukin (see -kin)
-listat (see -stat)
-lubant
-lukast (see -ast)

-mab
-mantadine
-mantine (see -mantadine)
-mantine (see -mantadine)
-mastat (see -stat)
-meline
-mer/-mer
-mer
-mesine
-mestane
-metacin
-met(h)asone (see pred)
-micin
-mifene (see -ifene)
-milast (see -ast)
-mito-
-monam
-morelin (see -relin)
-mostim (see -stim)
-motine
-moxin
-mustine
-mycin

-nab
-nakin (see -kin)
-nakinra (see -kinra)
nal-
-naritide (see -tide)
-navir (see vir)
-nermin (see -ermin)
-nercept
-neriant (see -tiant)
-netant (see -tiant)
-nicate (see nico-)
-nicline
-nico-/nic-/ni-
-nidazole
-nidine (see -onidine)
nifur-
-nil (see -azenil)
nitro/-nitr/-nit/-ni/-ni-
-nixin

(-)nonacog (see -cog)

-ol
-olor
-olone (see pred)
onakin (see -kin)
one
-onide
-onidine
-onium (see -ium)
-opamine (see -dopa)
-orex
-orph- (see orphan)
orphan
-otermin (see -ermin)
ox/-alox
-oxacin
-oxan(e)
-oxanide (see -anide)
-oxef (see cef-)
-oxepin (see -pine)
oxetine
-oxicam (see -icam)
oxifene (see -ifene)
oxopine (see -pine)
INN – The use of stems

**P**
- pafant
- pamide
- pamil
- parcin
- parin
- parinux (see -parin)
- pendyl (see -dil)
- penem
- perfl(u)-
- peridol (see -perone)
- peridone (see -perone)
- perone
- pidem
- pin(e)
- piprazole (see -prazole)
- pirone (see -spiron)
- pirox (see -ox/-alox)
- pitant (see -tant)
- plact
- pladib
- planin
- plase (see -ase)
- plasmid (see -gene)
- platin
- plem (see -ermin)
- plestim (see -stim and -kin)
- plon
- poetin
- porfin
- poride
- pramine
- prazole
- pred
- prenataline (see -terol)
- pressin
- pride
- pril
- prilat (see -pril)
- prim
- pristin
- profen
- prost
- prostil (see prost)

**Q**
- quidar
- quin(e)
- quinil (see -azenil)

**R**
- racetam
- racid
- relin
- relix
- renone
- restat (see -stat)
- retin
- ribine
- rifa-
- rixone
- rizine (see -izine)
- rozole
- rsen
- rubricin

**S**
- sal
- sartan
- semide
- sermin (see -ermin)
- serod
- serpine
- setron
- som-
- sopine (see -pine)
- spiron
- stat/-stat-
- steine
- ster-
- stigmine
- stim
- sulf-
- sulfan

**T**
- tadine
- tant
- tecan
- tepa
- tepine (see -pine)
- teplase (see -ase)
- termin (see -ermin)
- terol
- terone
- thiouracil (see -racil)
- tiazem
- tide
- tidine
- tilide (see -ilide)
- tiline (see -triptyline)
- tinib
- tirelin (see -relin)
- tizide
- tocin
- toin
- trak in (see -kin)
- trakinra (see -kinra)
- tredekin (see -kin)
- trexate
- trexed
- tricin
- triptan
- triptyline
- troban
- trodast (see -ast)
- trop

**U**
- uplase (see -ase)
- uridine

**V**
- vaptan
- vastatin (see -stat)
- vec (see -gene)
- verine
- vin/-vin-
- vir
- virsens
- vos (see fos)
- vudine (see -uridine)

**X**
- xaban
- xanox (see -ox/-alox)

**Y**
- yzine (see -izine)
Z
- zafone
- zepine (see -pine)
- zolast (see -ast)
- zone (see -buzone)
- zotan
PART II B
ALPHABETICAL LIST OF COMMON STEMS AND THEIR DEFINITION

A
-abine (see -arabine and -citabine) arabinofuranosyl derivatives; nucleoside antiviral or antineoplastic agents, cytarabine or azactidine derivatives
-ac anti-inflammatory agents, ibufenac derivatives
-acetam (see -racetam) amide type nootrope agents, piracetam derivatives
-actide synthetic polypeptide with a corticotropin-like action
-adol/-adol- analgesics
-adom analgesics, tifluadom derivatives
-afenone antiarrhythmics, propafenone derivatives
-affil inhibitors of phosphodiesterase PDE5 with vasodilator action
-aj- antiarrhythmics, ajmaline derivatives
-al aldehydes
-aldrate antacids, aluminium salts
-alol (see -olol) aromatic ring related to -olols
-alox (see -ox) antacids, aluminium derivatives
-amivir (see vir) neuraminidase inhibitors
-ampanel amino-hydroxymethyl-isoxazole-propionic acid (AMPA) receptor antagonists
-andr steroids, androgens
-anib angiogenesis inhibitors
-anide saluretics
-anserin serotonin receptor antagonists (mostly 5-HT₂)
-antel anthelminthics (undefined group)
-antrone antineoplastics; anthraquinone derivatives
-apine (see -pine) tricyclic compounds
-(ar)abine arabinofuranosyl derivatives
-arit antiarthritic substances, acting like clobuzarit and lobenzarit,
  (mechanism different from anti-inflammatory type substances, e.g.
  -fenamates or -profens)
-arol anticoagulants, dicoumarol derivatives
-arone -
-arotene arotinoid derivatives
 arte- antimalarial agents, artemisinin related compounds
-ase enzymes
-ast antiasthmatics or antiallergics, not acting primarily as antihistaminics
-(a)steride (see -ster-) androgens/anabolic steroids
-astine antihistaminics
-azam (see -azepam) diazepam derivatives
-azenil benzodiazepine receptor antagonists/agonists (benzodiazepine derivatives)
-azepam diazepam derivatives
-azepide cholecystokinin receptor antagonists
-azocine narcotic antagonists/agonists related to 6,7-benzomorphan
-azolam (see -azepam) diazepam derivatives
-azoline antihistaminics or local vasoconstrictors, antazoline derivatives
-azone (see -buzone) anti-inflammatory analgesics, phenylbutazone derivatives
-azosin antihypertensive substances, prazosin derivatives

B
-bactam β-lactamase inhibitors
-bamate tranquillizers, propanediol and pentanediol derivatives
barb hypnotics, barbituric acid derivatives
-begron β3-adrenoreceptor agonists
-benakin (see -kin) interleukin-1 analogues and derivatives
-bendan (see -dan) cardiac stimulants, pimobendan derivatives
-bendazole anthelmintics, tiabendazole derivatives
-bermin (see -ermin) vascular endothelial growth factors
-bersat anticonvulsants, benzoylamino-benzpyran derivatives
-betasol (see pred) prednisone and prednisolone derivatives
bol anabolic steroids
-bradine bradycardic agents
-brate (see -fibrate) clofibrate derivatives
-bufen non-steroidal anti-inflammatory agents, arylbutanoic acid derivatives
-bulin antineoplastics; mitotic inhibitor, tubulin binder
-butazone (see -buzone) anti-inflammatory analgesics, phenylbutazone derivatives
-buzone anti-inflammatory analgesics, phenylbutazone derivatives
INN – The use of stems

C
-caine local anaesthetics
-cain- class I antiarrhythmics, procainamide and lidocaine derivatives
calci vitamin D analogues/derivatives
carbef antibiotics, carbacephem derivatives
carnil (see -azenil) benzodiazepine receptor antagonists/agonists (carboline derivatives)
castat (see -stat) dopamine-hydroxylase inhibitors
cavir (see vir) carbocyclic nucleosides
cef- antibiotics, cefalosporanic acid derivatives
cell-/cel- cellulose derivatives
cell-ate (see cell-/cel-) cellulose ester derivatives for substances containing acidic residues
cellose (see cell-/cel-) cellulose ether derivatives
cic hepatoprotective substances with a carboxylic acid group
ciclovir (see vir) antivirals, bicyclic heterocycles compounds
cidin naturally occurring antibiotics (undefined group)
cillide (see -cillin) antibiotics, 6-aminopenicillanic acid derivatives
cillin antibiotics, 6-aminopenicillanic acid derivatives
cillinam (see -cillin) antibiotics, 6-aminopenicillanic acid derivatives
cilpine (see -pine) tricyclic compounds
cisteine (see -steine) mucolytics, other than bromhexine derivatives
citabine nucleoside antiviral or antineoplastic agents, cytarabine or azactidine derivatives
clone hypnotic tranquillizers
cog blood coagulation factors
cogin blood coagulation cascade inhibitors
conazole systemic antifungal agents, miconazole derivatives
cort corticosteroids, except prednisolone derivatives
coxib selective cyclo-oxygenase inhibitors
crinat diuretics, etacrylic acid derivatives
crine acridine derivatives
cromil antiallergics, cromoglicic acid derivatives
curium (see -ium) curare-like substances
cycline antibiotics, tetracycline derivatives
D
-dan cardiac stimulants, pimobendan derivatives
-dapsone antimycobacterials, diaminodiphenylsulfone derivatives
-decakin (see -kin) interleukin-10 analogues and derivatives
-denoson adenosine A receptor agonists
-dermin (see -ermin) epidermal growth factors
-dil vasodilators
-dilol (see -dil) vasodilators
-dipine calcium channel blockers, nifedipine derivatives
-dismase (see -ase) enzymes with superoxide dismutase activity, see -ase item V
-distim (see -stim) combination of two different types of colony stimulating factors
-dodekin (see -kin) interleukin-12 analogues and derivatives
-dopa dopamine receptor agonists, dopamine derivatives, used as antiparkinsonism/prolactin inhibitors
-doix (see -ox/-alox) antibacterials, quinazoline dioxide derivatives
-dralazine antihypertensives, hydrazinephthalazine derivatives
-drine sympathomimetics
-drone acid calcium metabolism regulator, pharmaceutical aid
-dutant (see -tant) neurokinin NK2 receptor antagonist
-dyl (see -dil) vasodilators

E
-ectin antiparasitics, ivermectin derivatives
-elestat (see -stat) elastase inhibitors
-elvekin (see -kin) interleukin-11 analogues and derivatives
-emcinal erythromycin derivatives lacking antibiotic activity, motilin agonists
-entan endothelin receptor antagonists
(-)eptacog (see -cog) blood coagulation VII
erg ergot alkaloid derivatives
-eridine analgesics, pethidine derivatives
-ermin growth factors
estr estrogens
-etanide (see -anide) diuretics, piretanide derivatives
-ethidine (see -eridine) analgesics, pethidine derivatives
-exakin (see -kin) interleukin-6 analogues and derivatives
-exine mucolytic, bromhexine derivatives

F
-fenamate (see -fenamic acid) "fenamic acid" derivatives
-fenamic acid anti-inflammatory, anthranilic acid derivatives
-fenin diagnostic aids; (phenylcarbamoyl)methyl iminodiacetic acid derivatives
-fenine analgesics, glafenine derivatives (subgroup of fenamic acid group)
-fentanil narcotic analgesics, fentanyl derivatives
-fentrine inhibitors of phosphodiesterases
-fermin (see -ermin) fibrinoblast growth factors
-fiban fibrinogen receptor antagonists (glycoprotein IIb/IIIa receptor antagonists)
-fibrate clofibrate derivatives
-filermin (see -ermin) leukemia-inhibiting factor
-flapon 5-lipoxygenase-activating protein (FLAP) inhibitor
-flurane halogenated compounds used as general inhalation anaesthetics
-formin antihyperglycaemics, phenformin derivatives
fos insecticides, anthelminthics, pesticides etc., phosphorous derivatives
-fovir (see vir) phosphonic acid derivatives
-fradil calcium channel blockers acting as vasodilators
-frine (see -drine) sympathomimetic, phenethyl derivatives
-fungin antifungal antibiotics
-fylline N-methylated xanthine derivatives

G
gab gabamimetic agents
gado- diagnostic agents, gadolinium derivatives
-gatran thrombin inhibitor, antithrombotic agent
gene gene therapy products
gest steroids, progestogens
gestr- (see estr) estrogens
giline MAO-inhibitors type B
-gillin antibiotics produced by *Aspergillus* strain

gli antihyperglycaemics

-glitazar (see gli) peroxisome proliferator activating receptor (PPAR) agonists

-glitazone (see gli) peroxisome proliferator activating receptor (PPAR) agonists, thiazolidinedione derivatives

-glumide CCK antagonists, antiulcer, anxiolytic agent

-golide dopamine receptor agonists, ergoline derivatives

-gosivir (see vir) glucoside inhibitors

-gramostim (see -stim) granulocyte macrophage colony stimulating factor (GM-CSF) types substances

-grastim (see -stim) granulocyte colony stimulating factor (G-CSF) type substances

-grel-/grel platelet aggregation inhibitors

guan- antihypertensives, guanidine derivatives

I

-ibine (see -ribine) ribofuranyl-derivatives of the “pyrazofurin” type

-icam anti-inflammatory, isoxicam derivatives

-ifene antiestrogens, clomifene and tamoxifen derivatives

-igetide (see -tide) peptides and glycopeptides

-ilide class III antiarrhythmics, sematilide derivatives

-imex immunostimulants

-imibe antihyperlipidaemics, acyl CoA: cholesterol acyltransferase (ACAT) inhibitors

-imod immunomodulators, both stimulant/suppressive and stimulant

-imus immunosuppressants (other than antineoplastics)

-ine alkaloids and organic bases

-inostat (see stat) histone deacetylase inhibitors

-io- iodine-containing contrast media

-iod-/io- iodine-containing compounds other than contrast media

-irudin hirudin derivatives

-isomide antiarrhythmics, disopyramide derivatives

-i um quaternary ammonium compounds

-izine (-y zine) diphenylmethyl piperazine derivatives
INN – The use of stems

K
-kacin antibiotics, kanamycin and bekamycin derivatives (obtained from *Streptomyces kanamyceticus*)
-kalant potassium channel blockers
-kalim potassium channel activators, antihypertensive
-kef- enkephalin agonists
-kin interleukin type substances
-kinra (see -kin) interleukin receptor antagonists
-kiren renin inhibitors

L
-leukin (see -kin) interleukin-2 analogues and derivatives
-listat (see -stat) pancreatic lipase inhibitors
-lubant leukotriene B4 receptor antagonist
-lukast (see -ast) leukotriene receptor antagonists

M
-mab monoclonal antibodies
-mantadine adamantane derivatives
-mantine (see -mantadine) adamantane derivatives
-mantone (see -mantadine) adamantane derivatives
-mastat (see -stat) matrix metalloproteinase inhibitors
-meline cholinergic agents (muscarine receptor agonists/partial antagonists used in the treatment of Alzheimer's disease)
-mer/-mer mercury-containing drugs, antimicrobial or diuretic (deleted from General Principles in List 28 prop. INN)
-mer polymers
-mesine sigma receptor ligands
-mestane aromatase inhibitors
-metacin anti-inflammatory, indomethacin derivatives
-met(h)asone (see pred) prednisone and prednisolone derivatives
-micin antibiotics obtained from *various Micromonospor*
-mifene (see -ifene) antiestrogens, clomifene and tamoxifen derivatives
-milast (see -ast) phosphodiesterase IV (PDE IV) inhibitors
mito- antineoplastics, nucleotoxic agents (deleted from General Principles in List 24 prop. INN)
-monam monobactam antibiotics

-morelin (see -relin) growth hormone release-stimulating peptides

-mostim (see -stim) macrophage stimulating factors (M-CSF) type substances

-motine antivirals, quinoline derivatives

-moxin monoamine oxidase inhibitors, hydrazine derivatives

-mustine antineoplastic, alkylating agents, (β-chloroethyl)amine derivatives

-mycin antibiotics, produced by *Streptomyces* strains (see also -kacin)

N

cannabinol derivatives

-nakin (see -kin) interleukin-1 analogues and derivatives

-nakinra (see -kin) interleukin-1 receptor antagonists

-nal- narcotic antagonists/agonists related to normorphine

-naritide (see -tide) peptides and glycopeptides

-navir (see vir) HIV protease inhibitors

-nermin (see -ermin) tumour necrosis factor

-nercept tumour necrosis factor antagonist

-nertant (see -tant) neurotensin antagonist

-netant (see -tant) neurokinin NK3 receptor antagonist

-nicate (see nico-) antihypercholesterolaemic and/or vasodilating nicotinic acid esters

-nicline nicotinic acetylcholine receptor partial agonists / agonists

-nico-/nic-/ni- nicotinic acid or nicotinoyl alcohol derivatives

-nidazole antiprotozoals and radiosensitizers, metronidazole derivatives

-nidine (see -onidine) antihypertensives, clonidine derivatives

-nifur- 5-nitrofuran derivatives

-nil (see -azenil) benzodiazepine receptor antagonists/agonists (benzodiazepine derivatives)

-nitro-/nitr-/ni-/-ni- NO2- derivatives

-nixin anti-inflammatory, anilinonicotinic acid derivatives

(-)nonacog (see -cog) blood factor IX

O

interleukin-8 analogues and derivatives

(blood factor VIII

(-)octocog (see -cog) blood factor VIII

for alcohols and phenols (deleted from General Principles in 14th Report)
-olol  β-adrenoreceptor antagonists
-olone (see pred)  steroids other than prednisolone derivatives
-onakin (see -kin)  interleukin-1 analogues and derivatives
-one  ketones
-onide  steroids for topical use, acetal derivatives
-onidine  antihypertensives, clonidine derivatives
-onium (see -ium)  quaternary ammonium compounds
-opamine (see -dopa)  dopaminergic agents dopamine derivatives used as cardiac stimulant/antihypertensives/diuretics
-orex  anorexics
-orph- (see orphan)  narcotic antagonists/agonists, morphinan derivates
orphan  narcotic antagonists/agonists, morphinan derivates
-otermin (see -ermin)  bone morphogenetic proteins
-ox/-alox  antacids, aluminium derivatives
-oxacin  antibacterials, nalidixic acid derivatives
-oxan(e)  benzodioxane derivatives
-oxanide (see -anide)  antiparasitics, salicylanilides and analogues
-oxef (see cef-)  antibiotics, oxacefalosporanic acid derivatives
-oxepin (see -pine)  tricyclic compounds
-oxetine  antidepressants, fluoxetine derivatives
-oxicam (see -icam)  anti-inflammatory, isoxicam derivatives
-oxifene (see -ifene)  antiestrogens, clomifene and tamoxifen derivatives
-oxopine (see -pine)  tricyclic compounds

P
-pafant  platelet-activating factor antagonists
-pamide  diuretics, sulfamoylbenzoic acid derivatives (could be sulfamoylbenzamide)
-pamil  coronary vasodilators, verapamil derivatives
-parcin  for glycopeptide antibiotics
-parin  heparin derivatives including low molecular mass heparins
-parinux (see -parin)  synthetic heparinoids
-pendyl (see -dil)  vasodilators
-penem  analogues of penicillanic acid antibiotics modified in the five-membered ring
perfl(u)- perfluorinated compounds used as blood substitutes and/or diagnostic agents
-peridol (see -perone) antipsychotics, haloperidol derivatives
-peridone (see -perone) antipsychotics, risperidone derivatives
-perone tranquillizers, neuroleptics, 4'-fluoro-4-piperidinobutyrophene derivatives
-pidem hypnotics/sedatives, zolpidem derivatives
-pin(e) tricyclic compounds
-piprazole (see -prazole) psychotropics, phenylpiperazine derivatives
-pirone (see -pirone) anxiolytics, buspirone derivatives
-pirox (see -ox/-alox) antymycotic pyridone derivatives
-pitant (see -tant) neurokinin NK1 (substance P) receptor antagonist
-plact platelet factor 4 analogues and derivatives
-pladib phospholipase A2 inhibitors
-planin antibacterials (Actinoplanes strains)
-plase (see -ase) enzymes
-plasmid (see -gene) gene therapy products
-platin antineoplastic agents, platinum derivatives
-plermin (see -ermin) platelet-derived growth factor
-plestim (see -stim and -kin) interleukin-3 analogues and derivatives
-plon pyrazolo[.]pyrimidine derivatives, used as anxiolytics, sedatives, hypnotics
-poetin erythropoietin type blood factors
-porfin benzoporphyrin derivatives
-poride Na+/H+ antiport inhibitor
-pramine substances of the imipramine group
-prazolet antiulcer, benzimidazole derivatives
-pred prednisone and prednisolone derivatives
-prenaline (see -terol) bronchodilators, phenethylamine derivatives
-pressin vasoconstrictors, vasopressin derivatives
-pride sulpiride derivatives
-pril angiotensin-converting enzyme inhibitors
-prilat (see -pril) angiotensin-converting enzyme inhibitors
-prim antibacterials, trimethoprim derivatives
-pristin antibacterials, pristinamycin derivatives
<table>
<thead>
<tr>
<th>Stem</th>
<th>Example</th>
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</thead>
<tbody>
<tr>
<td>-profen</td>
<td>anti-inflammatory agents, ibuprofen derivatives</td>
</tr>
<tr>
<td>prost</td>
<td>prostaglandins</td>
</tr>
<tr>
<td>-prostil (see prost)</td>
<td>prostaglandins, anti-ulcer</td>
</tr>
<tr>
<td>Q</td>
<td>Q-QUIDAR</td>
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<tr>
<td>-quin(e)</td>
<td>quinoline derivatives (deleted from General Principles in List 28 prop. INN)</td>
</tr>
<tr>
<td>-quinil (see -azenil)</td>
<td>benzodiazepine receptor agonists, also partial or inverse (quinoline derivatives)</td>
</tr>
<tr>
<td>R</td>
<td>-racetam</td>
</tr>
<tr>
<td>-racil</td>
<td>uracil type antineoplastics</td>
</tr>
<tr>
<td>-relin</td>
<td>prehormones or hormone-release stimulating peptides</td>
</tr>
<tr>
<td>-relax</td>
<td>hormone-release inhibiting peptides</td>
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<tr>
<td>-renone</td>
<td>aldosterone antagonists, spironolactone derivates</td>
</tr>
<tr>
<td>-restat (see -stat)</td>
<td>aldose reductase inhibitors</td>
</tr>
<tr>
<td>retin</td>
<td>retinol derivatives</td>
</tr>
<tr>
<td>-ribine</td>
<td>ribofuranyl-derivatives of the &quot;pyrazofurin&quot; type</td>
</tr>
<tr>
<td>rifa-</td>
<td>antibiotics, rifamycin derivatives</td>
</tr>
<tr>
<td>-rinone</td>
<td>cardiac stimulants, amrinone derivatives</td>
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<tr>
<td>-rizine (see -izine)</td>
<td>antihistaminics/cerebral (or peripheral) vasodilators</td>
</tr>
<tr>
<td>-rozole</td>
<td>aromatase inhibitors, imidazole-triazole derivatives</td>
</tr>
<tr>
<td>-rsen</td>
<td>antisense oligonucleotides</td>
</tr>
<tr>
<td>-rubicin</td>
<td>antineoplastic antibiotics, daunorubicin derivatives</td>
</tr>
<tr>
<td>S</td>
<td>sal</td>
</tr>
<tr>
<td>-sartan</td>
<td>angiotensin II receptor antagonists, antihypertensive (non-peptidic)</td>
</tr>
<tr>
<td>-semide</td>
<td>diuretics, furosemide derivatives</td>
</tr>
<tr>
<td>-sermin (see -ermin)</td>
<td>insulin-like growth factors</td>
</tr>
<tr>
<td>-serod</td>
<td>serotonin receptor antagonists and partial agonists</td>
</tr>
<tr>
<td>-serpine</td>
<td>derivatives of <em>Rauwolfia</em> alkaloids</td>
</tr>
<tr>
<td>-setron</td>
<td>serotonin receptor antagonists (5-HT₃) not fitting into other established groups of serotonin receptor antagonists</td>
</tr>
</tbody>
</table>
som- growth hormone derivatives
-sopine (see -pine) tricyclic compounds
-spirone anxiolytics, buspirone derivatives
-stat/-stat- enzyme inhibitors
-steine mucolytics, other than bromhexine derivatives
-ster- androgens/anabolic steroids
-stigmine acetylcholinesterase inhibitors
-stim colony stimulating factors
-sulfa- anti-infectives, sulfonamides
-sulfan antineoplastic, alkylating agents, methanesulfonates

T
-tadine tricyclic histamine-H\textsubscript{1} receptor antagonists, tricyclic compounds
-tant neurokinin (tachykinin) receptor antagonists
-taxel antineoplastics; taxane derivatives
-tecan antineoplastics, topoisomerase I inhibitors
-tepa antineoplastics, thiopeta derivatives
-tepine (see -pine) tricyclic compounds
-teplase (see -ase) tissue type plasminogen activators, see -ase item VI
-termin (see -ermin) transforming growth factor
-terol bronchodilators, phenethylamine derivatives
-terone antiandrogens
-thiouracil (see -racil) uracil derivatives used as thyroid antagonists
-tiazem calcium channel blockers, diltiazem derivatives
-tide peptides and glycopeptides (for special groups of peptides see -actide, -pressin, -relin, -tocin)
-tidine histamine-H\textsubscript{2}-receptor antagonists, cimetidine derivatives
-tilide (see -ilide) class III antiarrhythmics, sematilide derivatives
-tiline (see -triptyline) antidepressants, dibenzo[a,d]cycloheptane or cycloheptene derivatives
-tinib tyrosine kinase inhibitors
-tirelin (see -relin) thyrotropin releasing hormone analogues
-tizide diuretics, chlorothiazide derivatives
-tocin oxytocin derivatives
-toin antiepileptics, hydantoin derivatives
-trakin (see -kin) interleukin-4 analogues and derivatives
-trexate folic acid analogues
-tricin antibiotics, polyene derivatives
-triptan serotonin (5HT_1) receptor agonists, sumatriptan derivatives
-tripyline antidepressants, dibenzo[a,d]cycloheptane or cycloheptene derivatives
-troban thromboxane A_2-receptor antagonists; antithrombotic agents
-trodast (see -ast) thromboxane A_2-receptor antagonists, antiasthmatics
trop atropine derivatives

\[\text{U}\]
-uplase (see -ase) urokinase type plasminogen activator, see -ase item VII
-ur (see -uridine) uridine derivatives used as antiviral agents and as antineoplastics
-uridine uridine derivatives used as antiviral agents and as antineoplastics

\[\text{V}\]
vaptan vasopressin receptor antagonists
-vastatin (see -stat) antihyperlipidaemic substances, HMG CoA reductase inhibitors
-vec (see -gene) gene therapy product
-verine spasmylytics with a papaverine-like action
vin-/vind- vinca alkaloids
vir antivirals (undefined group)
virsen antisense oligonucleotides
-vos (see fos) insecticides, anthelmintics, pesticides etc., phosphorus derivatives
-vudine (see -uridine) uridine derivatives used as antiviral agents and as antineoplastics

\[\text{X}\]
xaban blood coagulation factor X_a inhibitors, antithrombotics
-xanox (see -ox/-alox) anti-allergics, tixanox group

\[\text{Y}\]
-yzine (see -izine) diphenylmethyl piperazine derivatives
Z
-zafone alozafone derivatives
-zepine (see -pine) tricyclic compounds
-zolast (see -ast) leukotriene biosynthesis inhibitors
-zone (see -buzone) anti-inflammatory analgesics, phenylbutazone derivatives
-zotan 5-HT\textsubscript{1A} receptor agonists / antagonists acting primarily as neuroprotectors

Acknowledgements
The INN Secretariat extends its thanks to Dr R. Boudet-Dalbin, France, for the graphic representations of the chemical formulae in this document.
## PART III

Stem classification with corresponding examples of stems and their definition

<table>
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<tr>
<th>Stem</th>
<th>Description</th>
</tr>
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<tr>
<td>A000</td>
<td>CNS DEPRESSANTS</td>
</tr>
<tr>
<td>A100</td>
<td>General anaesthetics</td>
</tr>
<tr>
<td>A110</td>
<td>General anaesthetics, volatile -flurane halogenated compounds used as general inhalation anaesthetics</td>
</tr>
<tr>
<td>A120</td>
<td>General anaesthetics, other</td>
</tr>
<tr>
<td>A200</td>
<td>Hypnotics - sedatives</td>
</tr>
<tr>
<td>A210</td>
<td>Barbiturates -barb hypoanotics, barbituric acid derivatives</td>
</tr>
<tr>
<td>A220</td>
<td>Hypnotic sedatives, other -clone hypnotic tranquillizers</td>
</tr>
<tr>
<td>A220</td>
<td>-plon pyrazolo[.]pyrimidine derivatives, used as anxiolytics, sedatives, hypnotics</td>
</tr>
<tr>
<td>A230</td>
<td>Monoureids, hypnotic sedatives</td>
</tr>
<tr>
<td>A240</td>
<td>Chlolar derivatives, hypnotic sedatives</td>
</tr>
<tr>
<td>A300</td>
<td>Centrally acting voluntary muscle tone modifying drugs</td>
</tr>
<tr>
<td>A310</td>
<td>Anticonvulsants -bersat anticonvulsants, benzoylamino-benzopyran derivatives</td>
</tr>
<tr>
<td>A311</td>
<td>Hydantoins, anticonvulsants -toin antiepiletics, hydantoin derivatives</td>
</tr>
<tr>
<td>A312</td>
<td>Acetylureas, anticonvulsants</td>
</tr>
<tr>
<td>A313</td>
<td>Oxazolidinediones, anticonvulsants</td>
</tr>
<tr>
<td>A314</td>
<td>Succinimides, anticonvulsants</td>
</tr>
<tr>
<td>A315</td>
<td>Barbiturates, anticonvulsants</td>
</tr>
<tr>
<td>A316</td>
<td>Anticonvulsants, other</td>
</tr>
<tr>
<td>A320</td>
<td>Central anticholinergics</td>
</tr>
<tr>
<td>A330</td>
<td>Centrally acting voluntary-muscle relaxants</td>
</tr>
<tr>
<td>A400</td>
<td>Analgesics</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>A410</strong></td>
<td><strong>Narcotic analgesics</strong></td>
</tr>
<tr>
<td>-adol or -adol-</td>
<td>analgesics</td>
</tr>
<tr>
<td>-azocine</td>
<td>narcotic antagonists/agonists related to 6,7-benzomorphan</td>
</tr>
<tr>
<td>-eridine</td>
<td>analgesics, pethidine derivatives</td>
</tr>
<tr>
<td>-ethidine</td>
<td>see -eridine</td>
</tr>
<tr>
<td>-fentanyl</td>
<td>narcotic analgesics, fentanyl derivatives</td>
</tr>
<tr>
<td>nal-</td>
<td>narcotic antagonists/agonists related to normorphine</td>
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<tr>
<td>orphan</td>
<td>narcotic antagonists/agonists, morphinan derivates; -orphine, -orphinol, -orphone</td>
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<tr>
<td><strong>A420</strong></td>
<td><strong>Analgesics - Antipyretics</strong></td>
</tr>
<tr>
<td>-ac</td>
<td>anti-inflammatory agents, ibufenac derivatives</td>
</tr>
<tr>
<td>-adol or -adol-</td>
<td>analgesics</td>
</tr>
<tr>
<td>-arit</td>
<td>antiarthritic substances, acting like clobuzarit and lobenzarit (mechanism different from anti-inflammatory type substances, e.g. -fenamates or -profens)</td>
</tr>
<tr>
<td>-bufen</td>
<td>non-steroidal anti-inflammatory agents, <em>arylbutanoic acid</em> derivatives</td>
</tr>
<tr>
<td>-butazone</td>
<td><em>-buzone</em>: anti-inflammatory analgesics, phenylbutazone derivatives</td>
</tr>
<tr>
<td>-buzone</td>
<td>anti-inflammatory analgesics, phenylbutazone derivatives</td>
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<tr>
<td>-coxib</td>
<td>selective cyclo-oxygenase inhibitors</td>
</tr>
<tr>
<td>-fenamate</td>
<td>&quot;<em>fenamic acid</em>&quot; derivatives</td>
</tr>
<tr>
<td>-fenamic acid</td>
<td>anti-inflammatory, anthranilic acid derivatives</td>
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<tr>
<td>-icam</td>
<td>anti-inflammatory, isoxicam derivatives</td>
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<td>Code</td>
<td>Category</td>
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<td>A420</td>
<td>-metacin</td>
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<td>-nixin</td>
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<td>A420</td>
<td>-profen</td>
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<tr>
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PART IV

ALPHABETICAL LIST OF STEMS TOGETHER WITH CORRESPONDING INNS

-abine  see -arabine, -citabine

-ac (x)  anti-inflammatory agents, ibufenac derivatives

A.4.2.0  (USAN: anti-inflammatory agents (acetic acid derivatives))

(a)  -clofenac: aceclofenac (52), alclofenac (23), diclofenac (28), fenclofenac (30)
     -dolac: dexpemolac (71), etodolac (45), pemedolac (58)
     -fenac: amfenac (38), bromfenac (55), furofenac (40), ibufenac (14), lexofenac (38),
              nepafenac (78)
     -zolac: bufezojac (39), isofezolac (39), lonazolac (34), mofezolac (64), pirazolac (43),
              trifezolac (34)
     others: anirolac (52), bendazac (22), cinfenoa (41), clidanac (39), clofurae (42), clopirac
              (30), eltenac (53), felbinac (54), fenclorac (33), fentiazac (32), isohepac (37), ketorolac
              (51), oxepinac (36), oxindanac (54), (quinclocrac, ISO name for a herbicide), sulindac (33),
              tianafac (31), tifurac (57), tiopinac (40), zomepirac (37)

(b)  bufexamac (20) (anti-inflammatory; acetohydroxamic acid group instead of acetic acid
     group)

(c)  amtolmetin guacil (65), clamidoacic acid (17), fencloacic acid (22), metiazinicz acid (20),
     prodolic acid (29), tolmetin (23)

-acetam  see -racetam

-actide (x)  synthetic polypeptides with a corticotropic-like action

Q.1.1.1  (USAN: synthetic corticotropins)

(a)  alsactide (45), codactide (24), giractide (29), norleusactide (18), seractide (31),
     tetracosactide (18), tosactide (24), tricosactide (44)
INN – The use of stems

-adol (x) or -adol- analgesics (14th Report, 1967)

A.4.1.0 (USAN: analgesics (undefined group))

(a) A.4.1.0: acetylmethadol (5), alimadol (39), alphacetylmethadol (5), alphamethadol (5), axomadol (87), betacetylmethadol (5), betamethadol (5), indantadol (94), levacetylmethadol (27), noracymethadol (12), tapentadol (87)

A.4.2/3.0: apadoline (74), asimadoline (74), bromadoline (49), ciprefadol (41), ciramadol (39), cloracetadol (16), dibusadol (24), dimenoxadol (7), diproxadol (34), enadoline (68), filenadol (47), flumexadol (36), fluradoline (48), gadoxadol (48), levonantradol (43), lorcinadol (57), moxadolen (45), (deleted in List 48: moxifadol (47)), myfadol (17), nafoxadol (50), nantradol (42), nerbacadol (56), oxapadol (40), picenadol (47), pinadoline (50), pipramadol (42), pravadoline (60), tadoline (60), profadol (20), radolmidine (82), ruzadolane (71), spiradoline (53), tazadoline (52), tolpadol (48), tramadol (22), veradoline (47)

(b) alfadolone (27), hexapradol (12) (CNS stimulant), nadolol (34), quinestradol (15) (estrogenic)

(c) A.4.1.0: dimepeptanol (5)

-adom analgesics, tifluadom derivatives

A.4.3.0

(a) lufuradom (50), tifluadom (48)

-afenone antiarrhythmics, propafenone derivatives

H.2.0.0

(a) alprafenone (62), berlafenone (63), diprafenone (48), etafenone (19), propafenone (29)
-afil  inhibitors of phosphodiesterase PDE5 with vasodilator action

F.2.0.0  (USAN: phosphodiesterase PDE5 inhibitors)

(a)  avanafil (92), beminafil (90), dasantafil (91), lodenafil carbonate (94), mirodenafil (95), sildenafil (75), tadalafil (85), udenafil (93), vardenafil (82)

-aj-  antiarrhythmics, ajmaline derivatives

H.2.0.0

(a)  detajmium bitartrate (34), lorajmine (34), prajmalium bitartrate (23)

-al (d)  aldehydes

(deleted from General Principles in 14th Report)

-aldrate  antacids, aluminium salts

N.5.2.0

(a)  carbaldrate (53), potassium glucaldrate (14), magaldrate (49), simaldrate (15), sodium glucaspaldrate (17)

       algeldrate (15), almadrate sulfate (15), almagodrate (52)

(c)  alexitol sodium (45), almagate (41), almasilate (43), dosmalfate (75), glucalox (13), hydrotalcite (23), lactalfate (53), sucralox (13)

-alol  see -olol

-alox  see -ox

-amivir  see -vir
### -ampanel

Antagonists of the ionotropic non-NMDA (N-methyl-d-aspartate) glutamate receptors (Namely the AMPA (amino-hydroxymethyl-isoxazole-propionic acid) and/or KA (kainite antagonist) receptors)

<table>
<thead>
<tr>
<th>B.0.0.0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>becampanel (90), fanapanal (80), irampanel (82), talampanel (80), tezampanel (95), zonampanel (85)</td>
</tr>
</tbody>
</table>

### andr (d)

Steroids, androgens

<table>
<thead>
<tr>
<th>Q.2.3.0</th>
<th></th>
</tr>
</thead>
</table>
| (a)     | i. andr: androstanelone (4), methandriol (1), nandrolone (22), norethandrolone (6), ovandrotone albumin (52), silandrone (18)  

ii. -stan- (d): androstanelone (4), drostanolone (13), epitiostanol (31), mestanolone (10), stanozolol (18), epostane (51) (contraceptive)  

iii. -ster- (d): calusterone (23), cloxotestosterone (12), fluoxymesterone (6), mesterolone (15), methyltestosterone (4), oxymestrene (12), penmesterol (14), prasterone (23), testosterone (4), testosterone ketolaurate (16), tiomesterone (14) |

(b)     | i. andr: oxandrolone (12), propetandrol (13)  

ii. ster: aldosterone (6), bolasterone (13), dihydrotachysterol (1), dimethisterone (8), ethisterone (4), norethisterone (6), norvinisterone (6), stercuronium iodide (21) (neuromuscular blocking agent) |

(c)     | metandienone (12), oxymetholone (11), trestolone (25) (antineoplastic androgen) |

### -anib

Angiogenesis inhibitors

<table>
<thead>
<tr>
<th>L.0.0.0</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>cediranib (95), pazopanib (94), pegaptanib (88), semaxanib (85), vandetanib (91), vatalanib (84)</td>
</tr>
</tbody>
</table>
-anide  

-etalide  

Diuretics, piretanide derivatives  

N.1.2.0  

(USAN: diuretics (piretanide type))  

\[ \text{Structure} \]

(a)  

bumetanide (24), piretanide (33)  

(c)  

besunide (30)  

-oxanide  

Antiparasitics, salicylanilides and analogues  

S.3.0.0  

\[ \text{Structure} \]

(a)  

bromoxanide (31), clioxanide (19), rafoxanide (24)  

thioanalogues: brotianide (24)  

related: diloxanide (8), nitazoxanide (45)  

(b)  

closantel (36), flurantel (25), niclosamide (13), resorantel (23), salantel (29)  

(c)  

oxyclozanide (16)  

other -anides: aurothioglycanide (1) (antiarthritic; gout-remedy), ceforanide (39) (antibiotic), oglufanide (86) (immunomodulator), polihexanide (24) (antibacterial), tiprostanide (48) (antihypertonic)  

-anserin  

Serotonin receptor antagonists (mostly 5-HT\textsubscript{2})  

C.7.0.0  

(USAN: serotonin 5-HT\textsubscript{2} receptor antagonists)  

(a)  

adatanserin (70), altanserin (50), blonanserin (76), butanserin (51), eplivanserin (80), fananserin (69), fibanserin (75), iferanserin (89), ketanserin (46), lidanserin (62), pelanserin (57), pruvanserin (90), seganserin (56), tropanserin (55)
(b) serotonin receptor antagonists, psychoactive: cinanserin (17), glemanserin (68), mianserin (20), ritanserin (51)

-antel anthelmintics (undefined group)

S.3.1.0

(a) amidantel (40), carbantel (35), closantel (36), epsiprantel (57), febantel (38), flurantel (25), morantel (22), oxantel (31), pexantel (22), praziquantel (34), pyrantel (17), resorantel (23), salantel (29), zilantel (33), antelmycin (15)

-antrone antineoplastics; anthraquinone derivatives

L.0.0.0/ L.5.0.0

(a) ametantrone (45), banoxantrone (90), butantrone (49), ledoxantrone (76), losoxantrone (68), mitoxantrone (44), nortopixantrone (87), piroxantrone (59), pixantrone (89), teloxantrone (68), topixantrone (87)

-apine see -pine

-(ar)abine arabinofuranosyl derivatives

L.4.0.0/ S.5.3.0 (USAN: -arabine: antineoplastic arabinofuranosyl derivatives)

(a) clofarabine (90), cytarabine (14), fludarabine (48), nelarabine (80), vidarabine (23)

See also the stem -citabine: ancitabine (36), capecitabine (73), decitabine (61), elvucitabine (89), emtricitabine (80), enocitabine (46), fiaicitabine (59), flurocitabine (38), galocitabine (65), gemcitabine (62), ibacitabine (57), sapacitabine (94), tezacitabine (84), torcitabine (87), troxacitabine (81), valopicitabine (93), valtorcitabine (90), zalcitabine (66)

(c) S.5.3.0: ribavirin (31)
-arit  
antiarthritic substances, acting like clobuzarit and lobenzarit (mechanism different from anti-inflammatory type substances, e.g. -fenamates or -profens)

A.4.2.0 (USAN: antirheumatic substances (lobenzarit type))

(a) actarit (62), bindarit (64), clobuzarit (44), lobenzarit (46), romazarit (60)

-arol (d)  
anticoagulants, dicoumarol derivatives

I.2.1.0 (USAN: anticoagulants (dicoumarol type))

(a) acenocoumarol (6), clocoumarol (31), coumetarol (13), dicoumarol (23), tioclomarol (31), xylocoumarol (15)

(b) cloridarol (29) (coron. vasodil.), fluindarol (16) (anticoag. of indonedione-type)

(c) diarbarone (15), ethyl biscoumacetate (4), phenprocoumon (11), warfarin (23)

-arone  
(USAN: antiarrhythmics)

amiodarone (16) (antiarrhythmic), benzarone (13), benzbromarone (13) (uricosuric), benziodarone (11), brinazarone (64) (calcium channel blocker), bucromarone (48) (antiarrhythmic), celivarone (94), diarbarone (15), dronedarone (75) (antianginal, antiarrhythmic), etabenzarone (17), fantofarone (65) (calcium channel blocker), furidarone (19), inicarone (27), mecinarone (30), pyridarone (16), rilozarone (58)

-arotene  
arotinoid derivatives

P.1.0.0 (USAN: -arot-: arotinoids, and -arotene: arotinoid derivatives)

(a) betacarotene (38), bexarotene (80), etarotene (64), linarotene (65), mofarotene (70), sumarotene (64), tambarotene (73), tazarotene (72), temarotene (54)
arte- antimalarial agents, artemisinin related compounds

S.3.3.0

(a) artemether (61), artemifone (92), artemisinin (56), artemotil (80), artenimol (81), artesunate (61), arteflene (70)

-ase enzymes

W.0.0.0

(a) agalsidase alfa (84), agalsidase beta (84), alglucerase (68), alglucosidase alfa (91), brinase (22), bucelipase alfa (95), cocrboxylase (1), dornase alfa (70), eufauserase (84), galsulfase (92), glucarpidase (92), hyalosidase (50), hyaluronidase (1), idursulfase (90), kallidinogenase (22), ocrase (28), pegaspargase (64), penicillinase (10), promelase (47), rizolipase (22), serrapeptase (31), sfericase (40), streptodornase (6), streptokinase (6), tilactase (50), urokinase (48)

(c) batroxobin (29), bromelains (18), chymopapain (26), chymotrypsin (10), defibrotide (44), fibrinolysin (human) (10), orgotein (31), sutilains (18), ubidecarenone (48)

Classification of enzymes

I proteinase

(a) with -ase suffix:

<table>
<thead>
<tr>
<th>(INN)</th>
<th>(origin)</th>
<th>(use, action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>brinase</td>
<td>Aspergillus oryzae</td>
<td>fibrinolytic</td>
</tr>
<tr>
<td>kallidinogenase</td>
<td>pancreas or urine of mammals</td>
<td>splitting kinin, kallidin from kininogen (vasodilator)</td>
</tr>
<tr>
<td>ocrase</td>
<td>Aspergillus ochraceus</td>
<td>fibrinolytic (topically: cleaning wounds)</td>
</tr>
<tr>
<td>pegaspargase</td>
<td>Aspergillus melleus</td>
<td>asparaginase</td>
</tr>
<tr>
<td>promelase</td>
<td>Aspergillus melleus</td>
<td>proteinase (chronic bronchitis)</td>
</tr>
</tbody>
</table>
### Rasburicase (81)
- **Aspergillus flavus**
  - Urate oxidase (hyperuricaemia)

### Serrapeptase (31)
- **Serratia sp. E15**
  - Proteinase (chronic paranasal sinusitis etc.)

### Sfericase (40)
- **Bacillus sphaericus**
  - Proteinase (chronic paranasal sinusitis etc.)

### Streptokinase (6)
- **Streptococcus haemolyticus**
  - Changing plasminogen into plasmine (activator of fibrinolysis)

### Urokinase (48)
- **Human origin**
  - Plasminogen activator

### Urokinase alfa (27)
- **Recombinant material**
  - Plasminogen activator

### Without -ase suffix:
- **Batroxobin (29)**
  - The venom of the serpent *Bothropsatrox*
  - Thrombin like enzyme

### Bromelains (18)
- **Ananas comosus Merr.**
  - Fibrin depolymerizing (anti-inflammatory)

### Chymopapain (26)
- **Papaya late**
  - Proteolytic (chemonucleosis)

### Chymotrypsin (10)
- **Mammalian pancreas**
  - Proteolytic (anti-inflammatory, antioedema)

### Defibrotide (44)
- **Mammalian pancreas**
  - Proteolytic (anti-inflammatory, antioedema)

### Fibrinolysin (human) (10)
- **Human**
  - Fibrinolytic

### Sutilains (18)
- **Bacillus subtilis**
  - Proteolytic

### II -lipase

### Bucelipase alfa (95)
- **Human origin**
  - Lipase

### Rizolipase (22)
- **Rhizopus arrhizus var. Delemar**
  - Lipase
III co-enzymes

(a) cocarboxylase (1) chemically defined co-enzyme in the metabolism of pyruvic acid

(c) ubidecarenone (48) chemically defined naturally occurring co-enzyme, a component in the electron transfer system in mitochondria (congestive heart failure)

IV -dismase enzymes with superoxide dismutase activity

(USAN: superoxide dismutase activity (exception: orgotein))

(a) ledismase (70), sudismase (58)

(c) isomerase

orgotein (31) mammalian tissue (liver, red blood cell etc.) superoxide dismutase activity (anti-inflammatory)

pegorgotein (72)

V -diplase plasminogen activator combined with another enzyme

amediplase (79)

VI -teplase tissue-type plasminogen activators

(a) alteplase (59), anistreplase (59), desmoteplase (80), dutleplase (62), lanoteplase (76), monteplase (71), nateplase (73), pamiteplase (78), reteplase (69), silteplase (65), tenecteplase (79)

VII -uplase urokinase-type plasminogen activators

(a) nasaruplase (68), nasaruplase beta (85), saruplase (58)

VIII others

agalsidase alfa (84) human origin treatment of deficiency of alpha-galactosidase activity (Fabry’s disease)
<table>
<thead>
<tr>
<th>Enzyme Name</th>
<th>Source/Origin</th>
<th>Function/Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>agalsidase beta</td>
<td>hamster</td>
<td>treatment of deficiency of alpha-galactosidase activity (Fabry’s disease)</td>
</tr>
<tr>
<td>alfimeprase</td>
<td><em>Agkistrodon contortrix contortrix</em></td>
<td>antithrombotic</td>
</tr>
<tr>
<td>algglucerase</td>
<td>human origin (placenta isoenzyme)</td>
<td>glucocerebrosidase</td>
</tr>
<tr>
<td>algglucosidase alfa</td>
<td>recombinant</td>
<td>treatment of Pompe’s disease</td>
</tr>
<tr>
<td>alglucosidase alfa (91)</td>
<td>human origin</td>
<td>treatment of cystic fibrosis</td>
</tr>
<tr>
<td>epafipase</td>
<td>human origin</td>
<td>antiallergic, antiasthmatic</td>
</tr>
<tr>
<td>eufauserase</td>
<td><em>Euphausia Superba</em></td>
<td>digests proteins and selected cell surface adhesion molecules</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(wound healing; vaginal/oral candidosis)</td>
</tr>
<tr>
<td>galsulfase</td>
<td>recombinant</td>
<td>Maroteaux-Lamy syndrome</td>
</tr>
<tr>
<td>glucarpidase</td>
<td><em>Pseudomonadaceae gen. sp.</em></td>
<td>adjunctive treatment of patients at risk of methotrexate toxicity</td>
</tr>
<tr>
<td>hyalosidase</td>
<td></td>
<td>hyaluronoglucosaminidase (treatment of myocardial infarction)</td>
</tr>
<tr>
<td>hyaluronidase</td>
<td>various origins</td>
<td>depolymerizing hyaluronic acid (cellular diffusion factor)</td>
</tr>
<tr>
<td>idursulfase</td>
<td></td>
<td>treatment of Hunter Syndrome (Mucopolysaccharidosis Type II), degrades glycosaminoglycans heparan and dermatan sulfate</td>
</tr>
<tr>
<td>imiglucerase</td>
<td>human origin (placenta isoenzyme)</td>
<td></td>
</tr>
<tr>
<td>laronidase</td>
<td>human origin</td>
<td></td>
</tr>
<tr>
<td>pegademase</td>
<td></td>
<td>Origin should be indicated</td>
</tr>
<tr>
<td>penicillinase</td>
<td><em>Bacillus cereus</em></td>
<td>inactivating penicillin</td>
</tr>
<tr>
<td>ranpirmase</td>
<td><em>Rana pipiens</em></td>
<td>ribonuclease (antineoplastic)</td>
</tr>
</tbody>
</table>
-ast (x) antiasthmatics or antiallergics, not acting primarily as antihistaminics

K.0.0.0 (BAN: antiasthmatics, antiallergics when not acting primarily as antihistamines) (USAN: antiasthmatics / antiallergics: not acting primarily as antihistamines; leukotriene biosynthesis inhibitors)

(a) acitazanolast (72), acreozast (77), andolast (67), asobamast (63), ataquimast (82), bamaquimast, (76), batebulast (66), bunaprolast (60), dametralast (54), dazoquinast (54), doqualast (48), eflumast (61), enofelast (67), enoxamast (52), fenprinast (48), filaminast (75), ibudilast (58), idenast (58), loxanast (46), melquinast (62), oxalinast (49), pemirolast (61), picumast (47), pirodomast (64), raxofelast (68), repirinast (55), revenast (51), scopinast (76), suplatast tosilate (64), tazanast (59), tazanianast (52), tibenelast (58), tioxamast (53), tiprinast (50), tranilast (46), valategrast (93), zaprinast (46)

-lukast leukotriene receptor antagonist

(a) ablukast (61), cinalukast (70), iralukast (70), masilukast (94), montelukast (73), poblukast (70), pranlukast (67), ritolukast (64), sulukast (63), tipelukast (95), tomelukast (59), verlukast (65), zafirlukast (71)

-milast phosphodiesterase IV (PDE IV) inhibitors

(a) catramilast (95), cilomilast (82), lirimilast (86), oglemilast (94), piclamilast (73), roflumilast (77), tetomilast (91), tofimilast (85)

-trodast thromboxane A2 receptor antagonists, antiasthmatics

(a) imitrodast (70), seratrodast (70)

-zolast leukotriene biosynthesis inhibitors

(a) binizolast (60), eclazolast (55), ontazolast (72), quazolast (55), tetrazolast (67),

(c) bufrolin (34), oxarbazole (38), pirolate (44)

-(a)steride see -ster-
**-astine (x)** antihistaminics

**G.2.0.0** (BAN: antihistamines, not otherwise classifiable)  
(USAN: antihistaminics (histamine-H₁ receptor antagonists))

(a) acrivastine (51), alinastine (74), azelastine (36), bamirastine (91), barmastine (59), bepiastine (19), bepotastine (78), bilastine (82), cabastine (50), carebastine (52), clemastine (22), dorastine (23), ebastine (52), emedastine (59), epinastine (55), flezelastine (67), levocabastine (50), linetastine (74), mapinastine (72), mizolastine (64), moxastine (15), noberastine (59), octastine (37), perastine (15), piclopastine (22), rocastine (57), setastine (39), talastine (18), temelastine (54), zepastine (26)

(b) cloperastine (18) (antitussive), vinblastine (12) (vinca-alkaloid)

(c) astemizole (45), carbinoxamine (4)

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**-azam** see - azepam

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**-azenil** benzodiazepine receptor antagonists/agonists (benzodiazepine derivatives)

- 

(b) nabazenil (49)

---

**-carnil** benzodiazepine receptor antagonists/agonists (carboline derivatives)

(a) abecarnil (60), gedocarnil (61)

---

**-quinil** benzodiazepine receptor agonists, also partial or inverse (quinoline derivatives)

(a) lirequinil (72), radequinil (93) (replaces resequin (90)), terbequinil (63)
-azepam (x)  diazepam derivatives

(BAN: substances of the diazepam group)  
(USAN: antianxiety agents (diazepam type))

\[
\begin{align*}
\text{H}_2\text{C} & \text{N} \\
\text{Cl} & \text{OH}_3\text{C}
\end{align*}
\]

(b) bromazepam (22), camazepam (30), carburazepam (39), cinolazepam (46), clonazepam (22), cyprazepam (16), delorazepam (40), diazepam (12), doxefazepam (43), elfazepam (36), fletzepam (31), fludiazepam (36), flunitrazepam (24), flurazepam (20), flutemazepam (58), flutoprazepam (45), fosazepam (27), halazepam (29), iclazepam (37), lorazepam (23), lormetazepam (38), meclonazepam (44), medazepam (20), menitrazepam (22), metaclazepam (46), motrazepam (31), niametazepam (26), nitrazepam (16), nordazepam (39), nortetrazepam (20), oxazepam (13), pinazepam (32), pivoxazepam (34), prazepam (14), proflazepam (31), quazepam (36), reclazepam (53), sulazepam (14), temazepam (22), tetrazepam (17), tofisopam (26), uldazepam (30)

not true benzodiazepines:  bentazepam (33), clotiazepam (30), lopirazepam (36), premazepam (45), ripazepam (33), zolazepam (28)

related:  adinazolam (45), alprazolam (30), arfendazam (39), clazolam (29), climazolam (51), clobazam (25), clobenzepam (25), cloxazolam (29), ecopipam (80), estazolam (31), flutazolam (32), haloxazolam (38), ketazolam (26), levotofisopam (92), lofendazam (36), lorazepam (44), mexazolam (40), midazolam (40), nefopam (25), oxazolam (25), razobazam (52), tofisopam (26), trepipam (38), triazolam (30), trifulbazam (28), zapizolam (43), zomebrazam (49)

(c) brotizolam (40), chlordiazepoxide (11), ciclotizolam (40), demoxepam (23), dipotassium clorazepate (17), ethyl carfluzepate (43), ethyl dirazepate (44), ethyl loflazepate (43), etizolam (40), potassium nitrazepate (17)

not related:  anxiolytic:  fenobam (36), muscle relax.:  xilobam (36)

-azepide  cholecystokinin receptor antagonists

J.1.0.0

(a)  devazepide (62), pranazepide (75), tarazepide (68)

(c)  lorglumide (56)
**-azocine**  
*narcotic antagonists/agonists related to 6,7-benzomorphan*

A.4.1.0  
(USAN: narcotic antagonists/agonists, 6,7-benzomorphan)

(a) anazocine (30), bremazocine (43), butinazocine (53), carbazocine (16), cogazocine (36), cyclazocine (14), eptazocine (45), gemazocine (29), ibazocine (36), ketazocine (34), metazocine (9), moxazocine (38), pentazocine (14), phenazocine (9), quadazocine (54), tonazocine (46), volazocine (19)  
related compounds: dezocine (35)

(b) streptozocin (33)

---

**-azolam**  
see -azepam

---

**-azoline**  
*antihistaminics or local vasoconstrictors, antazoline derivatives*

E.4.0.0  
(USAN: antihistamines/local vasoconstrictors (antazoline type))

(a) antazoline (1), cilutazoline (61), cirazoline (38), clonazoline (18), coumazoline (26), domazoline (30), fenoxazoline (12), indanazoline (42), metrafazoline (33), naphazoline (1), nemazoline (63), oxymetazoline (13), phenamazoline (6), prednazoline (22), tefazoline (24), tinazoline (39), tramazoline (15), xylometazoline (8)

(b) cefazolin (25) (antibiotic)

(c) tetryzoline (6), metizoline (22)

---

**-azone**  
see -buzone
-azosin  antihypertensive substances, prazosin derivatives
H.3.0.0  (USAN: antihypertensives (prazosin type))

-azosin

(a)  bunazosin (50), doxazosin (47), neldazosin (60), prazosin (22), quinazosin (17), terazosin (44), tiodazosin (41), trimazosin (31)

related:  alfuzosin (49), tamsulosin (65), tipentosin (55)

-bactam  β-lactamase inhibitors
S.6.5.0

(b)  brobactam (53), sulbactam (44), tazobactam (60)

(c)  clavulanic acid (44)

-bamate  tranquillizers, propanediol and pentanediol derivatives
C.1.0.0  (USAN: tranquillizers/antiepileptics (propanediol and pentanediol groups))

(bamate)

(a)  cyclarbamate (13), felbamate (54), meprobamate (6), nisobamate (21), pentabamate (13), tybamate (14)

(b)  difebarbamate (16), febarbamate (12), lorbamate (24), phenprobamate (10)

(c)  mebutamate (12), metaglycodol (12) (not a carbamate)
**A.2.1.0**

(BAN: -barb, -barb-: for barbiturates)
(USAN: -barb; or -barb-: barbituric acid derivatives)

(a) allobarbital (1), amobarbital (1), aprobarbital (1), barbexaclone (16), barbital (4), barbital sodium (4), benzobarbital (25), brallobarbital (41), carbubarb (14), cyclobarbital (1), difebarbamate (16), eterobarb (32), febarbamate (12), heptabarb (14), hexobarbital (1), methylphenobarbital (1), nealbarbital (11), pentobarbital (1), phenobarbital (4), phenobarbital sodium (4), probarbitalsodium (1), proxibarbal (33), secbutabarbital (12), secobarbital (4), tetrabarbital (4), thialbarbital (4), thiotetra barbital (4), vinbarbital (1)

(c) butalbital (4), buthalital sodium (8), metharbital (1), methiturals (6), methohexital (8), phetharbital (10), talbutal (17), thiopental sodium (4), vinylbital (12)

(c) prazitone (19) (barbituric acid derivative used as antidepressive), buc olome (17) (barbituric acid derivative used as anti-inflammatory uricosuric)

**M.3.2.1**

(a) amibegron (94), mantabegron (88), rafabegron (88), ritobegron (91), solabegron (90), talibegron (86)

**S.3.1.0**

(USAN: anthelmintics (tiabendazole type))

(a) albendazole (35), albendazole oxide (56), bisbendazole (29), cambendazole (24), ciclobendazole (31), dribendazole (49), etibendazole (49), fenbendazole (29), flubendazole
(34), lobendazole (28), luxabendazole (52), mebendazole (24), oxibendazole (30), parbendazole (19), subendazole (31), tiabendazole (13), triclabendazole (45)

(b) bendazol (12) (vasodilator, also benzimidazole derivative)

L.0.0.0: nocodazole (36), procodazole (36) (also benzimidazole derivative)

(c) oxfendazole (35), tioxidazole (39)

related: furodazole (37) (S.3.1.0)

-bermin see -ermin

-betasol see pred

-bersat anticonvulsants, benzoylamino-benzpyran derivatives

A.3.1.0 (USAN: anticonvulsants; antimigraine (benzoylamino-benzpyran derivatives))

(a) carabersat (85), tidembersat (84), tonabersat (85)

bol (x) anabolic steroids

M.4.1.0 (BAN: steroids, anabolic)

(USAN: bol- or -bol- : anabolic steroids)

(a) bolandiol (16), bolasterone (13), bolazine (21), boldenone (20), bolenol (19), bolmantalate (16), closestebol (22), enestebol (22), furazabol (16), mebolazine (21), mibolerone (27), norboletone (15), norclostebol (22)

-bolone: formebolone (31), mesabolone (29), metribolone (17), oxabolone cipionate (14), quinbolone (14), roxibolone (40), stenbolone (17), tibolone (22), trenbolone (24)

(c) ethylestre

enol (13), hydroxystenozole (10), metandienone (12), metenolone (12), oxandrolone (12), propetandrol (13), tiomest erone (14)

-bradine bradycardic agents

H.0.0.0

(a) cilobradine (63), ivabradine (75), zatebradine (62)

-brate see -fibrate
### -bufen

**non-steroidal anti-inflammatory agents, arylbutanoic acid derivatives**

**A.4.2.0**

(USAN: non-steroidal anti-inflammatory agents, fenbufen derivatives)

(a) butibufen (32), fenbufen (30), furobufen (30), indobufen (39), metbufen (43)

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### -bulin

**antineoplastics; mitotic inhibitors, tubulin binders**

**L.0.0.0**

(a) batabulin (90), denibulin (95), indibulin (91), mivobulin (77), rosabulin (95), taltobulin (91)

(b) thyroglobulin (26)

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### -butazone

see -buzone

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### -buzone (x)

**anti-inflammatory analgesics, phenylbutazone derivatives**

**A.4.2.0**

![Chemical Structure](image)

(a) feclobuzone (27), kebuzone (19), pipebuzone (25), suxibuzone (24), tribuzone (33)

- **-butazone**
  (USAN: anti-inflammatory analgesics (phenylbutazone type))

  mofebutazone (15), oxyphenbutazone (8), phenylbutazone (1)

- **-azone**
  aminophenazone (13), bisfenazone (33), famprofazone (21), morazone (12), nifenazone (15), nimazone (20), niprofazone (29), phenazone (4), propyphenazone (1), sulfinpyrazone (8)

- **-zone**
  clofezone (17), proxifezone (24)

**related:**

azapropazone (18), benhepazone (15), bumadizone (24), cinnopentazone (17), isamfazone (37), metamfazone (12), osmadizone (26), ruvazone (26)

(c) benzpiperylone (12), butopyrammonium iodide (8), dibupyrene (17), metamizole sodium (53), metazamide (16), piperylone (11)
-caine (x)  local anaesthetics

D.1.0.0

(a) ambucaine (6), amoxecaine (1), aptocaine (21), articaine (47) (previously carticaine (27)), benzocaine (42), betoxycaine (13), buricaine (49), bumecaine (25), bupivacaine (17), butacaine (4), butanilicaine (16), chloroprocaine (6), cinchocaine (1), clibucaine (14), clodacaine (13), clormecaaine (17), cyclomethycaine (6), dexivacaine (20), diamocaine (22), edronocaine (84), elucaine (29), etidocaine (29), fexicaine (25), fomocaine (18), hexylcaine (4), hydroxyprocaine (1), hydroxytetracaine (1), ipravacaine (85), ketocaine (15), leucinocaine (17), levobupivacaine (74), lidocaine (1), lotucaine (27), mepivacaine (11), meprylcaine (4), myrtecaine (15), octacaine (14), oxetacaine (13), oxybuprocaine (8), parethoxycaine (1), paridocaine (8), phenacaine (4), pinolcaine (32), pipercaine (1), piridocaine (1), pramocaine (4), pribecaine (32), protocaine (14), procaine (10), propanocaine (6), propipocaine (16), propoxycaine (4) proxymetacaine (6), pyrrocaine (13), quatacaine (18), quinisocaine (4), risocaine (26), rodocaïne (27), ropivacaine (50), tetracaine (4), tolycaine (16), trapencaine (56), trimecaine (11), vadocaine (57)

(c) amolanone (6), benzyl alcohol (1), cryofluorane (6), diperodon (1), dyclonine (6), midamaline (6)

-cain- (x)  Class I antiarrhythmics, procainamide and lidocaine derivatives

H.2.0.0 (BAN: antifibrillants with local anaesthetic activity)

(a) acecainide (39), asocainol (47), barucainide (52), bucanide (35), carcaïnium chloride (36), carocainide (46), droxicainide (47), encaïnide (40), epicainide (40), eroçainide (50), fleçainide (37), guafecainol (38), indecainide (48) (originally ricainide (47)), itrocainide (54), ketocainol (32), lorcainide (38), milacainide (77), modeçainide (63), muroçainide (46), nicainoprol (46), nöfecnainide (44), pilscainide (62), pinçainide (49), procainamide (1), quinacainol (50), recainam (54), solpecainol (55), stifrocainide (47), suricainide (55), tocainide (36), transcainide (51), (verocainine (42) - replaced by tiapamil in List 43), zocainone (41)
calcii Vitamin D analogues/derivatives

N.8.0.0

(a) alfacalcidol (40), atocalcitol (88), becocalcidiol (92), calcifediol (26), calcipotriol (61), calcitriol (39), colecalciferol (13), doxercalciferol (82), ecaldidene (85), elocalcitol (95), ergocalciferol (13), falcalcitriol (74), inealcalcitol (87), lexacalcitol (71), maxacalcitol (75), paricalcitol (78), secalciferol (62), seocalcitol (78), tacalcitol (65)

(b) calcitonin (31) (polypeptide)

(c) dihydrotachysterol (1)

-carbef antibiotics, carbacephem derivatives

S.6.1.0

(a) loracarbef (60)

-carnil see -azenil

-castat see -stat

-cavir see vir

cef- (x) antibiotics, cefalosporanic acid derivatives

S.6.1.0 (USAN: cephalosporins)

(a) cefacetrile (25), cefaclor (36), cefadroxil (33), cefalexin (18), cefaloglycin (16), cefalonium (16), cefaloram (16), cefaloridine (15), cefalotin (14), cefamandole (30), cefaparole (33), cefapirin (23), cefatrizine (34), cefazaflur (36), cefazedone (36), cefazolin (25),
-oxef antibiotics, oxacefalosporanic acid derivatives

S.6.1.0 (USAN: antibiotic oxacefalosporanic acid derivatives)

-oxef antibiotics, oxacefalosporanic acid derivatives

S.6.1.0 (USAN: antibiotic oxacefalosporanic acid derivatives)

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-cic    hepatoprotective substances with a carboxylic acid group
J.1.2.0 (USAN: hepatoprotectives (timonacic group))
(a)     limazocic (69), tidiacic (33), timonacic (33), (tiofacic (45) replaced by stepronin (46))
(b)     bisorcic (34) (psychostimulant)
(c)     stepronin (46)

-cidin  naturally occurring antibiotics (undefined group) (14th Report, 1964)
S.6.0.0 (USAN: natural antibiotics (undefined group))
(a)     candicidin (17), gramicidin (1), gramicidin S (26), methocidin (6)
(b)     guancidine (18) (hypotensive)

cillide see -cillin

cillin (x) antibiotics, 6-aminopenicillanic acid derivatives
S.6.1.0 (USAN: penicillins)

(a)     adicillin (14), almecillin (14), amantocillin (17), amoxicillin (27), ampicillin (13), apalcillin (39), aspoxicillin (50), azidocilllin (19), azlocillin (36), bacampicillin (32), benethamine penicillin (1), benzathine benzylpenicillin (18), benzylpenicillin (53), carbenicillin (20), carfeccillin (30), carindacillin (29), cicalacillin (22), clemizole penicillin (8), clometocillin (12), cloxacillin (13), dicloxacillin (16), epicillin (25), fenbenecillin (13), fibracillin (30), flucoxacin (17), formidacillin (55), fumoxicillin (47), furbacillin (31), fuzlocillin (47), hetacillin (16), isopropicillin (12), lenampicillin (50), levopropicillin (12), metampicillin (20), meticillin (12), mezlocillin (34), naficillin (13), oxacillin (15), oxetacillin (33), penamecillin (16), pheneticillin (11), phenoxyethyl penicillin (6), phenyracillin (8), piperacillin (38), pirbenecillin (35), piridicillin (43), piroxicillin (49), pivampicillin (23), prazocillin (27), propicillin (13), quinacillin (14), rotamicillin (35), sarmoxicillin (41), sarpicillin (36), sulbenicillin (26), sulfamicillin (48), suncillin (25), talampicillin (31), tameticillin (35), temocillin (46), ticarcillin (29), tifencillin (12), tobicillin (78)
(b)     xantocillin (12)
penimepicycline (16), penimocycline (22)

-cillide

S.6.1.0 libecillide (32)

-cillinam

S.6.1.0 bacmecillinam (38), mecillinam (32), pivmecillinam (32)

-cillinam see -cillin

-cilpine see -pine

-cisteine see -steine

-citabine nucleoside antiviral or antineoplastic agents, cytarabine or azactidine derivatives

(USAN: nucleoside antiviral or antineoplastic agents, cytarabine or azarabine derivatives)

L.4.0.0

ancitabine (36), apricitabine (95), capecitabine (73), decitabine (61), dexelvucitabine (95),
elvucitabine (89), emtricitabine (80), enocitabine (46), fiaxucitabine (59), flurocitabine (38),
galocitabine (65), gemcitabine (62), ibacitabine (57), sapacitabine (94), tezacitabine (84),
torcitabine (87), troxacitabine (81), valopictabine (93), valtorcitabine (90), zalcitabine (66)

(cytarabine (14), azacitidine (40)

-clone hypnotic tranquillizers

A.2.2.0 (USAN: hypnotic / tranquillizers (zopiclone type))

(a) barbexaclone (16), eszopiclone (87), pagoclon (74), pazinaclone (70), suproclone (46),
suriclon (43), suproclone (46), zopiclon (39)

(b) gestaclone (23), pimeclone (20)
-cog blood coagulation factors

I.2.0.0

(-)eptacog blood coagulation VII: eptacog alfa (activated) (72)

(-)octocog blood factor VIII: berococog alfa (95), moroctocog alfa (72), octocog alfa (73)

(-)nonacog blood factor IX: nonacog alfa (77)

-cogin blood coagulation cascade inhibitors

I.2.0.0

drotrecogin alfa (activated) (86), tanetacogin alfa (90), tifacogin (78)

-conazole (x) systemic antifungal agents, miconazole derivatives

S.4.0.0 (BAN: systemic antifungals of the miconazole group) (USAN: systemic antifungals (miconazole type))

![Chemical structure of miconazole](image)

(a) albaconazole (87), aliconazole (43), alteconazole (53), arasertaconazole (93), azaconazole (45), becliconazole (65), broaconazole (58), butaconazole (40), ciconazole (59), croconazole (55), (cyproconazole (ISO)), democonazole (42), (diniconazole (ISO C₁₇H₁₇Cl₂N₃O)), doaconazole (37), eberconazole (64), econazole (27), embeconazole (92), eniconazole (44), (etaconazole (ISO)), fenciconazole (44), fluconazole (54), fosflaconazole (83), (furaconazole (ISO/TC 81 N 872 C₁₅H₁₄Cl₂F₃N₃O₂)), (hexaconazole (ISO C₁₄H₁₇Cl₂N₃O)), isoconazole (30), itaconazole (50), ketoconazole (43), laniconazole (66), luliconazole (86), miconazole (22), neticonazole (63), omoconazole (45), oconazole (40), oxiconazole (42), parconazole (39), (penconazole, (ISO)), posaconazole (82), (propiconazole (ISO)), pramiconazole (95), ravenconazole (83), saperconazole (59), sertaconazole (56), suliconazole (38), (tebuconazole (ISO C₁₆H₂₂ClN₂O)), ticonazole (45) (originally triaconazole), ticonazole (40), (uniciconazole (ISO C₁₃H₁₈ClN₃O)), valiconazole (40), voriconazole (73), ziconconazole (50), zoficonazole (43)

(c) bifonazole (44)
**cort (x)**

**corticosteroids, except prednisolone derivatives**

Q.3.0.0  
(USAN: -cort-: cortisone derivatives)

(a)  
amebucort (54), anecortave (80), butixocort (63), cicortonide (28), corticotropin (68), corticotropin-zinc hydroxide (68), cortisone (1), cortisuzol (30), cortivazol (23), cortodoxone (15), deflazacort (39) (previously azacort (38)), desoxycortone (4), fluazacort (30), fludrocortisone (6), fludroxcortide (12), fluocortin (31), formocortal (18), hydrocortamate (6), hydrocortisone (1), locicortolone dicibate (60), naflocort (50), nicocortonide (40), nivacortol (24), resocortol (74), tixocortol (38)

(b)  
**prednisolone derivatives:** clocortolone (16), difluocortolone (18), fluocortolone (15), halocortolone (31)

(c)  
alosterone (6), algestone (22) (also progest. when used as algestone acetophenide), medrysone (16)

**-coxib**

**selective cyclo-oxygenase inhibitors**

A.4.2.0  
(USAN: cyclooxygenase-2 inhibitors)

(a)  
celecoxib (80), cimicoxib (89), deracoxib (80), etoricoxib (84), firocoxib (89), lumiracoxib (87), mavacoxib (94), parecoxib (80), robenacoxib (91), rofecoxib (80), tilmacoxib (84), valdecoxib (80)

**-crinat**

**diuretics, etacrylic acid derivatives**

N.1.2.2  
(USAN: diuretics (ethacrylic acid derivatives))

(a)  
brocrinat (51), sulicrinat (52)

(c)  
etacrylic acid (14), furacrinic acid (29), indacrinone (51), tienilic acid (25)
-crine (d)  acridine derivatives

(a) antineoplastics: amsacrine (44), nitracrine (35)
    anthelminthics; antimalarials: floxacrine (34), mepacrine (4)
    antidepressants: dimetacrine (19), monometacrine (19)
    antiparkinsonian: botiacrine (38)
    acetylcholinesterase inhibitors: ipidacrine (73), suronacrine (61), tacrine (8), velnacrine (61)

(c) acridorex (21), acriflavin chloride (1), acrisorcin (13), aminoacridine (1), ethacridine (1),
    proflavine (1)

-cromil  antiallergics, cromoglicic acid derivatives

K.0.0.0  (USAN: antiallergics (cromoglicic acid derivatives))

(a) ambicromil (48) (replacement of probicromil (46)), isocromil (39), minocromil (50),
    nedocromil (50), proxicromil (39), terbucromil (38), texacromil (58)

(c) cromitrile (46), cromoglicate lisetil (72), cromoglicic acid (18)

-curium  see -ium

-cycline (d)  antibiotics, tetracycline derivatives

S.6.3.0  (BAN: antibiotics of the tetracycline group)
         (USAN: antibiotics (tetracycline derivatives))

(a) amicycline (14), apicycline (17), cetocycline (39), chlortetracycline (4), clomocycline (16),
    colimecycline (33), demeclocycline (25), demecycline (14), doxycycline (16),
    etamocycline (18), guamecycline (22), lymecycline (14), meclocycline (14), meglucycline
(22), metacycline (12), minocycline (14), nitrocycline (14), oxytetracycline (1), pectocycline (15), penimepicycline (16), penimocycline (22), pipacycline (12), rolitetracycline (11), sancycline (15), tetracycline (4), tigecycline (86)

related: carubicin (40), daunorubicin (20), detorubicin (41), doxorubicin (25), zorubicin (39)

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- **-dan**

  cardiac stimulants, pimobendan derivatives

  **H.1.0.0**

  (USAN: positive inotropic agents (pimobendan type))

  ![Chemical Structure](image_url)

  (a) adibendan (57), bemorodan (61), imazodan (55), indolidan (57), levosimendan (68), meribendan (62), pimobendan (46), prinoxodan (64), senazodan (85), simendan (66)

  (b) nitrodan (15), tyromedan (15)

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- **-dapsone**

  antimycobacterials, diaminodiphenylsulfone derivatives (14th Report, 1964)

  **S.5.2.0**

  (USAN: antimycobacterial (diaminodiphenylsulfone derivatives))

  ![Chemical Structure](image_url)

  (a) acedapsone (22), amidapsone (28), dapsone (23)

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- **-deca**

  see -kin

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- **-denoson**

  adenosine A receptor agonists

  **H.0.0.0**

  apadenoson (94), binodenoson (90), capadenoson (95), regadenoson (91), selodenoson (91), tecadenoson (87)

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- **-dermin**

  see –ermin
**F.2.0.0**

(a) alprostadil (39), aviptadil (78), belfosdil (61), benfurodil hemisuccinate (16), biclodil (52), buflomedil (33), burodiline (26), carprazidil (27), cinepaxadil (50), dopropriodil (59), eliprolid (66), fenoxedil (27), flosatidil (64), fostedil (51), fronepidil (59), ifenprodil (27), levosemotiadil (72), manozodil (47), mephenidil (48), mexitil (25), naftopidil (52), naminidil (87), nesapidil (52), perfomedil (60), pinacidil (46), piribedil (23), pitenodil (37), podifen (22), stevaladil (34), suloctidil (30), tipropidil (44), urapidil (27), viquidil (25)

(c) dilmefone (33)

**F.2.1.0**

(a) coronary vasodilators: bepridil (30), bupednil (44), ecipramidil (40), fendiline (24), fenetradiol (30), floredil (28), hexadiline (13), ipramidil (51), mepramidil (27), metrifudil (23), nicorandil (44), pirozadil (33), pretiadil (27), razi-nodil (38), semotiadil (64), sinitrodil (74), terodiline (16), tixadil (18), trapidil (29)

(c) dilazep (22), diltiazem (30)

**-dil**

carvedilol (50), dioxadilol (53), dramedilol (57), flavodilol (48), mindodilol (52), nipradilol (50) (previously nipradolol), oberadilol (77), parodilol (57), prizidilol (44), tribendilol (54)

(b) diloxanide (8) (amebicide), methdilazine (10) (antihistaminic), phenobutiodil (6) (contrast medium), prodilidine (12) (analgesic)

**-pendyl**
cloxypendyl (15), isothipendyl (6), oxypendyl (13), prothipendyl (6)

**-dyl**

bisacodyl (13) (laxative), bunamiodyl (10), iofendylate (12), trihexyphenidyl (l) (antiparksonian)

**-dilol** see -dil
-dipine (x) calcium channel blockers, nifedipine derivatives

F.2.1.0 (BAN: calcium ion channel antagonists)
(USAN: phenylpyridine vasodilators (nifedipine type))

(a) amlodipine (53), clevidipine (75), darodipine (51) (replaces dazodipine (49)), elgodipine (61), felodipine (44), flordipine (48), isradipine (55), lacidipine (57), lemildipine (69), levniguldipine (67), mesudipine (40), nicardipine (42), nifedipine (27), niguldipine (60), niludipine (38), nilvadipine (52), nisoldipine (40), nitrendipine (42), olradipine (69), oxodipine (52), riodipine (51), sagandipine (64), teludipine (64) (previously taludipine (61))
-nidipine: arandipine (69), azelnidipine (69), barnidipine (64), benidipine (58), cilnidipine (66), cronidipine (61), efonidipine (66), furnidipine (67), iganidipine (70), lercanidipine (69) (previously masnidipine), manidipine (59), palonidipine (64), pranidipine (66), sornidipine (58)

(b) budipine (36) (central stimulant, antidepressant and antiparkinsonian), prodipine (29) (central stimulant antiparkinsonian)

-dismase enzymes with superoxide dismutase activity, see -ase item V

-distim see -stim

dodekin see -kin

dopa dopamine receptor agonists, dopamine derivatives, used as antiparkinsonism/prolactin inhibitors

E.1.1.0 (USAN: dopamine receptor agonists)

(a) carbidopa (37), ciladopa (52), dopamantine (31), droxidopa (57), etilevodopa (80), fluorodopa (18F) (64), levodopa (21), melevodopa (83)
-opamine  dopaminergic agents dopamine derivatives used as cardiac stimulant/antihypertensives/diuretics

(a) butopamine (43), cliropamine (59), denopamine (50), dopamine (18), fosopamine (69), ibopamine (43), octopamine (32), oxidopamine (37) (glaucoma), ractopamine (54) (1 of 4 isomers of butopamine)

(b) tiopropamine (36) (gastric and duodenal ulcers), tolpropamine (13) (antihistaminic)

(c) dobutamine (29), docarpamine (59), dopexamine (50), fenoldopam (53), levdobutamine (65), methyldopa (12) (alpha-2 adrenoreceptor agonist, cardiotonic), zelandopam (84)

-dox  see -ox/-alox

-dralazine  antihypertensives, hydrazinephthalazine derivatives

H.3.0.0  (USAN: antihypertensives (hydrazine-phthalazines))

(a) budralazine (33), cadralazine (41), dihydralazine (4), endralazine (39), hydralazine (1), mepidralazine (52), oxdralazine (38), picodralazine (18), pildralazine (48), todralazine (26)

-drine  sympathomimetics (16th Report, 1966)

E.4.0.0

(a) alifedrine (49), bedoradrine (95), butidrine (16), cafedrine (14), cinnamedrine (19), corbadrine (1), dioxethedrin (6), dioxifedrine (41), etafedrine (14), meluadrine (78), methoxyphedrine (6), midodrine (27), norbudrine (17), oxyfedrine (16), pholedrine (1), pseudoephedrine (11), racephedrine (66), ritodrine (22), theophylline ephedrine (14), tinofedrine (32), trecadrine (53)
not phenethylamine derivatives: levopropylhexedrine (37), octodrine (19), propylhexedrine (6)

(b) bufenadrine (13) (antiemetic) related chemically, chlormerodrin (4) (diuretic), chlormerodrin (197 Hg) (24), dieldrin (10) (insecticide), orphenadrine (8) (spasmolytic)

-frine  sympathomimetic, phenethyl derivatives

E.4.0.0
amidurine mesilate (15), berefrine (68), ciclafrine (33), dimetofrine (27), dipivefrine (39),
epinephrine (16), etilefrine (18), etilefrine pivalate (50), geprefrine (38), norepinephrine
(45), norfenefrine (16), oxilofrine (62), phenylephrine (1), pivenfrine (42), racepinefrine
(41)

USAN -dronic acid calcium metabolism regulator, pharmaceutical aid

N.8.0.0 (USAN: -dronate: calcium metabolism regulators)
U.4.0.0

(a) alendronic acid (61), butedronic acid (59), clodronic acid (37), etidronic acid (22),
ibandronic acid (71), incadronic acid (70), lidadronic acid (84), medronic acid (39),
minodronic acid (78), neridronic acid (61), olpadronic acid (71), oxidronic acid (42),
pamidronic acid (59), piridronic acid (58), risedronic acid (62), tiludronic acid (60),
zoledronic acid (71)

-dutant see -tant

dyl see -dil

USAN -ectin antiparasitics, ivermectin derivatives

(USAN: antiparasitics (ivermectin derivatives))
S.3.0.0

(a) abamectin (53), dimadectin (73), doramectin (63), eprinomectin (73), fuladectin (71),
ivermectin (44), latidectin (88), moxidectin (61), nemadectin (60), selamectin (81)

-elestat see -stat

eelvekin see -kin
INN – The use of stems

-emcinal  erythromycin derivatives lacking antibiotic activity, motilin agonists

J.0.0.0  (USAN: erythromycin derivatives lacking antibiotic activity)

(a)  alemcinal (84), idremcinal (81), mitemcinal (86)

-entan  endothelin receptor antagonists

F.2.0.0

(a)  ambrisentan (85), atrasentan (83), avosentan (93), bosentan (70), clazosentan (90),
darusentan (82), edonentan (86), enrasentan (80), fandosentan (87),
feloprentan (85),
nebentan (90), sitaxentan (83), tezosentan (81), zibotentan (94)

(-)eptacog  see -cog

erg  ergot alkaloid derivatives

F.4.0.0
C.7.0.0  (USAN: -erg-: ergot alkaloid derivatives)

(a)  acetergamine (18), amesergide (67), brazergoline (37), bromerguride (51),
cabergoline (54), cianergoline (47), delergotrile (42), dihydroergotamine (16),
disulergine (45),
dosergoside (54), ergetrine (4),
ergotamine (4), etisulergine (47), lergotrine (32),
lysergide (8), mergocriptine (54), mesulergine (47),
metergoline (18),
metylergometrine (l),
methysergide (11), nercigline (26),
pergolide (41),
propisergide (35),
proterguride (50),
romergoline (66),
sergolexole (60),
terguride (50),
tiomerigine (42),
voergolide (61)

(b)  ergocalciferol (l3)

-eridine  analgesics, pethidine derivatives (l4th Report, 1964)

A.4.1.0  (USAN: analgesics (meperidine type))

(a)  anileridine (5), caperidine (11), etoxeridine (6),
morpheridine (6), oxpheneridine (5),
pheneridine (5),
phenoperidine (11),
properidine (5),
sameridine (68),
trimeperidine (6)
(b) diaveridine (l8) (coccidiostat.), eseridine (53), nexeridine (34) (somewhat related)

(c) benzethidine (9), butoxylate (14), diphenoxylate (10), fetoxilate (21), furethidine (9), hydroxypethidine (5), pethidine (4), piminodine (9)

-ermin growth factors

U.0.0.0 (USAN: growth factors)

-bermin vascular endothelial growth factors

(a) telbermin (85)

-dermin epidermal growth factors

(a) murodermin (63)

-fermin fibroblast growth factors

(a) ersofermin (66), palifermin (86), repifermin (82), trafermin (74), velafermin (94)

-filermin leukemia-inhibiting factor

(a) emfilermin (82)

-nermin tumour necrosis factor

(a) ardenermin (88), pluisonermin (73), sonermin (68), tasonermin (76)

-plermin platelet-derived growth factor

(a) becaplermin (74)

-sermin insulin-like growth factors

(a) mecasermin (66), mecasermin rinfabate (91)

-termin transforming growth factor

(a) cetermin (74), liatermin (81)

-otermin bone morphogenic proteins

(a) avotermin (77), dibotermin alfa (89), eptotermin alfa (89), radotermin (92)

Others: dapiclermin (93)
estr estrogens

Q.2.1.0 (USAN: estr-; or -estr-: estrogens)

(a) almestrone (24), benzestrol (1), broparestrol (8), cloxestradiol (12), dienestrol (1),
diethylstilbestrol (4), epiestriol (12), epimestrol (22), (eptamestrol/etamestrol (49 deleted),
estradiol (4), estradiol benzoate (4), estradiol undecylate (16), estradiol valerate (35),
estramustine (24), estrapronicate (34), estrazinol (16), estriol succinate (14), estrofurate
(25), estrone (4), ethinylestradiol (1), fenestrol (18), fosfostrol (15), fulvestrant (78),
furostilbestrol (1), hexestrol (1), mestranol (12), methallenestril (6), methestrol (1),
moestrol (24), nilestriol (32), orestrate (17), polyestradiol phosphate (36), promestriene
(31), quinestradiol (15), quinestrol (14)

(b) alfatradiol (84) (topical), allylestrenol (10) (progest.), ethylestrenol (13) (anabol.),
lynestrenol (13) (progest.)

-gestr-: edogestrone (22), levonorgestrel (30), megestrol (13), melengestrol (13), norgestrel (17),
norgestrienone (18), pentagestrone (14), quingestrone (13)

(c) chlorotrianisene (6), clomifene (12), enclomifene (33), zuclomifene (33) (antiestrogens)

-etanide see -anide

-ethidine see -eridine

-exakin see -kin

-exine mucolytic, bromhexine derivatives

K.0.0.0

(a) adamexine (36), bromhexine (20), brovanexine (31), cistinexine (54), dembrexine (56),
nelttenexine (62), oxabrexine (40)

(b) enefexine (54) (antidepressant), gamfexine (17) (antidepressant)

(c) ambroxol (32) (dembrexol (50): replaced by dembrexine (56))
-fenamate  see -fenamic acid

-fenamic acid
-fenamate  "fenamic acid" derivatives

(USAN: -fenamic acid: anti-inflammatory (anthranilic acid derivatives); -fenamate: "fenamic acid" ester or salt derivatives)

A.4.2.0

\[
\begin{array}{c}
\text{CO}_2\text{H} \\
\text{NH}_2 \\
\end{array}
\]

(a) clofenamic acid (13), enfenamic acid (45), flufenamic acid (13), meclofenamic acid (17), mefenamic acid (13), tolfenamic acid (24)

clofenamate (29), etofenamate (29), prefenamate (36), terofenamate (32), ufenamate (50)

(b) clantifen (24), oxyfenamate (13)

phonetically close: clofenamide (13), diclofenamide (13) (N.1.1.0)

(c) flutiazin (22)

-phenine diagnostic aids: (phenylcarbamoyl)methyl iminodiacetic acid derivatives

U.1.0.0

\[
\begin{array}{c}
\text{Ar} \\
\text{N} \\
\text{CO}_2\text{H} \\
\text{N} \\
\text{CO}_2\text{H} \\
\end{array}
\]

(a) arclofenin (52), butilfenin (41), disofenin (43), etifenin (43), galtifenin (59), lidofenin (39), mebrofenin (47)

-benine analgesics, glafenine derivatives (subgroup of fenamic acid group)

A.4.3.0

(a) antrafenine (35), floctafenine (24), florifenine (50), glafenine (15), nicafenine (40)

(b) spasmytotic diphenylacetates: adiphenine (1), drofenine (26)

other: buphenine (8) (vasodilator), cinfenine (27) (antidepressant)
-fentanil  narcotic analgesics, fentanyl derivatives
A.4.1.0

(a) alfentanil (43), brifentanil (62), carfentanil (39), fentanyl (14), lofentanil (43), mirfentanil (64), ocfentanil (61), remifentanil (67), sufentanil (36), trefentanil (67)

-fermin  see -ermin

-fentrine  inhibitors of phosphodiesterases
K.0.0.0

(a) benafentrine (44), pumafentrine (86), tolafentrine (70)

-fiban  fibrinogen receptor antagonists (glycoprotein IIb/IIIa receptor antagonists)
I.2.0.0
carafiban (78), elarofiban (83), fradafiban (72), gantofiban (80), lamifiban (72), lefradafiban (75), lotrafiban (78), orbofiban (75), roxifiban (77), sibrafiban (77), tirofiban (73), xemilofiban (74)

-fibrate (x)  clofibrate derivatives
H.4.0.0  (BAN: substances of the clofibrate group)
(USAN: antihyperlipidaemics (clofibrate type))

(a) bezafibrate (35), biclofibrate (28), binifibrate (44), ciprofibrate (36), clinofibrate (39), dulofibrate (43), etofibrate (31), fenofibrate (49), fenofibrate (35), lifibrate (30), nicofibrate (31), picafibrate (35), ponfibrate (37), ronifibrate (55), salafibrate (41), serfibrate (34), simfibrate (22), sitofibrate (32), tiafibrate (33), timofibrate (40), tocofibrate (33), urefibrate (37), xantifibrate (31)
clofibric acid (20), clofibrate (13), aluminium clofibrate (31), calcium clofibrate (34), cinnarizine clofibrate (38), etofylline clofibrate (38), magnesium clofibrate (31)
clofibrate (28), plafibrate (39)

related: beclobrate (35), eniclobrate (39), gemfibrozil (34), halofenate (20), lifibrol (62), metibride (53), terbufibril (35), tibric acid (33), (fibrasyline (43) deleted)

(b) bromemic acid (25) (prophylaxis of migraine), fibracillin (30) (antibiotic)

(c) nafenopin (24), treloxinate (25)

-flermin     see -ermin

-flapon     5-lipoxygenase-activating protein (FLAP) inhibitor

K.0.0.0
J.0.0.0
quiflapon (72)

-flurane    halogenated compounds used as general inhalation anaesthetics

A.1.1.0     (USAN: general inhalation anesthetics (halogenated alkane derivatives))

(a) aliflurane (36), cryofluorane (6), desflurane (62), enflurane (25), isoflurane (28), methoxyflurane (11), norflurane (20), roflurane (12), sevoflurane (25), teflurane (12)

(b) apaflurane (73)

(c) fluroxene (12), halothane (6)

-formin (d) antihyperglycaemics, phenformin derivatives

M.5.0.0     (USAN: hypoglycemics (phenformin type))

(a) benfosformin (29), buformin (17), etoformin (34), metformin (21), phenformin (10), tiformin (22)
-fos insecticides, anthelminthics, pesticides etc., phosphorous derivatives

S.3.1.0
Y.0.0.0

1. organophosphorous derivatives:

\[ \text{RP}_O \text{P}_O \text{O}_\text{R'} \text{R''} \]
\( X = O \text{ or } S \)

(a) vet. insecticides:
quintiofos (25)

(b) toldimfos (23) (vet. phosphorous source)

(c) vet. insecticides and anthelminthics:
metrifonate (16)
anthelmintic: butonate (30)

2. phosphates:

\[ \text{RP}_O \text{P}_O \text{O}_\text{R'} \text{R''} \]

(a) vet. insecticides:
clofenvinfos (23)

vet. anthelminthics:
bromofenofos (43), dichlorvos (28), naftalofos (16)

anthelminthics:
vincofos (28)

(b) triclofos (13) (hypnotic, sedative)

(c) vet. anthelminthics:
fospirate (21), haloxon (16)
3. phosphorothioates:

\[
\text{R} - \text{O} - \text{S} - \text{O} - \text{R}' - \text{O} - \text{R}''
\]

vet. insecticides:

(a) bromofos (25), coumafos (16), fenclofos (23), temefos (31)

(c) dimpylate (16), phoxim (20) (vet. insecticide and anthelmintic), pyrimate (16)

4. phosphorodithioates:

\[
\text{R} - \text{S} - \text{O} - \text{S} - \text{O} - \text{R}' - \text{O} - \text{R}''
\]

(a) benoxafos (22) (vet. pesticide)

(c) carbofenotion (23) (vet. insecticide), dioxation (16) (vet. insecticide), (malathion (46) (deleted!))

5. phosphoramidates

\[
\text{R} - \text{N} - \text{H} - \text{O} - \text{O} - \text{R}' - \text{O} - \text{R}''
\]

crufoamate (16), uredofos (37)

anthelminthic:

imcarbofos (44)

-fos- or fos- 

various pharmacological categories belonging to fos (other than those above):

-fos-
alafosfalin (41), amifostine (44), belfosril (61), benfosformin (29), butafosfan (38), cifostodine (50), creatinofosfate (20), dextrafosfamine (68), ferrophosphate sodium (69), fosmenic acid (49), fosopamine (69), fosquidone (64), furifosmin (70), monophosphothiamine (8), sodium picofosfate (37), sparfosic acid (46), technetium (\(^{99m}\)Tc), tetrofosmin (66), trifosmin (74)

-fosfamide alkylating agents of the cyclophosphamide group
canfosfamide (92), cyclophosphamide (10), defosfamide (12), glufosfamide (77), ifosfamide (23), mafosfamide (51), perfosfamide (66), sufosfamide (36), trofosfamide (23)

-fosine cytostatic
edelfosine (59), ilmofosine (56), miltefosine (61), perifosine (78)
INN – The use of stems

**fos-**
fosarilate (53), fosalvudine tidoxil (95), fosazepam (27), foscarnet sodium (42), foscolic acid (12), fosenazide (46), fosfostrol (15), fosfo creatinine (50), fosfomycin (25), fosfonet sodium (35), fosfosal (37), fosfructose (81), f osmidomycin (46), fostedil (51), fостrie cin (55)

<table>
<thead>
<tr>
<th>-fovir</th>
<th>see vir</th>
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<table>
<thead>
<tr>
<th>-fradil</th>
<th>calcium channel blockers acting as vasodilators</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.2.1.0</td>
<td>mibefradil (72)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>-frine</th>
<th>see -drine</th>
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<thead>
<tr>
<th>-fungin</th>
<th>antifungal antibiotics (18th Report, 1968)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.6.0.0</td>
<td>(USAN: antifungal antibiotics (undefined group))</td>
</tr>
<tr>
<td>S.4.3.0</td>
<td></td>
</tr>
<tr>
<td>(a)</td>
<td>abafungin (74), anidulafungin (81), basifungin (72), caspofungin (80), cilofungin (60), fusafungine (15), kalafungin (20), micafungin (84), nifungin (24), oxifungin (40), sinefungin (39), triafungin (40)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>-fylline</th>
<th>N-methylated xanthine derivatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.1.0.0</td>
<td>(USAN: theophylline derivatives)</td>
</tr>
<tr>
<td>(a)</td>
<td>acefylline clofibrol (44), acefylline piperazine (14), albifylline (66), aminophylline (4), apaxifylline (71), arofylline (75), bamifylline (15), cipamfylline (71), denbufylline (55), dimabefylline (19), diniprofylline (18), diprophylline (1), doxofylline (47), enprofylline (44), etamiphylline (6), etofylline (14), etofylline clofibrate (38), fibrafylline (43) (deleted), flufylline (48), fluropofylline (50), furafylline (48), guaifylline (16), isbufylline (62), istradefylline (89), laprafylline (60), lisofylline (72), lomifylline (37), mercuphyl line (1), metescufylline (15), mexafylline (48), midaxifylline (79), naxifylline (86), nestifylline (64), pentifylline (29), pentoxifylline (29), perbufylline (58), pimefylline (21), propentofylline (46), proxypfylline (10), pyridofylline (14), spirofylline (58), stacofylline (73), tazifylline (52), theophylline ephedrine (14), torbafylline (56), triclofylline (19), verofylline (43), visnafylline (24), choline theophyllinate (8), fenetylline (16)</td>
</tr>
</tbody>
</table>
(c) cafedrine (14), dimenhydrinate (1), dimethazan (8), meralluride (1), mercumatilin sodium (4), piprinhydrinate (8), promethazine teoclate (10), protheobromine (14), theodrenaline (14), xantifibrate (31), xantinol nicotinate (16)

radicals and groups: teprosilate (29)

---

**gab**

**gabamimetic agents**

E.0.0.0

(a) fengabine (53), gabapentin (46), gabapentin enacarbil (94), gadoxadol (48) (used as analgesic), pivagabine (66), pregabalin (78), progabide (43) (used as antiepileptic), retigabine (76), tiagabine (63), tolgabide (53), vigabatrin (52) (anticonvulsants)

(b) gabexate (35) (proteolytic)

---

**gado-**

**diagnostic agents, gadolinium derivatives**

U.0.0.0 (USAN: gadolinium derivatives (principally for diagnostic use))

(a) gadobenic acid (64), gadobutrol (66), gadocoletic acid (85), gadodenterate (91), gadodiamide (63), gadomelitol (85), gadopenamide (60), gadopentetic acid (50), gadoteric acid (59), gadoversetamide (71), gadoxetic acid (71)

---

**-gatran**

**thrombin inhibitors, antithrombotic agents**

I.2.0.0 (USAN: thrombin inhibitors (argatroban type))

(a) dabigatran (83), dabigatran etexilate (87), efegatran (71), inogatran (72), melagatran (74), napsagatran (72), sofigatran (95), ximelagatran (84)

(c) argatroban (57)

---

**-gene**

**gene therapy products**

A two-word name approach has been selected:

<table>
<thead>
<tr>
<th>Word 1</th>
<th>-gene</th>
<th>gene component</th>
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<tbody>
<tr>
<td></td>
<td>-lim(o)-</td>
<td>immunomodulators</td>
</tr>
<tr>
<td></td>
<td>-tusu-</td>
<td>tumour suppression</td>
</tr>
<tr>
<td></td>
<td>-ermin(o)-</td>
<td>growth factors</td>
</tr>
<tr>
<td></td>
<td>-kin(o)-</td>
<td>interleukins</td>
</tr>
<tr>
<td></td>
<td>-mul-</td>
<td>multiple genes</td>
</tr>
</tbody>
</table>
Word 2 -vec  vector component is a virus
- lenti- lentiviruses
- retro- other retroviruses
- adeno- adenoviruses
- vari- vacciniae
- cana- canarypox viruses
- herpa- herpes viruses
-plasmid  in case the vector is a plasmid

In case of naked DNA, there is no need for a second word in the name.
In case of antisense nucleotides, please refer to the already existing stem -rsen.

(a) alferminogene tadenovec (95), beperminogene perplasmid (95)

---

gest (x)  steroids, progestogens

Q.2.2.0  (USAN: -gest-: progestins)

(a) altrenogest (46), anagastrostone (16), cingestol (20), closestone (21), clomegestone (20),
demegestone (24), desogestrel (38), dextronestrel (30), dienogest (49), dydrogesterone (12),
drogestrone (22), etonogestrel (65), flugestone (16), gestaclone (23), gestadionol (22),
gestodene (37), gestonorone caproate (16), gestrinone (39), haloprogesterone (11),
hydroxyprogesterone (8), levarterone (33) (previously dextronestrel), medrogestone (15),
medoxyprogesterone (10), medrogestone (15), medrogestone (15), melengestrol (13),
metestрогестрол (13), noregestromin (83), norgestosterone (14), norgestimate (35),
norgestomet (32), norgestrel (17), norgestrienone (18), oxogestone (19),
pentagestrone (14), progesterone (4), progestosterone (28), promegestone (38), quingestanol (15),
quingestrone (13), trisestrol (20), tosagenstin (86), trengestone (22), trimegestone (66)

(b) algestone (22) (glucorticoid)

(c) allylestrenol (10), chlormadinone (12), cismadinone (12), delmadinone (23), dimethisterone
(8), ethisterone (4), ethynerone (17), etynodiol (13), hydromadinone (12), lynestrenol (13),
metylnodiol (27), norethisterone (6), noretynodrel (13), norvinisterone (10)
clomesterone (15) (antiestrogen), dimepregnen (24) (antiestrogen)

---

-gestr-  see estr

-giline  MAO-inhibitors type B

C.3.1.0

(a) clorgiline (23), mofegiline (69), pargiline (13), rasagiline (70), selegiline (39)
-gillin antibiotics produced by Aspergillus strains (16th Report, 1966)

S.6.0.0

(a) fumagillin (1), mitogillin (17)

(c) mitosper (24), nifungin (24)

gli (x) antihyperglycaemics
(previously gly-)

M.5.2./3.0 (BAN: sulphonamide hypoglycaemics)
(USAN: gli-: antihyperglycaemics)

(a) 1. sulfonamide derivatives: gliamilide (33), glibenclamide (18), glibormuride (22), glibutimine (31), glicaramide (28), glicetanide (37), gliclazide (25), (deleted: glidanile (23)), glicondamidade (44), gidazamidade (24), gliflumidade (33), glimepiride (53), glipalamidade (62), glipizide (27), gliquidamide (28), glisasuridade (45), glisentide (58) (previously glipentide (27)), glisindamidade (43), glisolamidade (43), glisoxepidide (24), glybuthiazol (8), glybuzole (15), glyclopypamide (17), glycyclamidade (12), glyhexamide (15), glymidine sodium (15), glyoctamidade (14), glypamidade (USAN only), glypinamidade (13), glyprothiazol (8), glysofuzole (12)

2. other than sulfonamide derivatives: camiglibose (67), denaglifitop (94), deriglidolé (66), emigkeitate (55), ingliforib (85), isaglidole (61), linogliride (48), meglitinidade (34), midaglizole (57), miglitol (55), mitiglindide (78), nagliván (65), nategлинide (77), pirogliride (40), repaglinide (65), saxaglifitop (92), sitaglifitop (94), teglicar (91), tibeglissene (64), vildaglifitop (90), voglibose (65)

3. peptide: seglitide (57)

(b) cromoglicate lisetil (72), cromoglicidade acid (18), ioglicidade acid (33), ioxaglic acid (37), sulglicitide (29) (treatment of peptic ulcers), tropigline (08)

(c) acetohexamidade (12), butadiazamidade (10), carbutamidade (36), chlorpropamidade (8), heptolamidade (12), metahexamidade (10), palmoxiric acid (48), thiohexamidade (12), tolazamidade (12), tolbutamidade (6), tolpentamidade (12), tolpymamide (13)

gly- prior to revision of the General Principles

(a) glybuthiazol (08), glybuzole (15), glyclopypamidade (17), glycyclamidade (13), glyhexamide (15), glymidine sodium (15), glyoctamidade (14), glypinamidade (13), glyprothiazol (08), glysofuzole (12)

(c) glycerol (4), glycobiarsol (l), glycopyrronium bromide (12)
<table>
<thead>
<tr>
<th>Stems</th>
<th>Description</th>
<th>USAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>-glitazar</td>
<td>peroxisome proliferator activating receptor (PPAR) agonists</td>
<td>USAN</td>
</tr>
<tr>
<td></td>
<td>(USAN: PPAR agonists (not thiazolidene derivatives))</td>
<td></td>
</tr>
<tr>
<td>M.5.2.0</td>
<td>(a) aleglitazar (95), cevoglitazar (94), farglitazar (84), imiglitazar (91), muroglitazar (90), naveglitazar (92), oxeglitazar (88), peliglitazar (92), pemaglitazar (92), ragaglitazar (85), reglipitazar (87), sipoglitazar (93), sodelglitazar (95), tesaglitazar (85)</td>
<td></td>
</tr>
<tr>
<td>-glitazone</td>
<td>peroxisome proliferator activating receptor (PPAR) agonists, thiazolidinedione derivatives</td>
<td>USAN</td>
</tr>
<tr>
<td></td>
<td>(USAN: PPST agonists (thiazolidene derivatives))</td>
<td></td>
</tr>
<tr>
<td>M.5.2.0</td>
<td>(a) ciglitazone (50), balaglitazone (84), darglitazone (69), edaglitazone (91), englitazone (64), lobeglitazone (95), netoglitazone (85), pioglitazone (60), rivoglitazone (87), rosiglitazone (78), troglitazone (69)</td>
<td></td>
</tr>
<tr>
<td>-glitazar</td>
<td>see gli</td>
<td></td>
</tr>
<tr>
<td>-glitazone</td>
<td>see gli</td>
<td></td>
</tr>
<tr>
<td>-glumide</td>
<td>cholecystokinin antagonists, antiulcer, anxiolytic agents</td>
<td>USAN</td>
</tr>
<tr>
<td>J.0.0.0/C.1.0.0</td>
<td>(a) proglumide (16), lorglumide (56), tomoglumide (56), loxiglumide (57), dexloxiglumide (65), spiroglumide (70), amiglumide (85), itriglumide (82)</td>
<td></td>
</tr>
<tr>
<td>-golide</td>
<td>dopamine receptor agonists, ergoline derivatives</td>
<td>E.1.1.0</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Ergoline Structure" /></td>
<td></td>
</tr>
<tr>
<td>M.5.2.0</td>
<td>(a) adrogolide (82), naxagolide (60), pergolide (41), quinagolide (62), voxergolide (61)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(c) rotigotine (83)</td>
<td></td>
</tr>
<tr>
<td>-gosivir</td>
<td>see vir</td>
<td></td>
</tr>
</tbody>
</table>
-gramostim  see -stim

-grastim  see -stim

-grel-  platelet aggregation inhibitors

grel

I.2.1.0  (USAN: platelet aggregation inhibitors (undefined group))

(a) anagrelide (42), camonagrel (61), cangrelor (82), clopidogrel (57), dazmegrel (51), furegrelate (53), isbogrel (59), itazigrel (56), midazogrel (53), nafagrel (64), nicoagrelate (48), oxagrelate (47), ozagrel (55), panicogrel (70), parogrelil (94), primagrel (53), prasugrel (91), ridogrel (59), rolafagrel (65), samixagrel (72), sarpogrelate (63), satigrel (67), sunagrel (52), terbogrel (75), ticagrelor (95), trifenagrel (53)

USAN

-guan-  antihypertensives, guanidine derivatives

H.3.0.0

\[ \text{H}_2\text{N} \text{NH}_2 \]

(a) guanabenz (26), guanacline (l6), guanadrel (20), guanazodine (27), guancidine (18), guanclofine (36), guanethidine (11), guanfacine (35), guanisouline (15), guanoclor (15), guanoctine (16), guanoxan (15), guanoxabenz (31), guanoxyfen (16), guabenzan (32)

(c) guabenxan (32)

USAN

-ibine  see -ribine

-USAN

-icam  anti-inflammatory, isoxicam derivatives

A.4.2.0  (USAN: anti-inflammatory agents (isoxicam type))

\[ \text{ampiroxicam (56), droxicam (52), enolicam (45), isoxicam (30), lornoxicam (59), meloxicam (52), piroxicam (32), sudoxicam (27), tenoxicam (44), tesicam (25) } \]
-ifene antiestrogens, clomifene and tamoxifen derivatives
(Q.2.1.0 L.6.0.0)

(a) acolbifene (86), clomifenoxide (54), tesmilifene (81)
-oxifene: afimoxifene (95), arzoxifene (80), bazedoxifene (86), droloxifene (53), idoxifene (68), lasofoxifene (81), levormeloxifene (73), miproxifene (74), ormeloxifene (69), pipendoxifene (84), raloxifene (54), tamoxifen (28), trioxifene (41), zindoxifene (54)
-mifene: clomifene (12), enclomifene (33), fispemifene (89), nitromifene (33), ospemifene (85), panomifene (58), toremifene (53), zuclomifene (33)

(b) dextropropoxyphene (7), levopropoxyphene (7), suloxifen (30) (bronchodilator)

(c) nafoxidine (16)

-igetide see -tide

-ilide class III antiarrhythmics, sematilide derivatives
H.2.0.0 (USAN: class III antiarrhythmic agents)

(a) ambasilide (59), artilide (67), azimilide (72), dofetilide (65), ersentilide (72), ibutilide (63), ipazilide (62), risotilide (62), sematilide (58), trecetilide (79)

(b) bromacrylide (13), fluaxilide (32), gliamilide (33)

imex (d) immunostimulants
S.7.0.0

(a) azimexon (40), forfenimex (55), imexon (37), roquinimex (53), ubenimex (56)
INN – The use of stems

-**-imibe**  
**USAN**  
antihyperlipidaemics, acyl CoA: cholesterol acyltransferase (ACAT) inhibitors  
**M.3.0.0**  
(a)  
avasimibe (80), eflucimibe (84), eldacimibe (76), ezetimibe (83), lecimibide (70), octimibate (52), pactamibe (89)

-**-imod**  
**USAN**  
immunomodulators, both stimulant/suppressive and stimulant  
**S.7.0.0** (USAN: immunomodulators)  
(a)  
apilimod (95), atiprimod (75), cridanimod (83), defoslimod (79), doramapimod (88), fingolimod (91), esonarimod (79), glaspimod (74), iguratimod (96), imiquimod (66), ivarimod (60), laquinimod (94), paquinimod (94), pidotimod (63), resiquimod (82), semapimod (89), sotirimod (94), susalimod (73), tasquinimod (93), tiprotimod (57)

-**-imus**  
**USAN**  
immunosuppressants (other than antineoplastics)  
**S.7.0.0** (USAN: immuno-suppressives)  
(a)  
abetimus (81), anisperimus (82), everolimus (82), gusperimus (68), laflunimus (70), manitimus (93), napirimus (60), pimecrolimus (81), sirolimus (69), tacrolimus (66), temsirolimus (92), tresperimus (75), zotarolimus (94)

-**-ine (d)**  
alkaloids and organic bases  
(a)  
1611 (20.5%) INNs ending in *-ine* in Lists 1-95 of Proposed INNs

-**-inostat**  
see Stat

-**io- (x)**  
iodine-containing contrast media  
**BAN, USAN**  
**U.1.1.0**  
(a)  
iobenzamic acid (14), iobitridol (68), iobutoic acid (20), icarmomic acid (22), icetamic acid (18), icanlchidic acid (77), iodamide (15), iodecimol (51), iodetrol (1), iodixanol (53), iodophthane sodium (1), iodoxamic acid (26), iofendylate (12), iofratol (67), ioglucic acid (33), ioglucol (41), ioglumonide (41), ioglunide (40), ioglobinamic acid (15), iohexol (43), iolidonic acid (26), iolixanic acid (26), iomegamlc acid (26), iomeprl (54), iomorinic acid (37), iopamidol (40), iopanolic acid (1), iopental (52), iophenonic acid (4), ioprocemc acid (35), iopromide (44), iopronic acid (28), iopydol (14), iopydone (14), iosarcol (54), ioservative acid (14), ioseric acid (33), iosimenol (88), iosimide (50), iostulamide (39), iotaticc acid (33), iotalamic acid (13), iotasul (43), iotetric acid (37), iotracic acid (28),
iodin (60), iotrizoic acid (22), iotrolan (51), iotroxic acid (32), ioversol (56), ioxabrolic acid (53), ioxaglic acid (37), ioxilan (59), ioxitalamic acid (22), ioxotrizoic acid (33), iozomic acid (24)

(c) adipiodone (4), bunamiodyl (10), dimethiodal sodium (1), diodone (1), ethyl cartrizoate (12), methiodal sodium (1), metrizamide (26), pheniodol sodium (1), phenobutiodil (6), propyl docetrizoate (10), propylidone (1), sodium acetrizoate (4), sodium amidotrizoate (4), sodium diprotrozioate (6), sodium metrizoate (13), sodium tyropanoate (12)

iodine-containing compounds other than contrast media

io(d)-/io- radiopharmaceuticals, iodine-contained

(a) ethiodized oil $^{(131)I}$ (24), iobenguane $^{(131)I}$ (57), iodofiltic acid $^{(123)I}$ (95), iodinated $^{(125)I}$ human serum albumin (24), iiodated $^{(131)I}$ human serum albumin (24), iodicetyllic acid $^{(123)I}$ (47), iodocholesterol $^{(131)I}$ (39), iofetamine $^{(123)I}$ (51), iolopride $^{(125)I}$ (73), iomazenil $^{(123)I}$ (66), iometin $^{(125)I}$ (24), sodium iodide $^{(125)I}$ (24), sodium iodide $^{(131)I}$ (24), sodium iodohippurate $^{(131)I}$ (24), sodium iotalamate $^{(125)I}$ (24), sodium iotalamate $^{(131)I}$ (24)

(c) fibrinogen $^{(125)I}$, macrosalb $^{(131)I}$ (33), rose bengal $^{(131)I}$ sodium (24), tolpovidone $^{(131)I}$ (24)

usan

-hirudin hirudin derivatives

I.2.1.0 (USAN: anticoagulants (hirudin type))

bivalirudin (72), desirudin (70), lepirudin (73), pegmusirudin (77)

usan

-isorid antiarrhythmics, disopyramide derivatives

H.2.0.0

(a) actisomide (60), bidisomide (63), pentisomide (59)

(c) disopyramide (12)
-ium (x)  

**quaternary ammonium compounds**

(USAN: -ium or onium: quaternary ammonium derivatives)

**E.3.0.0  neuromuscular blocking agents with a flexible structure**

(a) azamethonium bromide (1), decamethonium bromide (1), dicolinium iodide (25), dimecolinium iodide (14), fubrogonium iodide (18), hexamethonium bromide (1), mebezonium iodide (16), oxapropanium iodide (1), oxydipentonium chloride (1), pentamethonium bromide (1), pentolonium tartrate (4), prodeconium bromide (6), stilonium iodide (32), suxamethonium chloride (1), suxethonium chloride (1), tetramammonium bromide (1), tiametonium iodide (15), trepirium iodide (25)

(c) gallamine triethiodide (1)

**E.3.0.0  neuromuscular blocking agents with rigid structure**

(USAN: -curium, also curonium; neuromuscular blocking agents; quaternary ammonium derivatives)

(a) -curonium: alcuronium chloride (17), candocuronium iodide (70), dacuronium bromide (21), pancuronium bromide (19), pipecuronium bromide (69), rapacuronium bromide (78), rocuronium bromide (66), stercuronium iodide (21), vecuronium bromide (46)

-curium (d) (curare-like substances): atracurium besilate (42), cisatracurium besilate (73), doxacurium chloride (58), gantacurium chloride (91), mivacurium chloride (58), truxicurium iodide (22), truxipicurium iodide (22)

-others: dimethyltubocurarinium chloride (1), fazadinium bromide (32), hexafluronium bromide (12), laudexium metilsulfate (4), pentacynium chloride (6), phenactropinium chloride (8), piprocurarium iodide (11), thiazinamium metilsulfate (37), trimethidinium methosulfate (8)

(c) tubocurarine chloride (1)

**E.1.0.0  cholinergic agents**

(a) aclatoniun napadisilate (44), ambenonium chloride (6), benzpyrinium bromide (1), carpronium chloride (23), demecarium bromide (10), furteronium iodide (1)

(c) acetylcholine chloride (4), charbacol (4), choline alfoscerate (29), choline chloride (4), choline gluconate (1), choline salicylate (15) (analgescic), choline theophyllinate (8) (smooth muscle relaxant), methacholine chloride (1), nitricholine perchlorate (6) (antihypertensive), distigmine bromide (16), ecothiopate iodide (6), neostigmine bromide (4), obidoxime chloride (16), pralidoxime iodide (10), pyridostigmine bromide (6)
E.2.0.0 **anticholinergic agents**

(a) aclidinium bromide (95), benzilonium bromide (13), benzopyrrosonium bromide (12), beperidium (57), bevonium metilsulfate (19), butropium bromide (30), ciclonium bromide (19), ciclotropium bromide (50), cimetropium bromide (51), clidinium bromide (6), cyclopyrrosonium bromide (12), dimetipironium bromide (37), diponium bromide (15), dotefonium bromide (24), droclidinium bromide (33), etipirium iodide (22), fenelexonium metilsulfate (20), fenpiverinium bromide (26), fentonium bromide (29), flutropium bromide (50), glycopyrrosonium bromide (12), heteronium bromide (14), hexacosium iodide (15), hexocyclium metilsulfate (6), hexopyrrosonium bromide (13), ipratropium bromide (31), methanthenium bromide (1), methylenactyzium bromide (34), metocininium iodide (26), nolinium bromide (37), otilonium bromide (38), oxapium iodide (26), oxitefonium bromide (18), oxitropium bromide (36), oxyphenonium bromide (1), oxypryronium bromide (13), oxysionium iodide (15), pentapiperium metilsulfate (26), prifinium bromide (20), ritropirronium bromide (33), sintropium bromide (47), sulpropium (18), tematropium metilsulfate (64), tiemonium iodide (13), timedipium bromide (29), tiotropium bromide (67), tiquizium bromide (47), trantelinium bromide (24), trosipium chloride (25), xenytopium bromide (15)

(c) atropine methonitrate (4), buzepide metiodide (14), chlorisondamine chloride (6), dipemanil metilsulfate (4), homatropine methylbromide (1), isopropramide iodide (8), mepenzolate bromide (10), oxatropine methylbromide (10), parapenzolate bromide (14), pipenzolate bromide (6), poldine metilsulfate (11), propantheline bromide (1), propyzomazine bromide (12), tridihexethyl iodide (6), tropenziline bromide (11), thihexinol methylbromide (1), tricyclamol chloride (4)

S.2.3.0 **surfactants used as antibacterials and antiseptics**

(a) acriflavinium chloride (1), amantanium bromide (39), benzalkonium chloride (1), benzethonium chloride (1), benzododecinium chloride (1), benzoxonium chloride (36), cefalonium (16), cefmepridium chloride (57), cetalkonium chloride (15), cethexonium chloride (36), cetrimonium bromide (1), cetylpyridinium chloride (1), chlorphenoctxim amsonate (8), deditonium bromide (15), denatonium benzoate (15), dequallinium chloride (8), disiquonium chloride (55), dodeclonium bromide (16), doxiflum chloride (21), fluadazonium chloride (33), furazolium chloride (15), halopenium chloride (10), hedaquinium chloride (8), lapirium chloride (27), lauralkonium chloride (62), lauracetum bromide (70), laurolinium acetate (12), mecetronium etilsulfate (51), mecatronium chloride (60), methylbenzethonium chloride (1), methylrosanilinium chloride (1), methylthioninium chloride (1), miripil potassium chloride (63), miristalkonium chloride (41), octafonium chloride (16), opratoniun iodide (76), penoctonium bromide (20), pirralkonium bromide (19), polidronium chloride (67), polixetonium chloride (70), prolonium iodide (14), sanguinarium chloride (68), sepaizonium chloride (34), tetradonium bromide (18), tibezonium iodide (32), tiodonium chloride (36), tolodium chloride (36), tolonium metilsulfate (17), tonzonium bromide (14), triclobisonium chloride (10)

(c) domiphen bromide (23)
other agents

alagebrium chloride (91), amezinium metilsulfate (36), amprolium chloride (16), azaspirium chloride (25), bephenium hydroxynaphthoate (11), bibenzonium bromide (12), bidimazium iodide (27), bretylium tosilate (10), butopyrammonium iodide (8), carcainium chloride (36), clofilium phosphate (42), datelliptium chloride (57), detajmium bitartrate (34), dibrospidium chloride (51), ditercalinium chloride (49), edrophonium chloride (4), elliptinium acetate (43), emilium tosilate (37), famiraprinium chloride (58), feniodium chloride (23), gallium ($^{65}$Ga) citrate (33), homidium bromide (36), isometamidium chloride (18), mafenidramium metilsulfate (52), meldonium (86), mequitamium iodide (61), nolpitantium besilate (75), pinaverium bromide (32), pridomium bromide (28), prajmalium bitartrate (23), pranolium chloride (32), pretamazium iodide (29), propgermanium (65), prospidium chloride (22), pyritidium bromide (16), pyrvinium chlorine (6), quindonium bromide (14), quinuchium bromide (40), repagermanium (63), rimazolium metilsulfate (26), roxolinium metilsulfate (33), samarium ($^{153}$Sm) lexidronam (74), sevitropium mesilate (56), spirogermanium (43), stilbazium iodide (13), thenium closilate (12), tipetropium bromide (42), tolonium chloride (4), trazium esilate (54), trethinium tosilate (14), troxonium tosilate (13), troxypyrrolium tosilate (13)

(c) alazanine triclofenate (13) (anthelminthic), colfosceril palmitate (64) (pulmonary surfactant), dithiazanine iodide (8) (anthel-minthic), hexadimethrine bromide (8) (heparin antagonist)

-izine diphenylmethyl piperazine derivatives

\[ \text{N} \quad \begin{array}{c} \text{N} \\ \text{Ar} \\ \text{Ar} \end{array} \]

(a) antihistaminics: G.2.0.0: buclizine (4), cetirizine (51), chlorcyclizine (1), clocinizine (15), cyclizine (1), efletirizine (71), elbanizine (60), flotenizine (48), levocetirizine (78), pibaxizine (62), trenizine (48)

homochlorcyclizine (10) (serotonin antagonist)

tranquillizers: etodroxizine (18), hydroxyzine (6)

various: benderizine (40) (antiarrhythmic), decloxizine (19) (respiratory insufficiency), ropizine (36) (anticonvulsant)

-rizine antihistaminics/cerebral (or peripheral) vasodilators

belarizine (36), buterizine (42), cinnarizine (11), dotarizine (50), flunarizine (22), lifarizine (66), tagorizine (72), tamolarizine (66), trelnarizine (62)

chemically related: pipoxizine (32) (respiratory insufficiency)
(b) phenothiazine derivatives: chloracyzine (12) (vasodilator), fluacizine (25) (sedative), moracizine (25) (antiarrhythmic), tiracizine (62) (antiarrhythmic)

benzilate esters: benactyzine (6) (tranquillizer), benaprizine (26) (anti-parkinsonian)

phenylpiperazine: dimetholizine (10) (antiallergic), dropropizine (18)/levodropropizine (64) (antitussive)

antibiotic "cef": cefatrizine (34)

pyrazine derivatives: ampyzine (15) (central nervous stimulant), triampyzine (15) (anticholinergic)

indoloquinolines (anticholinergic): metoquizine (17), toquizine (17)

(c) medibazine (16)

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USAN -kacin antibiotics, kanamycin and bekanamycin derivatives (obtained from *Streptomyces kanamyceticus*)

S.6.3.0 (USAN: antibiotics obtained from *Streptomyces kanamyceticus* (related to kanamycin))

(a) amikacin (30), arbekacin (56), butikacin (41), dibekacin (31), propikacin (43)

(c) bekanamycin (24), kanamycin (10)

other aminoglycoside antibiotics:

*Strept. griseus*: dihydrostreptomycin (1) (semisynthetic), streptomycin (1), streptoniazid (13) (semisynthetic)

*Strept. tenebrarius*: apramycin (31), nebramycin (19) (mixture of several antibiotics, including apramycin and tobramycin), tobramycin (28)

*Bacillus circularis*: butirosin (25)
**-kalant**  
**potassium channel blockers**

(USAN: potassium channel antagonists)

H.2.0.0

(a) adekalant (83), almokalant (64), clamikalant (81), inakalant (95), nifekalant (75), terikalant (66), pinokalant (82)

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**-kalim**  
**potassium channel activators, antihypertensive**

(USAN: potassium channel agonists)

H.3.0.0

(a) aprikalim (64), bimakalim (64), cromakalim (58), levrcromakalim (66), emakalim (66), mazokalim (75), rilmakalim (65), sarakalim (81)

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**-kef**  
**enkephalin agonists**

(USAN: enkephalin agonists (various indications))

casokefamide (65), frakefamide (81), metkefamide (44)

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**-kin**  
**interleukin type substances**

S.7.0.0

(a)

IL-1:  
- **-nakin**  
  interleukin-1 analogues and derivatives
  - **-onakin:** interleukin-1 α analogues and derivatives: pifonakin (77)
  - **-benakin:** interleukin-1 β analogues and derivatives: mobenakin (72)

IL-2:  
- **-leukin**  
  interleukin-2 analogues and derivatives: adargileukin alfa (89), aldesleukin (63), celmoleukin (65), denileukin difftix (78), teceleukin (54)
  pegaldesleukin (67), tucotuzumab celmoleukin (95)

IL-4:  
- **-trakin**  
  interleukin-4 analogues and derivatives: binetraokin (82)

IL-6:  
- **-exakin**  
  interleukin-6 analogues and derivatives: atexakin alfa (72)

IL-8:  
- **-octakin**  
  interleukin-8 analogues and derivatives: emoctakin (74)

IL-10:  
- **-decakin**  
  interleukin-10 analogues and derivatives: ilodecakin (81)
| IL-11: -elven | interleukin-11 analogues and derivatives: oprelvekin (76) |
| IL-12: -dodekin | interleukin-12 analogues and derivatives: edodekin alfa (79) |
| IL-13: -tredekin | interleukin-13 analogues and derivatives: cintredekin besudotox (92) |
| IL-18: -octadekin | interleukin-18 human analogues and derivatives: iboctadekin (92) |
| tadekinig alfa (90) (fraction of IL-18 human) |
| (c) IL-3: -plestim: interleukin-3 analogues and derivatives: muplestim (72), daniplestim (76) |

**-kinra**

interleukin receptor antagonists

| IL-1 -nakinra | interleukin-1 receptor antagonists: anakinra (72) |
| IL-4 -trakinra | interleukin-4 receptor antagonists: pitrakinra (84) |

**-kiren**

renin inhibitors

H.3.0.0

(a) aliskiren (83), ciprokiren (69), ditekiren (62), enalkiren (61), remikiren (66), terlakiren (66), zankiren (70)

**-leukin**

see -kin

**-listat**

see -stat

**-lubant**

leukotriene B₄ receptor antagonists

(USAN: leukotriene receptor antagonists (treatment of inflammatory skin disorders))

U.3.0.0

(a) amelubant (85), moxilrubant (78), ticolubant (76)

**-lukast**

leukotriene receptor antagonists, see -ast
**-mab**  **monoclonal antibodies** (see also Annex)

**S.7.0.0**

- **amab** rat origin

- **emab** hamster origin

- **imab** primate origin

- **omab** **mouse origin:**
  
  *ba(c)*  **bacterial**: edobacomab (69)

  *co(l)*  **colon**: edrecolomab (74), nacolomab tafenatox (71)

  *go(v)*  **ovary (tumours)**: abagovomab (95), igovomab (74), oregovomab (86)

  *li(m)*  **lymphocyte**: afelimomab (72), dorlimomab aritox (66), elsilimomab (89),  
  enlimomab (70), enlimomab pegol (77), faralimomab (76), gavilimomab (84),  
  inolimomab (71), maslimomab (66), nerelimomab (76), odulimomab (73),  
  telimomab aritox (66), vepalimomab (80), zolimomab aritox (69)

  *ci(r)*  **cardiovascular**: bicromab (66), imciromab (66)

  *le(s)*  **inflammatory lesions**: besilesomab (92), lemalesomab (84), sulesomab (75),  
  technetium (99mTc) fanolesomab (86)

  *pr(o)*  **tumour (prostate)**: capromab (70)

  *tu(m)*  **tumour (miscellaneous)**: anatumomab mafenatox (79), arcitumomab (74),  
  altumomab (68), bectumomab (75), detumomab (70), epitumomab (82),  
  epitumomab cituxetan (89), ibritumomab tiuxetan (81), minretumomab (80),  
  mitumomab (82), satumomab (67), taplitumomab paptox (84), technetium  
  (99mTc) nofetumomab merpentan (76), technetium (99mTc) pintumomab (75),  
  tositumomab (80)

  *Others:*  catomaxomab (92), ertumaxomab (92)

- **umab**  **human origin:**

  *ba(c)*  **bacterial**: nebacumab (66), raxibacumab (92)

  *fung*  **fungal**: efungumab (95)

  *li(m)*  **immunomodulator**: adalimumab (82), adecatumumab (90), atorolimumab (80),  
  golimumab (91), belimumab (89), bertilimumab (88), ipilimumab (94),
lerdelimumab (83), metelimumab (86), morolimumab (79), pritumumab (89),
ticilimumab (94), zanolimumab (90), ziralimumab (84)

os bone: denosumab (94)

tu(m) tumour: iratumumab (94), lexatumumab (95), mapatumumab (93),
ofatumumab (93), panitumumab (91), votumumab (70), zalutumumab (93)

vi(r) viral: exbivirumab (91), libivirumab (91), regavirumab (71), sevirumab (66),
tuvirumab (66)

Other: stamulumab (94)

-ximab chimeric origin

ba(c) bacterial: pagibaximab (93)

ci(r) cardiovascular: abciximab (70), volociximab (93)

li(m) immunomodulator: basiliximab (76), clenoliximab (77), galiximab (89),
infliximab (77), keliximab (76), lumiliximab (90), priliximab (72), teneliximab
(87), vapaliximab (87)

me(l) melanoma: ecromeximab (87)

tu(m) tumor: bavituximab (95), cetuximab (82), rituximab (77)

(c) muromonab CD3 (59)

-zumab humanized origin

anib angiogenesis inhibitor: ranibizumab (90)

ba(c) bacterial: tefibazumab (92)

ci(r) cardiovascular: bevacizumab (83), tadocizumab (94)

li(m) lymphocyte: apolizumab (87), aselizumab (88), certolizumab pegol (90),
daclizumab (78) (previously: dacliximab), eculizumab (87), efalizumab (85),
erlizumab (84), fontolizumab (87), mepolizumab (81), natalizumab (79),
ocrelizumab (94), omalizumab (84), palivizumab (79), pascolizumab (87),
pexelizumab (85), reslizumab (85), rovelizumab (81), ruplizumab (83),
siplizumab (87), talizumab (89), tocilizumab (90), toralizumab (87),
visilizumab (84)

toxa toxin as target: urtoxazumab (90)

tu(m) tumor: (miscellaneous): alemtuzumab (83), bivatuzumab (83), cantuzumab
mertansine (89), cedelizumab (77), epratuzumab (82), gemtuzumab (83),
INN – The use of stems

- mantadine
- mantine
- mantone

(USAN: -mantadine or -mantine: antivirals/antiparkinsonians (adamantane derivatives))

(a) antiviral: S.5.3.0: amantadine (15), rimantadine (17), somantadine (51), tromantadine (28)

antiparkinsonian: E.2.0.0: carmantadine (31), dopamantine (31), memantine (35)

immunostimulant: S.7.0.0: idramantone (71)

(b) anthelminthic: S.3.1.0: dimantant (14)

(c) adafenoxate (48) (nootropic agent), adamexine (36) (mucolytic), adapalene (64) (antiacne agent), adaprolol (63) (β-adrenoreceptor antagonist), adatanserin (70) (serotonin receptor antagonist), amantanium bromide (39) (disinfectant), amantocillin (17) (antibiotic), bolmantalate (16) (anabolic), meclinertant (88) (neurotensin antagonist), mantabegron (88) (β3-adrenoreceptor agonist), saxagliptin (92) (antidiabetic), vildagliptin (90) (antidiabetic)

-mastat see -stat

-meline

cholinergic agents (muscarine receptor agonists/partial antagonists used in the treatment of Alzheimer's disease)

E.1.0.0

(USAN: cholinergic agonists (arecoline derivatives used in the treatment of Alzheimer's disease))

[chemical structure]

alvameline (79), cevimeline (76), itameline (71), milameline (74), sabcomeline (76), tazomeline (77), xanomeline (70)
mer- or -mer-  (d)  1mercury-containing drugs, antimicrobial or diuretic (deleted from General Principles in List 28 prop. INN)

(a) S.2.2.0 antimicrobial: meralein sodium (13), merbromin (1), mercurobutol (1), otimerate sodium (51), phenylmercuric borate (4), sodium timerfonate (13), thiomersal (1)

1mer- and -mer- can be used for any type of substances and are no longer restricted to use in INNs for mercury-containing drugs (18th Consultation on INNs 1988)

N.1.3.0 diuretic: chlormerodrin (4), chlormerodrin (99Hg) (24), meralluride (1), mercaptomerin (1), mercuderamide (1), mercumatilin sodium (4), merucrophylline (1), merisoprol (99Hg) (24) (diagnostic), mersaly (4)

(b) difemerine (17) (spasmolytic), dimercaprol (1) (antidote, -SH group), lomerizine (68), (cerebral vasodilator), mercaptopurine (6) (cytostatic, -SH group), nifurmerone (16), pemerid (25)

suxemerid (25) (antitussive)

(c) hydrargaphen (10)

-mer polymers

(a) amilomer (33), cadexomer (60), carbetimer (50), carbomer (21), crilanomer (53), dextranomer (33), eldexomer (51), exatecan alideximer (89), hemoglobin glutamer (80), hemoglobin raffimer (89), leuciglumer (68), maletamer (14), poloxamer (34), porfimer sodium (64), sevelamer (77), surfomer (44), zinostatin stimalamer (74)

(b) succimer (42)

-mesine  sigma receptor ligands

igmesine (68), panamesine (73), siramesine (81)

-mestane aromatase inhibitors

L.0.0.0 /Q.2.1.0 (USAN: antineoplastics, aromatase inhibitors)

exemestane (65), formestane (66), minamestane (64)
-metacin (x)  anti-inflammatory, indomетacin derivatives

A.4.2.0  (BAN: anti-inflammatory substances of the indomethacin group)  
(USAN: -metacin: anti-inflammatory substances (indomethacin type))

(a)  acemetacin (32), cinmetacin (24), clometacin (27), delmetacin (48) (originally demetacin (42)), duometacin (27), glucametacin (32), indometacin (13), niometacin (33), oxametacin (37), pimetacin (47), proglumetacin (35), sermetacin (36), talmetacin (46), zidometacin (39)

other anti-inflammatory, indole derivatives: etoprindole (22), indopine (12), indoxole (17), nictindole (28)

-met(h)asone see pred

-micin  antibiotics obtained from various Micromonaspora

(S.6.5.0)  (USAN: antibiotics (Micromonaspora strains))

astromicin (44), betamicin (38), etisomicin (47), evernimicin (82), gentamicin (22), isepamicin (54), maduramicin (52), megalomicin (37), micronomicin (45), mirosamicin (58), netilmicin (36), ozogamicin (83), pentisomicin (41), repromicin (37), rosamicin (41) (prev. rosamicin), semduramicin (60), sisomicin (25)

-mifene  see -ifene

mito- (d)  antineoplastic, nucleotoxic agents (deleted from General Principles in List 24 prop. INN)

L.0.0.0  
(a)  mitobronitol (20), mitocarcin (25), mitoclomine (18), mitoflaxone (60), mitogillin (17), mitoguazone (20), mitolactol (26), mitomalcin (19), mitomycin (26), mitonafide (40), mitopodozide (17), mitoquidone (54), mitosper (24), mitotane (21), mitotenamine (17), mitoxantrone (44), mitozolomide (51)

(c)  mitindomide (48)
-monam  monobactam antibiotics

S.6.0.0

(a)  carumonam (51), gloximonam (54), oximonam (54), pirazmonam (58), tigemonam (57)
(c)  aztreonam (48)

-morelin  see -relin

-mostim  see -stim

-motine  antivirals, quinoline derivatives (19th Report 1970)

S.5.3.0 (USAN: antivirals (quinoline derivatives))

(a)  famotine (23), memotine (22)

-moxin  monoamine oxidase inhibitors, hydrazine derivatives

C.3.1.0

(a)  benmoxin (20), cimemoxin (17), domoxin (14), octamoxin (15)
(c)  carbenzide (11), etryptamine (12), fenoxypazine (12), iproclozide (13), iproniazid (1), isocarboxazid (11), mebanazine (15), nialamide (10), pargyline (13), phenelzine (10), pheniprazine (11), tranylcypromine (11)

-mustine  antineoplastic, alkylating agents, (β-chloroethyl)amine derivatives

L.2.0.0 (USAN: antineoplastic agents (chlorethylamine derivatives))
(a) alestramustine (68), ambamustine (60), atrimustine (61), bendamustine (48), bofumustine (44), carmustine (24), ditiomustine (49), ecomustine (61), elmustine (49), estramustine (24), fotemustine (57), galamustine (61), lomustine (27), mannomustine (8), neptamustine (48) (originally pentamustine (45)), nimustine (37), prednimustine (31), ranimustine (55), semustine (27), spiromustine (47), tallimustine (68), tauromustine (50), uramustine (13)

(c) canfosfamide (92), chlorambucil (6), chlormethine (1), chloromethylazine (1), cyclophosphamide (10), defosfamide (12), glufosfamide (77), ifosfamide (23), mafosfamide (51), melphalan (8), metamelfalan (41), mitoclonilne (18), mitotenamine (17), perfosfamide (66), sarcolysin (17), sufosfamide (36), trichlormethine (11), trofosfamide (23)

-a-mycin (x) antibiotics, produced by *Streptomyces* strains (see also -kacin)

S.6.0.0 (USAN: antibiotics, *Streptomyces* strains)

(a) amfomycin (12), antelmycin (15), apramycin (31), avilamycin (46), azalomycin (26), azithromycin (58), bambermycin (21), bekanamycin (24), berythromycin (26), bicozamycin (38), biniramycin (23), bluensomycin (14), capreomycin (12), carbomycin (1), cethromycin (87), clarithromycin (59), clindamycin (21), coumamycin (15), daptomycin (58), dihydrostreptomycin (1), diproleandomycin (33), dirithromycin (53), efrotomycin (53), endomycin (6), enramycin (23), enviomycin (31), erythromycin (4), estomycin (14 - deleted in List 28), flurithromycin (51), fosfomycin (25), fosmidomycin (46), gamithromycin (95), ganeformycin (68), hachimycin (23), heliomyacin (25), hydroxymycin (8 - deleted in List 28), josamycin (23), kanamycin (10), kitasamycin (13), laidlomycin (61), leixithromycin (65), lincomycin (13), lividomycin (32), maridomycin (32), midecamycin (30), mikamycin (17), mirincamycin (31), mocimycin (28), natamycin (15), nebramycin (19), neomycin (1), neutramycin (15), oleandomycin (6), paldimycin (55), paromomycin (10), paulomycin (47), pirlimycin (47), primycin (38), pristinamycin (12), ranimycin (20), relomycin (15), ribostamycin (27), rifamycin (13), rokitamycin (53), roxithromycin (54), salinomycin (37), sedecamycin (55), spectinomycin (13), spiramycin (6), stallimycin (30), steflimycin (20), streptomycin (1), telithromycin (80), terdecamycin (65), tobramycin (28), troloandomycin (24), trospectomycin (53), tulathromycin (87) (vet.), vancomycin (6), viomycin (4), virginiamycin (l8)

antibiotics, antineoplastics:
ambomycin (13), antramycin (17), azotomycin (13), bleomycin (23), cactinomycin (15), dactinomycin (18), duazomycin (13), lucimycin (13), mitomycin (26), nogalamycin (16), olivomycin (18), peilomycin (15), peplomycin (44), plicamycin (50) (previously mithramycin (16)), porfiromycin (15), puromycin (15), rufocromomycin (12), sparsomycin (13), talisomycin (41)

antibiotics, antineoplastics, antibacterial:
cirolemycin (21)

antibiotic, antifungal:
hamycin (17), lidimycin (20), rutamycin (14)
(c) antibiotic, antibacterial:
aspartocin (11), azidamfenicol (14), cetofenicol (14), chloramphenicol (1), cloramfenicol pantotenate complex (14), cycloserine (6), novobiocin (6), ostreogycin (6), rifamide (15), rifampicin (17), streptoniazid (13), streptovarycin (6), thiamphenicol (10), tylosin (16)
antibiotic, antifungal:
amphotericin B (10), candidicidin (17), filipin (20), kalafungin (20), nystatin (6), viridofulvin (16)
antibiotic, antineoplastic:
daunorubicin (20), mitomalcin (19), streptonigrin (14) (deleted in List 33)
see also -rubicin

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**nab**  
cannabinol derivatives  
(USAN: -nab; or -nab-: cannabinol derivatives)

(a) cannabinol (23), dronabinol (51), menabitan (49), nabazenil (49), nabilone (49), nabitan (42), naboctate (45), nonabine (47), pirnabin (41), rimonabant (83), tinabinol (49)

(b) fenabutene (26), guanabenz (26), muromonab-CD3 (59), nabumetone (44)

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**-nakin**  
see -kin

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**-nakinra**  
see -kinra

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**nal-**  
narcotic antagonists/agonists related to normorphine  
A.4.1.0 (USAN: arcotic agonists or antagonists (normorphine type))  
B.2.0.0

(a) nalbuphine (21), nalfurafine (87), nalmefene (49) (originally nalmetrene (47)), nalmexone (19), nalorphine (1), naloxone (13), naltrexone (29)

(b) nalidixic acid (13)
### -naritide see -tide

### -navir see vir

### -nermin see -ermin

### -nercept tumour necrosis factor antagonist

- etanercept (81), lenercept (72), onercept (82), pegsunercept (87)

### -nertant see -tant

### -netant see -tant

### -nicate see nico-

#### -nicline nicotinic acetylcholine receptor partial agonists / agonists

**E.1.1.2**

(a) altinicline (82), dianicline (93), ispronicline (93), rivanicline (93), tebanicline (86), varenicline (89)

#### -nic- or nic- or ni- nicotinic acid or nicotinoyl alcohol derivatives

**nico-**

- nicoboxil (43), nicoclonate (29), nicocodine (12), nicocortonide (40), nicodicodine (15), nicofibrate (31), nicofuranose (14), nicofurate (28), nicomol (23), nicomorphine (7), nicopholine (1), nicorandil (44), nicothiazone (10), nicotinamide (4), nicotinic acid (4), nicotredeole (72), nicoxamat (44), nikethamide (4)

- inositol nicotinate (16), xantinol nicotinate (16)

**nic-**

- nicafenine (40), nicainoprol (46), nicametate (15), nicardipine (42), nicanartine (72), nicergoline (26), niceritrol (23), niceverine (15), nictindole (28), nizofenone (44)
ni-: nialamide (10), niaprazine (24), nifenazone (15), niometacin (33), niprofazone (29), nixylic acid (17)

-nicate:

antihypercholesterolaemic and/or vasodilating nicotinic acid esters

H.4.0.0
F.2.2.0

(a) ciclonicate (33), derpanicate (58), estrapronicate (34), glunicate (51), hepronicate (22), micinicate (44), panthenicate (56), sorbinicate (33)

(b) nitrile derivative: nimazone (21)
other: nifungin (24), nimidane (34), nisbuterol (38)

(c) NO₂- derivatives: acenocoumarol (6) (anticoag.), azathioprine (12) and tiamiprine (15) (antimetabolites), bronopol (14) (antiseptic), chloramphenicol (1) (antibiotic), clonazepam (22) (sed.), flurantel (25) (anthelmintic), flutamide (33) (nonsteroid anti-androgen)

-nidazole (x) antiprotozoals and radiosensitizers, metronidazole derivatives

S.3.3.0 (USAN: antiprotozoal substances (metronidazole type))
Y.0.0.0

(a) abunidazole (52), azanidazole (38), bamnidazole (37), benznidazole (31), carnidazole (32), doranidazole (90), etanidazole (57), fexinidazole (37), flunidazole (21), ipronidazole (21), metronidazole (11), misonidazole (38), moxnidazole (33), ornidazole (28), panidazole (24), pimonidazole (57), pirinidazole (32), propenidazole (45), ronidazole (18), satranidazole (48), secnidazole (30), sulnidazole (33), ternidazole (34), tinidazole (21), tivanidazole (48)

(c) dimetridazole (17), nimorazole (22), stirimazole (25)

-nidine see -onidine

-nifur- (d) 5-nitrofuran derivatives

S.2.1.0

(a) nifuradene (16), nifuraldezone (17), nifuralide (34), nifuratel (17), nifuratrone (24), nifurdazil (16), nifurethazone (10), nifurfoline (20), nifurimide (18), nifurizone (22), nifurazol (22), nifurmerone (16), nifuroquin (36), nifuroxazide (14), nifuroxime (11), nifurpipone (20), nifurpirinol (22), nifurprazine (16), nifurquinazol (18), nifursemizone
(16), nifursol (20), nifurthiazole (14), nifurtimox (21), nifurtoinol (36), nifurvidine (17), nifurzide (37)

c) furalazine (13), furaladone (17), furazolidone (13), furazolium chloride (15), furmethoxadone (8), levofuraladone (17), nidoxyzone (6), nihydrazone (10), nitrofural (1), nitrofurantoin (11), thiofuradene (11)

-nil see -azenil, also for -carnil, -quinil

-nitro-    NO$_2$ - derivatives

-nifur- all INN of this series (see under nifur-)

-nitro-: nitroclofene (41), nitrocycline (14), nitrodan (15), nitrofural (1), nitrofurantoin (11), nitromifene (33), nitroscanate (33), nitrosulfathiazole (1), nitroxinil (19), nitroxoline (15)

-nitr-: nitracrine (35), nitrafudam (40), nitramisole (33), nitraquazone (53), nitrazepam (16), nitrefazole (46), nitricholine perchlorate (6)

-nit- and -nit-: nitarsone (17), ranitidine (41)

-ni-: nibroxane (35), niclofolan (20), niclosamide (13), nidoxyzone (6), nifenalol (22), nihydrazone (10), nimesulide (44), nimorazole (22), niridazole (17)

-ni-dipine: nicardipine (42), nifedipine (27), niludipine (38), nisoldipine (42), nitrendipine (42), vatra midipine (77)

-nidazole: for INNs of this series see under –nidazole

-nixin anti-inflammatory, anilinonicotinic acid derivatives

A.4.2.0

(a) butanixin (32), clonixin (22), diclonixin (31), flunixin (31), isonixin (34), metanixin (31)

(c) clonixeril (22), niflumic acid (17), nixylic acid (17)

(-)nonacog see -cog
-octakin  see -akin

(-)octocog  see -cog

-ol (d)  for alcohols and phenols (deleted from General Principles in 14th Report)

-olol (x)  β-adrenoreceptor antagonists

E.5.2.0  (BAN: beta-adrenoreceptor antagonists)
(USAN: beta-blockers (propranolol type))

\[
\text{aromat. ring } -\text{O-CH}_2\text{-CHOH-CH}_2\text{-NH-R}
\]

(a) acebutolol (28), adaprolol (63), adimolol (50), afurolol (40), alprenolol (19), ancarolol (47), aranolol (56), arotinolol (48), atenolol (33), befunolol (39), betaxolol (40), bevantolol (36), bisoprolol (48), bometolol (42), bopindolol (42), bornaprolol (46), bucindolol (43), bucumolol (35), bufetolol (30), bunitrolol (28), bunolol (22), bupranolol (27), butocrolol (38), butofilolol (40), carazolol (36), carpindolol (42), carotelol (35), celiprolol (35), cetamolol (47), cicloprolol (48), cinamolol (44), cloranolol (41), crinolol (41) (replaced by pacrinolol (44)), dexpropranolol (21), diacetolol (41), draquinolol (54), ecastolol (56), epanolol (52), ericolol (50), esatenolol (76), esmolol (50), exaprolol (32), falintolol (53), felsehol (53), flusoxolol (50), idropranolol (31), imidolol (49) (replaced by adimolol (50)), indenolol (37), indopanolol (48), iprocrolol (39), isoxaprolol (45), landiolol (75), levobetaxolol (61), levobunolol (42), levomoprolol (58), mepindolol (36), metipranolol (38), metoprolol (30), meprolol (36), nadolol (34), nadoxolol (28), nefitrolol (39), nebivolol (56), nipradilol (50) (previously nipradolol (49)), oxprenolol (20), pacrinolol (44), pafenolol (46), pamatrolol (36), pargolol (36), penbutrolol (25), penirolol (36), pindolol (23), pirepolol (48), practolol (23), primidolol (42), procinolol (25), propranolol (15), ridazolol (51), ronactolol (57), soquinolol (43), spirendolol (46), talinolol (28), tazolol (31), teoprolol (43), tertatolol (48), tienoxolol (56), tilisolol (57), timolol (29), tiprenolol (23), tolamolol (29), toliprolol (28), trigevolol (56), xibenolol (48), xipranolol (22)

(b) Q.2.3.0: stanozolol (18) (anabolic steroid)

-alol  aromatic ring -CH-CH\textsubscript{2}-NH-R related to -olols

(USAN: combined alpha and beta blockers)
(a) amosulalol (50), bendacalol (59), brefolalol (56), bufuralol (31), dexsotalol (74), dilevalol (50), labetalol (35), medroxalol (43), nifenalol (22), pronetalol (14), sotalol (18), sulfinalol (41)

(c) butidrine (16)

-olone see pred

-onakin see -kin

-one (d) ketones

(a) 624 (8.0 %) INNs ending in -one in Lists 1-95 of Proposed INNs

-onide steroids for topical use, acetal derivatives

Q.3.0.0

(a) acrocinonide (27), amcinonide (33), budesonide (37), ciclesonide (62), ciciortonide (28), ciprocinonide (38), desonide (24), dextraisonide (80), drocinoide (29), flucorolone acetonide (22), flucinolone acetonide (11), flumoxonide (38), fluucoinonide (25), halcinonide (29), itrocinonide (62), nicocortonide (40), procinonide (38), rufeponide (72), tralonide (27), triacminolone benetonide (36), triacminolone furetonide (36), triacminolone hexacetonide (15), triclonide (30)

(c) amcinafal (25), amcinafide (25)

-onidine antihypertensives, clonidine derivatives

H.3.0.0

(a) apraclonidine (59) (control of intraocular pressure), benclonidine (42), brimonidine (66), clonidine (40), flutonidine (31), moxonidine (48), piclonidine (44), tolonidine (28)

-related: alinidine (40) (analgesic)

-nidine

H.3.0.0

(a) related antihypertensives: betanidine (13), indanidine (50), rilmenidine (57), tiamenidine (28)
(b) muscle relaxant: tizanidine (43)  
topical anti-infective: ocetidine (43), pirtenidine (57)  
antibacterial: sulfaguanidine (4)  
vetiinary coccidiostatic: robenidine (25)

(c) dexlofexidine (48), levlofexidine (48), lofexidine (33)

-onium  see -ium

-opamine  see -dopa

-orex  anorexics

M.1.0.0  (BAN: anorexic agents, phenethylamine derivatives)  
(USAN: anorexiants)

(a) acridorex (21), amfepentorex (16), aminorex (14), benfluorex (25), clobenzorex (18),  
cloforex (16), clominorex (14), difemorex (41), etorex (20), fenisorex (29), fenproporex  
(17), fluorex (30), fludorex (19), fluminorex (14), formorex (14), furfenorex (16),  
indanorex (30), mfenorex (19), morforex (26), oxiforex (20), pentorex (16), picilorex  
(40), tiforex (34)

(c) bupropion (84) (replaces amfebutamone (31)), amfecloral (12), amfepramone (13),  
amfetamine (55), amfetaminil (40), benzamfetamine (55), chlorpemfetamine (11),  
clotermine (22), dexamfetamine (55), dimetamfetamine (38),  
etilamfetamine (40), fenbutrazate (12), fenfluamide (14), hexapradol (12),  
levamfetamine (12), levmetamfetamine (83), lisdexamfetamine (94), mphetamine  
(6), ortetamine (13), phendimetrazine (11), phenmetrazine (6), phentermine (11)

-orphan  narcotic antagonists/agonists, morphinan derivates

A.4.1.0  (USAN: -orphan: narcotic antagonists/agonists (morphinan derivatives))

B.2.0.0  

(a) A.4.1.0: butorphanol (31), dextromethorphan (1), dextrorphan (1), dimemorfan (30),  
ketorphan (49), levomethorphan (1), levophenacylmorphan (9), levorphanol (4),  
norlevorphanol (9), oxilorphan (31), phenomorphan (5), proxorphan (43), racemethorphan  
(1), racemorphan (1), xorphanol (48)

B.2.0.0: levallorphan (2)
-orph-  
-orphine: acetorphine (17), alletorphine (25), buprenorphine (29), cyprenorphine (17), desomorphine (5), diprenorphine (21), etorphine (17), homprenorphine (25), methyldesorphine (5), methyldihydromorphine (5), morphine glucuronide (92), nalorphine (1), nicomorphine (7), normorphine (7)

-orphinol: hydromorphinol (11)

-orphone: conorfone (46), hydromorphone (1), oxymorphone (5), pentamorphone (60), semorphone (67)

(b)  
emerfzone (44), morforex (26), morpheridine (6), orphenadrine (8)

-otermin  
see -ermin

-ox  
antacids, aluminium derivatives (see also -aldrate)

-alox

(a)  
glucalox (13), sucralox (13)

(b)  
-adox  
antibacterials, quinazoline dioxide derivatives:

![Quinazoline Dioxide Derivative](image)

carbadox (19), ciadox (44), cinoquidox (40), drazidox (24), mequidox (19), olaquindox (31), temodox (27)

-pirox  
antimycotics, pyridone derivatives:

![Pyridone Derivative](image)

ciclopirox (26), metipirox (26), rilopirox (56)

-xanox  
antiallergics, tixanox group:

(USAN: antiallergic respiratory tract drugs)

![Tixanox Group](image)

amlexanox (55), mepixanox (49), sudexanox (44), tixanox (37), traxanox (44)

others: acipimox (33) (antihyperlipidaemic), bifeprunox (87) (antipsychotic), cefminox (53) (antibiotic), deferasirox (86) (chelating agent), etofenprox (57) (insecticide),
nifurtimox (21) (antipROTOzoal), sulbenox (37) (animal growth regulator), xanoxic acid (33) (bronchodilator)

-oxacin (x) antibacterials, nalidixic acid derivatives

BAN, USAN

S.5.5.0 (BAN: antibacterial agents of the cinoxacin group) (USAN: antibacterial agents (quinolone derivatives))

\[ \text{CINOXACIN (32), DROXACIN (36), FLEROXACIN (56), ENOXACIN (49), GARENOXACIN (87), IRLOXACIN (53), MILOXACIN (40), ROSOXACIN (36), TIOXACIN (34)} \]

\[-floxacin: \text{ALATROFLOXACIN (75), AMIFLOXACIN (51), BALOFLOXACIN (71), BINFLOXACIN (60), CADROFLOXACIN (81), CETEFLOXACIN (68), CIPROFLOXACIN (50), CLINAFLOXACIN (67), Danofloxacin (61), DIFLOXACIN (55), EKENOFLOXACIN (78), ENROFLOXACIN (56), ESAFLOXACIN (60), FANDOFLOXACIN (78), FINAFLOXACIN (85), GATIFLOXACIN (74), Gemifloxacin (81), GREPAFLOXACIN (68), IBAFLOXACIN (60), LEVOFLOXACIN (64), Levonadifloxacin (95), LOMEFLOXACIN (58), MARBOFLOXACIN (65), MERAFLOXACIN (69), MOXIFLOXACIN (78), NADIFLOXACIN (64), NORFLOXACIN (46), Ofloxacin (49), Olamufloxacin (79), Orbifloxacin (68), Pazufloxacin (71), Pefloxacin (45), PrazoFloXacin (84), Premafloxacin (72), Prulifloxacin (72), RUFLOXACIN (57), SARAFLOXACIN (62), Sitafloxacin (75), Sparfloxacin (63), Temafloxacin (58), Tosufloxacin (60), Trovafloxacin (73), Vebufloxacin (69), Zabofloxacin (93) \]

(c) flumequine (34), nalidixic acid (13), oxolinic acid (15), pipemidic acid (32), piromidic acid (27), metioxate (34)

-oxan(e) benzodioxane derivatives

USAN

E.5.1.0 (USAN: -oxan: α-adrenoreceptor antagonists; benzodioxane derivatives)

\[ \text{AZALOXAN (52) (antidepressant), Fluparoxan (58)} \]

α-adrenoreceptor antagonists: azaloxan (52) (antidepressant), fluparoxan (58) (antidepressant), idazoxan (49) (α2), imiloxan (52) (α2) (antidepressant), piperoxan (1) (sympatholytic), proroxan (39)

antihypertensives: flesinoxan (55), guabenxan (32), guanoxan (15)

tranquilizers: butamoxane (12), ethomoxane (12), pentamoxane (12)

muscle relaxant: ambenoxan (21)

oxa, axa, ox: acoxatrine (14) (cardiovascular analeptic), axamozide (53) (neuroleptic), cinepaxadil (50) (coronary vasodilator), dioxadiol (53) (slight β-adrenoreceptor antagonist), domoxin (14), doxazosin (47) (monoamine-oxydase inhibitor), enoxamast (52) (antiallergic), spiroxatrine (14) (analgesic)
related: dexefaroxan (76) (β-adrenoreceptor antagonist), efaroxan (59) (α2)

(b) amoproxan (22), nibroxane (35), razoxane (40), dextrazoxane (62), sobuzoxane (62),
tolboxane (12)

(c) aplindore (92), bendacalol (59), binospirone (65), capeserod (94), eltoprazine (57),
lecozotan (93), lurtotecan (50), osemozotan (87), quincarbate (31), silibinin (38),
sulamserod (82)

-oxanide see -anide

-oxef see cef-

-oxepin see -pine

-oxetine antidepressants, fluoxetine derivatives

C.3.0.0

| a | anoxetine (58), dapoxetine (65), duloxetine (68), femoxetine (36), fluoxetine (34),
|   | ifoxetine (54), litoxetine (64), nisoxetine (34), omiloxetine (76), paroxetine (38),
|   | reboxetine (54), seproxetine (66), tomoxetine (49) |

-oxicam see -icam

-oxifene see -ifene

-oxopine see -pine

-pafant platelet-activating factor antagonists

I.2.1.0

(a) apafant (60), bepafant (60), dacopafant (63), foropafant (75), israpafant (76), lexipafant
(70), minopafant (80), modipafant (65), nupafant (70), rocepfant (71), setipafant (72),
tulopafant (64)
**-pamide**  
**diuretics, sulfamoylbenzoic acid derivatives**  
*(could be sulfamoylbenzamide) (19th Report, 1970)*  

**N.1.2.0**  
(USAN: diuretics (sulfamoylbenzoic acid derivatives))

![Chemical Structure](image)

(a) alipamide (18), besulpamide (52), clopamide (13), indapamide (29), tripamide (44), xipamide (22), zidapamide (50) (previously isodapamide (47))

(b) chlorpropamide (8) (hypoglycemic), isopropamide iodide (8) (anticholinergic)

(c) bumetanide (24), chlortalidone (12), clorexolone (15), furosemide (14), sulclamide (15), tiamizide (16)

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**-pamil**  
**coronary vasodilators, verapamil derivatives**  

**F.2.1.0**  
(USAN: coronary vasodilators (verapamil type))

![Chemical Structure](image)

(a) anipamil (49), dagapamil (52), devapamil (53), dexverapamil (65), emopamil (52), falipamil (48), gallopamil (38), levemopamil (62), nexopamil (67), ronipamil (51), tiapamil (43), verapamil (16)

related: bertosamil (64), bisaramil (60)

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**-parcin**  
**glycopeptide antibiotics**

**S.6.0.0**

(a) avoparcin (29), orientiparcin (72)
-parin  heparin derivatives including low molecular mass heparins

I.2.0.0 (USAN: heparin derivatives and low molecular weight (or depolymerized) heparins)

(a)  ardeparin sodium (68), bemiparin sodium (75), certoparin sodium (70), dalteparin sodium (64), deligoparin sodium (89), enoxaparin sodium (52), heparin sodium (54), livaraparin calcium (85), minolteparin sodium (73), nadroparin calcium (65), parnaparin sodium (65), reviparin sodium (65), tinzaparin sodium (65)

-parinux  synthetic heparinoids

(USAN: antithrombotic indirect selective synthetic factor Xa inhibitors)

(a)  fondaparinux sodium (83) (replaces fondaparinux sodium (79)), idraparinux sodium (84)

-pendyl  see -dil

-penem  analogues of penicillanic acid antibiotics modified in the five-membered ring

S.6.0.0 (USAN: antibacterials, antibiotics (carbapenem derivatives))

(a)  biapenem (69), doripenem (83), ertapenem (84), faropenem (69), imipenem (50), lenapenem (73), meropenem (60), panipenem (64), ritipenem (67), sulopenem (68), tacapenem (87), tebipenem (82), tomopenem (95)

-perfl(u)-  perfluorinated compounds used as blood substitutes and/or diagnostic agents

(USAN: blood substitutes and/or diagnostics (perfluorochemicals))

(a)  perflexane (82), perflisobutane (92), perfluamine (45), perflubrodec (87), perflubron (66), perflubutane (91) perflunafene (45), perflutren (82)

-peridol  see -perone

-peridone  see -perone
-perone  
tranquillizers, neuroleptics, 4'-fluoro-4-piperidinobutyrophenone derivatives

C.1.0.0
C.2.0.0 (USAN: antianxiety agents/neuroleptics ; 4'-fluoro-4-piperidinobutyrophenone derivatives)

(a)
aceperone (14), amiperone (14), biriperone (51), carperone (24), cicarperone (28),
cinuperone (53), cloroperone (38), declenperone (42), duoperone (54), fenaperone (28),
fluspiperone (34), lenperone (27), melperone (34), metrenperone (56), milenperone (37),
mindoperone (38), mooperone (14), nonaperone (44), pipamperone (17), pirenperone (46),
prideperone (54), primaperone (17), propyperone (16), roxoperone (17), setoperone (51),
sipiperone (17), timiperone (40)
closely related: azabuperone (34), azaperone (18), lodiperone (44), zoloperone (39)

-peridol  
antipsychotics, haloperidol derivatives

benperidol (14), bromperidol (33), clofluperol (18), droperidol (14), fluanisone (13),
ahloperidol (10), trifluperidol (16)

-peridone  
antipsychotics, risperidone derivatives

abaperidone (80), belaperidone (78), cloperidone (17), iloperidone (69), lusaperidone (82),
ocaperidone (64), paliperidone (83), risperidone (57), tioperidone (37)
(c)
domperidone (36), etoperidone (36) (antiemetic)

-pidem  
hypnotics/sedatives, zolpidem derivatives

C.1.0.0
alpidem (53), necopidem (66), saripidem (67), zolpidem (53)

-pin(e)  
see also Pharm S/Nom 970 (tricyclic compounds)

-dipine  
see -dipine
(a)
dosulepin (15)

-zepine  
antidepressant/neuroleptic: C.3.2.0: dibenzepin (14), elanzepine (35), enprazepine (30),
mezepine (22), nuvenzepine (59), prazepine (15), propizepine (19), tilozepine (40)
tricyclic antiulcer: J.0.0.0: darenzepine (52), pirenzepine (30), siltenzepine (63), telenzepine (50), zolenzepine (48)

tricyclic anticonvulsant: A.3.1.0: carbamazepine (15), eslicarbazepine (91), etazepine (51), licarbazepine (81), oxcarbazepine (41)

hyperthermia: amezepine (42)

-apine psychoactive: C.0.0.0: amoxapine (25), asenapine (87), batelapine (64), clotiapine (16), clozapine (22), esmirtazapine (93), flumezapine (47), fluperlapine (46), loxapine (22), metiapine (22), mirtazapine (61), olanzapine (67), pentiapine (56), perlapine (23), quetiapine (74), rilapine (52), serazapine (63), tenilapine (52)

-cilpine antiepileptic: A.3.1.0: dizocilpine (60)

-oxepin beloxepin (75), cidoxepin (17), doxepin (15), maroxepin (54), metoxepin (33), pinoxepin (18), savoxepin (56), spiroxepin (32)

-oxpine traboxopine (58)

-sopine adosopine (63)

-tepine citatepine (54), clorotepine (29), damotepine (27), metitepine (27), tropatepine (28)

(b) atromepine (15), noscapine (7), prozapine (14)

(c) clobenzepam (25), homopipr amol (20), opipramol (15)

-piprazole see -prazole

-pirone see -pirone

-pirox see -ox/-alox

-pitant see -tant

-plact platelet factor 4 analogues and derivatives

iroplact (74)
-pladib    phospholipase A₂ inhibitors

W.0.0.0
darapladib (94), ecopladib (90), efipladib (92), goxalapladib (94), rilapladib (94), varespladib (87)

-planin  antibacterials (Actinoplanes strains)

S.5.0.0
actaplanin (34), mideplanin (66), ramoplanin (57), teicoplanin (48)

-plase    see -teplase, -uplase under -ase

-plasmid  see -gene for gene therapy products

-platin    antineoplastic agents, platinum derivatives

L.0.0.0  (USAN: antineoplastics (platinum derivatives))
(a)    carboplatin (48), cisplatin (39), dioxaplatin (64), enloplatin (64), eptaplatin (83), iproplatin (51), lobaplatin (65), miboplatin (66), miriplatin (85), nedaplatin (67), ormaplatin (63), oxaliplatin (56), picoplatin (87), satraplatin (80), sebripatin (68), spiroplatin (48), triplatin tetranitrate (87), zeniplatin (63)

-plermin  see -ermin

-plestim   see -stim and -kin

-plon    pyrazolo[1,2-a]pyrimidine derivatives, used as anxiolytics, sedatives, hypnotics

A.2.2.0  (USAN: non-benzodiazepine anxiolytics, sedatives, hypnotics)
C.1.0.0    divaplon (61), fasiplon (61), indiplon (86), ocinaplon (72), panadiplon (65), taniplon (61), zaleplon (72)
### -poetin  
**erythropoietin type blood factors**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.3.0.0</td>
<td>(USAN: erythropoietins)</td>
</tr>
</tbody>
</table>

(a) darbepoetin alfa (85), epoetin alfa (62), epoetin beta (62), epoetin delta (85), epoetin gamma (67), epoetin epsilon (72), epoetin omega (73), epoetin theta (95), epoetin zeta (92)

### -porfin  
**benzoporphyrin derivatives**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>lemuteporfin (91), padoporfin (93), rostaporfin (83), stannsoporfin (79), talaporfin (83), temoporfin (70), verteporfin (71)</td>
</tr>
</tbody>
</table>

### -poride  
**Na^+\text{/H^+} antiport inhibitor**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>amiloride (18), cariporide (74), eniporide (79), rimeporide (92), sabiporide (84), zoniporide (85)</td>
<td></td>
</tr>
</tbody>
</table>

### -pramine  
**substances of the imipramine group**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.3.2.0</td>
<td>(USAN: antidepressants (imipramine type))</td>
</tr>
</tbody>
</table>

(a) saturated dibenzazepine: azipramine (36), carpipramine (16), cianopramine (47), ciclopramine (29), clocapramine (28), clomipramine (17), depramine (31), desipramine (13), imipramine (8), ketimipramine (17), lofepramine (24), lopramine (24) (replaced by lofepramine (34)), metapramine (34), mosapramine (64), quinupramine (32), tampramine (54), tienopramine (38), trimipramine (13), imipraminoxide (36)

(c) unsaturated dibenzazepine: carbamazepine (15), homopiprol (20), opipramol (15)

### -prazole  
**antiulcer, benzimidazole derivatives**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>J.0.0.0</td>
<td>(USAN: antiulcer agents (benzimidazole derivatives))</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
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</tbody>
</table>
The use of stems

(a) cinprazole (34), dexlansoprazole (93), disuprazole (56), esaprazole (45), esomeprazole (79), fuprazole (39), ilaprazole (86), lansoprazole (60), leminoprazole (68), levolansoprazole (93), nepaprazole (74), nilprazole (37), omeprazole (46), pantoprazole (62), picoprazole (46), pumaprazole (76), rabeprazole (69), saviprazole (62), tenatoprazole (80), timoprazole (35), ufiprazole (58)

-piprazole psychotropics, phenylpiperazine derivatives (Future use is discouraged due to conflict with the stem -prazole)

C.0.0.0

(a) aripiprazole (75), dapiprazole (45), elopiprazole (70), enpiprazole (24), lorpiprazole (60), mepiprazole (24), sonepiprazole (80) tolpiprazole (25)

pred prednisone and prednisolone derivatives

Q.3.3.0 (USAN: pred-; -pred- or -pred)

(a) chloroprednisone (12), cloprednol (31), difluprednate (21), domoprednate (47), etiprednol dicloacetate (88), fluprednidene (19), fluprednisolone (13), halopredone (36), iso-flupredone (36), isoprednidene (24), lote-prednol (64), mazipredone (32), neprednisone (15), methylprednisolone (8), methylprednisolone aceponate (52), methylprednisolone sulfeptanate (56), oxisopred (29), prednazate (16), prednazoline (22), prednicarbate (44), prednimustine (31), prednisolamate (13), prednisolone (6), prednisolone steaglate (16), prednisone (6), prednylidene (13), tipredane (54)

(b) various non-steroidal compounds
citiolone (23) (hepatobil. troubles), clorexolone (15) (diuretic), fenozolone (14) (psychotonic), tioxolone (16) (keratolytic), vistatolon (25) (antiviral)

(c) -methasone or -metasone: alcmetasone (41), amelometasone (74), beclometasone (17), betamethasone (11), betamethasone acibutate (26), cormetasone (29), desoximetasone (20), dexamethasone (8), dexamethasone acefurate (57), dexamethasone cipericate (94), flumetasone (13), halometasone (41), icometasone enbutate (70), mometasone (56), paramethasone (12)

(c) -betasol: clobetasol (26), doxibetasol (26), ulobetasol (54)
INN – The use of stems

(c)  
**-olone:**
(USAN: steroids (not prednisolone derivatives))
clocortolone (16), descinolone (17), diflucortolone (18), fluclorolone acetonide (22), fluocinolone acetonide (11), fluocortolone (15), fluorometholone (8), fluperolone (13), halocortolone (31), rimexolone (38), triamcinolone (8), triamcinolone benetonide (36), triamcinolone furetonide (36), triamcinolone hexacetonide (15)
clobetasone (26), cloticasone (52), deprodone (20), dichlorisone (10), diflorasone (30), flunisolide (11), fluticasone (52), fluticasone furoate (95), meclorisone (40), timobesone (51)

**-olone**  
steroids other than prednisolone derivatives

A.1.2.0  
general anesthetics, pregnanes: alfadolone (27), alfaxalone (27), eltanolone (65), ganaxolone (76), minaxolone (39), renanolone (8)

H.2.0.0  
antiarrhythmic: amafolone (40), edifolone (56)

H.4.0.0  
antihyperlipidaemic: colesto lone (59)

L.6.0.0  
cytostatics - sex hormones: drostanolone (13), trestolone (25)

Q.2.3.0  
androgens: androstanolone (4), drostanolone (13), mestanolone (10), metenolone (12), nandrolone (22), norethandrolone (6), oxandrolone (12), oxymetholone (11)

Q.2.3.1  
oxendolone (42), mesterolone (15), rosterolone (59)

M.4.1.0  
bolone (see bol, anabolic steroids): formebolone (31), mesabolone (29), metribolone (17), oxab olone cipionate (14), quinbolone (14), roxibolone (40), stenbolone (17), tibolone (22), trenbolone (24)

J.0.0.0  
glycyrrhetic acid derivatives: carbonoxolone (15), cicloxolone (33), cinoxolone (33), deloxolone (51), enoxolone (15), roxolonium metilsulfate (33)

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**-prenaline**  
see -terol

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**-pressin**  
vasoconstrictors, vasopressin derivatives

Q.1.2.0  

\[
\]

(a)  
argipressin (13), desmopressin (33), felypressin (13), lypressin (13), ornipressin (22), terlipressin (46), vasopressin injection (16)

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USAN
-pride (x)  sulpiride derivatives

C.0.0.0
J.1.0.0

(a)  
C.0.0.0: alizapride (43), alpiropride (49), amisulpride (44), batanopride (61), broclepride (43), cisapride (49), dazopride (50), denipr ide (58), etacepride (52), eticlopride (52), flubepride (35), nemonapride (63) (previously emonapride (61)), peralopride (43), prosulpride (43), prucalopride (78), sulmepride (43), sultopride (26), sulverapride (44), veralipride (43)

J.1.0.0: alepride (40), bromopride (27), cinitapride (41), cipropride (41), clebopride (32), dobuipride (57), irolapride (55), isosulpride (36), itopride (66), lintopride (65), lirexapride (74), lorapride (44), mezacopride (56), mosapride (66), pancopride (62), raclopride (52), remoxipride (49), renzapride (60), tiapride (28), ticalopride (83), tinisulpride (44), trazolopride (51), tropapride (48), zacopride (55)

K.0.0.0: cloxacepride (42)

U.1.1.0/C.0.0.0: iolopride (123I) (73)

(b)  glimepride (66)

(c)  C.0.0.0: levosulpiride (63), sulpiride (18)

J.1.0.0: metoclopramide (17)

-pril (x)  angiotensin-converting enzyme inhibitors

H.3.0.0  (BAN: inhibitors of angiotensin-converting enzyme)  
(USAN: antihypertensive agents (ACE inhibitors))

(a)  alacepril (50), benazepril (58), captopril (39), ceronapril (64), cilazapril (53), delapril (54), enalapril (46), fosinopril (56), idrapril (66), imidapril (60), indolapril (50), libenzapril (58), lisinopril (50), moexipril (60), moveltipril (58), orbutopril (57), pentopril (53), perindopril (53), pivopril (52), quinapril (54), ramipril (52), rentiapril (55), spirapril (56), temocapril (64), trandolapril (53), utibapril (63), zabicipril (58), zofenopril (51)

-prilat (x)  USAN  
(USAN: antihypertensives (ACE inhibitors) (diacid analogs of the -pril entity))

(a)  benazeprilat (58), cilazaprilat (54), enalaprilat (50), fosinoprilat (62), imidaprilat (71), moexiprilat (67), perindoprilat (56), quinaprilat (60), ramiprilat (53), spiraprilat (60), temocaprilat (78), trandolaprilat (60), utibaprilat (65), zabiciprilat (64), zofenoprilat (63)
-prim antibacterials, trimethoprim derivatives

S.5.5.0

(a) aditoprim (49), baquiloprim (56), brodimoprim (44), epiroprim (44), iclaprim (88), metioprim (42), ormetoprim (21), tetroxoprim (33), trimethoprim (11), vanerprim (48)

(c) diaveridine (18)

-pristin antibacterials, pristinamycin derivatives

S.6.0.0

(a) dalfopristin (67), efepristin (75), quinupristin (65), volpristin (80)

-profen (x) anti-inflammatory agents, ibuprofen derivatives

A.4.2.0 (USAN: anti-inflammatory/analgesic agents (ibuprofen type))

(a) alminoprofen (40), araprofen (65), atliprofen (74), bakeprofen (61), benoxaprofen (34), bermoprofen (57), bifeprofen (57), carprofen (35), ciclaprofen (32), clapeprofen (32), dexibuprofen (61), dexindoprofen (49), dexketoprofen (70), esflurbiprofen (56), fenoprofen (26), flunaxaprofen (44), fluproofen (18), flurbiprofen (28), frabuprofen (51), furaprofen (42), furcicloprofen (44), hexaprofen (30), ibuprofen (16), indoprofen (32), isoprofen (40), ketoprofen (28), lobuprofen (53), lonaprofen (44), losmiprofen (61), loxoprofen (50), mabuprofen (64), mexaprofen (33), miroprofen (44), osapiprofen (76), piketoprofen (40), pirprofen (32), pranoprofen (38), suprofen (31), tazaprofen (50), tetriprofen (29), tilnoprofen arabel (74), tioxaprofen (39), vedaprofen (72), ximoprofen (37), zaliprofen (64), zoliprofen (55)

(b) aprofene (12) (antispasm. coron. vasodil.), diprofene (12) (antispasm. blood vessels)

(c) brofezil (31), protizinic acid (27), tiaprofenic acid (30)
prost (x) prostaglandins

Q.0.0.0 (USAN: -prost- or -prost: prostaglandin derivatives)

(a) alfa prostol (45), alprostadil (39), ataprost (62), beraprost (59), bimatoprost (85), butaprost (55), carboprost (36), cicaprost (54), ciprostene (51), clinprost (68), cloprostenol (33), delprostenate (42), dimoxaprost (52), dinoprost (26), dinoprostone (26), doxaprost (34), ecraprost (83), eganoprost (84), enisoprost (50), epoprostenol (44), etaprost (56), etiprost (55), eniprostene (42), fluniprost (53), flunoprost (33), flunoprostene (55), gemeprost (42), iloprost (48) (originally ciloprost (46)), lanpurost (72), latanoprost (67), limaprost (56), lubiprostone (87), luprostil (44), meteneprost (45), misoprostol (47), naxaprostene (58), nileprost (45), nocloprost (51), oxoprostene (37), pimiprost (71), piriprost (51), prostalene (34), remiprostil (65), rivenprost (93), rosaprostol (48), sulprostone (37), taprostene (58), tiaprost (41), aprofost (89), tiaprost (51), tiprostanide (48), travoprost (80), treprostinil (87), unoprostone (66), vapiprost (58), vaprostol (53)

-prostil prostaglandins, anti-ulcer

(a) arbaprostil (35), deprostil (32), eniprostil (50), mexiprostil (52), orniprostil (56), rivo prostil (49), spiriprost (63), trimiprostil (49)

-quidar drugs used in multidrug resistance; quinoline derivatives

L.0.0.0 (USAN: multidrug resistance inhibitors (quinoline derivatives))

dofequidar (88), laniquidar (85), tariquidar (86), zosuquidar (86)

-quine (d) quin

quinoline derivatives (deleted from General Principles in List 28 prop. INN)

(a) antimalarial: amodaquine (1), amopyroquine (8), bulaqueine (82), chloroquine (4), ferroquine (95), hydroxymethylbenzoxiquine (8), mefloquine (33), moxipraquine (26), pamaquine (4), pentaquine (4), primacrine (1), quinocide (34), tafenoquine (80), tefuquine (49)

amebicidal: clamoxyquine (16), mebiqueine (29) (gastrointestinal antiseptic), benzoxiquine (18) (antiseptic), cletoquine (20) (anti-inflammatory), cloxiquine (30) (antiseptic), debrisoquine (15) (hypotensive agent), esproquine (31) (cardiovascular agent), flumequine (34) (antibacterial), guanisquinine (15) (hypotensive agent), nifuroquine (36), oxamniquine (28) (schistosomicide)
antirheumat., antigout (antimalarial): acequinoline (22), cinchophen (1), neocinchophen (1), oxycinchophen (6)

antibacterial: actinoquinol (15), aminooquinuride (45), broquinaoldol (17), broxaldine (12), chlorquinaoldol (1), cloquinol (16), dequalinium chloride (8), diiodohydroxyquinoline (1), laurolinium acetate (12), nitroxoline (15), quindecamine (15), tilbroquinol (45), tiliquinol (45)

antifungal: hedaquinum chloride (8)

anthelmintic: pyrvinium chloride (6)

treatment of leishmaniasis etc: aminooquinol (22), sitamaquin (80)

amebicidal: cloquinate (11), dehydroemetine (15), quinamide (40)

antiproteus: oxolinic acid (15)

coccidiostat: amquine (21), biquinolate (16), ciproquine (22), decoquine (20), nequine (22), proquine (17), quinidine (26) (growth promoter for pigs and poultry)

growth promoter, bactericide: cinoquidox (40), olaquinodox (31) (quinoline derivative)

antiviral: famotine (23), memetine (22)

antihypertensive: aminquinsin (17), leniquinsin (18), peraquinsin (29) (quinazolinone derivative), trethinium tosilate (14), quinclidium bromide (40)

heart failure: buquineran (40)

diuretic: quincarbate (31)

vasodilator, treatment of cerebrovascular insuff.: viquidil (25)

curarizing agent: dimethyltubocurarinium chloride (1), laudexium metilsulfate (4), tubocurarine chloride (1)

anti-cholinergic: toquizine (17), tiquizium bromide (47)

antispasmod. muscle relaxant: dimoxylene (1), drotaverine (17), ethaverine (4), flucarbril (14), niceverine (15), octaverine (18), quinetalate (16)

bronchodilator: quinoprenaline (17), tretoquinol (21), (bronchial asthma)

oxytocic: quipazine (17)

analgesic: glafenine (15), metofoline (12)

local anaesthetic: cinchocaine (1), euprocin (22), quinisocaine (4)
antitussive: iquindamine (34), noscapine (7)
diagnostic aid: quinaldine blue (17)
antihistaminic: pirquinozol (43), tritoqualine (14)
antihyperlipidemic: climiqualine (33) (isoquinoline derivative)
anti-ulcer: isotiquimide (49), tiquinamide (35)

-quinil see -azenil

-racetam amide type nootrope agents, piracetam derivatives

B.1.0.0 (BAN: substances of the piracetam group)
(USAN: nootropes (piracetam type))

\[
\begin{align*}
\text{O} & \\
\text{N} & \\
\text{H}_2 & \\
\end{align*}
\]

(a) aloracetam (62), aniracetam (44), brivaracetam (93), cebaracetam (66), coluracetam (86),
dimiracetam (68), doliracetam (53), dupracetam (38), etiracetam (40), fasoracetam (78),
imuracetam (42), levetiracetam (62), molracetam (55), nebracetam (59), nefiracetam (64),
nicoracetam (63), oxiracetam (43), piracetam (22), pramiracetam (46), rolziracetam (54),
seletracetam (93)

related: tenilsetam (51)

-racil uracil type antineoplastics

L.0.0.0 (USAN: -racil: uracil type antineoplastics)

\[
\begin{align*}
\text{N} & \\
\text{O} & \\
\text{H} & \\
\end{align*}
\]

(a) eniluracil (77), fluorouracil (13), gimeracil (80), oteracil (80)

-thiouracil uracil derivatives used as thyroid antagonists

M.7.3.0 (a) iodothiouracil (01), methylthiouracil (01), propylthiouracil (01)
-relin (x)  pituitary hormone-release stimulating peptides

Q.0.0.0  (BAN: hypophyseal hormone release-stimulating peptides)  
(USAN: prehormones or hormone-release stimulating peptides)

(a)  LHRH-release-stimulating peptides: avorelin (74), buserelin (36), deslorelin (61), gonadorelin (32), goserelin (55), histrelin (53), leuprorelin (47), lutrelin (51), nafarelin (50), peforelin (93), triptorelin (56)

-morelin  growth hormone release-stimulating peptides:

(a)  capromorelin (83), damorelin (59), examorelin (72), ipamorelin (78), pralmorelin (77), rismorelin (74), sermorelin (56), somatorelin (57), tabimorelin (80)

-tirelin  thyrotropin releasing hormone analogues:

(a)  azetirelin (60), fertirelin (42), montirelin (58), orotirelin (58), posatirelin (60), protirelin (31), taltirelin (75)

other: corticorelin (64) (diagnostic agent)

(c)  thyrotropin alfa (78) (thyrotropin releasing hormone (TRH) analog)

-relix  hormone-release inhibiting peptides

(a)  abarelix (78), cetrorelix (64), degarelix (86), detirelix (56), ganirelix (65), iturelix (79), ozarelix (94), prazarelix (81), ramorelix (68), teverelix (71)

-renone  aldosterone antagonists, spironolactone derivates

N.1.8.0  (USAN: aldosterone antagonists (spironolactone type))

(a)  canrenoic acid (20) and potassium canrenoate (20), canrenone (20), dicirenone (50), drospirenone (63), eplerenone (77), mesprenone (51), spirorenone (45)

(b)  bromchlorenone (12) (antifungal), menatetrenone (28) (antihemorrhagic), teprenone (50), ubidecarenone (48) (in congestive heart failure)
(c)  oxprenoate potassium (53), prorenoate potassium (32), spironolactone (11), spiroxasone (14)

-restat
see -stat

retin  retinol derivatives
P.1.0.0  (USAN: -retin- or -retin)

(a)  acitretin (56) (previously etretin (51)), alitretinoin (80), doretinel (60), etretinate (41),
fenretinide (51), isotretinoin (41), motretinide (38), pelretin (60), retinol (18), tretinoin (25),
tretinoin tocoferil (66)

(b)  noretynodrel (13), secretin (1), trethinium tosilate (14)

-ribine  ribofuranyl-derivatives of the "pyrazofurin" type
L.0.0.0/  S.5.3.0

(a)  azaribine (19), cladribine (68), isatoribine (83), loxoribine (64), mizoribine (46), triciribine (46)

(c)  pirazofurin (31), ribavirin (31), riboprine (20), tiazofurine (48)
related: benaxibine (50)

rifabas  antibiotics, rifamycin derivatives
S.6.4.0
(a) rifabutin (52), rifalazil (78), rifametane (61), rifamexil (67), rifamide (15), rifampicin (17), rifamycin (13), rifapentine (43), rifaximin (49) (previously rifaxidine (48))

-**rinone**

**cardiac stimulants, amrinone derivatives**

H.1.0.0 (USAN: cardiotonics (amrinone type))

![Cardiotonics](image)

(a) amrinone (38), bemarinone (57), medorinone (54), milrinone (50), nanterinone (60), olprinone (70), pelrinone (53), saterinone (56), toborinone (72), vesnarinone (57)

(b) gestrinone (39), indacrinone (51), taziprinone (48)

-**rizine**

see -izine

-**rozole**

**aromatase inhibitors, imidazole-triazole derivatives**

L.0.0.0

![Aromatase](image)

anastrozole (72), fadrozole (64), finrozole (81), letrozole (70), liarozole (64), vorozole (64)

-**rsen**

**antisense oligonucleotides**

alicaforsen (85), aprinocarsen (89), oblimersen (87)

-virsen (antivirals): afovirsen (71), fomivirsen (75), trecovirsen (77)

-**rubcin**

**antineoplastic antibiotics, daunorubicin derivatives**

L.5.0.0 (USAN: antineoplastic antibiotics (daunorubicin type))

![Antineoplastic](image)
(a) aclorubicin (44), amrubicin (65), carubicin (40), daunorubicin (20), detorubicin (41), doxorubicin (25), epirubicin (48) (originally pidorubicin (47)), esorubicin (47), galarubicin (80), idarubicin (47), ladirubicin (83), leurubicin (64), medorubicin (47), nemorubicin (71), pirarubicin (55), rodorubicin (54), saberubicin (90), valrubicin (79), zorubicin (39)

**sal** salicylic acid derivatives

(USAN: -sal-; -sal; or sal-: anti-inflammatory agents (salicylic acid derivatives))

\[
\text{CO}_2\text{H} \quad \text{OH}
\]

(a) **sal-** analgesic anti-inflammatory A.4.2.0

choline salicylate (15), imidazole salicylate (51), salacetamide (1), salcolex (23), saletamide (20), saflufverine (29), salicylamide (1), salnacedin (73), salprotoside (31), salsalate (28), salverine (15)

various

salafibrate (41) (antihyperlipidaemic), salan
tel (29) (anthelmintic), salinazid (8) (antituberculosis agent)

**-sal** analgesic anti-inflammatory A.4.2.0

detanosal (23), diflunisal (33), fendosal (35), flufenisal (22), fosfosal (37), guacetisal (40), guaimesal (50), parcetasal (65), pranosal (24), sulprosal (36), tenosal (63)

antithrombotic

flufosal (42)

various: antituberc.

fenamisal (15), thiomesal (1) (disinfect.), trifusal (37) (antithrombotic)

**-sal-** analgesic anti-inflammatory A.4.2.0

acetaminosalol (1), acetylsalicylic acid (IP), carbasalate calcium (27), carsalam (13), etersalate (50), etosalamide (14), isalmadol (92), parsalmide (32), talosalate (43)

various

amotosalen (85), calcium benzamidosalicylate (10), homosalate (28) (sunscreen agent), lasalocid (30) (antibiotic (veterinary)), mersalyl (4) (mercurial diuretic), octisalate (83) (sunscreen), osalmid (15) (choleretic), susalimod (73) (immunomodulator), xenysalate (12) (antiseborrhoeic)

**salazo-** phenylazosalicylic acid derivatives antibacterial S.5.1.0

salazodine (22), salazosulfadimidine (11), salazosulfamide (1), salazosulfathiazole (1)

**-salazine/-salazide**

dersalazine (86), mesalazine (52), olsalazine (52), sulfasalazine (55), balsalazine (48), ipsalazide (48)
-saran  brominated salicylamide derivatives disinfectant S.2.1.0
  bensalan (18), dibromsalan (14), flusalan (16), fursalan (18), metabromsalan (16), tiosalan (18), tribromsalan (14)

(b)  non-salicylic acid derivatives
  macrosalb (99mTc) (33), trioxysalen (16) (pigmenting agent)
  bronchodilators
  ìevosalbutamol (78), salbutamol (20), salmefamol (23)

(c)  analgesic, anti-inflammatory A.4.2.0
  aloxiprin (13), anilamate (13), benorilate (21), brosotamide (29), cresotamide (28),
  dibusadol (24), dipyroctyl (6), ethenzamide (10), fenamifuril (16), gentisic acid (01),
  hydroxytoluic acid (17), sodium gentisate (1), sodium glucaspaldrate (17)

  various
  4-aminosalicylates of the -caine series D.1.0.0: ambucaine (6), hydroxyprocaine (1),
  hydroxytetracaine (1), propoxycaine (4)

  antihypertensives H.3.0.0
  labetalol (35)

  antitussives K.1.0.0
  alloclamide (16), flualamide (20)

  saluretics N.1.2.0
  xipamide (22) (sulfamoyl derivative),

  mercurial diuretics N.1.3.0
  mercuderamide (1)

  anthelmintics S.3.1.0
  bromoxanide (31), clioxanide (19), niclosamide (13), rafoxanide (24)
  closantel (36), flurantel (25), resorantel (23)

  antifungals S.4.0.0
  buclosamide (16), exalamide (37), pentalamide (13)

  See also Pharm S/Nom 557

-sartan  angiotensin II receptor antagonists, antihypertensive (non-peptidic)

H.3.0.0 (USAN: -sartan: angiotensin II receptor antagonists)

  abitesartan (73), azilsartan (95), candesartan (71), elisartan (72), embusartan (78),
  eprosartan (71), forasartan (74), irbesartan (71), losartan (66), milfasartan (76), olmesartan (93),
  olmesartan medoxomil (86), pomisartan (73), pratosartan (85), ripisartan (73),
  saprisartan (72), tasosartan (72), telmisartan (70), valsartan (68), zolasartan (70)
-semide  diuretics, furosemide derivatives

N.1.1.0

![Chemical structure of furosemide]

(a) azosemide (35), furosemide (14), galosemide (33), sulosemide (49), torasemide (35)

-sermin  see -ermin

-serod  serotonin receptor antagonists and partial agonists

J.0.0.0

(a) capeserod (94), piboserod (79), sulamserod (82), tegaserod (79)

-serpine (d)  derivatives of *Rauwolfia* alkaloids

E.5.4.0

(a) bietaserpine (14), mefeserpine (15), reserpine (4)

(c) chloroserpidine (11), deserpidine (6), methoserpidine (11), metoserpate (20), rescimetol (44), rescinnamine (6), syrosingopine (10)

-setron  serotonin receptor antagonists (5-HT₃) not fitting into other established groups of serotonin receptor antagonists

(BAN: serotonin receptor antagonists (5HT₃) used as antihypertensives)

(USAN: serotonin 5-HT₃ antagonists)

(a) alosetron (66), azasetron (68), bemesetron (64), cilansetron (68), dolasetron (65), fabesetron (74), galdansetron (72), granisetron (59), indisetron (76), itasetron (68), leri- setron (69), lurosetron (69), mirisetron (72), ondansetron (59), palonosetron (74), ramosetron (70), ricasetron (70), tropisetron (62), zatosetron (64)
growth hormone derivatives

Q.0.0.0  (USAN: growth hormone derivatives)
(USAN: som- -bove: bovine somatotropin derivatives)
(USAN: som- -por: porcine somatotropin derivatives)

(a)  -bove: bovine type substances: somagrebove (63), somavubove (63), sometribove (54), somidobove (58)
  -por: porcine-type substances: somalapor (62), somenopor (62), som fasepor (66), sometripor (55)
  -salm: salmon-type substances: somatosalm (69)
  Others: somatrem (54), somatropin (56)

(b)  somatorenin (57), somantadine (51), somatostatin (46)

-sopine  see -pine

anxiolytics, buspirone derivatives

C.1.0.0

(a)  alnespirone (70), binospirone (65), buspirone (30), enilospirone (52), perospirone (71), revospiron e (61), tandospirone (60), tiospirone (57), umespirone (60), zalospirone (64)

(c)  eptapirone (82), gepirone (54), ipsapirone (54)

enzyme inhibitors

BAN; USAN

castat  dopamine β-hydroxylase inhibitors
(a)  nepicastat (78)

elestat  elastase inhibitors
(a)  depelestat (91), freselestat (89), sivelestat (78)

inostat  histone deacetylase inhibitors
(a)  dacinostat (89), vorinostat (94)

listat  gastrointestinal lipase inhibitors
(a)  cetilistat (91), orlistat (66)
matrix metalloproteinase inhibitors

(a) batimastat (70), cipemastat (81), ilomastat (73), marimastat (75), prinomastat (82), rebimastat (89), solimastat (80), tanomastat (82)

proteolytic enzyme inhibitors:

(a) camostat (46), nafamostat (53), patamostat (69), sepimostat (68)

(c) aloxistatin (57), ulinastatin (56)

aldose reductase inhibitors

various:

apratastat (93): inhibition of TNF-α converting enzyme
azalanstat (73): lanosterol 14α-demethylase inhibitor
benurestat (31): urease inhibitor
cilastatin (50): renal dehydropeptidase inhibitor
febuxostat (85): xanthine oxidase and xanthine dehydrogenase inhibitor
lapaquistat (95): squalene synthase inhibitor
migalastat (95): alpha-galactosidase A enzyme inhibitor
miglustat (85): glucosyltransferase inhibitor
nystatin (6): antifungal antibiotic
pentostatin (38): vidarabine activity potentiator; inhibitor of enzymatic deaminative metabolism
pepsstatin (28): pepsin inhibitor
piraxostat (95): xanthine oxidase inhibitor
somatostatin (43): growth hormone release inhibiting factor
talabostat (92): antineoplastic
tendamistat (44): amylase inhibitor
vistatolon (25): antiviral antibiotic
zinostatin (40): antineoplastic
zinostatin stimalamer (74)

antiherpesviral substances, HMG CoA reductase inhibitors

(a) atorvastatin (71), bervastatin (72), cerivastatin (74), crilvastatin (63), dalvastatin (64), fluvastatin (62), glenvastatin (70), lovastatin (57), mevastatin (44), pitavastatin (83) (replaces itavastatin (80)), pravastatin (57), rosvastatin (83), simvastatin (58), tenivastatin (85)

antiherpesviral substances, HMG CoA reductase inhibitors

USAN
### BAN

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<thead>
<tr>
<th>Stem</th>
<th>Description</th>
<th>Examples</th>
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<tbody>
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<td>steine</td>
<td>mucolytics, other than bromhexine derivatives</td>
<td></td>
</tr>
<tr>
<td>K.0.0.0</td>
<td>(BAN: substances of the acetylcysteine group)</td>
<td></td>
</tr>
<tr>
<td>(a)</td>
<td>acetylcysteine (13), bencisteine (30), carbocisteine (34), cartasteine (72), dacisteine (49), danostеine (53), erdosteine (56), fudosteine (77), guaisteine (57), isalsteine (63), letosteine (38), mecysteine (13), midesteine (63), moguisteine (61), nesosteine (52), omonasteine (40), prenisteine (42), salmisteine (58), taurosteine (63), telmesteine (63)</td>
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### USAN

<table>
<thead>
<tr>
<th>Stem</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>ster-</td>
<td>androgens/anabolic steroids</td>
<td></td>
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<tr>
<td>Q.2.3.1</td>
<td></td>
<td></td>
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<tr>
<td>(a)</td>
<td>-testosterone: cloxotestosterone (12), methyltestosterone (4), testosterone (4), testosterone ketolaurate (16)</td>
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<tr>
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<td>-sterone: bolasterone (13), fluoxymesterone (6), oxymesterone (12), prasterone (23), tiomesterone (14)</td>
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<tr>
<td></td>
<td>-ster-: mesterolone (15), penmesterol (14), rosterolone (59)</td>
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<tr>
<td>(b)</td>
<td>progestational steroids</td>
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<tr>
<td></td>
<td>-gesterone: dydrogesterone (12), haloprogesterone (11), hydroxyprogesterone (8), medroxyprogesterone (10), norgesterone (14), progesterone (4), segesterone (89)</td>
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<tr>
<td></td>
<td>-sterone: dimethisterone (8), ethisterone (4), norethisterone (6), norvinisterone (10)</td>
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<tr>
<td>various:</td>
<td>-sterone: aldosterone (6) (corticosteroid), calusterone (23) (antineoplastic)</td>
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<td>-sterol: azacosterol (16) (hypocholesterolemic), dihydrotachysterol (1) (antihypoparathyroid), iodocholesterol (131I) (39)</td>
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<td></td>
<td>ster: nisterime (38) (contraceptive agent), stercuronium iodide (21) (neuromuscular blocking agent)</td>
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<tr>
<td>-(a)steride</td>
<td>(USAN: -steride: testosterone reductase inhibitors) - antineoplastic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>bexlosteride (81), dutasteride (78), epristeride (69), finasteride (62), izonsteride (81), lapisteride (85), turosteride (67)</td>
<td></td>
</tr>
</tbody>
</table>
**-stigmine (d) acetylcholinesterase inhibitors**

E.1.2.0 (USAN: cholinesterase inhibitors (physostigmine type))

(a) distigmine bromide (16), eptastigmine (62), ganstigmine (81), neostigmine bromide (4), pyridostigmine bromide (6), quilstigmine (76), rivastigmine (77), terestigmine (77)

(c) eseridine (53)

---

**-stim colony stimulating factors**

I.5.0.0

(a) ancestim (79) (cell growth factor), garnocestim (85) (immunomodulator), pegacaristim (80) (megakaryocyte growth factor)

**-distim combination of two different types of colony stimulating factors**

(a) leridistim (80), milodistim (74)

**-gramostim granulocyte macrophage colony stimulating factor (GM-CSF) types substances**

(a) ecogramostim (62), molgramostim (64), regramostim (64), sargramostim (66)

**-grastim granulocyte colony stimulating factor (G-CSF) type substances**

(a) filgrastim (64), lenograstim (64), nartograstim (66), pegfilgrastim (85), peginartogastim (80)

**-mostim macrophage stimulating factors (M-CSF) type substances**

(a) cilmostim (71), lanimostim (91), mirimostim (65)

**-plestim interleukin-3 analogues and derivatives**

(a) daniplestim (76), muplestim (72)

---

**sulfa- anti-infectives, sulfonamides**

S.5.1.0 (BAN: sulpha-)

(USAN: antimicrobial (sulfonamides derivatives))
(a) sulfabenz (17), sulfabenzamide (27), sulfacarbamide (12), sulfacecoole (30), sulfacetamide (1), sulfachlorpropyridazine (10), sulfachrysoide (1), sulfactinie (23), sulfacolamide (17), sulfaclorazole (25), sulfaclozine (25), sulfadiasulfone sodium (1), sulfadiazine (4), sulfadiazine sodium (4), sulfadicramide (4), sulfadimethoxine (10), sulfadimidine (1), sulfadoxine (20), sulfathidole (8), sulfaturazole (1), sulfaguanidine (4), sulfaguanole (23), sulfalene (12), sulfaloeic acid (15), sulfamazine (40), sulfamerazine (4), sulfamerazine sodium (4), sulfamethizole (1), sulfamethoxazole (14), sulfamethoxypyridazine (8), sulfametomidine (12), sulfamethoxylazine (17), sulfametrole (31), sulfamonomethoxine (11), sulfamoxole (12), sulfanilamide (4), sulfanitran (15), sulfaperin (14), sulfaphenazonol (10), sulfaproxylone (4), sulfapyrazole (18), sulfapyridine (1), sulfaphthenoxaline (46), sulfasalazine (55), sulfasomizole (10), sulfasuccinamide (41), sulfasymazine (12), sulfathiazole (4), sulfathiourea (l), sulfatolamide (10), sulfatroxazole (29), sulfatrozole (24)

(b) galsulfase (92), idursulfase (90), sulfarsphenamine (4)

(c) benzylsulfamide (1), glucosulfamide (1), maleylsulfathiazole (1), mesulfamide (41), nitrosulfathiazole (1), phathalysulfamethizole (6), phthalylsulfathiazole (1), salazidine (22), salazosulfamido (11), salazosulfamide (1), salazosulfathiazole (1), stearylsulfamide (1), succinylsulfathiazole (4), sulfisomidine (1), vanylsulfamide (1), mafêmide (1) (sulfonamide, but not sulfanilamide)

---

**-sulfan**  antineoplastic, alkylating agents, methanesulfonates  
L.2.0.0  
![Formula](H_3C-SO_2O-R)

(a) busulfan (6), improsulfan (35), mannosulfan (24), piposulfan (15), ritrosulfan (33), treosulfan (26)

---

**-tadekin**  see -kin

**-tadine**  histamine-H₁ receptor antagonists, tricyclic compounds  
G.2.1.0

(a) alcaftadine (94), azatadine (18), cyproheptadine (10), desloratadine (80), loratadine (54), napactadine (46), olopatadine (72), rupatadine (74), vapitadine (95)

(b) amantadine (15), carmantadine (31), rimantadine (17), somantadine (51), tromantadine (28) (see -mantadine)
**-tant** neurokinin (tachykinin) receptor antagonists

**-pitant** neurokinin NK₁ (substance P) receptor antagonist

(a) aprepitant (84), befetupitant (91), casopitant (94), dapitant (74), ezlopitant (82), figopitant (82), fosaprepitant (94), laneplitant (77), maropitant (90), netupitant (90), nolpitantium besilate (75), orvepitant (94), vestipitant (91), vofopitant (82)

**-dutant** neurokinin NK₂ receptor antagonist

(a) nepadutant (78), saredutant (75)

**-nertant** neurotensin antagonist

(a) meclinertant (88) (replaces reminertant (85))

**-netant** neurokinin NK₃ receptor antagonist

(a) osanetant (74), talnetant (81)

**-taxel** antineoplastics, taxane derivatives

L.0.0.0

docetaxel (71), larotaxel (94), milataxel (91), ortataxel (87), paclitaxel (68), paclitaxel ceribate (91), paclitaxel poliglumex (90), simotaxel (94), tesetaxel (93)

**-tecan** antineoplastics, topoisomerase I inhibitors

L.0.0.0 (USAN: antineoplastics (camptothecine derivatives))

afeletecan (85), belotecan (91), diflomotecan (84), elemotecan (92), exatecan (81), exatecan alideximer (89), gimatecan (86), irinotecan (64), lurtotecan (74), mureletecan (85), pegamotecan (91), rubitecan (82), topotecan (65)

**-tepa** antineoplastics, thiotepa derivatives

L.2.0.0 (USAN: antineoplastic thiotepa derivatives)

(a) azatepa (12), pumitepa (48), thiotepa (10)
-tepine  see -pine

-taplease  tissue type plasminogen activators, see -ase item VI

-termin  see -ermin

-terol (x)  bronchodilators, phenethylamine derivatives

(consider previously -prenaline or -terenol unofficial)

E.4.0.0

(a)  amiterol (26), arformoterol (90), bitolterol (34), broxaterol (51), carmoterol (91), cimaterol (54), colterol (36), difeterol (36), etanterol (53), fenoterol (26), formoterol (44), imoxiterol (52), indacaterol (91), naminterol (53), nardeterol (62), picumeterol (64), procaterol (37), reproterol (30), rimiterol (26), salmeterol (55), sulfonterol (31), zilpaterol (60), zinterol (38)

-buterol: bambuterol (49), cabuterol (29), clenbuterol (28), divabuterol (51), mabuterol (46), pirbuterol (30), tobuterol (45), tulobuterol (40)

cardiac stimulants:
metaterol (43), prenalterol (38), xamoterol (48); clorprenaline (17), hexoprenaline (21), isoprenaline (1), levisoprenaline (10), metiprenaline (24), orciprenaline (14), quiniprenaline (17)
deterenol (25), soterenol (20)

(b)  azacosterol (16), dihydrotachysterol (1), penmesterol (14)

(c)  dioxethedrine (6), isoetarine (13), methoxyphenamine (1), pseudoephedrine (11), salbutamol (20), salmefamol (23), terbutaline (22)

-terone  antiandrogens

(Q.2.3.1)

(a)  abiraterone (74), benorterone (15), cyproterone (16), delanterone (42), inocoterone (54), osaterone (68), zanoterone (67)

(b)  oxendolone (42), rosterolone (60)

(c)  clometerone (15) (antiestrogen)
-tiazem calcium channel blockers, diltiazem derivatives

F.2.1.0

clentiazem (61), diltiazem (30), iprotiazem (56), nictiazem (54), siratiazem (68)

-tide peptides and glycopeptides (for special groups of peptides see -actide, -pressin, -relin, -tocin)

analgesic: leconotide (86), ziconotide (78)

angiogenesis inhibitor: cilengitide (81)

angiotensin convers. inhibitor: teprotide (36)

anti-inflammatory: icrocaptide (89)

antiarrythmic: rotigaptide (94)

antidepressant: nemifitide (87)

antidiabetic: amlintide (76), exenatide (89), liraglutide (87), pramlintide (74), seglitide (57),

antidiarrhoeal: lagatide (75)

antithrombotic: eptifibatide (78)

antiviral: enfuvirtide (85), tifuvirtide (91)

atrial natriuretic factor type substance: anaritide (57), neseritide (80), ularitide (69)

cardiac stimulant: carperitide (65)

diagnostic: betiatide (58), bibapcitide (78), ceruletide (34), deprootide (80), mertiatide (60),
pendetide (70), technetium (99mTc) apcitide (78), teriparatide (50)

gastro-intestinal bleeding/antineoplastic: edotreotide (84), ilatreotide (66), lanreotide (64),
	aoctreotide (52), pentetreotide (66), vapatreotide (62)

gastrointestinal functions normalizing agent: teduglutide (90)
growth stimulant-veterinary: nosiheptide (35)

gut motility increasing: ociltide (52)

hormone analogue: semparatide (80)

immunological agents - antineoplastic: almurtide (74), delmitide (92), disomotide (94), edratide (89), goralatide (72), mifamurtide (95), murabutide (49), ovemotide (94), pentigetide (60), pimelautide (53), prezatide copper acetate (67), rolipoltide (94), romurtide (61), tabilautide (60), temurtide (60), tigapotide (95), tiplimotide (82)

inhibition of growth hormone release: pasireotide (90)

callicrein inhibitor: ecallantide (93)

melanocortin receptor agonist: bremelanotide (95)

neuromodulator: ebiratide (56)

peptic ulcer: sulglicotide (29), triletide (50)

pulmonary surfactant: lusupultide (80), sinapultide (78)

sedative: emideltide (70)

treatment of Parkinson's disease: doreptide (58), pareptide (38)

(b) defibrotide (44) (nucleotide), diamfenetide (28) (fasciolicide), diclometide (19) (behaviour modificator), fludroxycortide (12), glisentide (58)

(c) angiotensin II (65), angiotensinamid e (12)

-tidine (x) histamine-H2-receptor antagonists, cimetidine derivatives

G.2.0.0 (BAN: H2-receptor antagonists of the cimetidine group) (USAN: H2-receptor antagonists (cimetidine type))

(bisfentidine (57), cimetidine (33), dalcotidine (76), donetidine (56), ebrotidine (57), etintidine (44), famotidine (48), lafutidine (70), lamtidine (48), lavoltidine (61) (previously loxtidine (48)), lupididine (53), mifentidine (50), niperotidine (54), nizatidine (48), osutidine (76), oxmetidine (44), pipitidine (78), quisultidine (47) (replaced by quisultazine (51)), ramixotidine (55), ranitidine (41), roxatidine (54), sufotidine (54), tiotidine (44), tuvatidine (54), venritidine (67), zaltidine (54))

BAN, USAN
(b) azacitidine (40) (antineoplastic), benzethidine (9), furethidine (9), guanethidine (11), hexetidine (6), hydroxypethidine (5), pethidine (4), propinetidine (12)

(c) metiamide (30)

-tiline see -triptyline

tinib tyrosine kinase inhibitors

L.0.0.0

(a) axitinib (94), bosutinib (94), canertinib (87), dasatinib (94), erlotinib (85), gefitinib (85), imatinib (86), lapatinib (89), lestaurtinib (91), mubritinib (90), nilotinib (94), pelitinib (93), sunitinib (93), tandutinib (91)

-tirelin see -relin

tizide diuretics, chlorothiazide derivatives

N.1.2.1 (USAN: thiazide: diuretics (thiazide derivatives))

(a) altizide (13), bemetizide (27), butizide (13), carmetizide (30), epitizide (13), hydrobentizide (14), mebutizide (15), paraflutizide (16), penflutizide (29), sumetizide (20)

(c) bendroflumethiazide (11), benzthiazide (10), chlorothiazide (8), cyclopenthiazide (12), cyclothiazide (12), disulfamide (11), ethiazide (14), flumethiazide (10), hydrochlorothiazide (10), hydroflumethiazide (10), methyclothiazide (11), polythiazide (12), teclothiazide (12), trichlormethiazide (11)

tocin oxytocin derivatives

Q.1.2.0

(a) argiprestocin (13), aspartocin (11), carbetocin (45), cargutocin (35), demoxytocin (22), nacartocin (49), oxytocin (13)
-toin (d)  antiepileptics, hydantoin derivatives

A.3.1.1

(a)  albutoin (13), doxenitoin (3l), ethotoin (6), fosphenytoin (62), mephenytoin (1), metetoin (12), phenytoin (4)
    ropitoin (40) (H.2.0.0.)

(b)  clodantoín (13) (antifungal), nitrofurantoin (11) (antibacterial)

-trakin  see -kin

-trakinra  see -kinra

-tredekin  see -kin

-trexate (x)  folic acid analogues

L.4.0.0 (USAN: antimetabolites (folic acid analogues))

(a)  edatrexate (61), ketotrexate (50), methotrexit (10), pralatrexate (92), trimetrexate (46)

(c)  aminopterin sodium (04)

-trexed  antineoplastics; thymidilate synthetase inhibitors

L.0.0.0

nolatrexed (78), pemetrexed (78), plebitrexed (89), raltitrexed (94)
### USAN

#### -tricin

**antibiotics, polyene derivatives**

**S.6.2.0**

(a) mepartricin (34), partricin (27)

(b) tyrothricin (1)

(c) amphotericin B (10), candidicidin (17), filipin (20), hachimycin (23), hamycin (17), levorin (15), mocimycin (28), natamycin (15), nystatin (6), pecilocin (16)

#### -triptan

**serotonin (5-HT₁) receptor agonists, sumatriptan derivatives**

**C.0.0.0** (USAN: antimigraine agents (5-HT₁ receptor agonists))

(a) almotriptan (76), avitriptan (76), donitriptan (82), eletriptan (74), frovatriptan (78), naratriptan (69), oxitriptan (39), rizatriptan (75), sumatriptan (59), zolmitriptan (74)

(c) alniditan (72)

#### -triptiline

**antidepressants, dibenzo[a,d]cycloheptane or cycloheptene derivatives**

**C.3.2.0** (USAN: antidepressants (dibenzo[a,d]cycloheptane derivatives))

(a) amitriptyline (11), butriptyline (16), cotriptyline (26), intriptyline (26), nortriptyline (12), octriptyline (33), protriptyline (14), amitriptylinoxide (36), demexiptiline (43), levoprotiline (56), noxiptiline (20), oxaprotiline (45), setiptiline (56)

(b) oxitriptyline (21) (anticonvulsant)

(c) hepzidine (15)

see also Pharm S/Nom 970

#### -troban

**thromboxane A₂-receptor antagonists; antithrombotic agents**

**I.2.1.0** (USAN: antithrombotics (thromboxane A₂ receptor antagonists))

argatroban (57), daltroban (57), domtroban (73), ifetroban (71), linotroban (69), mipitroban (73), ramatroban (73), sulotroban (55), terutroban (93)
**-trodast**  
**see -ast**

**trop**  
**atropine derivatives**

**USAN**  
E.2.0.0  
(USAN: trop- ; or –trop-)

![Chemical structure](image)

(a) **parasympatholytic/anticholinergic**: E.2.2.0:  
**tertiary amines:**  
atropine oxyde (12), benzatropine (4), decitropine (18), etybenzatropine (12), eucatropine (1), tropatpine (28), tropicamide (11), tropigline (8), tropodifene (18)

closely related:  
esbatropate (65)

**quaternary ammonium salts:**  
atropine methonitrate (4), butropium bromide (30), ciclotropium bromide (50), cimetropium bromide (51), flutropium bromide (50), homatropine methylbromide (1), ipratropium bromide (28), octatropine methylbromide (10), oxtropium bromide (36), phenactropinium chloride (8), ritropirronium bromide (33), sevitropium mesilate (56), sintropium bromide (47), sulfroponium (18), tematropium metilsulfate (64), tiotropium bromide (67), tipetroplum bromide (42), tropenziline bromide (11), xenytropium bromide (15)

**various:**  
clobenztropine (13) (antihistaminic), cyheptropine (15) (antiarrhythmic), deiptropine (12) (antiasthmatic), revatropate (74) (bronchodilator), tropabazate (41) (tranquillizer), tropanserin (55) (serotonin receptor antagonist), tropapride (48) (antipsychotic), tropirine (20) (respiratory disorders), tropisetron (62) (serotonin antagonist)

(b) **dextropropoxyphene (7)**, somatropin (56)

(c) **parasympatholytic/anticholinergic, tertiary amines:**  
poskine (8), prampine (11), tigloidin (14)

**various:**  
zepastine (26) (antihistaminic)

---

**-uplase**  
**urokinase type plasminogen activator, see -ase item VII**
### -uridine

Uridine derivatives used as antiviral agents and as antineoplastics

<table>
<thead>
<tr>
<th>S.5.3.0</th>
<th>L.4.0.0</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Uridine Structure" /></td>
<td><img src="image" alt="Uridine Structure" /></td>
</tr>
</tbody>
</table>

- **L.4.0.0**: broxuridine (30), doxifluridine (44)
  - related: carmofur (45), clafenur (58), tegafur (41)
- **S.5.3.0**: fialuridine (68), floxuridine (16), fosfluridine tidoxil (93), idoxuridine (17), navuridine (84), trifluridine (37)

### -vudine

(USAN: -vudine: antineoplastics; antivirals (zidovudine type))

- **(a)** alovudine (68), brivudine (59), clevudine (78), epervudine (61), fosalvudine tidoxil (95), fozivudine tidoxil (73), lamivudine (66), netivudine (72), sorivudine (64), stavudine (65), telbivudine (88), zidovudine (56)
- **(c)** edoxudine (52)

### -vaptan

Vasopressin receptor antagonists

<table>
<thead>
<tr>
<th>H.0.0.0</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Vaptan Structure" /></td>
</tr>
</tbody>
</table>

- **(a)** conivaptan (82), lixivaptan (83), mozavaptan (87), relcovaptan (82), satavaptan (93), tolvaptan (83)

### -vastatin

See -stat

### -vec

See -gene for gene therapy products

### -verine (x)

Spasmolytics with a papaverine-like action

<table>
<thead>
<tr>
<th>F.1.0.0</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Verine Structure" /></td>
</tr>
</tbody>
</table>

- **(a)** alverine (16), amifloverine (28), bietamiverine (6), butaverine (13), camiverine (29), caroverine (28), clofeverine (31), demelverine (17), denaverine (25), dексесcoverine (53), dicycloverine (6), dihexyverine (4), dipiproverine (10), diproteverine (51), drotaverine (17),
elziverine (57), ethaverine (4), febuverine (27), fenoverine (28), floverine (28), heptaverine (16), ibuverine (21), idaverine (55), mebeverine (14), milverine (52), mofloverine (28), moxaverine (36), nafterverine (16), niceverine (15), octaverine (18), pargeverine (38), pentoxyverine (6), pramiverine (21), prenoverine (41), propiverine (45), rociverine (33), salflverine (29), salverine (15), secoverine (38), temiverine (76), zardaverine (59)

Related:
fenpiverinium bromide (26), pinaverium bromide (32)

(c) spasmylytics chemically related to some of the above INN ending in -verine

butetamate (17), butinoline (14), camylofin (12), cinnamedrine (19), cyclandelate (8), difemerine (17), diisopromin (11), dimoxylin (1), fenpiprane (17), fenpyramidol (12), metindizate (16), oxybutynin (13), papaveroline (29), pentapiperide (10), prozapine (14), triclaclaze (10), tropenzilne bromide (11)

<table>
<thead>
<tr>
<th>vin- and vinca alkaloids</th>
<th>USAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>-vin- (x)</td>
<td></td>
</tr>
<tr>
<td>(a) B.1.0.0 stimulation of cerebrovascular circulation</td>
<td></td>
</tr>
<tr>
<td>apovincamine (48), brovincamine (42), vinburnine (45), vincamine (22), vincanol (37), vinca-tril (51), vincenate (47), vindeburnol (49), vinnegallate (59), vinpocetin (36), vinpoineline (35), vintoferol (61)</td>
<td></td>
</tr>
<tr>
<td>L.5.0.0 cytostatic</td>
<td></td>
</tr>
<tr>
<td>vinblastine (12), vincristine (13), vindesine (35), vinepidine (50), vinflumine (76), vinformide (38), vinosilistine (64), vinglysinatate (16), vinleucinol (64), vinleur (13), vinorelbine (57), vinrosidine (13), vintriptol (51), vinzolidine (46)</td>
<td></td>
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<tr>
<td>(b) barbiturates</td>
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<tr>
<td>vinbarbital (l), vinylbital (12)</td>
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<tr>
<td>others: vincofos (28) (phosphate, anthelmintic), vintiamol (16) (vitamin B derivative, antineuralgic)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>antivirals (undefined group)</th>
<th>BAN; USAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.5.3.0</td>
<td></td>
</tr>
<tr>
<td>(a) alvirccept sudotox (69), amadoxovir (85), amitivir (67), ancriviroc (92), atervirdine (69), caprauvrine (83), cilupreivir (90), dapiuirine (86), delavirdine (71), denotivir (70), efavirenz (78), emivirine (82), enfuvirtide (85), enviradene (49), enviroxime (44), etravirine (88), litomeglovir (84), loviride (70), maribavir (80), maraviroc (91), nevirapine (66), opavirallne (83), pirodavir (63), ribavirin (31), rilipvirine (91), rupintrivir (88), taribavirin (95), talvirallne (75), telaprevir (94), tifuvirtide (91), tivirapine (74), tomeglovir (84), trovirdine (73), viroxime (49), zinviroxime (44)</td>
<td></td>
</tr>
</tbody>
</table>
-amivir neuraminidase inhibitors: oseltamivir (80), peramivir (86), zanamivir (72)

-cavir carbocyclic nucleosides: abacavir (76), entecavir (82), lobucavir (72)

-ciclovir bicyclic heterocycle compounds: aciclovir (42), buciclovir (52), desciclovir (55), detiviclovir (86), famciclovir (61), ganciclovir (56), omaciclovir (84), penciclovir (61), roaciclovir (62), tiviclovir (86), valaciclovir (69), valganciclovir (78), valomaciclovir (84)

-fovir phosphonic acid derivatives: adefovir (72), alamifovir (89), cidofovir (72), pradefovir (93), tenofovir (82)

-gosivir glucoside inhibitors: celgosivir (77)

-navir HIV protease inhibitors: amprenavir (79), atazanavir (88), brecanavir (94), darunavir (88), droixinavir (74), fosamprenavir (83), indinavir (74), lisanavir (76), loxinovir (80), mozenavir (84), nelfinavir (76), palinavir (74), ritonavir (74), saquinavir (69), telinavir (73), tipranavir (80)

-virsen see -rsen

-virumab see mab

(b) virginiamycin (18), viridofulvin (16)

(c) aranotin (21), arildone (38), avridine (50), didanosine (64), disoxaril (55), dimepranol (42), foscarinet sodium (42), fosfonet sodium (35), ketoxal (22), impacarzine (36), inosine (42), lodenosine (75), metisazone (14), moroxydine (22), pleconaril (77), tilorone (24), xenazoic acid (11)

-vos see -fos

-vudine see -uridine

-xaban blood coagulation factor Xa inhibitors, antithrombotics

(a) apixaban (93), fidexaban (91), otamixaban (86), rivaroxaban (90), razaxaban (90)

-xanox see -ox/-alox

-yzine see -izine
-zafone  alozafone derivatives

C.1.0.0

\[
\begin{array}{c}
\text{NC} \\
\text{CH}_3 \\
\text{CH}_3 \\
\text{O} \\
\text{Cl} \\
\text{F} \\
\hline
\text{Cl}
\end{array}
\]

(a) alozafone (40), avizafone (64), ciprazafone (50), dinazafone (46), dulozafone (56), lorzafone (48), oxazafone (45), rilmazafone (55)

-zepine  see -pine

-zone  see -buzone

-zotan  5-HT_{1A} receptor agonists/antagonists acting primarily as neuroprotectors

ebalzotan (72), lecozotan (93), osemozotan (87), piclozotan (92), robalzotan (90), sarizotan (94)
ANNEX 1

INN Stems for monoclonal antibodies

The following stem system was adopted by the members of the Expert Advisory Panel on the International Pharmacopoeia and Pharmaceutical Preparations designated to deal with the selection of nonproprietary names for naming monoclonal antibodies.

I. **General stem:** \(-mab\)

II. **Sub-stems for source of product:**

<table>
<thead>
<tr>
<th>u</th>
<th>human</th>
</tr>
</thead>
<tbody>
<tr>
<td>o</td>
<td>mouse</td>
</tr>
<tr>
<td>a</td>
<td>rat</td>
</tr>
<tr>
<td>e</td>
<td>hamster</td>
</tr>
<tr>
<td>i</td>
<td>primate</td>
</tr>
<tr>
<td>xi</td>
<td>chimeric</td>
</tr>
<tr>
<td>zu</td>
<td>humanized</td>
</tr>
</tbody>
</table>

The distinction between chimeric and humanized antibodies is as follows:

A **chimeric** antibody is one that contains contiguous foreign-derived amino acids comprising the entire variable region of both heavy and light chains linked to heavy and light constant regions of human origin.

A **humanized** antibody has segments of foreign-derived amino acids interspersed among variable region segments of human-derived amino acid residues and the humanized heavy-variable and light-variable regions are linked to heavy and light constant regions of human origin.

III. **Sub-stems for disease or target class:**

<table>
<thead>
<tr>
<th>-ba(c)-</th>
<th>bacterial</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ci(r)-</td>
<td>cardiovascular</td>
</tr>
<tr>
<td>-fung-</td>
<td>fungal</td>
</tr>
<tr>
<td>-le(s)-</td>
<td>inflammatory lesions</td>
</tr>
</tbody>
</table>
-li(m)- immunomodulator
-ost- bone
-vi(r)- viral

| -co(l)- | colon |
| -go(t)- | testis |
| -go(v)- | ovary |
| -ma(r)- | mammary |
| -me(l)- | melanoma |
| -pr(o)- | prostate |
| -tu(m)- | miscellaneous |

Whenever there is a problem in pronunciation, the final letter of the sub-stems for diseases or targets may be deleted, e.g. -vi(r)-, -ba(c)-, -li(m)-, -co(l)-, etc.

IV. **Prefix:**

Should be random e.g. the only requirement is to contribute to a euphonious and distinctive name.

V. **Second word:**

If the product is radiolabelled or conjugated to another chemical, such as toxin, identification of this conjugate is accomplished by use of a separate, second word or acceptable chemical designation.

If the monoclonal antibody is used as a carrier for a radioisotope, the latter will be listed first in the INN, e.g. technetium (⁹⁹ᵐTc) pintumomab.

VI. **-toxa- infix:**

For monoclonals conjugated to a toxin, the infix –toxa- can be inserted either into the first (main) name or included in the second word.
ANNEX 2

PROCEDURE FOR THE SELECTION OF RECOMMENDED INTERNATIONAL NONPROPRIETARY NAMES FOR PHARMACEUTICAL SUBSTANCES*

The following procedure shall be followed by the World Health Organization in the selection of recommended International Nonproprietary Names for pharmaceutical substances, in accordance with the World Health Assembly resolution WHA3.11:

1. Proposals for recommended international nonproprietary names shall be submitted to the World Health Organization on the form provided therefor.

2. Such proposals shall be submitted by the Director-General of the World Health Organization to the members of the Expert Advisory Panel on the International Pharmacopoeia and Pharmaceutical Preparations designated for this purpose, for consideration in accordance with the “General principles for guidance in devising International Nonproprietary Names”, appended to this procedure. The name used by the person discovering or first developing and marketing a pharmaceutical substance shall be accepted, unless there are compelling reasons to the contrary.

3. Subsequent to the examination provided for in article 2, the Director-General of the World Health Organization shall give notice that a proposed international nonproprietary name is being considered.

   A. Such notice shall be given by publication in the Chronicle of the World Health Organization ¹ and by letter to Member States and to national pharmacopoeia commissions or other bodies designated by Member States.

      (i) Notice may also be sent to specific persons known to be concerned with a name under consideration.

   B. Such notice shall:

      (i) set forth the name under consideration;

      (ii) identify the person who submitted a proposal for naming the substance, if so requested by such person;

      (iii) identify the substance for which a name is being considered;

      (iv) set forth the time within which comments and objections will be received and the person and place to whom they should be directed;

      (v) state the authority under which the World Health Organization is acting and refer to these rules of procedure.

   C. In forwarding the notice, the Director-General of the World Health Organization shall request that Member States take such steps as are necessary to prevent the acquisition of proprietary rights in the proposed name during the period it is under consideration by the World Health Organization.

4. Comments on the proposed name may be forwarded by any person to the World Health Organization within four months of the date of publication, under article 3, of the name in the Chronicle of the World Health Organization.
5. A formal objection to a proposed name may be filed by any interested person within four months of the date of publication, under article 3, of the name in the *Chronicle of the World Health Organization*.

Such objection shall:

(I) identify the person objecting;

(ii) state his interest in the name;

(iii) set forth the reasons for his objection to the name proposed.

6. Where there is a formal objection under article 5, the World Health Organization may either reconsider the proposed name or use its good offices to attempt to obtain withdrawal of the objection. Without prejudice to the consideration by the World Health Organization of a substitute name or names, a name shall not be selected by the World Health Organization as a recommended international nonproprietary name while there exists a formal objection thereto filed under article 5 which has not been withdrawn.

7. Where no objection has been filed under article 5, or all objections previously filed have been withdrawn, the Director-General of the World Health Organization shall give notice in accordance with subsection A of article 3 that the name has been selected by the World Health Organization as a recommended international nonproprietary name.

8. In forwarding a recommended international nonproprietary name to Member States under article 7, the Director-General of the World Health Organization shall:

   A. request that it be recognized as the nonproprietary name for the substance; and

   B. request that Member States take such steps as are necessary to prevent the acquisition of proprietary rights in the name, including prohibiting registration of the name as a trade-mark or trade-name.


1. The title of this publication was changed to *WHO Chronicle* in January 1959. From 1987 onwards lists of INNs are published in *WHO Drug Information*. 
ANNEX 3

GENERAL PRINCIPLES FOR GUIDANCE IN DEVISING INTERNATIONAL NONPROPRIETARY NAMES FOR PHARMACEUTICAL SUBSTANCES* 

1. International Nonproprietary Names (INN) should be distinctive in sound and spelling. They should not be inconveniently long and should not be liable to confusion with names in common use.

2. The INN for a substance belonging to a group of pharmacologically related substances should, where appropriate, show this relationship. Names that are likely to convey to a patient an anatomical, physiological, pathological or therapeutic suggestion should be avoided.

These primary principles are to be implemented by using the following secondary principles:

3. In devising the INN of the first substance in a new pharmacological group, consideration should be given to the possibility of devising suitable INN for related substances, belonging to the new group.

4. In devising INN for acids, one-word names are preferred; their salts should be named without modifying the acid name, e.g. "oxacillin" and "oxacillin sodium", "ibufenac" and "ibufenac sodium".

5. INN for substances which are used as salts should in general apply to the active base or the active acid. Names for different salts or esters of the same active substance should differ only in respect of the name of the inactive acid or the inactive base.

For quaternary ammonium substances, the cation and anion should be named appropriately as separate components of a quaternary substance and not in the amine-salt style.

6. The use of an isolated letter or number should be avoided; hyphenated construction is also undesirable.

7. To facilitate the translation and pronunciation of INN, “f” should be used instead of “ph”, “t” instead of “th”, “e” instead of “ae” or “oe”, and “i” instead of “y”; the use of the letters “h” and “k” should be avoided.

8. Provided that the names suggested are in accordance with these principles, names proposed by the person discovering or first developing and marketing a pharmaceutical preparation, or names already officially in use in any country, should receive preferential consideration.

9. Group relationship in INN (see Guiding Principle 2) should if possible be shown by using a common stem. The following list contains examples of stems for groups of substances, particularly for new groups. There are many other stems in active use. Where a stem is shown without any hyphens it may be used anywhere in the name.
Latin | English
---|---
-acum | -ac | anti-inflammatory agents, ibufenac derivatives
-adolum | -adol | analgesics
-adol- | -adol- | antiasthmatic, antiallergic substances not acting primarily as antihistaminics
-astinum | -astine | antihistaminics
-azepamum | -azepam | diazepam derivatives
-bol | bol | anabolic steroids
-cain- | -cain- | class I antiarrhythmics, procainamide and lidocaine derivatives
-cainum | -caine | local anaesthetics
-cef- | -cef- | antibiotics, cefalosporanic acid derivatives
-cillinum | -cillin | antibiotics, 6-aminopenicillanic acid derivatives
-conazolum | -conazole | systemic antifungal agents, miconazole derivatives
-cort | cort | corticosteroids, except prednisolone derivatives
-coxibum | -coxib | selective cyclo-oxygenase inhibitors
-entanum | -entan | endothelin receptor antagonists
-gab | gab | gabamimetic agents
-gado- | -gado- | diagnostic agents, gadolinium derivatives
-gatranum | -gatran | thrombin inhibitors, antithrombotic agents
-gest | gest | steroids, progestogens
-gli | gli | antihyperglycaemics
-io- | io- | iodine-containing contrast media
-metacinum | -metacin | anti-inflammatory substances, indometacin derivatives
-myacinum | -mycin | antibiotics, produced by *Streptomyces* strains
-nidazolum | -nidazole | antiprotozoals, metronidazole derivatives
-ololum | -olol | β-adrenoreceptor antagonists
-oxacinum | -oxacin | antibacterials, nalidixic acid derivatives
-platinum | -platin | antineoplastic agents, platinum derivatives
-poetinum | -poetin | erythropoietin type blood factors
-pril(at)um | -pril(at) | angiotensin-converting enzyme inhibitors
-profenum | -profen | anti-inflammatory substances, ibuprofen derivatives
-prost | prost | prostaglandins
-relinum | -relin | pituitary hormone release-stimulating peptides
-sartanum | -sartan | angiotensin II receptor antagonists, antihypertensive (non-peptidic)
-vaptanum | -vaptan | vasopressin receptor antagonists
-vin- | vin- | vinca alkaloids
-vin- | -vin- | 

* In its twentieth report (WHO Technical Report Series, No. 581, 1975), the WHO Expert Committee on Nonproprietary Names for Pharmaceutical Substances reviewed the general principles for devising, and the procedures for selecting, international nonproprietary names (INN) in the light of developments in pharmaceutical compounds in recent years. The most significant change has been the extension to the naming of synthetic chemical substances of the practice previously used for substances originating in or derived from natural products. This practice involves employing a characteristic “stem” indicative of a common property of the members of a group. The reasons for, and the implications of, the change are fully discussed.
ANNEX 4

INNs FOR GENE THERAPY PRODUCTS

The following nomenclature scheme was adopted by the members of the INN Expert Group designated to deal with the selection of nonproprietary names in December 2005 after a broad consultative process.

A two-word name approach has been selected:

**Word 1**

- **gene**
  - **lim(o)**-
  - **tusu**-
  - **ermin(o)**-
  - **kin(o)**-
  - **mul**-

*gene component*

- **lim(o)**-
  - **tusu**-
  - **ermin(o)**-
  - **kin(o)**-
  - **mul**-

*immunomodulators*

*tumour suppression growth factors interleukins multiple genes*

<table>
<thead>
<tr>
<th>prefix</th>
<th>infix</th>
<th>suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>random to contribute to euphonious and distinctive name</td>
<td>-lim(o)-</td>
<td>immunomodulators</td>
</tr>
<tr>
<td></td>
<td>-tusu-</td>
<td>tumour suppression</td>
</tr>
<tr>
<td></td>
<td>-ermin(o)-</td>
<td>growth factors</td>
</tr>
<tr>
<td></td>
<td>-kin(o)-</td>
<td>interleukins</td>
</tr>
<tr>
<td></td>
<td>-mul-</td>
<td>multiple genes</td>
</tr>
</tbody>
</table>

**Word 2**

- **vec**
  - **lenti**-
  - **retro**-
  - **adeno**-
  - **vari**-
  - **cana**-
  - **herpa**-
  - **plasmid**

*vector component is a virus*

*lentiviruses other retroviruses adenoviruses vaccinia viruses canarypox viruses herpes viruses*

<table>
<thead>
<tr>
<th>prefix</th>
<th>infix</th>
<th>suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>random to contribute to euphonious and distinctive name</td>
<td>-lenti-</td>
<td>lentiviruses</td>
</tr>
<tr>
<td></td>
<td>-retro-</td>
<td>other retroviruses</td>
</tr>
<tr>
<td></td>
<td>-adeno-</td>
<td>adenoviruses</td>
</tr>
<tr>
<td></td>
<td>-vari-</td>
<td>vaccinia viruses</td>
</tr>
<tr>
<td></td>
<td>-cana-</td>
<td>canarypox viruses</td>
</tr>
<tr>
<td></td>
<td>-herpa-</td>
<td>herpes viruses</td>
</tr>
<tr>
<td></td>
<td>-plasmid</td>
<td>plasmid</td>
</tr>
</tbody>
</table>

In case of **naked DNA**, there is no need for a second word in the name.

In case of **antisense oligonucleotides**, please refer to the already existing stem **-rsen**.
ANNEX 5

Reference to publications containing proposed lists of INNs

<table>
<thead>
<tr>
<th>List no. and reference</th>
<th>List no. and reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 WHO chronicle 18: 433 (1964)</td>
<td>63  WHO drug information 4: No. 2 (1990)</td>
</tr>
<tr>
<td>15 WHO chronicle 19: 446 (1965)</td>
<td>64  WHO drug information 4: No. 4 (1990)</td>
</tr>
<tr>
<td>27 WHO chronicle 26: 121 (1972)</td>
<td>76  WHO drug information 10: No. 4 (1996)</td>
</tr>
<tr>
<td>47 WHO chronicle 36: No. 2, suppl. (1982)</td>
<td>Lists 1-91 of proposed INN are included in Cumulative List</td>
</tr>
<tr>
<td>49 WHO chronicle 37: No. 2, suppl. (1983)</td>
<td></td>
</tr>
</tbody>
</table>
ANNEX 6

WHY INNs?

Since the number of drug substances being registered during the last decades is constantly increasing, there is a strong need to ensure the identification of each pharmaceutical compound by a unique, universally available and accepted name. The existence of an international nomenclature system for pharmaceutical products is crucial for the clear identification, safe prescription and dispensing of medicines to patients, and for communication and exchange of information among health professionals and scientists worldwide.

An International Nonproprietary Name (INN) identifies a pharmaceutical substance by a unique name that is globally recognized and is public property. A nonproprietary name is also known as a generic name. Generic names are intended to be used in pharmacopoeias, labeling, advertising, drug regulation and scientific literature.

WHO has a constitutional mandate to offer recommendations to its Member States on any matter that falls within its competence. This includes setting norms and standards for pharmaceutical products moving in international commerce.

The INN system as it exists today was initiated in 1950 by the World Health Assembly resolution WHA3.11 and began operating in 1953, when the first list of International Nonproprietary Names for pharmaceutical substances was published.

So far, some 8000 names have been designated as INNs, and this number is growing every year by some 120 – 150 new INNs.

INNs are selected in close collaboration with national nomenclature commissions (e.g. BAN British Approved name, JAN Japanese Accepted Name, USAN United States Adopted Name etc.). Today, the INN Committee assumes the leading role in assigning generic names to drug substances. Instances where a national generic name for a new pharmaceutical substance is different from the INN are rare exceptions.

As unique names, INNs have to be distinctive in sound and spelling, and should not be liable to confusion with other names in common use (e.g. trade marks). To make INNs universally available they are formally placed by WHO in the public domain, hence their designation as “nonproprietary”. They can be used without any restriction whatsoever to identify pharmaceutical substances. The clear depiction of INNs on labels assures that prescribers and users alike can easily identify the nature of the pharmacologically active substance in a brand product. The use of INNs is already common in research and clinical documentation, while the importance of the programme is growing further due to the expanding use of generic names for pharmaceutical products.

31 October 2006