The use of stems in the selection of International Nonproprietary Names (INN) for pharmaceutical substances 2018 (Stem Book 2018)
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Preface

The document “The Use of Common Stems in the Selection of INN” 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 INN, 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 six annexes.

Part I “Introduction” describes the WHO INN Programme, INN selection procedure and criteria for name selection and provides 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 principal activity of pharmaceutical substances. Each category included in the list is given an appropriate code consisting of a capital letter and three digits. When INN 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 INN” serves as a listing of all proposed INN (published in Lists 1 - 119) containing INN stems. The list is organized in alphabetical order (as set out in Part II) and includes all INN containing a stem. In addition, under each stem heading, information is given on INN in which the preferred stem has been used but not in accordance with its definition, as well as on INN 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 7 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 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 2 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 3 explains the nomenclature scheme for monoclonal antibodies. Annex 4 explains the nomenclature scheme for gene therapy substances. Annex 5 gives reference to the volumes of the WHO Drug Information in which proposed lists of INN have been published. Annex 6 “Why INN?” gives general information on the current situation of the 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. INN 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, INN 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 INN 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 WHA46.19 which states that trade marks should not be derived from INN and INN stems should not be used in trade marks. The Assembly reasoned that such practice could frustrate the rational selection of INN and ultimately compromise the safety of patients by promoting confusion in drug nomenclature. Above all, INN 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 INN is set out in Annexes 1 and 2.

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 stem that expresses the pharmacologically-related group to which the substance belongs. Names that are likely to convey an anatomical, physiological, pathological or therapeutic suggestion should be avoided.

In addition, certain rules have been established in devising INN 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 INN”

The following information complements or describes the diagram set out on page 7.

1. The list includes INN published in Proposed International Nonproprietary Names Lists 1 - 119 categorized according to the list of stems (see Annex 5).

   For each stem, INN have been classified as:
   a. INN in which the preferred stem has been used in accordance with its definition;
   b. INN in which the preferred stem has been used, but not in accordance with its definition;
   c. INN which belong to the same group of pharmaceutical substances but in which the preferred stem has not 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 2).

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

**LAYOUT OF INFORMATION**

<table>
<thead>
<tr>
<th>Stem classification</th>
<th>Stem definition</th>
<th>National Name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>calci</td>
<td>Vitamin D analogues/derivatives</td>
<td>USAN</td>
</tr>
</tbody>
</table>

**Graphic Formula**

(a) alfalcldiol (40), calciobil (26), calcipotriol (61), calciotriol (39),
colecalciferol (13), doxcalfiderol (82), ergocalciferol (13),
falcalftril (74), lexacalcitol (71), maxacalcitol (75), paricalcitol (78),
secalciferol (62), seocalcitol (78), taacalcitit (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 that were formerly used but are no longer formally acknowledged by the INN Programme.
Part II A

Alphabetical list of common stems

A
-abine (see -arabine and -citabine)
-ac
-acetam (see -racetam)
-actide
-adol/-adol-
-adom
-afenone
-afil
-aj-
al
-aldrate
-alol (see -olol)
-alox (see -ox)
-amivir (see vir)
-ampanel
and
-and
-anib
-anide
-anserin
-antel
-antrone
-apine (see -pine)
apt-
-(ar)abine
-arit
-arol
-arone
-arotene
arte-
-ase
-ast
-astine
-asvir (see –vir)
-azam (see -azepam)
-azenil
-azepam
-azepide
-azocine
-azolam (see -azepam)
-azoline
-azone (see -buzone)
-azosin

B
-bacept (see -cept)
-bactam
-bamate
-barb
-begron
-benakin (see -kin)
-bendar (see -dan)
-bendazole
-bercept (see -cept)
-bermin (see -ermin)
-bersat
-betasol (see pred)
bol
-bradine
-brate (see -fibrate)
-brutinib (see –tinib)
-bufen
-bulin
-butazone (see -buzone)
-buvir (see vir)
-buzone

c
-caine
-cain-
calci
capone
carbef
carnil (see -azenil)
castat (see -stat)
catib
cavir (see vir)
cef-
cel
-cell-/cel-
cell-ate (see cell-/cel-)
cellose (see cell-/cel-)
-cept
cetrapib
cic
-ciclovir (see vir)
cidin
ciguat
cillide (see -cillin)
cillin
cillinam (see -cillin)
cilpine (see -pine)
cisteine (see -steine)
citabine
citinib (see –tinib)
clidine/-clidinium
clone
ccept (see -cept)
cog
cogin
conazole
cort
-coxib
-crinat
-crine
-cromil
-curium (see -ium)
-cycline

D
-dan
-dapsone
-decakin (see -kin)
-denoson
-degib
-dermin (see -ermin)
-dil
-dilol (see -dil)
-dipine
-dismase (see -ase)
-distim (see -stim)
-dodekin (see -kin)
-domide
-dopa
-dotin
-dotril (see -tril/-trilat)
-dox (see -ox/-alox)
-dralazine
-drine
-dronic acid
-dustat (see stat)
-dutant (see -tant)
-dyl (see -dil)

E
-ectin
-elestat (see -stat)
-elvekin (see -kin)
-emcinal
-enicokin (see -kin)
-entan
(-)ep tacog (see -cog)
erg
-eridine
-ermin
estr
-etanide (see -anide)
-ethidine (see -eridine)
exakin (see -kin)
exine

F
-farcept (see -cept)
-fenacin
-fenamate (see -fenamic acid)
-fenamic acid
-fenin
-fenine
-fensine
-fentanil
-fentrine
-fermin (see -ermin)
fiban
-fibrate
-filermin (see -ermin)
-flapon
-flurane
-formin
-fos
-fosine (see -fos)
fosfamide (see -fos)
-fovir (see vir)
-fradil
-frine (see -drine)
-fungin
-fylline

G
-gab
-gacestat (see stat)
gado-
gatran
gen
-gepant
gest
-gestr- (see estr)
giline
gillin
gli
-gli flozin (see gli)
-gliptin (see gli)
-glitazar (see gli)
-glitazone (see gli)
glumide
-glurant
-glutide (see -tide)
golide
-gosivir (see vir)
-gramostim (see -stim)
grastim (see -stim)
grel-/grel
-guan-

I
-ibine (see -ribine)
icam
-ifene
-igetide (see -tide)
ilide
-imex
-imibe
-imod
-imus
-ine
-inostat (see -stat)
io-
io/-io-
-irudin
-isant
-isomide
-ium
-izine (-yzine)

K
-kacin
-kalant
-kalim
-kef-
-kin
-ki(n)- (see -mab)
-kinra
-kiren

L
-laner
-lefacept (see -cept)
-leukin (see -kin)
-lisib
-listat (see -stat)
-lubant
-lukast (see -ast)
-lutamide
-lutril (see -tril/-trilat)

M
-mab
-mantadine
-mantine (see -mantadine)
-mantone (see -mantadine)
-mapimod (see -imod)
-mastat (see -stat)

N
-nab
-nabant
-nacept (see -cept)
-nakin (see -kin)
-nakinra (see -kinra)
nal-
-naritide (see -tide)
-navir (see vir)
-nepag
-nermin (see -ermin)
-nercept (see -cept)
-nertant (see -tant)
-netant (see -tant)
-nicate (see nico-)
-nicline
-nico/-nic/-ni-

O
-octakin (see -kin)
-octadekin (see -kin)
(-)octocog (see -cog)
-ol
-olol
-olone (see pred)
-onakin (see -kin)
-one
-onide
-onidine
-onium (see -ium)
-opamine (see -dopa)
-orex
-orexant
-orph- (see orphan)
-orphan
-otermin (see -ermin)
-ox/-alox
-oxacin
-oxan(e)
-oxanide (see -anide)
-oxef (see cef-)
-oxepin (see -pine)
-oxetine
-oxicam (see -cam)
-oxifene (see -ifene)
-oxopine (see -pine)

-nidazole
-nidine (see -onidine)
nifur-
nil (see -azenil)
nitro/-nitr/-nit/-ni/-ni-
nixin
(+)nonacog (see -cog)
INN – the use of stems

P
-pafant
-pamide
-pamil
-parcin
-parib
-parin
-parinux (see -parin)
-patril/-patrilat (see -tril/-trilat)
-pendyl (see -dil)
-penem
-pifl(u)-
-peridol (see -perone)
-peridone (see -perone)
-perone
-pidem
-pin(e)
-piprazole (see -prazole)
-pirone (see -spirone)
-pirox (see -ox/-alox)
-pitant (see -tant)
-plact
-pladib
-planin
-plase (see -ase)
-plasmid (see -gene)
-platin
-plermin (see -ermin)
-plestim (see -stat and -kin)
-plon
-poetin
-porfipin
-poride
-pramine
-prazan
-prazole
-pred
-prenaline (see -terol)

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

R
-racetam
-racil
-rafenib
-relin
-relix
-renone
-reotide (see –tide)
-restat (see -stat)
-retin
-ribine
-rifa-
-rinone
-ritide (see –tide)
-rixin
-rizine (see -izine)
-rolimus (see -imus)
-rozole
-sen
-rubericin

S
-sal
-salazo- (see sal)
-salazine/-salazide (see sal)
-salan (see sal)
-sartan
-semide
-sermin (see -ermin)
-serod
-serpine
-sertib
-setron
-siban
-siran
-som-
-sopine (see -pine)
-spirone
-stat/-stat-
-steine
-ster-
-steride (see -ster-)
-stigmine
-stim
-sulfa-
-sulfan

tacept (see cept)
tadine
tansine
tant
tapide	
taxel
tecan
tegarvir (see vir)
tepa
tepine (see -pine)
templase (see -ase)
-termin (see -ermin)
-terol
-terone
-thiouracil (see -racil)
-tiazem
-tibant
-tide
-tidine
-tiline (see -triptyline)
-tinib
-tirelin (see -relin)
-tizide
-tocin
-toin
-tolimod (see -imod)
-trakin (see -kin)
-trakinra (see -kinra)
-traline
-tredekin (see -kin)
-trexate
-trexed
-tricin
-trigine
-tril/-trilat
-triptan
-triptyline
-troban
-trodast (see -ast)
trop
-verine
-vetmab (see mab)
vin/-vin-
vir
-vircept (see -cept)
-virine (see vir)
-viroc (see vir)
virsen
-v( )mab (see mab)
vos (see fos)
vudine (see -uridine)
-xaban
-xanox (see ox/-alox)
xetan
-yzine (see -izine)
zafone
-zepine (see -pine)
zolast (see -ast)
zolid
-uplase (see -ase)
-uridine
-vaptan
-vastatin (see -stat)
-vec (see -gene)
## Part II B

### Alphabetical list of common stems and their definition

<table>
<thead>
<tr>
<th>Stem</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>-abine (see -arabine and -citabine)</td>
<td>arabinofuranosyl derivatives; nucleosides antiviral or antineoplastic agents, cytarabine or azacitidine derivatives</td>
</tr>
<tr>
<td>-ac</td>
<td>anti-inflammatory agents, ibufenac derivatives</td>
</tr>
<tr>
<td>-acetam (see -racetam)</td>
<td>amide type nootrope agents, piracetam derivatives</td>
</tr>
<tr>
<td>-actide</td>
<td>synthetic polypeptide with a corticotropin-like action</td>
</tr>
<tr>
<td>-adol/-adol-</td>
<td>analgesics</td>
</tr>
<tr>
<td>-adom</td>
<td>analgesics, tifluadom derivatives</td>
</tr>
<tr>
<td>-afenone</td>
<td>antiarrhythmics, propafenone derivatives</td>
</tr>
<tr>
<td>-afil</td>
<td>inhibitors of phosphodiesterase PDE5 with vasodilator action</td>
</tr>
<tr>
<td>-aj-</td>
<td>antiarrhythmics, ajmaline derivatives</td>
</tr>
<tr>
<td>-al</td>
<td>aldehydes</td>
</tr>
<tr>
<td>-aldrate</td>
<td>antacids, aluminium salts</td>
</tr>
<tr>
<td>-alol (see -olol)</td>
<td>aromatic ring related to -olols</td>
</tr>
<tr>
<td>-alox (see -ox)</td>
<td>antacids, aluminium derivatives</td>
</tr>
<tr>
<td>-amivir (see vir)</td>
<td>neuraminidase inhibitors</td>
</tr>
<tr>
<td>-ampanel</td>
<td>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)</td>
</tr>
<tr>
<td>andr</td>
<td>steroids, androgens</td>
</tr>
<tr>
<td>-anib</td>
<td>angiogenesis inhibitors</td>
</tr>
<tr>
<td>-anide</td>
<td>-</td>
</tr>
<tr>
<td>-anserin</td>
<td>serotonin receptor antagonists (mostly 5-HT₂)</td>
</tr>
<tr>
<td>-antel</td>
<td>anthelmintics (undefined group)</td>
</tr>
<tr>
<td>-antrone</td>
<td>antineoplastics; anthraquinone derivatives</td>
</tr>
</tbody>
</table>
-pine (see -pine) tricyclic compounds
-apt- aptamers, classical and mirror ones
-(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 anti-allergic or anti-inflammatory, not acting as anti-histaminics
-astine antihistaminics
-asvir (see –vir) antivirals, hepatitis C Virus (HCV) NS5A inhibitors
-azam (see -azepam) diazepam derivatives
-azenil benzodiazepine receptor antagonists/agonists (benzodiazepine derivatives)
-azepam diazepam derivatives
-azepide cholecystokinin receptor antagonists, benzodiazepine derivatives
-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
-bacept (see -cept) B-cell activating factor receptors
-bactam β-lactamase inhibitors
<table>
<thead>
<tr>
<th>Stem</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-bamate</td>
<td>tranquillizers, propanediol and pentanediol derivatives</td>
</tr>
<tr>
<td>barb</td>
<td>hypnotics, barbituric acid derivatives</td>
</tr>
<tr>
<td>-begron</td>
<td>β3-adrenoreceptor agonists</td>
</tr>
<tr>
<td>-benakin (see -kin)</td>
<td>interleukin-1 analogues and derivatives</td>
</tr>
<tr>
<td>-bendan (see -dan)</td>
<td>cardiac stimulants, pimobendan derivatives</td>
</tr>
<tr>
<td>-bendazole</td>
<td>anthelminthics, tiabendazole derivatives</td>
</tr>
<tr>
<td>-bercept (see -cept)</td>
<td>target: VEGF receptors</td>
</tr>
<tr>
<td>-bermin (see -ermin)</td>
<td>vascular endothelial growth factors</td>
</tr>
<tr>
<td>-bersat</td>
<td>anticonvulsants, benzoylamino-benzpyran derivatives</td>
</tr>
<tr>
<td>-betasol (see pred)</td>
<td>prednisone and prednisolone derivatives</td>
</tr>
<tr>
<td>bol</td>
<td>anabolic steroids</td>
</tr>
<tr>
<td>-bradine</td>
<td>bradycardic agents</td>
</tr>
<tr>
<td>-brate (see -fibrate)</td>
<td>clofibrate derivatives</td>
</tr>
<tr>
<td>-brutinib (see tinib)</td>
<td>agammaglobulinaemia tyrosine kinase (Bruton tyrosine kinase) inhibitors</td>
</tr>
<tr>
<td>-bufen</td>
<td>non-steroidal anti-inflammatory agents, arylbutanoic acid derivatives</td>
</tr>
<tr>
<td>-bulin</td>
<td>antineoplastics; mitotic inhibitor, tubulin binder</td>
</tr>
<tr>
<td>-butazone (see -buzone)</td>
<td>anti-inflammatory analgesics, phenylbutazone derivatives</td>
</tr>
<tr>
<td>-buvir (see vir)</td>
<td>RNA polymerase (NS5B) inhibitors</td>
</tr>
<tr>
<td>-buzone</td>
<td>anti-inflammatory analgesics, phenylbutazone derivatives</td>
</tr>
<tr>
<td>-caine</td>
<td>local anaesthetics</td>
</tr>
<tr>
<td>-cain-</td>
<td>class I antiarrhythmics, procainamide and lidocaine derivatives</td>
</tr>
<tr>
<td>calci</td>
<td>vitamin D analogues/derivatives</td>
</tr>
<tr>
<td>-capone</td>
<td>catechol-O-methyltransferase (COMT) inhibitors</td>
</tr>
<tr>
<td>carbef</td>
<td>antibiotics, carbacephem derivatives</td>
</tr>
</tbody>
</table>
-carnil (see -azenil) benzodiazepine receptor antagonists/agonists (carboline derivatives)
-castat (see -stat) dopamine-hydroxylase inhibitors
-catib cathepsin inhibitors
-cavir (see vir) carbocyclic nucleosides
-cef- antibiotics, cefalosporanic acid derivatives
-cel substances for cell therapies
-cell-/cel- cellulose derivatives
-cell-ate (see cell-/cel-) cellulose ester derivatives for substances containing acidic residues
-cellose (see cell-/cel-) cellulose ether derivatives
-cept receptor molecules or membrane ligands, native, modified or synthetic
-cetrapib cholesteryl ester transfer protein (CETP) inhibitors
-cic hepatoprotective substances with a carboxylic acid group
-ciclovir (see vir) antivirals, bicyclic heterocycles compounds
-cidin naturally occurring antibiotics (undefined group)
-ciguat guanylate cyclase activators and stimulators
-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 nucleosides antiviral or antineoplastic agents, cytarabine or azacitidine derivatives
-citinib (see –tinib) Janus kinase inhibitors
-clidine/-clidinium muscarinic receptor agonists/antagonists
-clone hypnotic tranquillizers
-cocept (see -cept) complement receptors
-cog blood coagulation factors
-cogin blood coagulation cascade inhibitors
-conazole systemic antifungal agents, miconazole derivatives
<table>
<thead>
<tr>
<th>Stem</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cort</td>
<td>corticosteroids, except prednisolone derivatives</td>
</tr>
<tr>
<td>-coxib</td>
<td>selective cyclo-oxygenase inhibitors</td>
</tr>
<tr>
<td>-crinat</td>
<td>diuretics, etacrynic acid derivatives</td>
</tr>
<tr>
<td>-crine</td>
<td>acridine derivatives</td>
</tr>
<tr>
<td>-cromil</td>
<td>antiallergics, cromoglicic acid derivatives</td>
</tr>
<tr>
<td>-curium (see -ium)</td>
<td>curare-like substances</td>
</tr>
<tr>
<td>-cycline</td>
<td>antibiotics, protein-synthesis inhibitors, tetracycline derivatives</td>
</tr>
<tr>
<td>-dan</td>
<td>cardiac stimulants, pimobendan derivatives</td>
</tr>
<tr>
<td>-dapsone</td>
<td>antimycobacterials, diaminodiphenylsulfone derivatives</td>
</tr>
<tr>
<td>-decakin (see -kin)</td>
<td>interleukin-10 analogues and derivatives</td>
</tr>
<tr>
<td>-degib</td>
<td>SMO receptor antagonists</td>
</tr>
<tr>
<td>-denoson</td>
<td>adenosine A receptor agonists</td>
</tr>
<tr>
<td>-dermin (see -ermin)</td>
<td>epidermal growth factors</td>
</tr>
<tr>
<td>-dil</td>
<td>vasodilators</td>
</tr>
<tr>
<td>-dilol (see -dil)</td>
<td>vasodilators</td>
</tr>
<tr>
<td>-dipine</td>
<td>calcium channel blockers, nifedipine derivatives</td>
</tr>
<tr>
<td>-dismase (see -ase)</td>
<td>enzymes with superoxide dismutase activity, see -ase</td>
</tr>
<tr>
<td>-distim (see -stim)</td>
<td>combination of two different types of colony stimulating factors</td>
</tr>
<tr>
<td>-dodekin (see -kin)</td>
<td>interleukin-12 analogues and derivatives</td>
</tr>
<tr>
<td>-domide</td>
<td>antineoplastics, thalidomide derivatives</td>
</tr>
<tr>
<td>-dopa</td>
<td>dopamine receptor agonists, dopamine derivatives, used as antiparkinsonism/prolactin inhibitors</td>
</tr>
<tr>
<td>-dotin</td>
<td>synthetic derivatives of dolastatin series</td>
</tr>
<tr>
<td>-dox (see -ox/-alox)</td>
<td>antibacterials, quinazoline dioxide derivatives</td>
</tr>
<tr>
<td>-dralazine</td>
<td>antihypertensives, hydrazinephthalazine derivatives</td>
</tr>
<tr>
<td>-drine</td>
<td>sympathomimetics</td>
</tr>
<tr>
<td>Stem</td>
<td>Description</td>
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</tr>
<tr>
<td>-dronic acid</td>
<td>calcium metabolism regulator, pharmaceutical aid</td>
</tr>
<tr>
<td>-dustat (see stat)</td>
<td>hypoxia inducible factor (HIF) prolyl hydroxylase inhibitors</td>
</tr>
<tr>
<td>-dutant (see -tant)</td>
<td>neurokinin NK₂ receptor antagonist</td>
</tr>
<tr>
<td>-dyl (see -dil)</td>
<td>vasodilators</td>
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<tr>
<td>-ectin</td>
<td>antiparasitics, ivermectin derivatives</td>
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<tr>
<td>-elestat (see -stat)</td>
<td>elastase inhibitors</td>
</tr>
<tr>
<td>-elvekin (see -kin)</td>
<td>interleukin-11 analogues and derivatives</td>
</tr>
<tr>
<td>-emcinal</td>
<td>erythromycin derivatives lacking antibiotic activity, motilin agonists</td>
</tr>
<tr>
<td>-enicokin (see -kin)</td>
<td>interleukin-21 human analogues and derivatives</td>
</tr>
<tr>
<td>-entan</td>
<td>endothelin receptor antagonists</td>
</tr>
<tr>
<td>(-)eptacog (see -cog)</td>
<td>blood coagulation VII</td>
</tr>
<tr>
<td>erg</td>
<td>ergot alkaloid derivatives</td>
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<tr>
<td>-eridine</td>
<td>analgesics, pethidine derivatives</td>
</tr>
<tr>
<td>-ermin</td>
<td>growth factors</td>
</tr>
<tr>
<td>estr</td>
<td>estrogens</td>
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<tr>
<td>-etanide (see -anide)</td>
<td>diuretics, piretanide derivatives</td>
</tr>
<tr>
<td>-ethidine (see -eridine)</td>
<td>analgesics, pethidine derivatives</td>
</tr>
<tr>
<td>-exakin (see -kin)</td>
<td>interleukin-6 analogues and derivatives</td>
</tr>
<tr>
<td>-exine</td>
<td>mucolytic, bromhexine derivatives</td>
</tr>
<tr>
<td>-farcept (see -cept)</td>
<td>subgroup of interferon receptors</td>
</tr>
<tr>
<td>-fenacin</td>
<td>muscarinic receptor antagonists</td>
</tr>
<tr>
<td>-fenamate (see -fenamic acid)</td>
<td>“fenamic acid” derivatives</td>
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<tr>
<td>-fenamic acid</td>
<td>anti-inflammatory, anthranilic acid derivatives</td>
</tr>
<tr>
<td>-fenin</td>
<td>diagnostic aids; (phenylcarbamoyl)methyl iminodiacetic acid derivatives</td>
</tr>
<tr>
<td>Stem</td>
<td>Description</td>
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<tr>
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</tr>
<tr>
<td>-fenine</td>
<td>analgesics, glafenine derivatives (subgroup of fenamic acid group)</td>
</tr>
<tr>
<td>-fensine</td>
<td>norepinephrine, serotonin, dopamine reuptake inhibitors</td>
</tr>
<tr>
<td>-fentanil</td>
<td>opioid receptor agonists, analgesics, fentanyl derivatives</td>
</tr>
<tr>
<td>-fentrine</td>
<td>inhibitors of phosphodiesterases</td>
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<tr>
<td>-fermin (see -ermin)</td>
<td>fibroblast growth factors</td>
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<tr>
<td>-fiban</td>
<td>fibrinogen receptor antagonists (glycoprotein IIb/IIIa receptor antagonists)</td>
</tr>
<tr>
<td>-fibrate</td>
<td>clofibrate derivatives, peroxisome proliferator activated receptor-α (PPAR-α) agonists</td>
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<tr>
<td>-filermin (see -ermin)</td>
<td>leukemia-inhibiting factor</td>
</tr>
<tr>
<td>-flapon</td>
<td>5-lipoxygenase-activating protein (FLAP) inhibitor</td>
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<tr>
<td>-flurane</td>
<td>halogenated compounds used as general inhalation anaesthetics</td>
</tr>
<tr>
<td>-formin</td>
<td>antihyperglycaemics, phenformin derivatives</td>
</tr>
<tr>
<td>fos</td>
<td>insecticides, anthelminthics, pesticides etc., phosphorous derivatives</td>
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<tr>
<td>-fosfamide (see -fos)</td>
<td>alkylating agents of the cyclophosphamide group</td>
</tr>
<tr>
<td>-fosine (see -fos)</td>
<td>cytostatic</td>
</tr>
<tr>
<td>-fovir (see vir)</td>
<td>phosphonic acid derivatives</td>
</tr>
<tr>
<td>-fradil</td>
<td>calcium channel blockers acting as vasodilators</td>
</tr>
<tr>
<td>-frine (see -drine)</td>
<td>sympathomimetic, phenethyl derivatives</td>
</tr>
<tr>
<td>-fungin</td>
<td>antifungal antibiotics</td>
</tr>
<tr>
<td>-fylline</td>
<td>N-methylated xanthine derivatives</td>
</tr>
</tbody>
</table>

**G**

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<thead>
<tr>
<th>Stem</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>gab</td>
<td>gabamimetic agents</td>
</tr>
<tr>
<td>gado-</td>
<td>diagnostic agents, gadolinium derivatives</td>
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<tr>
<td>-gacestat (see stat)</td>
<td>gamma-secretase inhibitors</td>
</tr>
<tr>
<td>-gatran</td>
<td>thrombin inhibitor, antithrombotic agent</td>
</tr>
<tr>
<td>-gene</td>
<td>gene therapy substances</td>
</tr>
<tr>
<td>Stem</td>
<td>Description</td>
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<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>-gepant</td>
<td>calcitonin gene-related peptide receptor antagonists</td>
</tr>
<tr>
<td>gest</td>
<td>steroids, progestogens</td>
</tr>
<tr>
<td>-gestr- (see estr)</td>
<td>estrogens</td>
</tr>
<tr>
<td>-giline</td>
<td>monoamine oxydase (MAO)-inhibitors type B</td>
</tr>
<tr>
<td>-gillin</td>
<td>antibiotics produced by <em>Aspergillus</em> strains</td>
</tr>
<tr>
<td>gli</td>
<td>antihyperglycaemics</td>
</tr>
<tr>
<td>-gliflozin (see gli)</td>
<td>sodium glucose co-transporter inhibitors, phlorizin derivatives</td>
</tr>
<tr>
<td>-gliptin (see gli)</td>
<td>dipeptidyl aminopeptidase–IV inhibitors</td>
</tr>
<tr>
<td>-glitazar (see gli)</td>
<td>dual peroxisome proliferator activated receptors-α and γ (PPAR-α,γ) agonists</td>
</tr>
<tr>
<td>-glitazone (see gli)</td>
<td>peroxisome proliferator activating receptor-γ (PPAR-γ) agonists, thiazolidinedione derivatives</td>
</tr>
<tr>
<td>-glumide</td>
<td>cholecystokinin (CCK) antagonists, antiulcer, anxiolytic agent</td>
</tr>
<tr>
<td>-glurant</td>
<td>metabotropic glutamate receptor antagonists/ negative allosteric modulators</td>
</tr>
<tr>
<td>-glutide (see -tide)</td>
<td>Glucagon-Like Peptide (GLP) analogues</td>
</tr>
<tr>
<td>-golide</td>
<td>dopamine receptor agonists, ergoline derivatives</td>
</tr>
<tr>
<td>-gosivir (see vir)</td>
<td>glucoside inhibitors</td>
</tr>
<tr>
<td>-gramostim (see -stim)</td>
<td>granulocyte macrophage colony stimulating factor (GM-CSF) types substances</td>
</tr>
<tr>
<td>-grastim (see -stim)</td>
<td>granulocyte colony stimulating factor (G-CSF) type substances</td>
</tr>
<tr>
<td>-grel/-grel</td>
<td>platelet aggregation inhibitors</td>
</tr>
<tr>
<td>guan-</td>
<td>antihypertensives, guanidine derivatives</td>
</tr>
<tr>
<td>-ibine (see -ribine)</td>
<td>ribofuranyl-derivatives of the &quot;pyrazofurin&quot; type</td>
</tr>
<tr>
<td>-icam</td>
<td>anti-inflammatory, isoxicam derivatives</td>
</tr>
<tr>
<td>-ifene</td>
<td>antiestrogens or estrogen receptor modulators, clomifene and tamoxifen derivatives</td>
</tr>
<tr>
<td>-igetide (see -tide)</td>
<td>peptides and glycopeptides</td>
</tr>
</tbody>
</table>
-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 antineoplasics)
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  thrombin inhibitors, hirudin derivatives
-isant  histamine H3 receptor antagonists
-isomide  class I antiarrhythmics, disopyramide derivatives
-ium  quaternary ammonium compounds
-izine (-yzine)  diphenylmethyl piperazine derivatives

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

L
-laner  antagonists of GABA (gamma-aminobutyric acid) regulated chloride channels, antiparasitic agents
-lefacept (see -cept) lymphocyte function-associated antigen 3 receptors
-leukin (see -kin) interleukin-2 analogues and derivatives
-lisib phosphatidylinositol 3-kinase inhibitors, antineoplastics
-listat (see -stat) gastrointestinal lipase inhibitors
-lubant leukotriene B₄ receptor antagonist
-lukast (see -ast) leukotriene receptor antagonists
-lutamide non-steroid antiandrogens

M
-mab monoclonal antibodies
-mantadine adamantane derivatives
-mantine (see -mantadine) adamantane derivatives
-mantone (see -mantadine) adamantane derivatives
-mapimod (see -imod) mitogen-activated protein (MAP) kinase inhibitors
-mastat (see -stat) matrix metalloproteinase inhibitors
-meline cholinergic agents (muscarnine 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, indometacin derivatives
-met(h)asone (see pred) prednisone and prednisolone derivatives
-metinib (see –tinib) MEK (MAPK# kinase) tyrosine kinase inhibitors
# MAPK: mitogen activated protein kinase
-micin aminoglycosides, antibiotics obtained from various
Micromonospora
-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
-motide (see -tide) immunological agents for active immunization
-motine antivirals, quinoline derivatives
-moxin monoamine oxidase inhibitors, hydrazine derivatives
-mulin antibacterials, pleuromulin derivatives
-mustine antineoplastic, alkylating agents, (β-chloroethyl) amine derivatives
-mycin antibiotics, produced by Streptomyces strains (see also -kacin)

N

nab cannabinoid receptors agonists
-nabant cannabinoid receptors antagonists
-nacept (see -cept) interleukin-1 receptors
-nakin (see -kin) interleukin-1 analogues and derivatives
-nakinra (see -kin) interleukin-1 receptor antagonists
-nal- opioid receptor antagonists/agonists related to normorphine
-naritide (see -tide) peptides and glycopeptides
-navir (see vir) Human Immunodeficiency Virus (HIV) protease inhibitors
-nepag prostaglandins receptors agonists, non-prostanoids
-nermin (see -ermin) tumour necrosis factor
-nercept (see -cept) tumour necrosis factor receptors
-nertant (see -tant) neurotensin antagonists
-netant (see -tant) neurokinin NK3 receptor antagonists
-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-/nit/-ni-ni-  
NO₂ - derivatives

-nixin  
anti-inflammatory, anilinonicotinic acid derivatives

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

0

octakin (see -kin)  
interleukin-8 analogues and derivatives

-octadekin (see -kin)  
interleukin-18 human analogues and derivatives

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

-ol  
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

-orexant  
orexin receptor antagonists

-orph- (see orphan)  
opioid receptor antagonists/agonists, morphinan derivatives

orphan  
opioid receptor antagonists/agonists, morphinan derivatives
-otermin (see -ermin)  | bone morphogenetic proteins
-oxy/-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         | serotonin and/or norepinephrine reuptake inhibitors, fluoxetine derivatives
-oxicam (see -icam) | anti-inflammatory, isoxicam derivatives
-oxifene (see -ifene) | antiestrogens or estrogen receptor modulators, clomifene and tamoxifen derivatives
-oxopine (see -pine) | tricyclic compounds

P
-pafant          | platelet-activating factor antagonists
-pamide          | diuretics, sulfamoylbenzoic acid derivatives (could be sulfamoylbenzamide)
-pamil           | calcium channel blocker, verapamil derivatives
-parcin          | for glycopeptide antibiotics
-parib            | poly-ADP-Ribose polymerase inhibitors
-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-piperidinobutyrophenone derivatives
-pidem            | hypnotics/sedatives, zolpidem derivatives
-pin(e) tricyclic compounds
-piprazole (see -prazole) psychotropics, phenylpiperazine derivatives
-pirone (see -spirone) anxiolytics, buspirone derivatives
-pirox (see -ox/-alox) antimycotic pyridone derivatives
-pitant (see -tant) neurokinin NK₁ (substance P) receptor antagonist
-plact platelet factor 4 analogues and derivatives
-pladib phospholipase A₂ inhibitors
-planin glycopeptide antibacterials (Actinoplanes strains)
-plase (see -ase) enzymes
-plasmid (see -gene) gene therapy substances
-platin antineoplastic agents, platinum derivatives
-plermin (see -ermin) platelet-derived growth factor
-plestim (see -stim and -kin) interleukin-3 analogues and derivatives
-plon imidazopyrimidine or pyrazolopyrimidine 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
-prazan proton pump inhibitors, not dependent on acid activation
-prazol antiulcer, benzimidazole derivatives
-pred prednisone and prednisolone derivatives
-prenaline (see -terol) bronchodilators, phenethylamine derivatives
-pressin vasoconstrictors, vasopressin derivatives
-previr (see vir) Hepatitis Virus C (HVC) protease inhibitors
-pride sulpiride derivatives
-pril angiotensin-converting enzyme inhibitors
-prilat (see -pril) angiotensin-converting enzyme inhibitors
-prim antibacterials, dihydrofolate reductase (DHFR) inhibitors, trimethoprim derivatives
-pris-  
steroildal compounds acting on progesterone receptors (excluding -gest- compounds)

-pristin  
antibacterials, streptogramins, protein synthesis inhibitors, pristinamycin derivatives

-profen  
anti-inflammatory agents, ibuprofen derivatives

prost  
prostaglandins

-prostil (see prost)  
prostaglandins, anti-ulcer

Q

-quidar  
drugs used in multidrug resistance, quinoline derivatives

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

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

R

-racetam  
amide type nootrope agents, piracetam derivatives

-racil  
uracil type antineoplastics

-rafenib  
Raf (rapidly accelerated fibrosarcoma) kinase inhibitors

-relin  
pituitary hormone-release stimulating peptides

-relix  
gonadotropin-releasing-hormone (GnRH) inhibitors, peptides

-renone  
aldosterone antagonists, spironolactone derivates

-reatide (see tide)  
somatostatin receptor agonists/antagonists

-restat (see -stat)  
aldose reductase inhibitors

-retin  
retinol derivatives

-ribine  
ribofuranyl-derivatives of the “pyrazofurin” type

-rifa-  
antiotics, rifamycin derivatives

-rinone  
cardiac stimulants, amrinone derivatives

-ritide  
natriuretic peptides

-rixin  
chemokine CXCR receptors antagonists
-rizine (see -izine) antihistaminics/cerebral (or peripheral) vasodilators
-rolimus (see -imus) immunosuppressants, rapamycin derivatives
-rozole aromatase inhibitors, imidazole-triazole derivatives
-rsen antisense oligonucleotides
-rubicin antineoplastics, daunorubicin derivatives

S
sal salicylic acid derivatives
salazo- phenylazosalicylic acid derivatives antibacterial
-salan brominated salicylamide derivatives disinfectant
-sartan angiotensin II receptor antagonists, antihypertensive (non-peptidic)
-semide diuretics, furosemide derivatives
-sermin (see -ermin) insulin-like growth factors
-serod serotonin receptor antagonists and partial agonists
-serpine derivatives of Rauwolfia alkaloids
-sertib serine/threonine kinase inhibitors
-setron serotonin receptor antagonists (5-HT3) not fitting into other established groups of serotonin receptor antagonists
-siban oxytocin antagonists
-siran small interfering RNA
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
-steride (see -ster-) androgens/anabolic steroids
-stigmine acetylcholinesterase inhibitors
-stim colony stimulating factors
-sulfa- anti-infectives, sulfonamides
-sulfan antineoplastic, alkylating agents, methanesulfonates
-tacept (see -cept)  cytotoxic T lymphocyte-associated antigen 4 (CTLA-4) receptors
-tadine  tricyclic histamine-H₁ receptor antagonists, tricyclic compounds
-tansine  maytansinoid derivatives, antineoplastics
-tant  neurokinin (tachykinin) receptor antagonists
-tapide  microsomal triglyceride transfer protein (MTP) inhibitors
-taxel  antineoplastics; taxane derivatives
-tecan  antineoplastics, topoisomerase I inhibitors
-tegravir  HIV integrase inhibitors
-tepa  antineoplastics, thiotepa derivatives
-tepine (see -pine)  tricyclic compounds
-teplase (see -ase)  tissue type plasminogen activators, see -ase
-tercept (see -cept)  transforming growth factors receptors
-termin (see -ermin)  transforming growth factor
-terol  bronchodilators, phenethyamine derivatives
-terone  antiandrogens
-thiouracil (see -racil)  uracil derivatives used as thyroid antagonists
-tiazem  calcium channel blockers, diltiazem derivatives
-tibant  bradykinin receptor antagonists
-tide  peptides and glycopeptides (for special groups of peptides see -actide, -pressin, -relin, -tocin)
-tidine  histamine-H₂-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
-tolimod (see -imod) toll-like receptors (TLR) agonists
-trakin (see -kin) interleukin-4 analogues and derivatives
-trakinra (see -kinra) interleukin-4 receptor antagonists
-traline serotonin reuptake inhibitors
-tredekin (see -kin) interleukin-13 analogues and derivatives
-trexate folic acid analogues
-trexed antineoplastics; thymidilate synthetase inhibitors
-tricin antibiotics, polyene derivatives
-trigine sodium channel blockers, signal transduction modulators
-tril/trilat endopeptidase inhibitors
-triptan serotonin (5HT1) receptor agonists, sumatriptan derivatives
-triptyan antidepressants, dibenzo[a,d]cyclohepta ne or cycloheptene derivatives
-troban thromboxane A2 receptor antagonists; antithrombotic agents
-trodast (see -ast) thromboxane A2 receptor antagonists, antiasthmatics
-trop atropine derivatives

U
-uplase (see -ase) urokinase type plasminogen activators, see -ase
-ur (see -uridine) uridine derivatives used as antiviral agents and as antineoplastics
-uridine uridine derivatives used as antiviral agents and as antineoplastics

V
-vaptan vasopressin receptor antagonists
-vastatin (see -stat) antihyperlipidaemic substances, HMG CoA reductase inhibitors
-vec (see -gene) gene therapy product
-verine spasmolytics with a papaverine-like action
-vetmab (see -mab) monoclonal antibodies for veterinary use
vin-/vin- vinca alkaloids
vir antivirals (undefined group)
-vircept (see -cept) antiviral receptors
-virine (see vir) non-nucleoside reverse transcriptase inhibitors (NNRTI)
-viroc (see -vir) CCR5 (Chemokine CC motif receptor 5) receptor antagonists
-virsen antisense oligonucleotides
-vos (see fos) insecticides, anthelminthics, pesticides etc., phosphorus derivatives
-vudine (see -uridine) uridine derivatives used as antiviral agents and as antineoplastics

X
-xaban blood coagulation factor X_A inhibitors, antithrombotics
-xanox (see -ox/-alox) anti-allergics, tixanox group
-xetan chelating agents

Y
-yzine (see -izine) diphenylmethyl piperazine derivatives

Z
-zafone alozafone derivatives
-zepine (see -pine) tricyclic compounds
-zolast (see -ast) leukotriene biosynthesis inhibitors
-zolid oxazolidinone antibacterials
-zomib proteasome inhibitors
-zone (see -buzone) anti-inflammatory analgesics, phenylbutazone derivatives
-zotan 5-HT_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>
<thead>
<tr>
<th>A000</th>
<th>CNS DEPRESSANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A100</td>
<td>General anaesthetics</td>
</tr>
<tr>
<td>A110</td>
<td>General anaesthetics, volatile</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</td>
</tr>
<tr>
<td>A220</td>
<td>Hypnotic sedatives, other</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>A240</td>
<td>Chloral derivatives, hypnotic sedatives</td>
</tr>
<tr>
<td>A300</td>
<td>Centrally acting voluntary muscle tone modifying drugs</td>
</tr>
<tr>
<td>A310</td>
<td>Antiepileptics</td>
</tr>
<tr>
<td>A311</td>
<td>Hydantoins, Antiepileptics</td>
</tr>
<tr>
<td>A312</td>
<td>Acetylureas, Antiepileptics</td>
</tr>
<tr>
<td>A313</td>
<td>Oxazolidinediones, Antiepileptics</td>
</tr>
<tr>
<td>A314</td>
<td>Succinimides, Antiepileptics</td>
</tr>
<tr>
<td>A315</td>
<td>Barbiturates, Antiepileptics</td>
</tr>
<tr>
<td>A316</td>
<td>Antiepileptics, 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 and antipyretics, please see AA code here below.</td>
</tr>
<tr>
<td>A500</td>
<td>Antivertigo drugs</td>
</tr>
</tbody>
</table>
**AA- ANALGESICS AND ANTIPYRETICS**

*The stems here below have been extracted from the A-CNS depressant category since not all analgesics are CNS depressants. In this context, a subcategory “AA- Analgesics and antipyretics” has been created to better reflect this information.*

<table>
<thead>
<tr>
<th>A400</th>
<th>Analgesics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A410</td>
<td>Opioids</td>
</tr>
<tr>
<td>A410</td>
<td>-adol or -adol- analgesics</td>
</tr>
<tr>
<td>A410</td>
<td>-azocine narcotic antagonists/agonists related to 6,7-benzomorphan</td>
</tr>
<tr>
<td>A410</td>
<td>-eridine analgesics, pethidine derivatives</td>
</tr>
<tr>
<td>A410</td>
<td>-ethidine see -eridine</td>
</tr>
<tr>
<td>A410</td>
<td>-fentanil opioid receptor agonists, analgesics, fentanyl derivatives</td>
</tr>
<tr>
<td>A410</td>
<td>nal- opioid receptor antagonists/agonists related to normorphine</td>
</tr>
<tr>
<td>A410</td>
<td>orphan opioid receptor antagonists/agonists, morphinan derivates; -orphine, -orphinol, -orphone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A420</th>
<th>Analgesics - Antipyretics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A420</td>
<td>-ac anti-inflammatory agents, ibufenac derivatives</td>
</tr>
<tr>
<td>A420</td>
<td>-adol or -adol- analgesics</td>
</tr>
<tr>
<td>A420</td>
<td>-arit antiarthritic substances, acting like clobuzarit and lobenzarit (mechanism different from anti-inflammatory type substances, e.g. -fenamates or -profens)</td>
</tr>
<tr>
<td>A420</td>
<td>-bufen non-steroidal anti-inflammatory agents, arybutanonic acid derivatives</td>
</tr>
<tr>
<td>A420</td>
<td>-butaze anti-inflammatory analgesics, phenylbutazone derivatives</td>
</tr>
<tr>
<td>A420</td>
<td>-buzone anti-inflammatory analgesics, phenylbutazone derivatives</td>
</tr>
<tr>
<td>A420</td>
<td>-coxib selective cyclo-oxygenase inhibitors</td>
</tr>
<tr>
<td>A420</td>
<td>-fenamate “-fenamic acid” derivatives</td>
</tr>
<tr>
<td>A420</td>
<td>-fenamic acid anti-inflammatory, anthranilic acid derivatives</td>
</tr>
<tr>
<td>A420</td>
<td>-icam anti-inflammatory, isoxicam derivatives</td>
</tr>
<tr>
<td>A420</td>
<td>-metacn anti-inflammatory, indometacin derivatives</td>
</tr>
<tr>
<td>A420</td>
<td>-nixin anti-inflammatory, anlinonicotinic acid derivatives</td>
</tr>
<tr>
<td>INN</td>
<td>Code</td>
</tr>
<tr>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>INN – the use of stems</td>
<td></td>
</tr>
<tr>
<td>-profen</td>
<td>A420</td>
</tr>
<tr>
<td>-adom</td>
<td>A430</td>
</tr>
<tr>
<td>-fenine, phenine</td>
<td>A430</td>
</tr>
<tr>
<td>Central antiemetics</td>
<td>A440</td>
</tr>
<tr>
<td>-ampanel</td>
<td>B000</td>
</tr>
<tr>
<td>-fylline</td>
<td>B100</td>
</tr>
<tr>
<td>-racetam</td>
<td>B100</td>
</tr>
<tr>
<td>vin- (and -vin-)</td>
<td>B100</td>
</tr>
<tr>
<td>nal-</td>
<td>B200</td>
</tr>
<tr>
<td>orphan</td>
<td>B200</td>
</tr>
<tr>
<td>Benzodiazepine receptor antagonists</td>
<td>B300</td>
</tr>
<tr>
<td>-glurant</td>
<td>C000</td>
</tr>
<tr>
<td>-isant</td>
<td>C000</td>
</tr>
<tr>
<td>-orexant</td>
<td>C000</td>
</tr>
<tr>
<td>-piprazole</td>
<td>C000</td>
</tr>
<tr>
<td>-pride</td>
<td>C000</td>
</tr>
<tr>
<td>-racetam</td>
<td>C000</td>
</tr>
<tr>
<td>-triptan</td>
<td>C000</td>
</tr>
<tr>
<td>-zotan</td>
<td>C000</td>
</tr>
<tr>
<td>-azeril</td>
<td>C100</td>
</tr>
<tr>
<td>-azepam</td>
<td>C100</td>
</tr>
<tr>
<td>INN Stem</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>C100-bamate</td>
<td>Tranquillizers, propanediol and pentanediol derivatives</td>
</tr>
<tr>
<td>C100-carnil</td>
<td>Benzodiazepine receptor antagonists/agonists (carboline derivatives)</td>
</tr>
<tr>
<td>C100-peridone</td>
<td>See -perone: antipsychotics, risperidone derivatives</td>
</tr>
<tr>
<td>C100-perone</td>
<td>Tranquillizers, neuroleptics, 4'-fluoro-4-piperidino-butyrophenone derivatives</td>
</tr>
<tr>
<td>C100-pidem</td>
<td>Hypnotics/sedatives, zolpidem derivatives</td>
</tr>
<tr>
<td>C100-plon</td>
<td>Imidazopyrimidine or pyrazolopyrimidine derivatives, used as anxiolytics, sedatives, hypnotics</td>
</tr>
<tr>
<td>C100-quinil</td>
<td>Benzodiazepine receptor agonists also partial or inverse (quinoline derivatives), see -azenil</td>
</tr>
<tr>
<td>C100-spirone</td>
<td>Anxiolytics, buspirone derivatives</td>
</tr>
<tr>
<td>C100-zafone</td>
<td>Alозafone derivatives</td>
</tr>
<tr>
<td>C200-perone</td>
<td>Antipsychotics (neuroleptics), 4'-fluoro-4-piperidino-butyrophenone derivatives; -peridol: antipsychotics, haloperidol derivatives; -peridone: antipsychotics, risperidone derivatives</td>
</tr>
<tr>
<td>C210</td>
<td>Brain amine depleters</td>
</tr>
<tr>
<td>C220</td>
<td>Central adrenoreceptor antagonists</td>
</tr>
<tr>
<td>C300-fensine</td>
<td>Norepinephrine, serotonin, dopamine reuptake inhibitors</td>
</tr>
<tr>
<td>C300-oxetine</td>
<td>Serotonin and/or norepinephrine reuptake inhibitors, fluoxetine derivatives</td>
</tr>
<tr>
<td>C300-traline</td>
<td>Serotonin reuptake inhibitors</td>
</tr>
<tr>
<td>C310-giline</td>
<td>MAO-inhibitors type B</td>
</tr>
<tr>
<td>C310-moxin</td>
<td>Monoamine oxidase inhibitors, hydrazine derivatives</td>
</tr>
<tr>
<td>C320-pin(e)</td>
<td>Tricyclic compounds; dipine: see -dipine; -zepine: antidepressant/neuroleptic; C.0.0.0 -apine: psychoactive; A.3.1.0 cipine: antiepileptic; -oxepin, -oxopine, -sopine, -tepine</td>
</tr>
<tr>
<td>C320-pramine</td>
<td>Substances of the imipramine group</td>
</tr>
<tr>
<td>C320-triptyline</td>
<td>Antidepressants, dibenzo[a,d] cycloheptene or cycloheptene derivatives</td>
</tr>
<tr>
<td>C330</td>
<td>Tetracyclic antidepressants</td>
</tr>
<tr>
<td>C340</td>
<td>Bicyclic antidepressants</td>
</tr>
<tr>
<td>C400</td>
<td>Indirect releasers of catecholamines</td>
</tr>
<tr>
<td>C500</td>
<td>Psychodysleptics (hallucinogens)</td>
</tr>
<tr>
<td>C600</td>
<td>CNS metabolites</td>
</tr>
<tr>
<td>C700</td>
<td>Serotonin receptor antagonists</td>
</tr>
<tr>
<td></td>
<td>-anserin serotonin receptor antagonists (mostly 5-HT&lt;sub&gt;2&lt;/sub&gt;)</td>
</tr>
<tr>
<td></td>
<td>erg ergot alkaloid derivatives</td>
</tr>
<tr>
<td></td>
<td>-setron serotonin receptor antagonists (5-HT&lt;sub&gt;3&lt;/sub&gt;) not fitting into other established groups of serotonin receptor antagonists, see -anserin</td>
</tr>
</tbody>
</table>

| E000 | DRUGS ACTING AT SYNAPTIC AND NEUROEFFECTOR JUNCTIONAL SITES |
|      | gab gabamimetic agents |
| E000 | -nabant cannabinoid receptors antagonists |
| E000 | Local anaesthetics |
|      | -caine local anaesthetics |
| E100 | Cholinergic agents |
|      | -meline cholinergic agents (muscarinic receptor agonists/partial antagonists used in the treatment of Alzheimer's disease) |
| E100 | -clidine/ -clidinium muscarinic receptor agonists/ antagonists |
| E110 | Dopaminergic receptor agonists |
|      | -dopa dopamine receptor agonists, dopamine derivatives, used as antiparkinsonism/prolactin inhibitors |
| E110 | -golide dopamine receptor agonists, ergoline derivatives |
| E111 | Muscarinic receptor agonists |
| E112 | Nicotinic receptor agonists |
|      | -nicline nicotinic acetylcholine receptor partial agonists / agonists |
| E120 | Anticholinesterase agents |
|      | -stigmine anticholinesterases |
| E200 | Cholinergic antagonists |
|      | trop atropine derivatives |
| E210 | Peripheral cholinergic antagonists |
| E220 | Ganglionic antagonists |
| E300 | Neuromuscular blocking agents |
|      | -curium curare-like substance; see -ium |
| E300 | -ium quaternary ammonium compounds; -curium: curare-like substances; -onium |
| E400 | Adrenergic agents |
|      | -azoline antihistaminics or local vasoconstrictors, antazoline derivatives |
### INN – the use of stems

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>E400</td>
<td>sympathomimetics: -drine: sympathomimetic, phenethyl derivatives</td>
<td>-drine, -frine</td>
</tr>
<tr>
<td>E400</td>
<td>sympathomimetic, phenethyl derivatives</td>
<td>-frine</td>
</tr>
<tr>
<td>E400</td>
<td>bronchodilators, phenethylamine derivatives [previously -pranaline or -terenol]</td>
<td>-terol</td>
</tr>
<tr>
<td>E410</td>
<td>Beta adrenoreceptor agonists</td>
<td></td>
</tr>
<tr>
<td>E420</td>
<td>Alpha adrenoreceptor agonists</td>
<td></td>
</tr>
<tr>
<td>E500</td>
<td>Adrenoreceptor antagonists</td>
<td></td>
</tr>
<tr>
<td>E510</td>
<td>Alpha adrenoreceptor antagonists</td>
<td>-oxan(e): benzodioxane derivatives</td>
</tr>
<tr>
<td>E520</td>
<td>Beta adrenoreceptor antagonists</td>
<td>-alol: aromatic ring -CHOH-CH2-NH-R related to -olols</td>
</tr>
<tr>
<td>E520</td>
<td>beta-adrenoreceptor antagonists; -alol: aromatic ring -CH-CH2-NH-R related to -olols</td>
<td>-olol</td>
</tr>
<tr>
<td>E530</td>
<td>Catecholamines false transmitters</td>
<td></td>
</tr>
<tr>
<td>E540</td>
<td>Adrenergic neurone blocking agents</td>
<td>-serpine: derivatives of <em>Rauvolfia</em> alkaloids</td>
</tr>
</tbody>
</table>

### F000 AGENTS ACTING ON SMOOTH MUSCLES

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>F100</td>
<td>Spasmolytics, general</td>
<td>-verine: spasmolytics with a papaverine-like action</td>
</tr>
<tr>
<td>F200</td>
<td>Vasodilators</td>
<td>-afil: inhibitors of PDE5 with vasodilator action</td>
</tr>
<tr>
<td>F200</td>
<td>guanylate cyclase activators and stimulators</td>
<td>-ciguat</td>
</tr>
<tr>
<td>F200</td>
<td>vasodilators</td>
<td>-dil</td>
</tr>
<tr>
<td>F200</td>
<td>endothelin receptor antagonists</td>
<td>-entan</td>
</tr>
<tr>
<td>F210</td>
<td>Calcium channel blockers</td>
<td>-dipine: calcium channel blockers, nifedipine derivatives</td>
</tr>
<tr>
<td>F210</td>
<td>calcium channel blockers acting as vasodilators</td>
<td>-fradil</td>
</tr>
<tr>
<td>F210</td>
<td>calcium channel blockers, verapamil derivatives</td>
<td>-pamil</td>
</tr>
<tr>
<td>F210</td>
<td>calcium channel blockers, diltiazem derivatives</td>
<td>-tiazem</td>
</tr>
<tr>
<td>F220</td>
<td>Peripheral vasodilators</td>
<td>-nicate: antihypercholesterolaemic and/or vasodilating nicotinic acid esters</td>
</tr>
<tr>
<td>F300</td>
<td>Smooth muscle stimulants</td>
<td></td>
</tr>
<tr>
<td>F310</td>
<td>Vasoconstrictor agents</td>
<td></td>
</tr>
<tr>
<td>F400</td>
<td>Agents acting on the uterus</td>
<td>erg: ergot alkaloid derivatives</td>
</tr>
</tbody>
</table>
### INN – the use of stems

#### G000 HISTAMINE AND ANTIHISTAMINICS

##### G100 Histamine and histamine-like drugs

- **G200** Antihistaminics
  - **-astine** antihistaminics

- **G210** Histamine H₁-receptor antagonists
  - **-tadine** histamine-H₁ receptor antagonists, tricyclic compounds

- **G220** Histamine H₂-receptor antagonists
  - **-tidine** histamine-H₂-receptor antagonists, cimetidine derivatives

- **G230** Histamine H₃-receptor antagonists

##### G300 Histamine metabolism agents

#### H000 CARDIOVASCULAR AGENTS

- **H100** Cardiac glycosides and drugs with similar action
  - **-dan** cardiac stimulants, pimobendan derivatives

- **H100** Cardiac stimulants, amrinone derivatives

- **H200** Antiarrhythmics
  - **-afenone** antiarrhythmics, propafenone derivatives

- **H200** Antiarrhythmics, ajmaline derivatives

- **H200** Class I antiarrhythmics, procainamide and lidocaine derivatives (antifibrillants with local anaesthetic activity)

- **H200** Class III antiarrhythmics, sematilide derivatives

- **H200** Class I antiarrhythmics, disopyramide derivatives

- **H200** Potassium channel blockers

- **H300** Antihypertensives
  - **-azosin** antihypertensive substances, prazosin derivatives

- **H300** Antihypertensives, hydralazine derivatives

- **H300** Antihypertensives, guanidine derivatives

- **H300** Potassium channel activators, antihypertensive

- **H300** Renin inhibitors

- **H300** Angiotensin-converting enzyme inhibitors
### H300
- **sartan**
  angiotensin II receptor antagonists, antihypertensive (non-peptidic)

### H400
**Antihyperlipidaemic drugs**
- **-fibrate**
  clofibrate derivatives, peroxisome proliferator activated receptor-α (PPAR-α) agonists

### H400
- **-cetropib**
  Cholesteryl ester transfer protein (CETP) inhibitors

### H400
- **-nicate**
  antihypercholesterolaemic and/or vasodilating nicotinic acid esters

### H400
- **-tapide**
  microsomal triglyceride transfer protein (MTP) inhibitors

### H400
- **-vastatin**
  see -stat; antihyperlipidaemic substances, HMG CoA reductase inhibitors

### H500
**Antivaricose drugs**

### H510
Sclerosing drugs

### H600
Capillary-active drugs, haemostyptics

### H700
Calcium channel blockers

### H800
**Agents influencing the renin-angiotensin system**

### H810
Angiotensin converting enzyme inhibitors

### H820
Angiotensin receptor antagonists

### I000
**BLOOD AND AGENTS ACTING ON THE HAEMOPOIETIC SYSTEM (EXCL. CYTOSTATICS)**

### I100
**Antianaemic agents**

### I110
Iron preparations

### I120
Haematinics, other (Vit. B-12, folic acid, etc.)

### I130
Miscellaneous antianaemic agents

### I200
**Agents influencing blood coagulation**
- **-cog**
  (-)eptacog: blood coagulation VII, (-)octocog: blood factor VIII, (-)nonacog: blood factor IX

### I200
- **-cogin**
  blood coagulation cascade inhibitors

### I200
- **-fiban**
  fibrinogen receptor antagonists (glycoprotein IIb/IIIa receptor antagonists)

### I200
- **-gatran**
  thrombin inhibitor, antithrombotic agents

### I200
- **-parin**
  heparin derivatives including low molecular mass heparins

### I210
**Anticoagulants**
- **-arol**
  anticoagulants, dicoumarol derivatives
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I210</td>
<td>platelet aggregation inhibitors</td>
</tr>
<tr>
<td>I210</td>
<td>hirudin derivatives</td>
</tr>
<tr>
<td>I210</td>
<td>platelet-activating factor antagonists</td>
</tr>
<tr>
<td>I210</td>
<td>thromboxane A2-receptor antagonists; antithrombotic agents</td>
</tr>
<tr>
<td>I220</td>
<td>Prothrombin inhibitors</td>
</tr>
<tr>
<td>I230</td>
<td>Prothrombin synthesis inhibitors</td>
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<tr>
<td>I240</td>
<td>Anticoagulant inhibitors</td>
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<tr>
<td>I250</td>
<td>Agents affecting fibrinolysis</td>
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<tr>
<td>I260</td>
<td>Coagulation promoting agents</td>
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<td>I261</td>
<td>Blood clotting factors</td>
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<tr>
<td>I300</td>
<td>Blood proteins and their fractions</td>
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<tr>
<td>I310</td>
<td>erythropoietin type blood factors</td>
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<tr>
<td>I300</td>
<td>Blood substitutes (macromolecular)</td>
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<td>I400</td>
<td>Platelet-function regulators</td>
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<tr>
<td>I500</td>
<td>colony stimulating factors</td>
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<tr>
<td>I500</td>
<td>combination of two different types of CSF; -gramostim: granulocyte macrophage colony stimulating factor (GM-CSF) type substances; -grastim: granulocyte colony stimulatory factor (G-CSF) type substances; -mostim: macrophage stimulating factors (M-CSF) type substances; -plestim: interleukin-3 analogues and derivatives</td>
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<td>I500</td>
<td>Granulocyte stimulating factors</td>
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<td>I500</td>
<td>see -stim</td>
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<tr>
<td>I500</td>
<td>Macrophage stimulating factor</td>
</tr>
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<td>see -stim</td>
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<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>J000</td>
<td>erythromycin derivatives lacking antibiotic activity, motilin agonists</td>
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<tr>
<td>J000</td>
<td>cholecystokinin antagonists, antiulcer, anxiolytic agents</td>
</tr>
<tr>
<td>J000</td>
<td>Proton pump inhibitors, not dependent on acid activation</td>
</tr>
<tr>
<td>J000</td>
<td>antiulcer, benzimidazole derivatives</td>
</tr>
<tr>
<td>J000</td>
<td>serotonin receptor antagonists and partial agonists</td>
</tr>
<tr>
<td>J100</td>
<td>cholecystokinin receptor antagonists</td>
</tr>
<tr>
<td>J100</td>
<td>sulpiride derivatives</td>
</tr>
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</table>
### J120 Choleretics (and hepatoprotective agents) -cic
hepatoprotective substances with a carboxylic acid group

### J130 Digestive enzymes

### J200 Emetics

### J300 Hepato-protective agents

### J400 Gastro-intestinal anti-infectives (see S000)

### J500 Antidiarrhoeals

---

<table>
<thead>
<tr>
<th>K000</th>
<th>AGENTS INFLUENCING THE RESPIRATORY TRACT AND ANTIALLERGICS -ast</th>
<th>antiallergics or anti-inflammatory, not acting as antihistaminics; -lukast: leukotriene receptor antagonist; -milast: phosphodiesterase IV (PDE IV) inhibitors; -trodast: thromboxane A2 receptor antagonists, antiasthmatics, -zolast: leukotriene biosynthesis inhibitors</th>
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<tbody>
<tr>
<td>K000</td>
<td>-cromil</td>
<td>antiallergics, cromoglicic acid derivatives</td>
</tr>
<tr>
<td>K000</td>
<td>-exine</td>
<td>mucolytic, bromhexine derivatives</td>
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<td>K000</td>
<td>-fentrine</td>
<td>inhibitors of phosphodiesterases</td>
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<tr>
<td>K000</td>
<td>-lukast</td>
<td>leukotriene receptor antagonists, see -ast</td>
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<tr>
<td>K000</td>
<td>-steine</td>
<td>mucolytics, other than bromhexine derivatives</td>
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<tr>
<td>K000</td>
<td>-trodast</td>
<td>thromboxane A2 receptor antagonists, antiasthmatics; see -ast</td>
</tr>
<tr>
<td>K000</td>
<td>-xanox</td>
<td>antiallergic respiratory tract drugs, xanoxic acid derivatives</td>
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### K100 Antitussives

### K110 Antitussives - central

### K120 Antitussives - peripheral

### K200 Expectorants
<table>
<thead>
<tr>
<th>L000</th>
<th>CYTOTOXICS, TARGETED THERAPIES AND HORMONES IN CANCER THERAPY</th>
<th>-anib</th>
<th>angiogenesis inhibitors</th>
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<tbody>
<tr>
<td>L000</td>
<td>-antrone</td>
<td>antineoplastics; anthraquinone derivatives</td>
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<tr>
<td>L000</td>
<td>-(ar)abine</td>
<td>arabinofuranosyl derivatives</td>
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<tr>
<td>L000</td>
<td>-bulin</td>
<td>antineoplastics; mitotic inhibitors, tubulin binders</td>
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<tr>
<td>L000</td>
<td>-degib</td>
<td>SMO receptor antagonists</td>
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<tr>
<td>L000</td>
<td>-dotin</td>
<td>Synthetic derivatives of dolastatin series</td>
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<tr>
<td>L000</td>
<td>-mestane</td>
<td>aromatase inhibitors</td>
<td></td>
</tr>
<tr>
<td>L000</td>
<td>mito-</td>
<td>antineoplastics, nucleotoxic agents</td>
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<tr>
<td>L000</td>
<td>-platin</td>
<td>antineoplastic agents, platinum derivatives</td>
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<tr>
<td>L000</td>
<td>-quidar</td>
<td>drugs used in multidrug resistance; quinoline derivatives</td>
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<td>L000</td>
<td>-racil</td>
<td>uracil type antineoplastics</td>
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<td>L000</td>
<td>-rafenib</td>
<td>Raf (rapidly accelerated fibrosarcoma) kinase inhibitors</td>
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<td>L000</td>
<td>-ribine</td>
<td>ribofuranil-derivatives of the &quot;pyrazofurin&quot; type</td>
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<td>L000</td>
<td>-razole</td>
<td>aromatase inhibitors, imidazole-triazole derivatives</td>
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<tr>
<td>L000</td>
<td>-sertib</td>
<td>serine/threonine kinase inhibitors</td>
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<tr>
<td>L000</td>
<td>-tansine</td>
<td>maytansinoid derivatives, antineoplastics</td>
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<tr>
<td>L000</td>
<td>-taxel</td>
<td>antineoplastics; taxane derivatives</td>
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<td>-tecan</td>
<td>antineoplastics, topoisomerase I inhibitors</td>
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<tr>
<td>L000</td>
<td>-tinib</td>
<td>tyrosine kinase inhibitors</td>
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<td>L000</td>
<td>-trexed</td>
<td>antineoplastics; thymidylate synthetase inhibitors</td>
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<td>L100</td>
<td>Immunosuppressants</td>
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<td>L200</td>
<td>Alkylating agents</td>
<td>-mustine</td>
<td>antineoplastic, alkylating agents, (beta-chloroethyl)amine derivatives</td>
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<tr>
<td>L200</td>
<td>-sulfan</td>
<td>antineoplastic, alkylating agents, methanesulfonates</td>
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<tr>
<td>L200</td>
<td>-tepa</td>
<td>antineoplastics, thiopeta derivatives</td>
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<td>L300</td>
<td>Radiosotopes (except diagnostics)</td>
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<tr>
<td>L310</td>
<td>Radioisotopes - systemic</td>
<td></td>
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</tr>
<tr>
<td>L320</td>
<td>Radioisotopes - locally applied</td>
<td></td>
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</tbody>
</table>
### L400 Antineoplastics - antimetabolites
- **-abine**
  - See **-arabine, -citabine**
- **-citabine**
  - Nucleosides antiviral or antineoplastic agents, cytarabine or azacitidine derivatives
- **-tretate**
  - Folic acid analogues
- **-uridine**
  - Uridine derivatives used as antiviral agents and as antineoplastics; also **-udine**

### L410 Ornithine decarboxylase inhibitors

### L500 Antineoplastics - natural products (incl. antibiotics)
- **-rubicin**
  - Antineoplastics, daunorubicin derivatives
- **vin- or -vin-**
  - Vinca alkaloids

### L600 Antineoplastics - sex hormone analogues and inhibitors

### L610 Aromatase inhibitors

### L620 Luteinizing hormone-releasing hormone agonists

### M000 METABOLISM AND NUTRITION (EXCL. WATER AND MINERAL METABOLISM)
- **-stat** (or **-stat-**)
  - Enzyme inhibitors; **-lipastat:** Pancreatic lipase inhibitors; **-restat or -restat-:** Aldose-reducing inhibitors; **-vastatin:** Antihyperlipidaemic substances, HMG CoA reductase inhibitors
- **-orex**
  - Anorectics

### M200 Dietetics and antiadipositas drugs

### M210 Bulk forming drugs

### M300 Agents influencing lipid and fat metabolism
- **-imibe**
  - Antihyperlipidaemics, acyl CoA:cholesterol acyltransferase (ACAT) inhibitors
- **-listat**
  - See **-stat**

### M310 Antiatherosclerosis agents

### M320 Lipotropic agents

### M321 Lipogenesis inducing agents

### M400 Agents influencing protein metabolism
- **bol**
  - Anabolic steroids
  - Catabolic agents
  - Amino acids
<table>
<thead>
<tr>
<th>M500</th>
<th>Agents influencing carbohydrate metabolism</th>
<th>-restat (or -restat-)</th>
<th>see -stat; aldose-reductase inhibitors</th>
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</thead>
<tbody>
<tr>
<td>M510</td>
<td>Insulins</td>
<td></td>
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<tr>
<td>M520</td>
<td>Oral antidiabetics - islet mediated</td>
<td>-formin</td>
<td>antihyperglycaemics, phenformin</td>
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<td></td>
<td></td>
<td>gli-, -gli-</td>
<td>derivatives</td>
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<td></td>
<td></td>
<td></td>
<td>previously gly-; antihyperglycaemics</td>
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<tr>
<td>M520</td>
<td></td>
<td>-gliptin</td>
<td>dipeptidyl aminopeptidase-IV inhibitors</td>
</tr>
<tr>
<td>M520</td>
<td></td>
<td>-glitazar</td>
<td>dual peroxisome proliferator activated</td>
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<td>receptors-α and γ (PPAR-α,γ) agonists</td>
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<tr>
<td>M520</td>
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<td>-glitazone</td>
<td>peroxisome proliferator activating</td>
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<td>receptor-γ (PPAR) agonists,</td>
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<td>thiazolidinedione derivatives</td>
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<td>M530</td>
<td>Oral antidiabetics - extra pancreatic</td>
<td>gli</td>
<td>antihyperglycaemics</td>
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<td>Gluconeogenesis influencing agents</td>
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<td>Agents influencing uric acid metabolism</td>
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<td>M610</td>
<td>Uricosurics</td>
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<td>M620</td>
<td>Uric acid synthesis inhibitors</td>
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<td>Agents influencing oxalic acid metabolism</td>
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<td>Thyroid and antithyroids</td>
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<td>M710</td>
<td>Thyroid and thyroid hormones</td>
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<td>M720</td>
<td>Thyroid stimulators</td>
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<td>M730</td>
<td>Antithyroids</td>
<td>-thiouracil</td>
<td>uracil derivatives used as thyroid</td>
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<td>M740</td>
<td>Radioactive iodine agents (for therapy)</td>
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<td>M800</td>
<td>Enzymes</td>
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<td>M810</td>
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<td>Enzyme stimulators</td>
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<tr>
<th>N000</th>
<th>AGENTS INFLUENCING WATER AND MINERAL METABOLISM</th>
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<tr>
<td>N100</td>
<td>Diuretics</td>
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<td>N110</td>
<td>Carbonic anhydrase inhibitors</td>
<td>-semide</td>
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<tr>
<td>N120</td>
<td>Saluretics</td>
<td>-anide</td>
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<td>N120</td>
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<td>-etanide</td>
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### INN – the use of stems

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<thead>
<tr>
<th>Code</th>
<th>Category</th>
<th>Example</th>
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<tbody>
<tr>
<td>N120</td>
<td>-pamide diuretics, sulfamoylbenzoic acid derivatives (could be sulfamoylbenzamide)</td>
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<tr>
<td>N121</td>
<td>-tizide diuretics, chlorothiazide derivatives</td>
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<td>N122</td>
<td>-crinat diuretics, etacrylic acid derivatives</td>
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<tr>
<td>N123</td>
<td>Chlortalidone derivatives</td>
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<td>N129</td>
<td>Saluretics, other</td>
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<tr>
<th>Code</th>
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<th>Example</th>
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</thead>
<tbody>
<tr>
<td>N130</td>
<td>Mercurial diuretics</td>
<td>-mer- (or -mer-) mercury-containing drugs, antimicrobial or diuretic [mer- and -mer- can be used for any type of substances and are no longer restricted to use in INNs for mercury-containing drugs; -mer: polymers]</td>
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<tr>
<td>N170</td>
<td>Purines and other diuretics</td>
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<td>N180</td>
<td>Aldosterone inhibitors</td>
<td>-renone aldosterone antagonists, spironolactone derivates</td>
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<td>Acidifiers</td>
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<td>Alkalizers</td>
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<td>Parenteral alkalizer solutions</td>
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<td>Oral antacids</td>
<td>-aldrate antacids, aluminium salts</td>
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<td>N520</td>
<td>-alox see -ox</td>
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<td>N600</td>
<td>Fluid and electrolyte replacement therapy</td>
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<td>N610</td>
<td>Electrolyte and carbohydrate solutions</td>
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<td>Ion exchange resins</td>
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<td>N800</td>
<td>Vitamin D group and calcium metabolism drugs</td>
<td>-calci Vitamin D analogues/derivatives</td>
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<td>-dronic acid calcium metabolism regulator, pharmaceutical aid</td>
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<thead>
<tr>
<th>Code</th>
<th>Category</th>
<th>Example</th>
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<tbody>
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<td>-arotene arotinoid derivatives</td>
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<td>retin retinol derivatives</td>
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<td>P200</td>
<td>Vitamin B1</td>
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<td>P300</td>
<td>Vitamin B2</td>
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<td>P400</td>
<td>Vitamin B6</td>
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<td>P500</td>
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<tr>
<td>Code</td>
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<td>nicotinic acid or nicotinoyl alcohol derivatives</td>
</tr>
<tr>
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<td>Vitamins, other</td>
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<table>
<thead>
<tr>
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<th>Stems</th>
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<tbody>
<tr>
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<td>Hypophysis hormones</td>
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<td>Hypophysis anterior lobe</td>
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<td>Q111</td>
<td>Hypophysis anterior lobe hormones</td>
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<td>Q112</td>
<td>Hypophysis anterior lobe inhibitors</td>
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<td>Hypophysis posterior lobe (incl. other oxytocics)</td>
<td>pressin</td>
</tr>
<tr>
<td>Q120</td>
<td>Hypophysis posterior lobe (incl. other oxytocics)</td>
<td>tocin</td>
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<td>Q200</td>
<td>Sex hormones and analogues</td>
<td>pris-</td>
</tr>
<tr>
<td>Q210</td>
<td>Estrogens, also interceptive contraceptive agents e.g. epostane</td>
<td>estr</td>
</tr>
<tr>
<td>Q210</td>
<td>Estrogens, also interceptive contraceptive agents e.g. epostane</td>
<td>ifene</td>
</tr>
<tr>
<td>Q220</td>
<td>Progestogens</td>
<td>gest</td>
</tr>
<tr>
<td>Q230</td>
<td>Androgens</td>
<td>andr or stan- or ster-</td>
</tr>
<tr>
<td>Q230</td>
<td>Androgens</td>
<td>ster-</td>
</tr>
<tr>
<td>Q231</td>
<td>Androgens</td>
<td>terone</td>
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<tr>
<td>Q240</td>
<td>Gonadotrophins and gonadotrophin secretion stimulating drugs</td>
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**Q000 HORMONES OR HORMONE RELEASE-STIMULATING PEPTIDES**

- Morelin

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Stems</th>
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<tr>
<td>Q000</td>
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<tr>
<td>Q000</td>
<td>Morelin</td>
<td>-relin</td>
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<tr>
<td>Q000</td>
<td>Morelin</td>
<td>-tril</td>
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<tr>
<td>Q000</td>
<td>Morelin</td>
<td>som-</td>
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<tr>
<td>Q000</td>
<td>Morelin</td>
<td>-trelin</td>
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</table>

**Q100 Hypophysis hormones**

- Actide

- Pressin

- Tocin

**Q200 Sex hormones and analogues**

- Pris-

- Estr

- Ifene

- Gest

- Andr or Stan- or Ster-

- Ster-

- Terone

**Q200 Sex hormones and analogues**

- Pris-

- Gest-

- Andr or Stan- or Ster-

- Ster-

- Terone

- Antiandrogens
### INN – the use of stems

<table>
<thead>
<tr>
<th>Q241</th>
<th>Antigonadotrophins</th>
</tr>
</thead>
</table>
| Q300 | **Adrenocortical hormones and analogues**  
| cort | corticosteroids, except prednisolone derivatives |
| Q300 | -alone  
| | steroids other than prednisolone derivatives |
| Q300 | -onide  
| | steroids for topical use, acetal derivatives |
| Q310 | Mineralosteroids |
| Q320 | Mineralosteroid antagonists |
| Q330 | Glucosteroids  
| pred | prednisone and prednisolone derivatives; -methasone or -metasone, -betasol, -alone |
| Q340 | Glucosteroids antagonists |

### S000  
**ANTI-INFECTIVES AND DRUGS ACTING ON IMMUNITY**

<table>
<thead>
<tr>
<th>S100</th>
<th>Ectoparasiticides</th>
</tr>
</thead>
<tbody>
<tr>
<td>S200</td>
<td>Antiseptics and disinfectants</td>
</tr>
</tbody>
</table>
| S210 | Antiseptics (excl. heavy metal antiseptics)  
| -nifur- | 5-nitrofuran derivatives |
| S220 | Heavy metal antiseptics  
| -mer- | mercury-containing drugs, antimicrobial or diuretic [mer- and -mer- can be used for any type of substances and are no longer restricted to use in INNs for mercury-containing drugs] |
| S230 | Detergent antiseptics |
| S300 | Chemotherapeutics of parasitic diseases  
| -ectin | antiparasitics, ivermectin derivatives |
| S300 | -oxanide  
| | antiparasitics, salicylanilides and analogues; see -anide |
| S310 | Anthelminthics (excl. antinematode agents)  
| -antel | anthelminthics (undefined group) |
| S310 | -bendazole  
| | anthelminthics, tiabendazole derivatives |
| S310 | -fos (-vos)  
| | insecticides, anthelmintics, pesticides etc., phosphorous derivatives |
| S310 | -fos- or fos-  
| | various pharmacological categories belonging to -fos (other than above) |
| S320 | Antinematode agents |
| S330 | Antiprotozoal agents (incl. all arsenphenamines)  
| arte- | antimalarial agents, artemisinin related compounds |
| S330 | -nidazole  
<p>| | antiprotozoals and radiosensitizers, metronidazole derivatives |
| 5400 | Chemotherapeutics of fungal diseases |-conazole | systemic antifungal agents, miconazole derivatives |
| 5410 | Antifungal agents |
| 5420 | Fungicides |
| 5430 | Antifungal antibiotics |
| 5500 | Antibiotics, antibacterial and antiviral agents |-planin | glycopeptide antibacterials (Actinoplanes strains) |
| 5510 | Sulfonamides |-sulfa- | anti-infectives, sulfonamides |
| 5520 | Antimycobacterials |-dapsone | antitymocobacterials, diamidodiphenylsulfone derivatives |
| 5520 | |-pirox | see -ox |
| 5530 | Antiviral |-arabine | arabinofuranosyl derivatives |
| 5530 | |-motine | antivirals, quinoline derivatives |
| 5530 | |-ribine | ribofuranil-derivatives of the pyrazofurin type |
| 5530 | |-uridine | uridine derivatives used as antiviral agents and as antineoplastics; -udine |
| 5530 | |-vir | antivirals (undefined group): -amivir, -cavir, -ciclovir, -fovir, -gosivir, -navir, -virsen, … |
| 5550 | Antibacterial/other |-citabine | nucleosides antiviral or antineoplastic agents, cytarabine or azacitidine derivatives |
| 5550 | |-oxacin | antibacterials, nalidixic acid derivatives |
| 5550 | |-prim | antibacterials, dihydrofolate reductase (DHFRA) inhibitors, trimethoprim derivatives |
| 5600 | Antibiotics (except antineoplastic antibiotics) |-cidin | naturally occurring antibiotics (undefined group) |
| 5600 | |-fungin | antifungal antibiotics |
| 5600 | |-gillin | antibiotics produced by Aspergillus strains |
| 5600 | |-monam | monobactam antibiotics |
| 5600 | |-mycin | antibiotics, produced by Streptomyces strains (see also -kacin) |
| 5600 | |-parcin | for glycopeptide antibiotics |
| 5600 | |-penem | analogues of penicillinic acid antibiotics modified in the five-membered ring |
| 5600 | |-pristin | antibacterials, streptogramins, protein-synthesis inhibitors, pristinamycin derivatives |</p>
<table>
<thead>
<tr>
<th>S610</th>
<th>Antibiotics acting on the bacterial cell wall</th>
<th>-carbef</th>
<th>antibiotics, carbacephem derivatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>S610</td>
<td>cef-</td>
<td></td>
<td>antibiotics, cefalosporanic acid derivatives</td>
</tr>
<tr>
<td>S610</td>
<td>-cillin</td>
<td></td>
<td>antibiotics, 6-aminopenicillanic acid derivatives</td>
</tr>
<tr>
<td>S610</td>
<td>-oxef</td>
<td></td>
<td>see cef; antibiotics, oxacefalosporanic acid derivatives</td>
</tr>
<tr>
<td>S620</td>
<td>Antibiotics affecting cell membrane and with detergent effect</td>
<td>-tricin</td>
<td>antibiotics, polyene derivatives</td>
</tr>
<tr>
<td>S630</td>
<td>Antibiotics affecting protein synthesis</td>
<td>-cycline</td>
<td>antibiotics, protein-synthesis inhibitors, tetracycline derivatives</td>
</tr>
<tr>
<td>S630</td>
<td>-kacin</td>
<td></td>
<td>antibiotics, kanamycin and bekamycin derivatives (obtained from <em>Streptomyces kanamyceticus</em>); 5.6.5.0: -micin: aminoglycosides, antibiotics obtained from <em>various Micromonospora</em></td>
</tr>
<tr>
<td>S630</td>
<td>-zolid</td>
<td></td>
<td>Oxazolidinone antibacterials</td>
</tr>
<tr>
<td>S640</td>
<td>Antibiotics acting nucleic acid metabolism</td>
<td>rifa-</td>
<td>antibiotics, rifamycin derivatives</td>
</tr>
<tr>
<td>S650</td>
<td>Antibiotics-action unclassified (including β-lactamase inhibitors)</td>
<td>-bactam</td>
<td>β-lactamase inhibitors</td>
</tr>
<tr>
<td>S650</td>
<td>-micin</td>
<td></td>
<td>see -kacin; aminoglycosides, antibiotics obtained from <em>various Micromonospora</em></td>
</tr>
<tr>
<td>S700</td>
<td>Immunomodulators and immunostimulants (incl. gamma globulins)</td>
<td>-cept</td>
<td>receptor molecules or membranes ligands, native, modified or synthetic</td>
</tr>
<tr>
<td>S700</td>
<td>imex</td>
<td></td>
<td>immunostimulants</td>
</tr>
<tr>
<td>S700</td>
<td>-imod</td>
<td></td>
<td>immunomodulators, both stimulant/ suppressive and stimulant</td>
</tr>
<tr>
<td>S700</td>
<td>-imus</td>
<td></td>
<td>immunosuppressants (other than antineoplastics)</td>
</tr>
<tr>
<td>S700</td>
<td>-kin</td>
<td></td>
<td>interleukin type substances: -nakin, -leukin, -trakin, -exakin, -octakin, -decakin, -elvekin, -dodekin, tredekin, -octadekin</td>
</tr>
<tr>
<td>S700</td>
<td>-kinra</td>
<td></td>
<td>interleukin-receptors antagonists: - nakinra, -trakinra</td>
</tr>
<tr>
<td>S700</td>
<td>-mab</td>
<td></td>
<td>monoclonal antibodies (see also Annex)</td>
</tr>
<tr>
<td>S710</td>
<td>Interferons and immunomodulators</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### T000 - Locally Acting Agents (Incl. Dermatologic and Internally Used Drugs)

- **T100** Locally acting externally-applied agents
  - T110 Vasodilators (external) - rubefaciens

- **T200** Locally acting internally-applied agents
  - T210 Adsorbents, astringents
  - T220 Lubricant cathartics
  - T230 Irritant cathartics
  - T240 Gastro-intestinal anti-infectives, non-resorbed
  - T250 Saponins
  - T260 Detergents

- **T300** Intravaginal contraceptives

### U000 - Miscellaneous Drugs

- **U000** gado- diagnostic agents, gadolinium derivatives
- **U100** -fenin diagnostic aids; (phenyl-carbamoyl) methyl iminodiacetic acid derivatives
- **U110** io- iodine-containing contrast media
- **U110** -io- or iod- iodine-containing compounds other than contrast media
- **U120** Diagnostic aids, other
- **U130** Diagnostic radioisotopes
- **U200** -xetan Chelating agents
- **U210** Alcohol deterrents
- **U300** -lubant phospholipase A₂ inhibitors
- **U310** Non-antipyretic antirheumatics
- **U320** Anti-inflammatory agents, other
- **U400** -cell- or cel- cellulose derivatives; (cell-ate and -cellose)
- **U400** -dronic acid calcium metabolism regulator, pharmaceutical aid
### UNCLASSIFIED PHARMACOLOGICAL MECHANISMS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V000</td>
<td>Intrauterine contraceptive device</td>
</tr>
<tr>
<td>V200</td>
<td>Medicinal plants</td>
</tr>
<tr>
<td>V300</td>
<td>Homoeopathic preparations</td>
</tr>
</tbody>
</table>

### ENZYMES AND VARIOUS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>W000</td>
<td>-ase enzymes; -dismase, -teplase, -uplase</td>
</tr>
<tr>
<td>W000</td>
<td>-pladib phospholipase A₂ inhibitors</td>
</tr>
<tr>
<td>W000</td>
<td>-stat enzyme inhibitors</td>
</tr>
</tbody>
</table>

### VETERINARY DRUGS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y000</td>
<td>-nidazole antiprotozoals and radiosensitizers, metronidazole derivatives</td>
</tr>
</tbody>
</table>

### GENE and cell THERAPY SUBSTANCES

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z000</td>
<td>-cel cell therapy substances</td>
</tr>
<tr>
<td></td>
<td>-gene gene therapy substances, please refer to Annex 4</td>
</tr>
</tbody>
</table>
### Part IV

Alphabetical list of stems together with corresponding INN

<table>
<thead>
<tr>
<th>Stem</th>
<th>Corresponding INN</th>
</tr>
</thead>
<tbody>
<tr>
<td>-abine</td>
<td>see -arabine, -citabine</td>
</tr>
<tr>
<td>-ac (x)</td>
<td>anti-inflammatory agents, ibufenac derivatives</td>
</tr>
</tbody>
</table>

**USAN**

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

![Chemical structure](image)

(a) -clofenac: aceclofenac (52), alclofenac (23), diclofenac (28), diclofenac etalhyaluronate (111), fenclofenac (30)
- dolac: dexpemedolac (71), etodolac (45), pemedolac (58)
- fenac: amfenac (38), bromfenac (55), furofenac (40), ibufenac (14), lexofenac (38), nepafenac (78)
- zolac: bufezolac (39), isofezolac (39), lonazolac (34), mofezolac (64), pirazolac (43), rovazolac (117), trifezolac (34)

others: anirolac (52), bendazac (22), cinfenac (41), clidanac (39), clofurac (42), clopirac (30), eltenac (53), felbinac (54), fenclobrac (33), fentiazac (32), isoxepac (37), ketorolac (51), oxezipinac (36), oxindanac (54), (quinclorac, ISO name for a herbicide), sulindac (33), tianfac (31), tifurac (57), tiopepinac (40), zomepirac (37)

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

(c) amtolmetin guacil (65), clamidoxic acid (17), fencloxic acid (22), metiazinic acid (20), prodolic acid (29), tolmetin (23)
**INN – the use of stems**

- **-acetam**  
  see -racetam

- **-actide**  
  synthetic polypeptides with a corticotropin-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), tridecactide (97)

- **-adol (x) or -adol-**  
  analgesics

A.4.1.0  
(USAN: analgesics (mixed opiate receptor agonists/antagonists))

(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), befiradol (99), bromadoline (49), cebranopadol (107), ciprefadol (41), ciramadol (39), cloracetadol (16), desmetramadol (117), dibusadol (24), dimenoxadol (7), diproxadol (34), eluxadoline (109), enadoline (68), faxeladol (97), filenadol (47), flumexadone (36), fluradoline (48), gadoxadol (48), insalmadol (92), levonantradol (43), lexfanopadol (109), lorcinadol (57), moxaden (45), (deleted in List 48: moxifadone (47)), myfadal (17), nafoxadone (50), nantradol (42), nerbacadon (56), oxapadone (40), picenal (47), pinadoline (50), pipradimadone (42), pipramadone (42), pravadoline (60), vadoline (60), profadone (20), radolmidine (82), ruzadolane (71), spiradoline (53), tazadolene (52), tolpadone (48), tramadol (22), veradoline (47)

(b)  
alfadoline (27), hexapradone (12) (CNS stimulant), nadolol (34), quinestradow (15) (estrogenic)

(c)  
A.4.1.0: dimephetamine (5)
-adom analgesics, tifluadom derivatives

A.4.3.0

![Chemical structure of lufuradom](image)

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

-afenone antiarrhythmics, propafenone derivatives

H.2.0.0

![Chemical structure of alprafenone](image)

(a) alprafenone (62), berlafenone (63), diprafenone (48), etafenone (19), propafenone (29)

-afil inhibitors of phosphodiesterase PDE5 with vasodilator action

F.2.0.0 (USAN: PDE5 inhibitors)

(a) avanafil (92), beminafil (90), dasantafil (91), gisadenafil (101), lodenafil carbonate (94), mirodenafil (95), sildenafil (75), tadalafil (85), udenafil (93), vardenafil (82)

-aj- antiarrhythmics, ajmaline derivatives

H.2.0.0

![Chemical structure of detajmium bitartrate](image)

(a) detajmium bitartrate (34), lorajmine (34), prajmalium bitartrate (23)
-al (d) aldehydes

-aldrate antacids, aluminium salts
N.5.2.0
(a) carbaldrate (53), potassium glucaaldrate (14), magaldrate (49), simaldrate (15), sodium glucaspaldrate (17)
algeldrate (15), almadrate sulfate (15), almagodrate (52)
(c) alexitol sodium (45), almagate (41), almasilate (43), dosmalfate (110), glucalo (13), hydrotalcite (23), lactafate (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)
B.0.0.0 (USAN: ionotropic non-NMDA glutamate receptors (AMPA and/or KA receptors) antagonists)
(a) becampanel (90), dasolampeline (105), fanapanel (80), irampanel (82), perampanel (97), selurampeline (104), talampeline (80), tezampeline (95), zonampeline (85)

-andr (d) steroids, androgens
Q.2.3.0 (USAN: -andr- androgens)
(a) i. andr: androstanolone (4), methandriol (1), nandrolone (22), norethandrolone (6), ovandrotone albumin (52), silandron (18)
ii. -stan- (d): androstanolone (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), oxymesterone (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)

---

USAN - anib angiogenesis inhibitors

L.0.0.0

(a) acrizanib (116), alofanib (113), beloranib (100), bevasiranib (108), brivanib alaninate (97), cediranib (95), crenolanib (105), foslinanib (119), motesanib (97), nintedanib (105), linifanib (102), lucitanib (107), pazopanib (94), pegaptanib (88), pegdinetanib (103), necuparanib (112), opaganib (117), pegpleranib (112), rivoceranib (117), semaxanib (85), tivozanib (102), toceranib (100), trebananib (106), vandetanib (91), vatalanib (84), vorolanib (115)

---

USAN - anide - etanide diuretics, piretanide derivatives

N.1.2.0 (USAN: diuretics (piretanide type))

(a) bumetanide (24), piretanide (33)

(c) besunide (30)
**oxanide**

S.3.0.0  antiparasitics, salicylanilides and analogues

(USAN: antiparasitics (salicylanilide derivatives))

(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**

C.7.0.0  serotonin receptor antagonists (mostly 5-HT₂)

(USAN: serotonin 5-HT₂ receptor antagonists)

(a)  adatanserin (70), altanserin (50), blonanserin (76), butanserin (51), eplivanserin (80), fananserin (69), fibanserin (75), iferanserin (89), ketanserin (46), lidanserin (62), nelotanserin (101), opiranserin (117), pelanserin (57), pimavanserin (97), pruvanserin (90), seganserin (56), trelanserin (97), tropanserin (55), volinanserin (95)

(b)  serotonin receptor antagonists, psychoactive: cinanserin (17), glemanserin (68), mianserin (20), ritanserin (51)

**-antel**

S.3.1.0  anthelmintics (undefined group)

(a)  amidantel (40), antelmycin (15), atelocantel (116), carbantel (35), closantel (36), derquantel (99), epsiprantel (57), febantel (38), flurantel (25), monepantel (98), morantel (22), oxantel (31), pexantel (22), praziquantel (34), pyrantel (17), resorantel (23), salantel (29), zilantel (33)
-antrone  antineoplastics; anthraquinone derivatives

L.0.0.0/
(USAN: -antrone as above, and -(x)antrone with following definition: antineoplastics, L.5.0.0 mitoxantrone derivatives aza-anthracenedione class of antitumor agents)

(a) ametantrone (45), banoxantrone (90), butantrone (49), ledoxantrone (76), losoxantrone (68), mitoxantrone (44), nortopixantrone (87), piroxantrone (59), pixantrone (89), sepantronium bromide (105), teloxantrone (68), topixantrone (87)

-apine  see –pine

-apt-  aptamers, classical and mirror ones

(a) avacincaptad pegol (113), egaptivon pegol (111), emapticap pegol (108), lexaptepid pegol (108), olaptesed pegol (109), pegaptanib (88)

(b) -vaptan stem: conivaptan (82), lixivaptan (83), mozavaptan (87), nelivaptan (98), relcovaptan (82), ribuvaptan (110), satavaptan (93), tolvaptan (83).

others: aptazapine(50), aptiganel (72), aptocaine (21), captamine (18), captodiame (06), captopril (39), danegaptide (101), daptomycin (58), icrocaptide (89), mercaptamine (01), mercaptopemerin (01), mercaptopurine (06), naptumomab estafenatox (96), rotigaptide (94), sodium borocaptate (10B) (62), sodium stibocaptate (17), taplitumomab paptox (84)

(c) pegnivacogin (106)

-(ar)abine  arabinofuranosyl derivatives

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

(a) clofarabine (90), cytarabine (14), fazarabine (56), fludarabine (48), nelarabine (80), vidarabine (23)

See also the stem –citabine: ancitabine (36), apricitabine (95), capecitabine
(73), decitabine (61), dexametabine (95), elvucitabine (89), emtricitabine (80), enocitabine (46), fiacitabine (59), flurocitabine (38), fosgemcitabine palabenamide (119), galocitabine (65), gemcitabine (62), guadecitabine (113), ibacitabine (57), lumicitabine (115), mericitabine (108), sapacitabine (94), tezacitabine (84), torcitabine (87), troxacitabine (81), valopicitabine (93), valtorcitabine (90), zalcitabine (66)

(c) 5.3.0: ribavirin (31), taribavirin (95)

-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 (lobenzarit type))

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

(c) tarenflurbil (97)

-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), tecarfarin (101), warfarin (23)
-arone

(USAN: antiarrhythmics)

amiodarone (16) (antiarrhythmic), benzarone (13), benzbromarone (13) (uricosuric), benziodarone (11), brinazarone (64) (calcium channel blocker), bucromarone (48) (antiarrhythmic), budiodarone (101), 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) adarotene (100), amsilarotene (98), betacarotene (38), bexarotene (80), etarotene (64), linarotene (65), mofarotene (70), palovarotene (99), sumarotene (64), tamibarotene (73), tazarotene (72), temarotene (54), trifarotene (107)

arte- antimalarial agents, artemisinin related compounds

S.3.3.0

(a) artefenomel (109), arteflene (70), artemether (61), artemisinin (56), artemisone (95), artemotil (80), artemisol (81), arterolane (97), artesunate (61)

-ase enzymes

W.0.0.0 For more details, please refer to the “INN for biological and biotechnological substances, a review”, available on the WHO INN Programme website: http://www.who.int/medicines/services/inn/en/

diplase two plasminogen activators combined with another enzyme

(a) amediplase (79)
**-dismase**  
*superoxide dismutase activity*  
(a) ledismase (70), sudismase (58)  
(c) orgotein (31), pegorgotein (72)

**-lipase**  
*lipases*  
(a) bucelpase alfa (95), burlulipase (107), rizolipase (22), sebelipase alfa (107)

**-teplase**  
*tissue-type plasminogen activators*  
(a) alteplase (73), desmoteplase (80), dutetplase (62), lanoteplase (76), monteplase (72), nateteplase (73), pamiteplase (78), reteplase (69), silteplase (65), tenecteplase (79)  
(c) anistreplase (59)

**-uplase**  
*urokinase (urinary)-type plasminogen activators*  
(a) nasaruplase (76), nasaruplase beta (86), saruplase (76)  
(c) urokinase (48), urokinase alfa (77)

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The following suffixes have also been used:

**-dornase**  
deoxyribonucleases  
alidornase alfa (115), dornase alfa (70), streptodornase (6)

**-glucerase**  
gluosylceramidase  
alglucerase (68), imiglucerase (72), taliglucerase alfa (101), velaglucerase alfa (98)

**-glucosidase**  
α-glucosidase  
alglucosidase alfa (117), avalglucosidase alfa (117), reveglucosidase alfa (111)

**-icase**  
uricases  
pegadricase (105), pegloticase (98), rasburicase (82)

**-liase**  
lyases (decarboxylases)  
condoliase (106), pegvaliase (111), relxoliase (117)

**-sulfase**  
sulfatases  
elosulfase alfa (108), galsulfase (92), idursulfase (90), idursulfase beta (106)
INN – the use of stems

ancrod (23), batroxobin (29), bromelains (18), chymopapain (26), chymotrypsin (10), fibrinolysin (human) (10), ocriplasmin (101), sutilains (18), thrombin (60), thrombin alfa (97), troplasminogen alfa (99)

Co-enzymes: cobamamide (15), cocarboxylase (1), mecobalamin (26), ubidecarenone (48)

Others:

agalsidase alfa (84) α-galactosidase
agalsidase beta (84) α-galactosidase
alfimeprase (85) fibrolase
apadamase alfa (118) ADAMTS13 endopeptidase
asfotase alfa (104) alkaline phosphatase
bovhyaluronidase azoximer (112) hyaluronoglucosaminidase
brinase (22) fibrolase
calaspargase pegol (105) L-asparaginase
cerliponase alfa (111) tripeptidyl-peptidase 1
crisantaspase (111) L-asparaginase
elapegademase (116) adenosine deaminase
epafipase (85) acetylated glycerol acetylhydrolase
eufauserase (84) serine endopeptidase
exebacase (117) lysozyme (muramidase)
glucarpidase (92) glutamate carboxypeptidase
hyalosidase (50) hyaluronoglucosaminidase
hyaluronidase (1) hyaluronoglucosaminidase
imlifidase (117) streptopain (streptococcal cysteine proteinase, Streptococcus peptidase A)
kallidinogenase (22) tissue kallikrein
laronidase (86) L-iduronidase
lesinidase alfa (116) α-N-acetylglucosaminidase
ocrase (28) fibrolase
olipudase alfa (111) sphingomyelin phosphodiesterase
pegademase (63) adenosine deaminase
pegargiminase (111) arginine deiminase
pegasparagase (64) L-asparaginase
pegcrisantaspase (111) L-asparaginase
pegunigalsidase alfa (115) α-galactosidase
pegvorhyaluronidase alfa (115) hyaluronoglucosaminidase
pegzilarginase (117) arginine amidinase
penicillinase (111) β-lactamase
praconase (118) pentosyltransferase
promelase (47) oryzin
ranpirnase (81) pancreatic ribonuclease
ribaxamase (116) β-lactamase
sacrosidase (112) β-fructofuranosidase (β-fructosidase, invertase, saccharase)
senrebotase (107) serine endopeptidase
serrapeptase (31) oryzin
sfericase (40) serine endopeptidase
streptokinase (6) co-enzyme
tilactase (50) β-galactosidase
tonabacase (115) lysozyme (muramidase)
tralesinidase alfa (117) α-N-acetylglucosaminidase
velmanase alfa (113) α-mannosidase
vestronidase alfa (115) β-glucuronidase
vonapanitase (111) pancreatic elastase
vorhyaluronidase alfa (111) hyaluronoglucosaminidase

BAN; USAN

-ast (x) anti-allergic or anti-inflammatory, not acting as anti-histaminics

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), carotegrast (102), dametralast (54), dazoquinast (54), doqualast (48), eflumast (61), enofelast (67), enoxamast (52), fenprinast (48), filaminast (75), firategrast (96), ibudilast (58), idenast (58), loxanast (46), melquinast (62), oxalinast (49), pemirolast (61), picumast (47), piromodast (64), quinotolast (64), raxofelast (68), repirinast (55), revenast (51), scopinast (76), suplatast tosilate (64), tazanolast (59), tiacrilast (52), tibenelast (58), tioxamast (53), tiprinast (50), tranilast (46), valategrast (93), zaprinast (46), zaurategrast (101)

-lukast leukotriene receptor antagonists

(a) ablukast (61), cinalukast (70), gemilukast (110), 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) apremilast (97), catramilast (95), cilomilast (82), difamilast (118), elbimilast (107), indimilast (112), lavamilast (112), lorimilast (86), lotamilast (118), oglemilast (94), piclamilast (73), revamilast (102), roflumilast (77), tetomilast (91), tofimilast (85)
-TEGRAST  integrin antagonists
(a)  carotegrast (102), firategrast (96), lifitegrast (107), valategrast (93), zaurategrast (101)

-TRODAST  thromboxane A₂ receptor antagonists, antiasthmatics  USAN
(USAN: thromboxane A₂ receptor antagonists)
(a)  imitrodast (70), seratrodast (70)

-ZOLAST  leukotriene biosynthesis inhibitors  USAN
(USAN: benzoxazole derivatives)
(a)  binizolast (60), eclazolast (55), ontazolast (72), quazolast (55), tetrazolast (67)
(c)  bufrolin (34), oxarbazole (38), pirolate (44)

-ASTINE (x)  antihistaminics  BAN, USAN

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), cabastinen (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)

-ASVIR  see -vir

-AZAM  see -azepam
-azenil  benzodiazepine receptor antagonists/agonists (benzodiazepine derivatives)
C.1.0.0  (USAN: benzodiazepine receptor antagonists/agonists)

(a)  bretazenil (60), flumazenil (55), iomazenil $^{123}$I (66), sarmazenil (59)
(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)
(USAN: benzodiazepine receptor agonists, also partial or inverse (quinoline derivatives)

(a)  lirequinil (72), radequinil (93) (replaces resequin (90)), terbequinil (63)

-azepam (x)  diazepam derivatives
C.1.0.0  (BAN: substances of the diazepam group)
(USAN: antianxiety agents (diazepam type))
INN – the use of stems

(a) bromazepam (22), camazepam (30), carburazepam (39), cinolazepam (46), clonazepam (22), cyprazepam (16), delorazepam (40), diazepam (12), doxefazepam (43), elfazepam (36), fletazepam (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), nimetazepam (26), nitrazepam (16), nordazepam (39), nortetrazepam (20), oxazepam (13), pinaezepam (32), pivoxazepam (34), prazepam (14), profazepam (31), quazepam (36), reclazepam (53), sulazepam (14), temazepam (22), tetrazepam (17), tolfazepam (51), tuclazepam (40), 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), clonazolam (29), ecopipam (80), estazolam (31), flutazolam (32), haloxolam (38), ketazolam (26), levotofisopam (92), lofendazolam (36), loprazolam (44), mexazolam (40), midazolam (40), nefopam (25), oxazolam (25), razobazolam (52), remimazolam (102), tofisopam (26), trepipam (38), triazolam (30), triflubazolam (28), zapizolam (43), zomebazolam (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, benzodiazepine derivatives

J.1.0.0 (USAN: cholecystokinin receptor antagonists)

(a) ceclazepide (116), devazepide (62), nastorazepide (113), netazepide (106), 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 derivatives)

(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), lerimazoline (110), metrafazoline (33), naphazoline (1), nemazoline (63), oxymetazoline (13), phenamazoline (6), prednazoline (22), talazoline (01), tefazoline (24), tinazoline (39), tramazoline (15), xylometazoline (8)

(b)  cefazolin (25) (antibiotic)

c)  tetryzoline (6), metizoline (22)

-azole  see -buzone
-azosin  antihypertensive substances, prazosin derivatives

H.3.0.0  (USAN: antihypertensives (prazosin type))

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

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

-bacept  see -cept

-bactam  β-lactamase inhibitors

S.6.5.0  (a) brobactam (53), durlobactam (119), nacubactam (115), relebactam (112), sulbactam (44), taniborbactam (119), tazobactam (60), vaborbactam (113), zidebactam (113)

(c) clavulanic acid (44)

-bamate  tranquillizers, propanediol and pentanediol derivatives

C.1.0.0  (USAN: tranquillizers/antiepileptics (propanediol and pentanediol groups))

(a) carisbamate (96), cenobamate (113), 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)
INN – the use of stems

**barb (d)**  **hypnotics, barbituric acid derivatives**

A.2.1.0  (BAN: -barb, -barb-: for barbiturates)
(USAN: -barb; or -barb-: barbituric acid derivatives)

```
\[
\begin{align*}
\text{R} & \quad \text{R'} \\
\end{align*}
\]
```

(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), probarbarbital sodium (1), proxibarbal (33), secbutabarbital (12),
     secobarbital (4), tetrabarbital (4), thialbarbital (4), thiotetrabarbital (4),
     vinbarbital (1)

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

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

**-begron**  **β₂-adrenoreceptor agonists**

M.3.2.1

(a)  amibegron (94), fasobegron (98), lubabegron (109), mantabegron (88),
     mirabegron (98), rafabegron (88), ritobegron (91), solabegron (90),
     talibegron (86), vibegron (108)

**-benakin**  **see -kin**

**-bendan**  **see -dan**
-bendazole  anthelminthics, tiabendazole derivatives

S.3.l.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 (l2) (vasodilator, also benzimidazole derivative)  

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

 related: furodazole (37) (S.3.l.0)

-bercept  see -cept

-bermin  see -ermin

-bersat  anticonvulsants, benzoylamino-benzpyran derivatives

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

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

-betasol  see pred

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) ethylestrenol (13), hydroxystenozole (10), metandienone (12), metenolone (12), oxandrolone (12), propetandrol (13), tiomesterone (14).

-bradine bradycardic agents
H.0.0.0
(a) cilobradine (63), ivabradine (75), zatebradine (62)

-brate see –fibrate

-brutinib see -tinib

-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)

-bulin antineoplastics; mitotic inhibitors, tubulin binders
L.0.0.0
(a) batabulin (90), cevipabulin (96), crolibulin (104), denibulin (95), entasobulin (110), eribulin (97), fosbretabulin (100), indibulin (91), lexibulin (105), lisavanbulin (115), mivobulin (77), ombrabulin (99), plinabulin (102), plocabulin (118), rosabulin (95), taltobulin (91), tirbanibulin (119), valecobulin (119), verubulin (103)

(b) thyroglobulin (26)

-butazone see -buzone
INN – the use of stems

INN – the use of stems

-buzone

anti-inflammatory analgesics, phenylbutazone derivatives

A.4.2.0

\[
\text{\begin{center}
\begin{tikzpicture}
\draw[thick] (0,0) circle (0.5cm);
\draw[thick] (0,0) -- (0.5,1);
\draw[thick] (0,0) -- (-0.5,1);
\draw[thick] (0,0) -- (0,-1);
\draw[thick] (0,0) -- (0,1);
\end{tikzpicture}
\end{center}}
\]

(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), bumatizone (24), cinnopentazone (17), isamfazone (37), metamfazone (12), osmadizone (26), ruvazone (26)

(c) benzpiperylone (12), butopyrammonium iodide (8), dibupyrone (17), metamizole sodium (53), metazamide (16), piperylone (11)

-caine (x)

local anaesthetics

E.0.0.0

(a) ambucaine (6), amoxecaine (1), aptocaine (21), articaine (47) (previously carticaine (27)), benzocaine (42), betoxycaine (13), buoricaine (49), bumeacaine (25), bupivacaine (17), butacaine (4), butanilicaine (16), chlorprocaine (6), cinchoacaine (1), clibucaine (14), clodaceaine (13), clormecaine (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), myrtocaine (15), octacaine (14), oxetacaine (13), oxybuprocaine (8), parathoxycaine (l), paridocaine (8), phencacaine (4), pinolcaine (32), piperoxane (l), piridocaine (l), pramocaine (4), pribecaine (32), prilocaine (14), procaine (10), propanocaine (6), propipocaine (16), prooxycaine (4) proxymetacaine (6),
pyrocaine (13), quatacaine (18), quinisocaine (4), risocaine (26), rodocaine (27), ropivacaine (50), tetracaine (4), tolycaine (16), trapencaine (56), trimecaine (11), vadocaine (57)

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

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

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

![Chemical structure](image)

(a) acecainide (39), asocainol (47), barucainide (52), bucanide (35), carcanium chloride (36), carocainide (46), droxicanide (47), encainide (40), epicainide (40), erocainide (50), flecanide (37), guafecainol (38), indecanide (48) (originally ricainide (47)), itrocnainide (54), ketocainol (32), lorcanide (38), milacanide (77), modecanide (63), murocainide (46), nicainoprol (46), nofeccainide (44), pilscainide (62), pinccainide (49), procainamid (1), quinacainol (50), recainam (54), solpecainol (55), stirocanide (47), suricainide (55), tocainide (36), transcainide (51), (verocainine (42) - replaced by tiapamil in List 43), zocainone (4l)

- **calci** **Vitamin D analogues/derivatives**

N.8.0.0 (USAN: calci- or -calci-: Vitamin D analogues)

![Chemical structure](image)

(a) alfacalcidol (40), atocalcitol (88), becocalcidiol (92), calcifediol (26), calcipotriol (61), calcitriol (39), colecalciferol (13), doxercalcirol (82), ecalcidene (85), eldecalcitol (97), elocalcitol (95), ergocalcirol (13), falecalcitriol (74), inecalcitrol (87), lexacalcitol (71), lunacalcipol (102),
maxacalcitol (75), paricalcitol (78), pefcalcitol (107), secalciferol (62), seocalcitol (78), tacalcitol (65)

(b) calcitonin (31) (polypeptide)

(c) dihydrotachysterol (1)

- capone  catechol-O-methyltransferase (COMT) inhibitors

entacapone (65), nebicapone (96), neluxicapone (119), nitecapone (62), opicapone (103), tolcapone (66)

-carbef  antibiotics, carbacephem derivatives

S.6.1.0
(a) loracarbef (60)

-carnil  see -azenil

-castat  see -stat

-catib  cathepsin inhibitors

M.0.0.0
(a) balicatib (92), dutacatib (94), odanacatib (98), petesicatib (117), relacatib (95)

-cavir  see vir

cef- (x)  antibiotics, cefalosporanic acid derivatives

S.6.1.0  (USAN: cephalosporins)

\[
\begin{align*}
\text{N} & \quad \text{CO}_2\text{H} \\
\text{R'} & \quad \text{O} \\
\text{R} & \quad \text{O} \\
\end{align*}
\]

(a) cefaceptrile (25), cefaclor (36), cefadroxil (33), cefalexin (18), cefaloglycin (16), cefaloridinum (16), cefaloram (16), cefaloridine (15), cefalotin (14),
-oxef antibiotics, oxacefalosporanic acid derivatives

S.6.1.0 (USAN: antibiotic, oxacefalosporanic acid derivatives)

\[
\text{O} \quad \text{N} \quad \text{H} \quad \text{H} \\
\text{R'} \\
\text{R} \\
\text{CO}_2\text{H} \\
\text{O}
\]

(a) flomoxef (55), latamoxef (46)

**cell- or cell-** cellulose derivatives [cel- in Spanish]

U.4.0.0

(a) celucloral (40)

(c) celiprolol (35)

**cell-ate** cellulose ester derivatives for substances containing acidic residues

U.4.0.0 [cel-ato in Spanish]

(a) cellaburate (23), cellacefate (18)
**-cellose**  
**cellulose ether derivatives**  

U.4.0.0  
[-celosa in Spanish]  

(a)  

-  

(c) carmellose (45), croscarmellose (48), ethylcellulose (80), hyetellose (80), hymetellose (80), hyprolose (80), hypromellose (18), methylcellulose (4)

---

**-cel**  
**substances for cell therapies**

For more details, please refer to the “INN for biological and biotechnological substances, a review”, available on the WHO INN Programme website:  
http://www.who.int/medicines/services/inn/en/

adimlecleucel (117), audencel (115), avoplacel (119), axicabtagene ciloleucel (117), baltaleucel (116), cenplacel (115), darvadstrocel (117), dilanubicel (119), eltrapuldencel (115), emiplacel (118), evagenretcel (116), idecabtagene vicleucel (119), ilixadencel (116), lenzumestrocel (119), lifileucel (118), nalotimagene carmaleucel (118), palucorcel (115), prademagene zamikeracel (119), rivogenlecleucel (117), spanlecortemlocel (115), tabelecleucel (117), tisagenlecleucel (117), tonogenconcel (115), vadacabtagene leraleucel (117), vandefitemcel (115)

---

**-cept**  
**Receptor molecules or membrane ligands, native, modified or synthetic**

S.7.0.0

(a)  

- **-ba-** B-cell activating factor receptors  
briobacept (98)  

- **-ber-** vascular endothelial growth factor (VEGF) receptors  
aflibercept (96), conbercept (105)  

- **-co-** complement receptors  
micrococept (91)  

- **-far-** subgroup of interferon receptors  
bifarcept (86)  

- **-lefa-** lymphocyte function-associated antigen 3 receptors  
alefacept (84)
**INN – the use of stems**

- **na-** interleukin-1 receptors
  - rilonacept (95)

- **ner-** Tumour Necrosis Factor (TNF) receptors
  - asunercept (114), baminercept (99), etanercept (81), lenercept (72), onercept (82), opinercept (118), pegsunercept (87), tulinecept (116)

- **ta-** cytotoxic T lymphocyte-associated antigen 4 (CTLA-4) receptors
  - abatacept (91), belatacept (93)

- **ter-** transforming growth factor receptors
  - dalantercept (105), luspatercept (110), ramatercept (108), sotatercept (104), talditercept alfa (119)

- **vir-** antiviral receptors
  - alvircept sudotox (69)

**other:** atacicept (95), ipafricept (109), olamkicept (116), valziflocept (117)

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**cetrapib**

**cholesteryl ester transfer protein (CETP) inhibitors**

- anacetrabip (98), dalcetrabip (96), evacetrapib (105), obicetrabip (115), rocacetrabip (119), torcetrabip (87)

---

**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) bisoricic (34) (psychostimulant)

(c) stepronin (46)

---

**ciclib**

**cyclin dependant kinase inhibitors**

L.0.0.0

- abemaciclib (112), atuveciclib (117), briciclib (111), dinaciclib (102), milaciclib (105), palbociclib (109), ribociclib (111), riviciclib (109), roniciclib (111), selaciclib (92), trilaciclib (117), voruciclib (109)
**-ciclovir**  see -vir

**-cidin**  naturally occurring antibiotics (undefined group) (14th Report, 1964)

S.6.0.0  (USAN: natural antibiotics (undefined group))

(a)  brilacidin (108), candidcidin (17), gramicidin (1), gramicidin S (26), methocidin (6)

(b)  guancidine (18) (hypotensive)

**-ciguat**  guanylate cyclase activators and stimulators

F.2.0.0  (USAN: guanidine cyclase activators)

(a)  ataciguat (88), cinaciguat (97), etriciguat (88), lificiguat (95), nelociguat (105), olinciguat (117), praliciguat (116), riociguat (98), vericiguat (109)

**-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), azidocillin (19), azlocillin (36), bacampicillin (32), benethamine penicillin (1), benzathine benzylpenicillin (18), benzylpenicillin (53), carbenicillin (20), carfencillin (30), carindacillin (29), ciclacillin (22), clemizole penicillin (8), clometocillin (12), cloxacillin (13), dicloxacillin (16), epicillin (25), fenbencillin (13), fibracillin (30), flucloxacillin (17), fomidacillin (55), fumoxicillin (47), furbucillin (31), fuzlocillin (47), hetacillin (16), isoprecipicillin (12), lenampicillin (50), levopripicillin (12), meticillin (12), mezlocillin (34), nazfcllin (13), oxacillin (15), oxetacillin (33), penamecillin (16), peneticillin (11), phenoxymethyl penicillin (6), phencracyllin (8), pipracillin (38), pirbenicillin (35), piridicillin (43), piroxicillin (49), pivampicillin (23), prazocillin (27), propicillin (13), quinacillin (14), rotamicillin (35),
sarmoxicillin (41), sarpiacin (36), sulbenicillin (26), sultamicillin (48),
suncillin (25), talampicillin (31), tameticillin (35), temocillin (46), ticarcillin
(29), tifencillin (12), tobicillin (78)

(b) xantocillin (12)

(c) penimepicycline (l6), 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 nucleosides antiviral or antineoplastic agents, cytarabine or
azacitidine derivatives

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

L.4.0.0/S.5.5.0

(a) ancitabine (36), apricitabine (95), capecitabine (73), decitabine (61),
dexelvucitabine (95), elvucitabine (89), emtricitabine (80), enocitabine
(46), fiacitabine (59), flurocitabine (38), fosgemcitabine palabenamide
(119), galocitabine (65), gemcitabine (62), gemcitabine elaidate (106),
guadecitabine (113), ibacitabine (57), lumicitabine (115), mericitabine
(108), sapacitabine (94), tezacitabine (84), torcitabine (87), troxacitabine
(81), valopicitabine (93), valtorcitabine (90), zalcitabine (66)

(c) cytarabine (14), azacitidine (40)
-citinib see -tinib

-clidine/-clidinium muscarinic receptors agonists/antagonists

USAN

E.1.0.0 aceclidine (13), benzoclidine (25), eticyclidine (44), gacyclidine (76), phencyclidine (11), procyclidine (01), rolicyclidine (44), talsaclidine (72), tenocyclidine (44), vedaclidine (76) aclidinium bromide (100), clidinium bromide (06), droclidinium bromide (33) uneclidinium bromide (106)

-cocept see -cept

-cog blood coagulation factors

USAN

I.2.0.0 (-)eptacog blood coagulation VII: eptacog alfa (activated) (77), eptacog alfa pegol (activated) (101), eptacog beta (112), marzeptacog alfa (113), oreptacog alfa (activated) (109), vatreptacog alfa (activated) (98)

(-)octocog blood factor VIII: beroctocog alfa (112), damoctocog alfa pegol (109), efmoroctocog alfa (111), lonoctocog alfa (111), moroctocog alfa (72), octocog alfa (73), rurooctocog alfa pegol (111), simoctocog alfa (104), turooctocog alfa (108), urooctocog alfa pegol (118)

(-)nonacog blood factor IX: albutrepenonacog alfa (109), dalcinonacog alfa (118), efrenonacog alfa (109), nonacog alfa (77), nonacog beta pegol (103), nonacog gamma (108), trenonacog alfa (107)

(-)tridecag blood factor XIII: catridecagcog (99)

Other: vonicog alfa (102)
INN – the use of stems

I.2.0.0 drotrecogin alfa (activated) (86), pegnivacogin (106), taneptacogin alfa (90), tifacogin (78)

BAN; USAN

-conazole (x) systemic antifungal agents, miconazole derivatives

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

(a) albaconazole (87), aliconazole (43), alteconazole (53), arasertaconazole (93), azaconazole (45), becliconazole (65), brolaconazole (58), butoconazole (40), cisconazole (59), croconazole (55), (cyproconazole (ISO)), dapaconazole (111), democonazole (42), (diniconazole (ISO C₁₇H₁₇Cl₂N₃O)), doconazole (37), eberconazole (64), econazole (27), efinaconazole (104), embeconazole (92), eniconazole (44), (etaconazole (ISO)), fenticonazole (44), fluconazole (54), fosfluconazole (83), fosravuconazole (110), (furconazole (ISO/TC 81 N 872 C₁₅H₁₄Cl₂F₃N₃O₂)), (hexaconazole (ISO C₁₄H₁₇Cl₂N₃O)), isavuconazole (96), isoconazole (30), itraconazole (50), ketoconazole (43), lanoconazole (66), levoketonazole (114), luliconazole (86), miconazole (22), neticonazole (63), omoconazole (45), orconazole (40), oteseconazole (115), oxiconazole (42), parconazole (39), (penconazole, (ISO)), posaconazole (82) (propiconazole (ISO)), pramiconazole (95), quilseconazole (116), ravuconazole (83), saperconazole (59), sertaconazole (56), sulconazole (38), (tebuconazole (ISO C₁₆H₂₃CIN₃O)), terconazole (45) (originally triaconazole), tioconazole (40), (uniconazole (ISO C₁₅H₁₈CIN₃O)), valconazole (40), voriconazole (73), zinoconazole (50), zoficonazole (43)

(c) bifonazole (44), isavuconazolum chloride (96)
**cort (x)**  
*corticosteroids, except prednisolone derivatives*

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

(a) amebucort (54), anecortave (80), benzodrocortisone (116), 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), fludroxytide (12), fluocortin (31), formocortal (18), hydrocortamate (6), hydrocortisone (1), hydrocortisone aceponate (54), 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) aldosterone (6), algestone (22) (also progest. when used as algestone acetophenide), medrysone (16)

---

**-coxib (x)**  
*selective cyclo-oxygenase inhibitors*

A.4.2.0  
(USAN: cycloxygenase-2 inhibitors)

(a) apricoxib (99), celecoxib (80), cimicoxib (89), deracoxib (80), etoricoxib (84), firocoxib (89), lumiracoxib (87), mavacoxib (94), parecoxib (80), polmacoxib (111), robenacoxib (91), rofecoxib (80), tilmacoxib (84), valdecoxib (80)

---

**-crinat**  
*diuretics, etacrynic acid derivatives*

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

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

(c) etacrynic acid (14), furacrinic acid (29), indacrinone (51), tienilic acid (25)
INN – the use of stems

**-crine (d)**  acridine derivatives

![Acridine structure](image)

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

(c)  acridorex (2l), acriflavinium chloride (l), acrisorcin (l3), aminoacridine (l),
     ethacr dine (l), proflavine (l)

**-cromil**  antiallergics, cromoglicic acid derivatives

![Cromoglicic acid structure](image)

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 (l8)

**-curium**  see -ium

**-cycline (d)**  antibiotics, protein-synthesis inhibitors, tetracycline derivatives

S.6.3.0  (BAN: antibiotics of the tetracycline group)
     (USAN: antibiotics (tetracycline derivatives))
amicycline (14), apicycline (17), cetocycline (39), chlortetracycline (4), clomocycline (16), colimecycline (33), demeclocycline (25), demecycline (14), doxycycline (16), eravacycline (108), etamocycline (18), guamecycline (22), lymecycline (14), meclocycline (14), meglucycline (22), metacycline (12), minocycline (14), nitrocycline (14), omadacycline (102), oxytetracycline (1), pecocycline (15), penimepicycline (16), penimocycline (22), pipacycline (12), rolitetracycline (11), sarecycline (109), sancycline (15), tetracycline (4), tigecycline (86)

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

-dan   cardiac stimulants, pimobendan derivatives
H.1.0.0  (USAN: positive inotropic agents (pimobendan type))

(a) adibendan (57), bemorodan (61), imazodan (55), indolidan (57), levosimendan (68), meribendan (62), pimobendan (46), prinoxodan (64), senazodan (85), siguazodan (60), simendan (66)

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

-dapsone  antimycobacterials, diaminodiphenylsulfone derivatives
S.5.2.0  (USAN: antimycobacterial (diaminodiphenylsulfone derivatives))

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

-decakin  see -kin

-degib SMO receptor antagonists

glasdegib (111), patidegib (111), sonidegib (107), taladegib (110), vismodegib (103)
**-denoson**  
-adenosine A receptor agonists

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<tr>
<th>USAN</th>
<th>INN – the use of stems</th>
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<td>H.0.0.0</td>
<td>apadenoson (94), binodenoson (90), capadenoson (95), evodenoson (108), namodenoson (117), neladenoson bialanate (113), piclidenoson (113), regadenoson (91), selodenoson (91), sonedenoson (101), tecadenoson (87), trabodenoson (107)</td>
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**-dermin**  
-see –ermin

**-dil**  
-vasodilators

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<tr>
<th>USAN</th>
<th>INN – the use of stems</th>
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<td>F.2.0.0</td>
<td>(USAN: -dil; dil-; or -dil-: vasodilators (undefined group))</td>
</tr>
<tr>
<td>F.2.1/2.0</td>
<td>(a) alprostadil (39), aviptadil (78), belfosdil (61), benfurodil hemisuccinate (16), biclodil (52), bufomedil (33), burodiline (26), carprazidil (45), cetiedil (27), cinepaxadil (50), dopropidil (59), eliprodil (66), fasudil (64), fenomedil (27), flosatidil (64), fostedil (51), fronepidil (59), ifenprodil (27), levosemotiadil (72), manozodil (47), mfenesidil (48), mnoxsidil (25), naftopidil (52), naminidil (87), nesapidil (52), perfomedil (60), pinecadil (46), piribedil (23), pritodil (37), podilfen (22), ripasudil (109), stevaladil (34), suloctidil (30), tiproplid (44), traxoprodil (86), urapidil (27), verosudil (112), viquidil (25)</td>
</tr>
<tr>
<td>F.2.0.0</td>
<td>(b) radiprodil (98)</td>
</tr>
<tr>
<td>F.2.1.0</td>
<td>(c) dilmefone (33)</td>
</tr>
<tr>
<td>F.2.1.0</td>
<td>(a) <strong>coronary vasodilators</strong>: bepridil (30), bumepidil (44), ecipramidil (40), fendiline (24), fenetradi (30), floredil (28), hexadiline (13), ipramidil (51), mepramidil (27), metgfudil (23), nicorandil (44), pirozadil (33), pretiadil (27), razinodil (38), semotiadil (64), sinitrodiil (74), terodilin (16), tixadil (18), trapidil (29)</td>
</tr>
<tr>
<td>F.2.1.0</td>
<td>(c) dilazep (22), diltiazem (30)</td>
</tr>
</tbody>
</table>

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

**-dilol**  
diloxanide (8) (amebicidal), methdilazine (10) (antihistaminic), phenobutiodil (6) (contrast medium), prodilidine (12) (analgesic)
-fradil calcium channel blockers acting as vasodilators

(a) mibefradil (72)

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

-dyl bisacodyl (13) (laxative), bunamiodyl (10), iofendylate (12), trihexyphenidyl (l) (antiparkinsonian)

-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)), dexniguldipine (67), elgodipine (61), elnadipine (59), felodipine (44), flordipine (48), isradipine (55), lacidipine (57), lemildipine (69), levamlodipine (98), levniugulipine (67), mesudipine (40), nocardipine (42), nifedipine (27), niguldipine (60), niludipine (38), nilvadipine (52), nimodipine (40), nsoldipine (42), nitrendipine (42), olradipine (69), oxodipine (52), riodipine (51), sagandipine (64), teludipine (64) (previously taludipine (61))
-nidipine: aranidipine (69), azelnidipine (69), barnidipine (64), benidipine (58), cilnidipine (66), cronidipine (61), efondipine (66), furnidipine (67), iganidipine (70), lercanidipine (69) (previously masnidipine), manidipine (59), palonidipine (64), pranidipine (66), sornidipine (58), vatanidipine (77)

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

-dismase enzymes with superoxide dismutase activity, see -ase

-distim see -stim

-dodekin see -kin
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<td>antineoplastics, thalidomide derivatives</td>
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<td>L.0.0.0</td>
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<td>(a)</td>
<td>avadomide (117), endomide (40), iberdomide (117), lenalidomide (101), mitindomide (70), pomalidomide (97), thalidomide (08)</td>
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<tr>
<td><strong>-dopa</strong></td>
<td>dopamine receptor agonists, dopamine derivatives, used as antiparkinsonism/ prolactin inhibitors</td>
<td>USAN</td>
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<tr>
<td>E.1.1.0</td>
<td>(USAN: dopamine receptor agonists)</td>
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<tr>
<td></td>
<td><img src="image" alt="Chemical structure" /></td>
<td></td>
</tr>
<tr>
<td>(a)</td>
<td>carbidopa (37), ciladopa (52), dopamantine (31), droxidopa (57), etilevodopa (80), fluorodopa (18F) (64), levodopa (21), melevodopa (83), methyldopa (12)</td>
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<tr>
<td><strong>-opamine</strong></td>
<td>dopaminergic agents dopamine derivatives used as cardiac stimulant/ antihypertensives/diuretics</td>
<td>USAN</td>
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<td></td>
<td>(USAN: -pamine: dopaminergics (butopamine type))</td>
<td></td>
</tr>
<tr>
<td>(a)</td>
<td>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)</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>tiopropamine (36) (gastric and duodenal ulcers), tolpropamine (13) (antihistaminic)</td>
<td></td>
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<tr>
<td>(c)</td>
<td>dobutamine (29), docarpamine (59), dopexamine (50), fenoldopam (53), levdobutamine (65), methyldopa (12) (alpha-2 adrenoreceptor agonist, cardiotox)</td>
<td></td>
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<td><strong>-dotin</strong></td>
<td>synthetic derivatives of dolastatin series</td>
<td>USAN</td>
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<td>amadotin: lupartumab amadotin (115)</td>
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<td>cemadotin (75)</td>
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<td>ixadotin: aprutumab ixadotin (115)</td>
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<td>mafodotin: belantamab mafodotin (118), denintuzumab mafodotin (111),</td>
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tisoluzumab vedotin (113), telisotuzumab vedotin (115),
vandortuzumab vedotin (113)

**-dotril**  see -tril/trilat

**-dox**  see -ox/-alox

**-dralazine**  antihypertensives, hydrazinephthalazine derivatives

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

![](image)

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

**-drine**  sympathomimetics

E.4.0.0  

(a)  alifedrine (49), bedoradrine (95), butidrine (16), caufedrine (14),
    cinnamedrine (19), corbdrine (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 (\(^{199}\)Hg) (24), dieldrin (10) (insecticide),
    orphenadrine (8) (spasmolytic)
-frine
E.4.0.0

sympathomimetic, phenethyl derivatives

\[
\begin{align*}
\text{NH}_2
\end{align*}
\]

(a) amidefrine mesilate (15), berefrine (68), ciclafrine (33), dimetofrine (27),
dipivefrine (39), epinephrine (16), etilefrine (18), etilefrine pivalate (50),
gepefrine (38), norepinephrine (45), norfenefrine (16), oxilofrine (62),
phenylephrine (1), pivenfrine (42), racpinefrine (41)

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

(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

-ectin
S.3.0.0

antiparasitics, ivermectin derivatives

(USAN: antiparasitics (ivermectin derivatives))

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

-elvecin see -kin

-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)

-enicokin see -kin

-entan (x) endothelin receptor antagonists

F.2.0.0

(a) ambrisentan (85), atrasentan (83), aprocitentan (116), avosentan (93),
bosentan (70), clazosentan (90), darusentan (82), edonentan (86),
enrasentan (80), fandosentan (87), feloprentan (85), macitentan (107),
nebentan (90), sitaxentan (83), sparsentan (113), 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), delergotril (42), dihydroergotamine
(16), disulergine (45), dosergoside (54), ergometrine (4), ergotamine (4),
etisulergine (47), fluidihydroergotamine (115), lergotril (32), lysergide (8),
mergocriptine (54), mesulergine (47), metergoline (18), metergotamine
(29), methylergometrine (l), methysergide (11), nicergoline (26), pergolide
(41), propisergide (35), proterguride (50), romergoline (66), sergolexole
(60), terguride (50), tiomergine (42), voxergolide (61)

(b) ergocalciferol (l3)
-eridine \[\text{analgesics, pethidine derivatives}\]

A.4.1.0 \[(\text{USAN: analgesics (meperidine type)})\]

\[
\begin{align*}
\text{O} & \quad \text{N} \\
\text{CH}_3 & \quad \text{CH}_3
\end{align*}
\]

(a) anileridine (5), carperidine (11), etoxeridine (6), morpheridine (6), oxpheneridine (5), pheneridine (5), phenoperidine (11), properidine (5), sameridine (68), trimeperidine (6)

(b) diaveridine (18) (coccidiostat.), eseridine (53), nixeridine (34) (somewhat related)

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

-ermin \[\text{growth factors}\]

U.0.0.0

-bermin \[\text{vascular endothelial growth factors}\]

(a) telbermin (85)

-dermin \[\text{epidermal growth factors}\]

(a) murodermin (63), nepidermin (97)

-fermin \[\text{fibroblast growth factors}\]

(a) ersofermin (66), palifermin (86), repifermin (82), sprifermin (105), trafermin (74), velafermin (94)

-filermin \[\text{leukemia-inhibiting factor}\]

(a) emfilermin (82)

-nermin \[\text{tumour necrosis factor}\]

(a) ardenermin (88), dulanermin (99), eftozanermin alfa (119), plusonermin (73), sonermin (68), tasonermin (76), tengonermin (118)

-plermin \[\text{platelet-derived growth factor}\]

(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), nebotermin (109), radotermin (92)
Others:  cenegermin (115), cimaglermin alfa (110), 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), epiestradiol (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), fenestrel (18), fosfvestrel (15), furostilbestrol (1), hexestrol (1), mestranol (12), methallenestrol (6), methestrol (1), moxestrol (24), nilestrol (32), oestretrate (17), polyestradiol phosphate (36), promestriene (31), quinestrafil (15), quinestrol (14)
(b)  alfatradiol (84) (topical), allylestrenol (10) (progest.), ethylestrenol (13) (anabol.), lynestrenol (13) (progest.) estrogens receptor antagonists: brilanestrant (115), elacestrant (115), fulvestran (78),
-gestr-:  edogestrone (22), levonorgestrel (30), megestrol (13), melengestrol (13), norelgestromin (84), norgestrel (17), norgestrienone (18), pentagestrone (14), quingestrone (13)
(c)  estetrol (116), 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), neltenexine (62), oxabrexine (40)

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

(c)  ambroxol (32) (dembrexol (50): replaced by dembrexine (56))

-farcept  see -cept

-fenacin  muscarinic receptor antagonists

afacifenacin (101), darifenacin (70), imidafenacin (90), revafenacin (114),
solifenacin (85), tarafenacin (100), tofenacin (15), zamifenacin (68)

-fenamate  see -fenamic acid

-fenamic acid  anti-inflammatory, anthranilic acid derivatives

-fenamate  “fenamic acid” derivatives

(U.S.A. National Formulary: -fenamic acid: anti-inflammatory (anthranilic acid derivatives);
-fenamate:  “fenamic acid” ester or salt derivatives)

A.4.2.0

(a)  clofenamic acid (13), enfenamic acid (45), flufenamic acid (13),
meclofenamic acid (17), mefenamic acid (13), tolfenamic acid (24)
colfenamate (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)
-fenin  diagnostic aids; (phenylcarbamoyl)methyl iminodiacetic acid derivatives

U.1.0.0

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

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

(USAN: -fenine: analgesics (fenamic acid subgroup))

A.4.3.0

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

(b)  spasmolytic diphenylacetates: adiphenine (1), drofenine (26)
other: buphenine (8) (vasodilator), cinfenine (27) (antidepressant)

-fensine  norepinephrine, serotonin, dopamine reuptake inhibitors

brasofensine (76), diclofensine (44), liafensine (109), nomifensine (24), perafensine (44), tesofensine (89)

-fentanil  opioid receptor agonists, analgesics, fentanyl derivatives

(USAN: -fentanil: narcotic analgesics (fentanyl derivatives))

A.4.1.0

(a)  alfentanil (43), brifentanil (62), carfentanil (39), fentanyl (14), lofentanil (43), mirfentanil (64), ofcetanil (61), remifentanil (67), sufentanil (36), trefentanil (67)
**INN** – the use of stems

### USAN

#### -fentrine inhibitors of phosphodiesterases

K.0.0.0

(a) benafentrine (44), ensifentrine (119), pumafentrine (86), toxafentrine (70)

#### -fermin see -ermin

#### -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 clofibrate derivatives, peroxisome proliferator activated receptor-α (PPAR-α) agonists

H.4.0.0 (BAN: substances of the clofibrate group)
(USAN: antihyperlipidaemics (clofibrate type))

![Clofibrate structure](image)

(a) bezafibrate (35), biclofibrate (28), binifibrate (44), choline fenofibrate (97), ciprofibrate (36), clinofibrate (39), dulofibrate (43), etofibrate (31), fenirofibrate (49), fenofibrate (35), lifibrate (30), nicofibrate (31), pemafibrate (113), picafibrate (35), ponfibrate (37), roxisofibrate (55), salafibrate (41), serfibrate (34), simfibrate (22), sitofibrate (32), tiafibrate (33), timofibrate (40), tiofibrate (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: arhalofenate (101), beclobrate (35), eniclobrate (39), gemfibrozil (34), halofenate (20), lifibrol (62), metibride (53), terbufibril (35), tibric acid (33), (fibrafylline (43) deleted)

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

(c) nafenopin (24), treloxinate (25)
INN – the use of stems

- **filermin**  see -ermin

- **flapon**  5-lipoxygenase-activating protein (FLAP) inhibitors

  K.0.0.0
  J.0.0.0  fiboflapon (105), quiflapon (72), veliflapon (95)

- **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), enfurane (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.5.2.0  (USAN: hypoglycemics (phenformin type))

  ![Chemical structure of benfosformin](image)

  (a)  benfosformin (29), buformin (17), etoformin (34), metformin (21), metformin glycinate (103), phenformin (10), tiforinform (22)

- **fos (-vos)**  insecticides, anthelminthics, pesticides etc., phosphorous derivatives

  S.3.1.0  (USAN: -fo(s)-: phosphoro-derivatives)

  (Y.0.0.0)

  1.  organophosphorous derivatives:

  ![Chemical structure of organophosphorous derivative](image)

  (a)  vet. insecticides:

  quintiofos (25)
INN – the use of stems

2. phosphates:

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

(a) vet. insecticides: clofenvinfos (23)

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

anthelminthics: vincofos (28)

(b) triclofos (l3) (hypnotic, sedative)

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

3. phosphorothioates:

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

vet. insecticides:

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

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

4. phosphorodithioates:

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

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

(c) carbofentanion (23) (vet. insecticide), dioxation (l6) (vet. insecticide), (malathion (46) (deleted!))
5. phosphoramidates

\[
\begin{array}{c}
\text{R} \\
\text{N} \\
\text{H} \\
\text{O} \\
\text{P} \\
\text{O} \\
\text{R'} \\
\text{R''}
\end{array}
\]

crufomate (16), uredofos (37)

anthelminthic:
imcarbofos (44)

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

-fos-
alafosfalin (41), amifostine (44), belfosdil (61), benfosformin (29), butafosfan (38), cifostodine (50), creatinolofosfate (20), dexfosferosine (68), ferpifosate sodium (69), furfosmin (70), monophosphothiamine (8), rabacfosadine (111), sodium picofosfate (37), sofobsuvir (108), sparfosic acid (46), technetium (\(^{99m}\)Tc), tetrofosmin (66), trifosmin (74)

-fosfamide: alkylating agents of the cyclophosphamide group (USAN: isophosphoramide mustard derivatives)
canfosfamide (92), cyclophosphamide (10), defosfamide (12), evofosfamide (111), glufosfamide (77), ifosfamide (23), mafosfamide (51), palifosfamide (99), perfosfamide (66), sufosfamide (36), trofosfamide (23)

-fosine cytostatic
edelfosine (59), ilmofosine (56), miltefosine (61), perifosine (78)

fos-
 fosalydine tidoxil (95), fosamprenavir (83), fosaprepitant (94), fosarilate (53), fosazepam (27), fosbretabulin (100), foscarnet sodium (42), foscolic acid (12), fosdagrocorat (111), fosdevirine (103), fosenazide (48), fosfestrol (15), fosflucanazole (83), fosfluuridine tidoxil (93), fosfocreatinine (50), fosfomycin (25), fosfonet sodium (35), fosfosal (37), fosfructose (81), fosinopril (69), fosinoprilot (62), fosmanogepix (119), fosmenic acid (49), fosmethpentotenane (116), fosmidomycin (46), fosopamine (69), fosphenytoin (62), fospirate (21), fospropofol (100), fosquidone (64), fosruvacanzone (110), fostatinib (100), fosedil (51), fostriecin (55), fosveset (83)

-fovir see vir
INN – the use of stems

**-fradil**

see -dil

**-frine**

see -drine

**-fungin**

antifungal antibiotics

S.6.0.0 (USAN: antifungal antibiotics (undefined group))

S.4.3.0

(a) abafungin (74), anidulafungin (81), basifungin (72), caspofungin (80),
cilofungin (60), fusafungine (15), kalafungin (20), micafungin (84), nifungin
(24), oxifungin (40), rezafungin acetate (117), sinefungin (39), triafungin
(40)

**-fylline**

N-methylated xanthine derivatives

B.1.0.0 (USAN: theophylline derivatives)

(a) acefylline clofibrol (44), acefylline piperazine (14), albifylline (66),
aminophylline (4), apaxifylline (71), arofylline (75), bamifylline (15),
cipamfylline (71), denbufylline (55), derenofylline (102), dimabefylline
(19), diniprofylline (18), diprophylline (1), doxofylline (47), enprofylline
(44), etamiphylline (6), etofylline (14), etofylline clofibrate (38), fibrafylline
(43) (deleted), flufylline (48), fluprofylline (50), furafylline (48), guaifylline
(16), isbufylline (62), istradefylline (89), laprafylline (60), lisofylline (72),
lomifylline (37), mercurophylline (1), metescufylline (15), mexafylline
(48), midaxifylline (79), naxifylline (86), nestifylline (64), pentifylline (29),
pentoxifylline (29), perbufylline (58), pimefylline (21), propentofylline (46),
proxyphylline (10), pyridofylline (14), rololofylline (98), spirofylline (58),
stacofylline (73), tazifylline (52), theophylline ephedrine (14), tonapofylline
(102), torbafylline (56), triclofylline (19), verofylline (43), visnafylline (24),
choline theophyllinate (8), fenetylline (16)

(c) cafedrine (14), dimenhydrinate (1), dimethazan (8), meralluride (1),
mercumatilin sodium (4), piprinhydrinate (8), promethazine teoclolate
(10), protheobromine (14), theodrenaline (14), xantifibrate (31), xantinol
nicotinate (16)

radicals and groups: teprosilate (29)
**Inn** - the use of stems

### gab (x)  gabamimetic agents

**E.0.0.0**

(a) atagabalin (102), fengabine (53), gabapentin (46), gabapentin enacarbil (94), gadoxodol (48) (used as analgesic), imagabalin (101), lesogaberan (100), mirogabalin (109), pivagabine (66), pregabalin (78), progabide (43) (used as antiepileptic), retigabine (76), tiagabine (63), tolgabide (53), vigabatrin (52) (anticonvulsants)

(b) gabexate (35) (proteolytic)

### gado- (x)  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), gadofosveset (86), gadomelitil (85), gadopenamidade (60), gadopentetic acid (50), gadopiclenol (118), gadoterdol (70), gadoteracic acid (59), gadoversetamide (71), gadoxetic acid (71)

### -gatran (x)  thrombin inhibitors, antithrombotic agents

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

(a) atecegatran (103), atecegatran metoxil (105), dabigatran (83), dabigatran etexilate (87), efegatran (71), flovagatran (97), inogatran (72), melagatran (74), napsagatran (72), sofigatran (95), ximelagatran (84)

(c) argatroban (57)

### -gepant  calcitonin gene-related peptide receptor antagonists

**C.3.1.0**

(a) atogepant (116), olcegepant (86), rimegepant (109), telcagepant (100), ubrogepant (109)
-gene substances for gene therapies (see also Annex 4 for the General policies)

A two-word name approach has been selected:

**Word 1** - gene gene component
- *cima*- cytosine deaminase
- *ermin*- growth factor
- *kin*- interleukin
- *lim*- immunomodulator
- *lip*- human lipoprotein lipase
- *mul*- multiple gene
- *stim*- colony stimulating factor
- *tima*- thymidine kinase
- *tusu*- tumour suppression

**Word 2** - vec vector component is a virus
- *repevec* replicating viral vector
- *adeno*- adenovirus
- *cana*- canarypox virus
- *foli*- fowlpox virus
- *herpa*- herpes virus
- *lenti*- lentivirus
- *morbilli*- paramoxyviridae
- *parvo*- adeno-associated virus
- *retro*- other retrovirus
- *vaci*- vaccinia virus

*bac* in case vector is a bacteria

*lis*- *Listeria monocytogenes*

*plasmid* in case the vector is a plasmid

In case of non-plasmid 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.

**Viral vectors:**
aglatimagene besadenovec (113), alferminogene tadenovec (95), alipogene tiparvovec (99), betibeglogene darolentivec (116), contusugene ladenovec (97), delolimogene mupadenorepvec (118), eladocagene exuparvovec (119), elivaldogene tavalentivec (115), eretidigene velentivec (115), fidanacogene elaparvovec (118), golnerminogene pradenovec (101), lanacogene vosiparvovec (117), lenadogene nolparvovec (114), mesmulogene ancovacivec (114), nadofaragene firadenovec (117),
ofranergene obadenovec (115), olenasufligene relduparvovec (119), onasemnogene abeparvovec (117), pexastimogene devacirepvec (108), rebisulfiligenne etisparvovec (118), riferminogene pecaplasmid (100), rilimogene galvacirepvec (107), rilimogene glafolivec (113), sitimagene ceradenovec (97), taberminogene vadenovec (100), talimogene laherparepvec (104), timrepigene emparrovvec (117), tipapkinogene sovacivec (102), valoctocogene roxaparvovec (116), vocimagene amiretrorepvec (107), voretigene neparvovec (115)

**Bacterial vectors:**
axalimogene filolisbac (112), miralimogene ensolisbac (117), opolimogene capmilisbac (117), pemlimogene merolisbac (117)

**Plasmids:**
amolimogene bepiplasmid (98), beperminogene perplasmid (95), bizalimogene ralaplasmid (118), donaperminogene seltoplasmid (116), mavilimogene ralaplasmid (118), tavokinogene telseplasmid (118), tirvalimogene teraplasmid (117), velimogene teraplasmid (117), velimogene aliplasmid (97)

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**BAN, USAN**

gest (x)  

**steroids, progestogens**

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

(a)
alterenogen (46), anagestone (16), cingestol (20), clogestone (21), clomegestone (20), demegestone (24), desogestrel (38), dexnorgestrel (30), dienogest (49), hydrogesterone (12), edogestrone (22), etonogestrel (65), flugestone (16), gestaclone (23), gestadienol (22), gestodene (37), gestonorone caproate (16), gestrinone (39), haloprogesterone (11), hydroxyprogesterone (8), hydroxyprogesterone caproate (8), levonorgestrel (33) (previously dexnorgestrel), megestrol (15), medroxyprogesterone (10), megestrol (13), melengestrol (13), metogest (33), nomegestrol (49), norelgestromin (83), norgesterone (14), norgestimate (35), norgestomet (32), norgestrel (17), norgestrienone (18), oxogestrel (19), pentagestrone (14), progesteron (4), proligestone (28), promegestone (38), quingestanol (15), quingestrone (89), segesterone (89), tigestol (20), tosagusted (86), trimegestone (22), trimegestone (66)

(b)  
algestone (22) (glucorticoid)

(c)  
alylestrenol (10), chlormadinone (12), cismadinone (12), delmadinone (23), dimethisterone (8), ethisterone (4), ethynerone (17), etynodiol (13), hydromadinone (12), lynestrenol (13), metynodiol (27), norethisterone (6), noretynodrel (13), norvinisterone (10)

clolementone (15) (antiestrogen), dimepregnen (24) (antiestrogen)
-gestr- see estr

-giline MAO-inhibitors type B

C.3.1.0 (a) adarigiline (117), clorgiline (23), mofegiline (69), pargyline (13), rasagiline (70), selegiline (39), sembragiline (111)

-gillin antibiotics produced by Aspergillus strains

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),
glibornuride (22), glibutimine (31), glicaramide (28), glicetanile (37),
gliclazide (25), (deleted: glidanile (23)), glicondamide (44), glidazamide
(24), gliflumide (33), glimepiride (53), glipalamide (62), glipizide (27),
gliquidone (28), glsamuride (45), glisentide (58) (previously glipentide
(27)), glisindamide (43), glisolamide (43), glisoxepide (24), glybuthiazol
(8), glybuzole (15), glycrapyramide (17), glycyclamide (12), glyhexamide
(15), glymidine sodium (15), glyoctamide (14), glyparamide (USAN only),
glypinamide (13), glyprothiazol (8), glysobuzole (12)

2. other than sulfonamide derivatives: adomeglivant (115), camiglibose
(67), dorzagliatin (116), deriglidole (66), emiglitate (55), fasiglifam (107),
firuglipel (116), imeglimin (98), ingliforib (85), isaglidole (61), limiglidole
(100), linogliride (48), managlinat dialanetil (96), meglitinide (34),
midaoglizole (57), miglitol (55), mitiglinide (78), naglivan (65), nateglinide
(77), piragliatin (97), pirogliride (40), repaglinide (65), teglicar (91),
tibeglisene (64), voglibose (65)

3. peptide: seglitide (57)

(b) cromoglicate listetil (72), cromoglicic acid (18), ioglicic acid (33), ioxaglic
acid (37), sulglicotide (29) (treatment of peptic ulcers), tropigline (08)
INN – the use of stems

(c) acetohexamide (12), butadiazamide (10), carbutamide (36), chlorpropamide (8), heptolamide (12), metahexamide (10), palmoxiric acid (48), thiohexamide (12), tolazamide (12), tolbutamide (6), tolpentamide (12), tolpyramide (13)

**gly-**

**prior to revision of the General Principles**

(a) glybuthiazol (08), glybuzole (15), glycypyramide (17), glycyclamide (13), glyhemamide (15), glymidine sodium (15), glyoctamide (14), glypinamide (13), glyprothiazol (08), glysobuzole (12)

(c) glycerol (4), glycobiarsol (l), glycopyraronium bromide (12)

-**gliflozin**  
**sodium glucose co-transporter inhibitors, phlorizin derivatives**  
(USAN: phlorozin derivatives, phenolic glycosides)

atigliflozin (100), bexagliflozin (113), canagliflozin (102), dapagliflozin (97), empagliflozin (104), ertugliflozin (107), igrapgliflozin (103), licogliflozin (118), luseogliflozin (104), mizagliflozin (114), remogliflozin etabonate (98), sergliflozin etabonate (98), sotagliflozin (110), tofogliflozin (103), velagliflozin (115)

-**gliptin**  
**M.5.2.0**

(a) alogliptin (96), anagliptin (103), bisegliptin (103), carmegliptin (98), denaglptin (94), dutogliptin (100), evogliptin (107), garvagliptin (117), gemigliptin (103), gosogliptin (101), linagliptin (99), melogliptin (99), omarigliptin (107), saxagliptin (92), sitagliptin (94), teneligliptin (99), trelagliptin (106), vildagliptin (90)

-**glitazone**  
**M.5.2.0**

(a) ciglitazone (50), balaglitazone (84), darglitzone (69), edaglitazone (91), englitazone (64), leriglitazone (119), lobeglitazone (95), netoglitazone (85), pioglitzone (60), rivoglitazone (87), rosiglitazone (78), troglitazone (69)

(c) efatutazone (102)
### -gliflozin
- see gli

### -gliptin
- see gli

### -glitazar
- see gli

### -glitazone
- see gli

### -glumide
**cholecystokinin antagonists, antiulcer, anxiolytic agents**

USAN

J.0.0.0/C.1.0.0 amiglumide (85), dexloxiglumide (65), itriglumide (82), lorglumide (56), loxiglomide (57), proglumide (16), spiroglumide (70), tomoglumide (56)

### -glurant
**metabotropic glutamate receptor antagonists / negative allosteric modulators**

USAN

basimglurant (109), decoglurant (109), dipraglurant (102), mavoglurant (104), raseglurant (102), remeglurant (109)

### -glutide
- see tide

### -golide
**dopamine receptor agonists, ergoline derivatives**

E.1.1.0

![Chemical Structure](image)

(a) adroglolide (82), naxagolide (60), pergolide (41), quinagolide (62), voxergolide (61)

(c) rotigotine (83)

### -gosivir
- see vir

### -gramostim
- see -stim

### -grastim
- see -stim
**-grel**  platelet aggregation inhibitors

I.2.1.0 (USAN: -grel- or -grel: platelet aggregation inhibitors, primarily platelet P2Y12 receptor antagonists)

(a) anagrelide (42), camonagrel (61), clopidogrel (57), dazmegrel (51), elinogrel (101), furegrelate (53), isbogrel (59), itazigrel (56), midazogrel (53), nafagrel (64), nicogrelate (48), oxagrelate (47), ozagrel (55), pamicogrel (70), parogrelil (94), pirmagrel (53), prasugrel (91), rafigrelide (106), regrelor (97), ridogrel (59), rolagrel (65), samixogrel (72), sarpogrelate (63), satigrel (67), selatogrel (119), sunagrel (52), temanogrel (103), terbogrel (75), ticagrelor (95), trifenagrel (53)

**-grel**

**USAN**

**-ibine**  see -ribine

**USAN**

**-icam**  anti-inflammatory, isoxicam derivatives

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

(a) ampiroxicam (56), droxicam (52), enolicam (45), isoxicam (30), lornoxicam (59), meloxicam (52), piroxicam (32), sudoxicam (27), tenoxicam (44), tesicam (25)
-ifene antiestrogens or estrogen receptor modulators, clomifene and tamoxifen derivatives

(USAN: -ifen(e): antiestrogens of the clomifene and tamoxifen groups)

(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), sivifene (99), toremifene (53), zuclomifene (33)

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

(c) nafoxidine (16)

-igetide see -tide

-ilide class III antiarrhythmics, sematilide derivatives

(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), ftaxilide (32), gliamilide (33)
### Immunostimulants

**imex (d)**

**USAN**

- **S.7.0.0**
  - (a) azimexon (40), forfenimex (55), imexon (37), roquinimex (53), ubenimex (56), veledimex (110)

### Antihyperlipidaemics, acyl CoA: cholesterol acyltransferase (ACAT) inhibitors

**-imibe**

**USAN**

- **M.3.0.0**
  - (a) avasimibe (80), canosimibe (100), eflucimibe (84), eldacimibe (76), ezetimibe (83), lecimibide (70), nevanimibe (119), octimibate (52), pactimibe (89)

### Immunomodulators, both stimulant/suppressive and stimulant

**-imod**

**USAN**

- **S.7.0.0**
  - (USAN: immunomodulators)
  - (a) amiselimod (112), apilimod (95), atiprimod (75), bevifimod (119), blisibimod (107), cenerimod (118), ceralifimod (109), cridanimod (83), cupabimod (115), defoslimod (79), efizonerimod alfa (117), eftilagimod alfa (116), efgartigimod alfa (116), epetirimod (97), esonarimod (79), etrasimod (116), fingolinmod (91), forgerimod (104), golotimod (97), glaspimod (74), iguratimod (86), imiquimod (66), indoximod (111), ivarimod (60), laquinimod (85), litenimod (96), mocriverimod (116), mosedipimod (118), navoximod (115), orlotimod (111), ozanimod (112), paquinimod (94), pidotimod (63), pixatimod (117), ponesimod (103), paquinimod (94), reltecimod (115), resiquimod (82), siponimod (106), sotirimod (94), susalimod (73), tasquinimod (93), tiprotimod (57)

#### -mapimod

**USAN**

- (a) acumapimod (111), balamapimod (96), bentamapimod (98), dilmapimod (102), doramapimod (88), losmapimod (101), nefalamapimod (116), pamapimod (96), talmapimod (99), semapimod (89)

#### -tolimod

**USAN**

- (a) agatolimod (98), cobitolimod (113), entolimod (108), lefitolimod (113), motolimod (112), rintatolimod (102), telratolimod (118), tilsotolimod (117), vesatolimod (113)
-imus **immunosuppressants (other than antineoplastics)**

**S.7.0.0** (USAN: immunosuppressives)

(a) abetimus (81), anisperimus (82), gusperimus (68), laflunimus (70), manitimus (93), napirimus (60), tresperimus (75), vidofludimus (103)

-rolimus **immunosuppressants, rapamycin derivatives**

(b) everolimus (82), olcorolimus (105), pimecrolimus (81), ridaforolimus (108), sirolimus (69), tacrolimus (66), temsirolimus (94), umirolimus (103), zotarolimus (94)

-ine **alkaloids and organic bases**

(a) approximatively 17.5% INN ending in -ine in Lists 1-119 of proposed INNs

-inostat see stat

io- **iodine-containing contrast media**

**U.1.1.0**

(a) iobenzamic acid (14), iobitridol (68), iobutoic acid (20), iocarmic acid (22), iocetamic acid (18), iodamide (15), iodecimol (51), iodetyl (1), iodoxan (53), iodophthalein sodium (1), iodoxamon acid (26), iofendylate (12), iioforminol (103), iofratol (67), ioglicic acid (33), ioglucol (41), ioglucoside (41), iogluclid (40), ioglycamic acid (15), iohexol (43), iolidonic acid (26), iolixanic acid (26), iomeglamic acid (26), iomeprol (54), iomarinic acid (37), iopamilol (40), iopanoic acid (1), iopentol (52), iophenoic acid (4), ioprocemic acid (39), iopromide (44), iopronic acid (28), iopydol (14), iopydole (44), iosauro (54), iosefamic acid (14), ioserel acid (33), iosimenol (88), iosimide (50), iosulamide (39), iosumetric acid (33), iotalamic acid (13), iotasul (43), iotetric acid (37), iotranic acid (28), iotriseide (60), iotrizeic 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), dione (1), ethyl cartrizoate (12), methiodal sodium (1), metrizamide (26), pheniodol sodium (1), phenolutidil (6), propyl doctrizoate (10), propyliodone (1), sodium acetrizoate (4), sodium amidotrizoate (4), sodium diprotrizoate (6), sodium metrizoate (13), sodium tyropanoate (12)
io(d)-/io- radiopharmaceuticals, iodine-contained

(a) ethiodized oil (¹³¹I) (24), iobenguane (¹³¹I) (57), iocanilidic acid (¹²³I) (77), iodinated (¹²⁵I) human serum albumin (24), iodinated (¹³¹I) human serum albumin (24), iodine (¹³¹I) apamistamab (119), iodine (¹²³I) derlotuximab biotin (113), iodine (¹²⁴I) girentuximab (101), iodocetyl acid (¹²³I) (47), iodocholesterol (¹³¹I) (39), iodoxilic acid (¹²³I) (95), iofolastat (¹³¹I) (105), iofetamine (¹²³I) (51), ioflubenzamide (¹³¹I) (103), ioflupane (¹²³I) (75), iolopride (¹²³I) (73), iomazenil (¹²³I) (66), iometin (¹²³I) (24), iometin (¹³¹I) (24), iometopane (¹²³I) (76), sodium iodide (¹²⁵I) (24), sodium iodide (¹³¹I) (24), sodium iodohippurate (¹³¹I) (24), sodium iotalamate (¹²⁵I) (24), sodium iotalamate (¹³¹I) (24)

(c) fibrinogen (¹²⁵I), macrosalb (¹³¹I) (33), rose bengal (¹³¹I) sodium (24), tolpidide (¹³¹I) (24)

-irudin hirudin derivatives

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

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

-isant histamine H₃ receptor antagonists

bavisant (103), cipralisant (85), enerisant (113), irdabisant (105), pitolisant (100)

-isomide class I antiarrhythmics, disopyramide derivatives

H.2.0.0 (USAN: -isomide: antiarrhythmics (disopyramide derivatives))

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

(c) disopyramide (12)
-ium 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), sofipironium bromide (115), suxamethonium chloride (1), suxethonium chloride (1), tetrylammonium 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 also ammonium compounds)

(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), pentacycium 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) aclatonium napadisilate (44), ambenonium chloride (6), benzpyrinium bromide (1), carpronium chloride (23), demecarium bromide (10), furtrethonium iodide (1)

(c) acetylcholine chloride (4), charbacol (4), choline alfoscerate (29), choline
chloride (4), choline gluconate (110), choline salicylate (15) (analgesic),
choline theophyllinate (8) (smooth muscle relaxant), methacholine chloride
(110), nitricholine perchlorate (110) (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 (100), benzilionium bromide (13), benzopyrronium bromide
(12), beperidium (57), bevonium metilsulfate (19), butropium bromide (30),
ciclónium bromide (19), ciclotropium bromide (50),
cimetropium bromide (51), clidinium bromide (6), cyclopyrronium bromide
(12), dimetipirium bromide (37), dipionium bromide (15),
dotefonium bromide (24), droclidinium bromide (33), emepronium bromide
(18), etipirium iodide (22), fenclexonium metilsulfate (20),
fenpiverinium bromide (26), fentonium bromide (29), flutropium bromide
(50), glycopyrronium bromide (12), heteronium bromide (14),
hexasonium iodide (15), hexocyclium metilsulfate (6), hexopyrronium bromide
(13), ipratropium bromide (31), methanthelinium bromide (1),
methylbenactyzium bromide (34), metocinium iodide (26), nolinium bromide
(37), otilonium bromide (38), oxapium iodide (26), oxitefonium bromide
(18), oxitropium bromide (36), oxyphenonium bromide (1),
oxopyruronium bromide (13), oxyxionium iodide (15), pentapiperium metilsulfate
(26), prifinium bromide (20), ritropirronium bromide (33),
sintropium bromide (47), sulfropoionium (18), tematropium metilsulfate (64),
tiemonium iodide (13), timepidium bromide (29), tiotropium bromide (67),
tiquizium bromide (47), tranterlinium bromide (24), trospium chloride (25),
umeclidinium bromide (106), xenityropium bromide (15)

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

S.2.3.0  surfactants used as antibacterials and antiseptics

(a)  acriflavinium chloride (1), amantium bromide (39), benzalkonium chloride
(1), benzethonium chloride (1), benzododecinium chloride
(1), benzoxyonium chloride (36), cefalonium (16), cefmepidium chloride
(57), cetalkonium chloride (15), cethexonium chloride (36), cetrimonium
bromide (1), cetypyridinium chloride (1), chlorphenoctium amsonate
(8), deditonium bromide (15), denatonium benzoate (15), dequalinium
chloride (8), disiquonium chloride (55), dodeclonium bromide (16),
dofamium chloride (21), fludazonium chloride (33), furazolium chloride
(15), halopenium chloride (10), hedaquinium chloride (8), lapirium
chloride (27), lauralkonium chloride (62), laurcetium bromide (70),
laurolinium acetate (12), mecteronium etilsulfate (51), metalkonium
chloride (60), methylbenzethonium chloride (1), methylrosanilinium
chloride (1), methylythioninium chloride (1), mirpirium chloride (63),
mirlstarkonium chloride (41), octafonium chloride (16), oprartonium
iodide (76), pentoctonium bromide (20), pirralkonium bromide (19),
polidronium chloride (67), polixetonium chloride (70), pronolium iodide
(14), sanguinarium chloride (68), sepazonium chloride (34), tetradonium
bromide (18), tibezonium iodide (32), tiodonium chloride (36), toliodium
chloride (36), toloconium metilsulfate (17), tonzonium bromide (14),
triclobisonium chloride (10)

(c) domiphen bromide (23)

other agents

alagebrium chloride (91), albitiazolium bromide (101), 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), eptipicnium acetate
(43), emilium tosilate (37), enisamium iodide (101), famiraprinium chloride
(58), feniodium chloride (23), gallium \(^{67}\text{Ga}\) citrate (33), homidium
bromide (36), isavuconazolium chloride (96) isometamidium chloride (18),
mefenidramium metilsulfate (52), meldonium (86), mequitamium iodide
(61), nolpitantium besilate (75), pinaverium bromide (32), pirdonium
bromide (28), prajmalium bitartrate (23), pranolium chloride (32),
pretamazium iodide (29), propagermanium (65), prospidium chloride (22),
pyritidium bromide (16), pyrvinium chloride (6), quindonium bromide (14),
quinuclium bromide (40), repagermanium (63), rimazolium metilsulfate
(26), roxolinium metilsulfate (33), samarium \(^{153}\text{Sm}\) lexidronam (74),
sepantronium bromide (105), sevetropium mesilate (56), siirogermanium
(43), stilbazium iodide (13), thenium closilate (12), tietropium bromide
(42), tolonium chloride (4), trazinium esilate (54), trethinium tosilate (14),
troxonium tosilate (13), troxypyrrolium tosilate (13)

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

**diphenylmethyl piperazine derivatives**

![Chemical Structure](image)

(a) **antihistaminics**: G.2.0.0: buclizine (4), cetirizine (51), chlorcyclizine (1), clocinizine (15), cyclizine (1), efletirizine (71), elbanizine (60), flotrenizine (48), **levocetirizine** (78), lomerizine (68), 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**

(a) 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), triampyizine (15) (anticholinergic)

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

(c) medibazine (16)
-kacin  
**antibiotics, kanamycin and bekanamycin derivatives (obtained from Streptomyces kanamyceticus)**

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

\[ \begin{array}{c}
\text{H}_2\text{N} \\
\text{OH} \\
\text{OH} \\
\text{R} \\
\text{O} \\
\end{array} \]

\[ \text{R} = \text{OH or NH}_2 \]

(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**

H.2.0.0  
(USAN: potassium channel antagonists)

(a)  
adekalant (83), almokalant (64), clamikalant (81), inakalant (95), nifekalant (75), pinokalant (82), terikalant (66), vernakalant (96)

-kalim  
**potassium channel activators, antihypertensive**

H.3.0.0  
(USAN: potassium channel agonists)

(a)  
aprikalim (64), bimakalim (64), cromakalim (58), emakalim (66), levocromakalim (66), mazokalim (75), rilmakalim (65), sarakalim (81)
**kef-**

*enkephalin agonists*

(USAN: enkephalin agonists (various indications))

casokefamide (65), difelikefalin (113), frakefamide (81), metenkefalin (97), metkefamide (44)

**kin**

*interleukin type substances*

S.7.0.0

(a)

IL-1:

- *nakin* \(\text{interleukin-1 analogues and derivatives}\)
  - *onakin: interleukin-1 \(\alpha\) analogues and derivatives*: pifonakin (77)
  - *benakin: interleukin-1 \(\beta\) analogues and derivatives*: mobenakin (72)

IL-2:

- *leukin* \(\text{interleukin-2 analogues and derivatives}\):
adargileukin alfa (89),
aldesleukin (63), bemppegaldesleukin (119),
celmoleukin (65),
cergutuzumab amunaleukin (113),
denileukin diftitox (78),
efavaleukin alfa (118),
pegaldesleukin (74),
tecileukin (54),
tucotuzumab celmoleukin (95)

IL-4:

- *trakin* \(\text{interleukin-4 analogues and derivatives}\):
binetra kin (82)

IL-6:

- *exakin* \(\text{interleukin-6 analogues and derivatives}\):
atexakin alfa (72)

IL-7:

- *eptakin* \(\text{interleukin-7 analogues and derivatives}\):
efineptakin alfa (118)

IL-8:

- *octakin* \(\text{interleukin-8 analogues and derivatives}\):
canoctakin (110),
emoctakin (74)

IL-10:

- *decakin* \(\text{interleukin-10 analogues and derivatives}\):
ilodecakin (81),
pegilodecakin (117)

IL-11:

- *elvekin* \(\text{interleukin-11 analogues and derivatives}\):
opr elvekin (76)

IL-12:

- *dodekin* \(\text{interleukin-12 analogues and derivatives}\):
edodekin alfa (79)

IL-13:

- *tredekin* \(\text{interleukin-13 analogues and derivatives}\):
cintredek in
besudotox (92)

IL-18:

- *octade kin* \(\text{interleukin-18 human analogues and derivatives}\):
iboctade kin (92)
tadekinig alfa (90) (fraction of IL-18 human)
<table>
<thead>
<tr>
<th>Stems</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-enicokin</td>
<td>interleukin-21 human analogues and derivatives: denenicokin (99)</td>
</tr>
<tr>
<td>-plestim</td>
<td>interleukin-3 analogues and derivatives: muplestim (72), daniplestim (76)</td>
</tr>
<tr>
<td>-kinra</td>
<td>interleukin receptor antagonists</td>
</tr>
<tr>
<td>S.7.0.0</td>
<td></td>
</tr>
<tr>
<td>-nakinra</td>
<td>interleukin-1 receptor antagonists: anakinra (72), isunakinra (113)</td>
</tr>
<tr>
<td>IL-4</td>
<td></td>
</tr>
<tr>
<td>-trakinra</td>
<td>interleukin-4 receptor antagonists: pitrakinra (84)</td>
</tr>
<tr>
<td>-kiren</td>
<td>renin inhibitors</td>
</tr>
<tr>
<td>H.3.0.0</td>
<td></td>
</tr>
<tr>
<td>-laner</td>
<td>antagonists of GABA (gamma-aminobutyric acid) regulated chloride channels, antiparasitic agents</td>
</tr>
<tr>
<td>S.1.0.0</td>
<td>(USAN: antiparasitics (isoxazoline compounds))</td>
</tr>
<tr>
<td>-lefacept</td>
<td>see -cept</td>
</tr>
<tr>
<td>-leukin</td>
<td>see -kin</td>
</tr>
<tr>
<td>-lisib</td>
<td>phosphatidylinositol 3-kinase inhibitors, antineoplastics</td>
</tr>
<tr>
<td>L.0.0.0</td>
<td>(USAN: phosphatidylinositol 3-kinase inhibitors)</td>
</tr>
</tbody>
</table>

- aliskiren (84), ciprokiren (69), ditekiren (84), enalkiren (84), imarikiren (116), remikiren (66), terlakiren (66), zankiren (84)
- afoxolaner (108), fluralaner (107), lotilaner (112), sarolaner (111), tigolaner (117)
- acalisib (109), apitolisib (108), alpelisib (110), bimiralisib (116), buparlisib (106), copanlisib (108), dactolisib (107), dezapelisib (116), idelalisib (107), duvelisib (110), gedatolisib (111), leniolisib (116), nemiralisib (116), omipalisib (111), panulisib (109), palsaclisib (117), pictilisib (107), pilaralisib (108), recilisib (108), seletalisib (112), serabelisib (115), tenalisib (114), umbralisib (118)
### INN – the use of stems

<table>
<thead>
<tr>
<th>Stem</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>-listat</td>
<td>see -stat</td>
<td>USAN</td>
</tr>
<tr>
<td>-lubant</td>
<td>leukotriene B₄ receptor antagonists</td>
<td>(USAN: leukotriene receptor antagonists (treatment of inflammatory skin disorders))</td>
</tr>
<tr>
<td>U.3.0.0</td>
<td></td>
<td>(a) amelubant (85), moxilubant (78), ticolubant (76)</td>
</tr>
<tr>
<td>-lukast</td>
<td>leukotriene receptor antagonists, see -ast</td>
<td>USAN</td>
</tr>
<tr>
<td>-lutamide</td>
<td>non-steroid antiandrogens</td>
<td>Q.2.3.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(a) apalutamide (113), bicalutamide (70), darolutamide (115), enzalutamide (107), flutamide (33), nilutamide (56), topilutamide (91)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(b) aceglutamide (15)</td>
</tr>
<tr>
<td>-lutril</td>
<td>see -tril</td>
<td>BAN, USAN</td>
</tr>
<tr>
<td>-mab</td>
<td>monoclonal antibodies (see also Annex 3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Since May 2017, a new scheme was adopted for the nomenclature of monoclonal antibodies (mAb). The previous scheme included a substem, indicating the species on which the immunoglobulin sequence is based. Due to the new scheme, the stem indicating the origin is omitted. Each INN for a mAb will include the stem –mab, with a prefix indicating its target.</td>
<td></td>
</tr>
<tr>
<td>-ami- for serum amyloid protein (SAP)/amyloidosis (previously as -am(i)-) (pre-substem):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New naming scheme:</td>
<td>birtamimab (119)</td>
<td></td>
</tr>
<tr>
<td>humanized: -zumab</td>
<td>dezamizumab (115)</td>
<td></td>
</tr>
<tr>
<td>-ba- for bacterial (previously as -b(a)-, -ba(c)-):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mouse: -omab</td>
<td>edobacomab (80)</td>
<td></td>
</tr>
<tr>
<td>chimeric: -ximab</td>
<td>pagibaximab (93)</td>
<td></td>
</tr>
<tr>
<td>humanized: -zumab</td>
<td>rivazubamab (114), rivazubamab pegol (113), tefibazumab (92)</td>
<td></td>
</tr>
<tr>
<td>human: -umab</td>
<td>nebacakumab (66), panobacumab (100), raxibacumab (92)</td>
<td></td>
</tr>
</tbody>
</table>
**-ci-** for *cardiovascular* (previously as -c(i)-, -ci(r)-):

- **New naming scheme:** abelacimab (119), dilpacimab (119), faricimab (118), frovacimab (119), marstacimab (119), olinvacimab (119), osocimab (119)
- **mouse:** omab
- **chimeric:** ximab
- **chimeric-humanized/human:** xizumab
- **humanized:** zumab
  - New names:
  - alacizumab pegol (98), bevacizumab (86), bevacizumab beta (114), bococizumab (110), brolucizumab (112), caplacizumab (106), concizumab (108), demcizumab (107), emicizumab (113), etaracizumab (99), idarucizumab (115), lodelcizumab (108), ralpaczumab (110), tadocizumab (94), vanucizumab (113)
  - Human:
    - -umab
      - alirocumab (107), ascrinvacumab (113), enoticumab (107), evinacumab (112), evolocumab (108), icrucumab (104), inclacumab (106), nesvacumab (108), orticumab (107), ramucirumab (110), rinucumab (113), varisacumab (116), vesencumab (104)

**-fung-** for *fungal* (previously as -f(u)-):

- **human:** umab
  - efungumab (95)

**-gros-** for *skeletal muscle mass related growth factors and receptors* (pre-substem, previously as -gr(o)-):

- **humanized:** zumab
  - domagrozumab (114), landogrozumab (113)
- Human: umab
  - bimagrumab (111), trevogrumab (113)

**-ki-** for *interleukin* (previously as -k(i)-, -ki(n)-):

- **New naming scheme:** abrezekimab (118), netakimab (118), romilkimab (118)
- **humanized:** zumab
  - anrukinzumab (98), bimekizumab (110), clazakizumab (107), enokizumab (104), gevokizumab (104), ixekizumab (105), lebrikizumab (101), lutikizumab (115), mirikizumab (117), olkokizumab (103), perakizumab (108), risankizumab (113), tildrakizumab (108), unakizumab (115)
- Human: umab
  - afasevikumab (113), brazikumab (115), briakinumab (101), canakinumab (97), dextrekumab (112), fezakinumab (101), fletikumab (110), guselkumab (109), secukinumab (102), sirukumab (105), tralokinumab (102), ustekinumab (99)
-li- for **immunomodulating** (previously as -l(i)-, -li(m)-):

**New naming scheme:**
bersenlimab (118), budigalimab (119), cemiplimab (119), cetrelimab (118), crovalimab (119), dostarlimab (119), etigilimab (118), imaprelimab (118), iscalimab (118), leronlimab (118), mitazalimab (119), obexelimab (119), ontalimab (119), onvatilimab (118), orilanolimab (119), otilimab (119), ravagalimab (118), relatlimab (119), sintilimab (119), spesolimab (119), sutimlimab (118), tavolimab (118), temelimab (119), toripalimab (119), voipratelimab (118), zampilimab (119)

**mouse:** -omab
afelimomab (80), begelomab (111), dorlimomab aritox (66), elsilimomab (89), enlimomab (80), enlimomab pegol (77), faralimomab (81), gavilimomab (84), inolimomab (80), maslimomab (66), nerelimomab (81), odulimomab (81), telimomab aritox (66), vepalimomab (80), zolimomab aritox (80)

**chimeric:** -ximab
andecaliximab (115), basiliximab (81), clenoliximab (77), galiximab (89), infliximab (77), keliximab (81), lumiliximab (90), priliximab (80), teneliximab (87), vapaliximab (87)

**chimeric-humanized/human:** -xizumab
otelixizumab (99), rozanolixizumab (115)

**humanized:** -zumab
apolizumab (87), aselizumab (88), atezolizumab (112), benralizumab (102), cabiralizumab (114), camrelizumab (115), cedelizumab (81), certolizumab pegol (97), crizanlizumab (115), daclizumab (78), daclizumab beta (114), dapirolizumab pegol (110), eculizumab (87), efalizumab (85), erlizumab (84), etrolizumab (104), fontolizumab (87), ibalizumab (97), inebilizumab (113), itolizumab (103), lampalizumab (107), letolizumab (116), ligelizumab (107), lulizumab pegol (111), mepolizumab (81), mogamulizumab (104), monalizumab (113), natalizumab (79), nemolizumab (112), ocrelizumab (95), olendalizumab (116), omalizumab (84), ozoralizumab (105), pascolizumab (87), pateclizumab (105), pembrolizumab (110), pexelizumab (86), pidilizumab (108), plozalizumab (113), quilizumab (106), ravulizumab (117), reslizumab (85), rontalizumab (101), rovelizumab (81), ruplizumab (83), samalizumab (105), satralizumab (116), siplizumab (87), spartalizumab (117), talizumab (89), teplizumab (97), tibulizumab (117), tislelizumab (117),
tocilizumab (90), toralizumab (87), tregalizumab (104), vatelizumab (105), vedolizumab (100), visilizumab (84), vobarilizumab (114), vonlerolizumab (116)

**human: -umab**

abrilumab (111), adalimumab (85), adalimumab beta (118), anifrolumab (109), atorolimumab (80), avelumab (113), belimumab (89), bertilimumab (88), bleselumab (113), brodalumab (105), camidanlumab (117), camidanlumab tesirine (117), carlumab (104), dupilumab (108), durvalumab (112), eldelumab (109), emapalumab (116), foralumab (103), fresolimumab (101), gimsilumab (117), golimumab (91), ianalumab (117), imalumab (111), ipilimumab (94), lanadelumab (114), lenzilumab (111), lerdelimumab (86), liirilumab (107), mavrilimumab (102), metelimumab (88), morolimumab (79), namilumab (104), nivolumab (111), oleclumab (116), oxelumab (105), pamrevlumab (113), placulumab (107), prezalumab (114), remtolumab (115), sarilumab (106), selicrelumab (116), sifalimumab (104), stamulumab (95), tabalumab (105), tesidolumab (112), tezepelumab (113), timolumab (114), tiragolumab (117), tremelimumab (97), ulocuplumab (110), urelumab (104), utomilumab (115), varlilumab (111), zanolimumab (92), ziralimumab (84)

**-ne-** for neural (previously as -n(e)-, -ne(r)-):

New naming scheme: gosuranemab (119)

**humanized: -zumab**

bapineuzumab (93), crenezumab (105), eptinezumab (115), fremanezumab (115), gancanezumab (114), ozanezumab (108), ponezumab (104), prasinezumab (117), refanezumab (114), solanezumab (107), tanezumab (99)

**human: -umab**

aducanumab (110), atinumab (104), elezanumab (115), erenumab (115), fasinumab (107), fulranumab (104), gantenerumab (108), opicinumab (113)

**-os-** for bone (previously as -s(o)-):

**humanized: -zumab**

blosozumab (105), romosozumab (106)

**human: -umab**

burosumab (115), denosumab (94), setrusumab (117)
-ta- for tumour (previous as -t(u)-, -tu(m)-; -co(l)-; -go(t)-; -go(v)-; -ma(r)-; -me(l)-; pr(o)-):

**New naming scheme:**
belantamab (118), belantamab mafodotin (118), enapptomab (118), enapptomab vedotin (118), gancotamab (119), iodine (131) apamistamab (119), murlentamab (119), omburtamab (119), rolinsatamab (119), rolinsatamab talirine (119), samrotamab (118), samrotamab vedotin (118), tafasitamab (119), tepoditamab (118)

**Mouse:** -omab
abagovomab (95), altumomab (80), anatumomab mafenatox (86), arcitumomab (74), bectumomab (81), blinatumomab (100), capromab (80), detumomab (80), edrecolomab (74), epitumomab (97), epitumomab cituxetan (89), ibritumomab tiuxetan (86), igomomab (86), ilotomab (112), lutetium (177)Lu ilotomab satetrahexetan (112), minretumomab (80), mitumomab (82), moxetumomab pasudotox (102), nacolomab tafenatox (80), naptumomab estafenatox (96), oregomomab (86), racotumomab (100), satumomab (81), solitomab (106), taplitumomab paptopx (84), technetium (99m) p峒tumomab merpentan (81), technetium (99m) p峒tumomab (86), tenatumomab (99), tositumomab (80)

**Chimeric:** -ximab
amatuximab (104), bavituximab (95), brentuximab vedotin (103), carotuximab (114), cetuximab (82), coltuximab ravnstine (109), dinutuximab (109), dinutuximab beta (113), ecromeximab (87), ensituximab (103), futuximab (107), girentuximab (101), indatuximab ravnstine (105), iodine (131) derlotuximab biotin (113), iodine (124) girentuximab (101), isatuximab (112), lapituximab (114), lapituximab emtansine (114), margetuximab (109), mirbetuximab (114), mirvetuximab soravtansine (113), modotuximab (110), naratumab (114), naratumab emtansine (114), rituximab (77), siltuximab (100), tabituximab (119), tabituximab barzuxetan (119), tomituximab (118), ublituximab (104), vadastuximab (114), vadastuximab talirine (113)

**Chimeric-humanized/human:** -xizumab
azintuxizumab (116), azintuxizumab vedotin (116), depatuxizumab (115), depatuxizumab mafodotin (115), duvortuxizumab (116), losatuxizumab (116), losatuxizumab vedotin (116), ontuxizumab (109), pasotuxizumab (111),

**Humanized:** -zumab
abirituzumab (109), alemtuzumab (83), bemarituzumab (117), bivatuzumab (86), brontictuzumab (111), cantuzumab mertansine (105), cantuzumab ravnstine (105), cergutuzumab amunaleukin (113), citatuzumab bogatox (99), clivatuzumab tetrahexetan (113), codrituzumab (109), cofetuzumab (117), cofetuzumab pelidotin (117), cusatuzumab (118), dacetuzumab (98), dalotuzumab (107), denintuzumab mafodotin (111), duligotuzumab (110), elotuzumab (100), emactuzumab (111), emibetuzumab (111), enavatuzumab (104), enoblituzumab (116), epratuzumab
INN – the use of stems

(82), farletuzumab (100), fliclatuzumab (105), flotetuzumab (118), gatipotuzumab (118), gemtuzumab (83), gemtuzumab ozogamicin (115), ifabotuzumab (115), iladatuzumab (117), iladatuzumab vedotin (117), imgatuzumab (107), inotuzumab ozogamicin (92), labetuzumab (85), labetuzumab govitecan (113), lacnotuzumab (116), ladiratuzumab (117), ladiratuzumab vedotin (117), lifastuzumab vedotin (110), lintuzumab (86), lorvotuzumab mertansine (103), lumretuzumab (111), matuzumab (88), milatuzumab (98), mosunetuzumab (117), nimotuzumab (94), obinutuzumab (109), ocaratuzumab (107), oportuzumab monatox (100), oltuzumab (110), parsatuzumab (107), pertuzumab (89), pinatuzumab vedotin (108), polatuzumab vedotin (110), rosmantuzumab (115), rovalpituzumab (113), rovalpituzumab tesirine (113), sacituzumab (115), sacituzumab govitecan (113), sibrotuzumab (86), simtuzumab (107), sofituzumab vedotin (110), sountuzumab (94), talacotuzumab (117), telisotuzumab (115), telisotuzumab vedotin (115), tigatuzumab (98), timigutuzumab (118), trastuzumab (78), trastuzumab beta (118), trastuzumab deruxtecan (116), trastuzumab duocarmazine (115), trastuzumab emtansine (103), tucotuzumab celmoleukin (95), vandortuzumab vedotin (112), veltuzumab (98), vorsetuzumab (107), vorsetuzumab mafodotin (107), xentuzumab (114), yttrium (90Y) clivatuzumab tetraxetan (93), zenocutuzumab (118)

human: -umab
adecatumumab (90), anetumab ravtansine (109), aprutumab (115), aprutumab ixadotin (115), cixutumumab (100), conatumumab (99), daratumumab (101), drozitumab (103), dusigitumab (108), elgemtumab (112), enfortumab vedotin (109), figitumumab (100), flanvotumab (106), ganitumab (103), glembatumumab (102), glembatumumab vedotin (113), indusatumab (112), indusatumab vedotin (112), intetumumab (101), iratumumab (94), istiratumab (117), lexatumumab (95), loncastuximab (117), loncastuximab tesirine (117), lucatumumab (98), lupartumab (115), lupilumab amadotin (115), mapatumumab (93), narratumab (105), necatumumab (100), ofatumumab (93), olaratumab (103), panitumumab (96), patritumab (106), pritutumab (89), radretumab (104), rilotumumab (101), robatumumab (100), seribantumab (108), sirtratumab (117), sirtratumab vedotin (117), tarextumab (109), teprotumumab (108), tosatumumab (113), tisotumumab vedotin (113), tovetumab (109), vantictumab (109), votumumab (80), zalutumumab (93), zolbetuximab (117)

-toxa- for toxin (previously as -tox(a)-):
chimeric: -ximab
obli toxiximab (113), pritoxiximab (108), setoxiximab (108)

humanized: -zumab
urtoxizumab (90)

human: -umab
actoxumab (111), atidortoxumab (117), berlimatoxumab (117), bezlotoxumab (107), suvratoxumab (116), tosatoxumab (109)
-vetmab for veterinary use:
  blontuvetmab (114), frunevetmab (116), gilvetmab (116), lokivetmab (112),
  ranevetmab (115), tamtuvetmab (114)

-vi- for viral (previously as -v(i)-, -vi(r)-):
  New naming scheme: lenvervimab (118), nirsevimab (119)
  chimeric: -ximab cosfroviximab (116), larcaviximab (116), porgaviximab (116)
  humanized: -zumab felvizumab (77), motavizumab (95), palivizumab (79),
  suvizumab (102)
  human: -umab diridavumab (111), exbivirumab (91), firivumab (111),
  foravirumab (100), gedivumab (117), lesofavumab (117), libivirumab (91),
  navivirumab (113), rafivirumab (100), regavirumab (80), sevirumab (66),
  suptavumab (115), tuvirumab (66)

Others:

-le(s)- for inflammatory lesions (infix no longer formally acknowledged under the
current scheme):
  mouse (under the previous naming scheme -omab):
  besilesomab (92), lemalesomab (86), sulesomab (86), technetium (99mTc)
  fanolesomab (86)

humanized (under the previous naming scheme -zumab):
  ranibizumab (90) (treatment of patients with the exudative (wet or
neovascular) form of age-related macular degeneration (AMD))

rat-murine hybrid (under the previous naming scheme -axomab):
  catumaxomab (93), ertumaxomab (93)

human (under the previous naming scheme -umab):
  crotedumab (114) (treatment of diabetes)
  roledumab (103), (treatment of RhD(+) incompatible transfusions)

(c) muromonab-CD3 (59)

-mantadine adamantine derivatives
-mantine
-mantone (USAN: -mantadine or -mantine: antivirals/antiparkinsonians (adamantine
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.l.0: dimantine (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), **amantocilllin** (17) (antibiotic), artrolane (97) (antimalarial), bolmantalate (16) (anabolic), meclinertant (88) (neurotensin antagonist), mantabegron (88) (β3-adrenoreceptor agonist), saxagliptin (92) (antidiabetic), vildagliptin (90) (antidiabetic)

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**-mapimod** see **-imod**

**-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))

\[
\begin{array}{c}
\text{CH}_3 \\
\text{O} \\
\text{CH}_3
\end{array}
\]

alvameline (79), cevimeline (76), itameline (77), milameline (74), revosimeline (119), sabcomeline (76), tazomeline (77), xanomeline (70)

---

**mer- or -mer- (d)** 1mercury-containing drugs, antimicrobial or diuretic

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

1*mer- and -mer-* can be used for any type of substances and are no longer restricted to use in INNs for mercury-containing drugs

N.1.3.0 diuretic: chlormerodrin (4), chloromerodrin (97Hg) (24), meralluride
(1), mercaptomerin (1), mercuderamide (1), mercumatin sodium (4), mercurophylline (1), merisoprol (\(^{197}\text{Hg}\)) (24) (diagnostic), mersaly (4)

(b) difemorine (17) (spasmolytic), dimercaprol (1) (antidote, \(-\text{SH}\) group), lomerizine (68), (cerebral vasodilator), mercaptopurine (6) (cytostatic, \(-\text{SH}\) group), nifurterone (16), pemerid (25), suxemerid (25) (antitussive)

(c) hydrargaphen (10)

### -mer polymers

(a) amilomer (33), azoximer bromide (97), berdazimer sodium (117), bixalomer (103), cadexomer (60), carbetimer (50), carboxomer (21), crilanomer (53), davamotecan pegadexamer (117), demplatin pegalumel (117), dextranomer (33), eldexomer (60), exatecan alideximer (89), firtecan peguloper (108), hemoglobin glutamer (80), hemoglobin raffimer (89), leuciglumer (68), maletamer (14), omipinamer (108), periomer calcium (106), poloxamer (34), porfimer sodium (64), sevelamer (77), surfomer (44), talinexomer (114), tolevamer (88), zinostatin stimalamer (74)

(b) astodrimer (110), succimer (42)

### -mesine sigma receptor ligands

cutamesine (100), igmesine (68), panamesine (73), siramesine (81)

### -mestane aromatase inhibitors

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

atamestane (54), exemestane (65), formestane (66), minamestane (64), plomestane (66)

### -metacin (x) anti-inflammatory, indomethacin 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),
progumetacin (35), sermetacin (36), talmetacin (46), zidometacin (39)
	note anti-inflammatory, indole derivatives: etoprindole (22), indopine (12),
	indoxole (17), nictindole (28)

-met(h)asone see pred

-metinib see -tinib

-micin

aminoglycosides, antibiotics obtained from various Micromonospora

(5.6.5.0) (USAN: antibiotics (Micromonospora strains))

astromicin (44), betamicin (38), etisomicin (47), evernimicin (82),
fidaxomicin (109), gemtuzumab ozogamicin (115), gentamicin (22),
isepamicin (54), maduramicin (52), megalomicin (37), micronomicin (45),
mirosamicin (58), netilmicin (36), ozogamicin (83), pseumisomicin (41),
plazomicin (106), repromicin (37), rosamnicin (41) (prev. rosamicin),
semduramicin (60), sisomicin (25)

-mifene see -ifene

-milast see -ast

mito- (d)
antineoplastics, nucleotoxic agents

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), mitotenate (17), mitoxantrone (44),
mitozolomide (51)

c) mitindomide (48)
-monam  monobactam antibiotics

S.6.0.0

\[
\begin{array}{c}
  \text{N} \\
  \text{O} \\
  \text{R} \\
  \text{O} \\
\end{array}
\]

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

(c)  aztreonam (48)

-morelin  see -relin

-mostat  see -stat

-mostim  see -stim

-motine  antivirals, quinoline derivatives

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), fenoxypropazine (12), iproclozide
(13), iproniazid (1), isocarboxazid (11), mebanazine (15), nialamide (10),
pargyline (13), phenelzine (10), pheniprazine (11), tranylcypromine (11)

-mulin  antibacterials, pleuromulin derivatives

S.6.0.0

(a)  azamulin (54), lefamulin (110), pleuromulin (35), retapamulin (91), tiamulin
(35), valnemulin (74)

(b)  nonathymulin (56), thymostimulin (45)
### INN – the use of stems

**USAN**

**-mustine**  antineoplastic, alkylating agents, (b-chloroethyl)amine derivatives

L.2.0.0  (USAN: antineoplastic agents (chlorethylamine derivatives))

\[
\text{R-N}^\text{Cl} \quad \text{Cl}
\]

(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), laromustine (98), lomustine (27), mannomustine (8), neptamustine (48) (originally pentamustine (45)), nimustine (37), prednimustine (31), ranimustine (55), semustine (27), spiromustine (47), tallimustine (68), tauromustine (50), tinostamustine (116), uramustine (13)

(c)  canfosfamide (92), chlorambucil (6), chlormethine (1), chlornaphazine (1), cyclophosphamide (10), defosfamide (12), glufosfamide (77), ifosfamide (23), mafosfamide (51), melphalan (8), melphalan flufenamide (105), metamelfalan (41), mitoclomine (18), mitotename (17), palifosfamide (99), per fosfamide (66), sarcolysin (17), sufosfamide (36), trichlormethine (11), trofosfamide (23)

### BAN, USAN

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

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

(a)  alvespimycin (96), 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), ganefromycin (68), hachimycin (23), heliomycin (25), hydroxyymycin (8 - deleted in List 28), josamycin (23), kanamycin (10), kitasamycin (13), laidomycin (61), lexithromycin (65), lincomycin (13), lividomycin (32), maridomycin (32), midecamycin (30), mikamycin (17), mirincamycin (31), mocimycin (28), modithromycin (101), nafithromycin (114), natamycin (15), nebramycin (19), neomycin (1), neutramycin (15), oleandomycin (6), palidomycin (55), paromomycin (10), paulomycin (47), pirlimycin (47), primycin (38), pristinamycin (12), ranimycin (20), relomycin (15), retaspimycin (99), ribostamycin (27), rifamycin (13), rokitamycin (53), roxithromycin (54),
salinomycin (37), sedecamycin (55), solithromycin (104), spectinomycin (13), spiramycin (6), stallimycin (30), steffimycin (20), streptomycin (1), surotomycin (107), tanespimycin (96), telithromycin (80), terdecamycin (65), troleandomycin (24), trospectomycin (53), tulathromycin (87) (vet.), vancomycin (6), viomycin (4), virginiamycin (18)

antibiotics, antineoplastics:
ambomycin (13), antramycin (17), azotomycin (13), bleomycin (23), caconomycin (15), dactinomycin (18), daazomycin (13), lucimycin (13), mitomycin (26), nogalucin (16), olivomycin (18), pehulomycin (15), peplomycin (44), plicamycin (50) (previously mithramycin (16)), porfiromycin (15), puromycin (15), rufocromomycin (12), sparsomycin (13), talismycin (41)

antibiotics, antineoplastics, antibacterial:
cirolemycin (21)

antibiotic, antifungal:
hamycin (17), limisomycin (20), rutamycin (14)

(b) tobramycin (28)

(c) antibiotic, antibacterial:
aspasotin (11), azidamfenicol (14), cetofenicol (14), chloramphenicol (1), cloramfenicol pantotenate complex (14), cyclosine (6), novobiocin (6), ostarogrycin (6), rifamide (15), rifampicin (17), streptoniazid (13), streptovaycin (6), thiamphenicol (10), tylosin (16)

antibiotic, antifungal:
amphotericin B (10), candicidin (17), filipin (20), kalafungin (20), nystatin (6), viridofulvin (16)

antibiotic, antineoplastic:
daunorubicin (20), mitomalcin (19), streptonigrin (14) (deleted in List 33)

see also -rubicin

nab cannabinoid receptors agonists

(USAN: -nab; or -nab-: cannabinol derivatives)
(a) cannabidiol (118), cannabinol (23), dronabinol (51), lenabasum (118), menabitan (49), nabazenil (49), nabilone (49), nabitan (42), naboctate (45), nonabine (47), olorinab (119), pirtabn (41), tedalnab (103), tinabinol (49)

(b) fenabutene (26), guanabenz (26), muromonab-CD3 (59), nabumetone (44), prinabrel (95)

-nabant cannabinoid receptors antagonists

E.0.0.0

(a) drinabant (99), giminabant (107), ibipinabant (99), otenabant (99), rimonabant (83), rosonabant (97), surinabant (93), taranabant (97)

-nacept see -cept

-nakin see -kin

-nakinra see -kinra

nal- opioid receptor antagonists/agonists related to normorphine

A.4.1.0 (USAN: narcotic agonists or antagonists (normorphine type))
B.2.0.0

(a) dinalbuphine sebacate (116), methylnaltrexone bromide (111), nalbuphine (21), naldemedine (105), nalfurafine (87), nalmefene (49) (originally naltetren (47)), nalmexone (19), nalorphine (1), naloxegol (105), naloxone (13), naltalimide (107), naltrexone (29)

(b) nalidixic acid (13), naluzotan (101)
-naritide  see -tide

(navir  see vir

-nepag  prostaglandins receptors agonists, non-prostanoids

USAN (a) aganepag (104), evatanepag (101), omidenepag (114), ralinepag (112), simenepag (103), taprenepag (103)

(c) selexipag (102)

-nermin  see -ermin

-nercept  see -cept

-nertant  see -tant

-netant  see -tant

-nicate  see nico-

-nicline  nicotinic acetylcholine receptor partial agonists / agonists

USAN E.1.1.2

(a) altinicline (82), bradanicline (111), dianicline (93), encenicline (111), facinicline (105), ispronicline (93), nelonicline (112), pozanicline (100), rivanicline (93), sofinicline (100), tebanicline (86), varenicline (89)

-nico- or nic- or ni-

nicotinic acid or nicotinoyl alcohol derivatives

P.7.0.0

nico-: nicoboxil (43), nicoclone (29), nicocodine (12), nicocortone (40), nicocodine (15), nicofibrate (31), nicofuranose (14), nicofurate (28), nicomol (23), nicomorphine (7), nicopholine (1), nicorandil (44), nicothiazone (10), nicotinamide (4), nicotinic acid (4), nicotredole (72), nicoxamat (44), nikethamide (4)
inositol nicotinate (16), xantinol nicotinate (16)

**nic-**:: nicafenine (40), nicainoprol (46), nicametate (15), nicardipine (42), nicanartine (72), nicergoline (26), niceverine (15), nictindole (28), nizofenone (44)

**ni-**:: nialamide (10), niaprazine (24), nifenazone (15), niometacin (33), niprofazone (29), nixylic acid (17)

### -nicate:

**H.4.0.0**

**F.2.2.0**

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

(b) nitrite derivative: nimazone (21)

**others**:: 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)

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**-nidazole (x)** **antiprotozoals and radiosensitizers, metronidazole derivatives**

**S.3.3.0**

**Y.0.0.0**

(USAN: antiprotozoal substances (metronidazole type))

(a) abunidazole (52), azanidazole (38), bamnidazole (37), benznidazole (31), carnidazole (32), doranidazole (90), etanidazole (57), fexinidazole (37), flortanidazole (18F) (108), 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)
nifur- (d) 5-nitrofuran derivatives

\[
\text{O}_2\text{N} \quad \text{O} \quad \text{R}
\]

(a) nifuradene (16), nifuraldezone (17), nifuralide (34), nifuratel (17), nifuratrone (24), nifurazil (16), nifurethazone (10), nifurfoline (20), nifurimide (18), nifurizone (22), nifurmazole (22), nifurmerone (16), nifuroquine (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), furaltadone (17), furazolidone (13), furazolium chloride (15), furmethoxadone (8), levofuraltadone (17), nidroxyzone (6), nihydrazone (10), nitrofural (1), nitrofurantoin (11), thiofuradene (11)

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

nitro- or nitr- or nit- or ni- or -ni-

\textbf{nifur-}: all INN of this series (see under nifur-)

\textbf{nitro-}: nitroclofene (41), nitrocycline (14), nitrodan (15), nitrofural (1), nitrofurantoin (11), nitromifene (33), nitroscanate (33), nitrosulfathiazole (1), nitrozinil (19), nitroxline (15)

\textbf{nitr-}: nitracrine (35), nitrafudam (40), nitramisole (33), nitraquazone (53), nitrazepam (16), nitrafazole (46), nitricholine perchlorate (6)

\textbf{nit- and -nit-}: nitarzine (17), ranitidine (41)

\textbf{ni-}: nibroxane (35), niclofolan (20), niclosamide (13), nidroxyzone (6), nifenolol (22), nihydrazone (10), nimesulide (44), nimorazole (22), niridazole (17)

\textbf{ni-dipine}: nicardipine (42), nifedipine (27), niludipine (38), nisoldipine (42), nitrendipine (42), vatamidipine (77)

\textbf{-nidazole}: for INNs of this series see under –nidazole
-nixin  anti-inflammatory, anilinonicotinic acid derivatives

A.4.2.0

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

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

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

(-)nonacog see -cog

-octakin see -kin

(-)octocog see -cog

-ol (d) for alcohols and phenols

\[
\begin{array}{c}
\text{Ar} \\
\text{O} \\
\text{H} \\
\text{OH} \\
\text{N} \\
\text{-O-CH}_2\text{-CHOH-CH}_2\text{-NH-R}
\end{array}
\]

aromat. ring -O-CH\textsubscript{2}-CHOH-CH\textsubscript{2}-NH-R

(b) acebutolol (28), adaprolol (63), adimolol (50), afurolol (40), alprenolol (19), ancarolol (47), arnolol (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), carteolol (35), celiprolol (35), cetamolol (47), cicloprolol (48), cinamolol (44), cloranolol (41), crinolol (41) (replaced by pacrinolol (44)), dextralol (98), dextropropanolol (21), diacetolol (41), draquinolol (54), ecastolol (56), epanolol (52), ericolol (50), esatenolol (76), esmolol (50), expalrolol (32), falintolol (53), fletisolol (53), fluoxolol (50), idropranolol (31), imidolol (49) (replaced by adimolol (50)), indenolol (37), indopanolol (48), iprocidol (39), isoxaprofol (45), landiolol (75), levobetaxolol (61), levobunolol (42), levomoprofol (58), levomibetaxolol (98), mepindolol (36), metipranolol (38), metoprolol (30), mepropranolol (36), nadolol (34), nadoxolol (28), nafetolol (39), nebivolol (56), nipradilol (50)
INN – the use of stems

(previously nigradolol (49)), oxprenolol (20), pacrinolol (44), pafenolol (46),
pamatolol (36), pargolol (36), penbutolol (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), zoleprodolol (102)

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

-alol aromatic ring -CH-CH₂-NH-R related to -olols

OH

E.5.2.0 (USAN: combined alpha and beta blockers)

(a) amosulalol (50), bendaclol (59), brefonalol (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) 635 (approx. 7.5 %) INNs ending in -one in Lists 1-105 of proposed INNs

-onide steroids for topical use, acetal derivatives

Q.3.0.0

(a) acrocinonide (27), amcinonide (33), budesonide (37), ciclesonide (62),
cicortonide (28), ciprocinonide (38), desonide (24), dexpseudoide (80),
drocinonide (29), flucorolone acetonide (22), fluocinolone acetonide
(11), flumoxonide (38), flucinonide (25), halcinonide (29), itrocinonide
(62), nicocortonide (40), procinonide (38), rofleponeide (72), traloxide
(27), tramcinolone benetonide (36), tramcinolone furaconide (36),
tramcinolone 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: octenidine (43), pirtenidine (57)
antibacterial: sulfaguanidine (4)
vetirinary 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), difemetorex (41), etolorex (20), fenisorex (29), fenproporex (17), flucetorex (30), fludorex (19), fluminorex (14), formetorex (14), furfenorex (16), indanorex (30), mefenorex (19), morforex (26), oxifentorex (20), pentorex (16), picilorex (40), tiflorex (34)

(a) bupropion (84) (replaces amfetbutamone (31)), amfecloral (12), amfepramone (13), amfetamine (55), amfetaminil (40), benzfetamine (55), brolamfetamine (55), chlorphentermine (11), clortermine (22), dexamfetamine (55), dexfenfluramine (54), dimetamfetamine (38), etilamfetamine (40), fenbutrazate (12), fenfluramine (14), hexapradol
(12), levamfetamine (12), levmetamfetamine (83), levofenfluramine (57), lisdexamfetamine (94), mephentermine (6), ortetamine (13), phendimetrazine (11), phenmetrazine (6), phentermine (11)

**USAN**

- **orexant** orexin receptor antagonists

almorexant (98), filorexant (108), lemborexant (111), nemorexant (118), seltorexant (115), suvorexant (105)

- **orphan** opioid receptor antagonists/agonists, morphinan derivates

**USAN**

**A.4.I.0**

B.2.0.0 (USAN: -orphan: narcotic antagonists/agonists (morphan derivatives))

![Morphinan Derivates](image)

(a) A.4.1.0: butorphanol (31), deudextromethorphan (114), dextromethorphan (1), dextrorphan (1), dimemorfan (30), ketorfanol (49), levomethorphan (1), levophenacylmorphan (9), levorphanol (4), methylsamidorphan chloride (109), norlevorphanol (9), oxilorphan (31), phenomorphan (5), proxorphan (43), racemethorphan (1), racemorphan (1), samidorphan (107), xorphanol (48)

B.2.0.0: levallorphan (2)

- **orphine**: acetorphine (17), alletorphine (25), buprenorphine (29), cyprenorphine (17), desomorphine (5), diprenorphine (21), etorphine (17), homprenorphine (25), methylidesorphine (5), methylidihydromorphine (5), morphine glucuronide (92), nalorphine (1), nicomorphine (7), normorphine (7)

- **orphinol**: hydromorphinol (11)

- **orphone**: asalhydromorphone (119), conorphone (46), hydromorphone (1), oxymorphone (5), pentamorphone (60), semorphone (67)

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

- **otermin** see -ermin
-ox  antacids, aluminium derivatives (see also -aldrate)

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

(b)  -dox  antibacterials, quinazoline dioxide derivatives:
(USAN: -adox: antibacterials (quinoline dioxide derivatives))

\[
\begin{align*}
N & \hspace{1cm} R \\
\text{carbadox (19), ciadox (44), cinoquidox (40), drazidox (24), mequidox (19),} \\
\text{olaquindox (31), temodox (27)}
\end{align*}
\]

-pirox  antimycotics, pyridone derivatives:

\[
\begin{align*}
\text{ciclopirox (26), metipirox (26), rilopirox (56)}
\end{align*}
\]

-xanox  antiallergics, tixanox group:
(USAN: antiallergic respiratory tract drugs (xanoxic acid derivatives))

\[
\begin{align*}
\text{amlexanox (55), mepixanox (49), sudexanox (44), tixanox (37), traxanox} \\
\text{(44)}
\end{align*}
\]

others: acipimox (33) (antihyperlipidaemic), bifeprunox (87)
(antipsychotic), cefminox (53) (antibiotic), deferasirox (86) (chelating agent),
etofenprox (57) (insecticide), nifurtimox (21) (antiprotozoal),
pardoprunox (96) (antiparkinsonian), sulbenox (37) (animal growth regulator),
xanoxic acid (33) (bronchodilator)
INN – the use of stems

**-oxacin (x)** antibacterials, nalidixic acid derivatives

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

![Chemical structure](image)

(a) alalevonadifloxacin (114), cinoxacin (32), droxacin (36), fleroxacin (56), enoxacin (49), garenoxacin (87), irloxacin (53), miloxacin (40), nemonoxacin (96), ozenoxacin (96), rosoxacin (36), tioxacin (34)

-**floxacin**: alatrofloxacin (75), amifloxacin (51), acorafloxacin (111), balofloxacin (71), besifloxacin (98), binfloxacin (60), cadebrofloxacin (81), cetefloxacin (68), ciprofloxacin (50), clinafloxacin (67), danofloxacin (61), delafloxacin (100), difloxacin (55), ecenofloxacin (78), enrofloxacin (56), esafloxacin (60), fandofloxacin (78), finafloxacin (85), gatifloxacin (74), gemifloxacin (81), grepafloxacin (68), ibafloxacin (60), lascufloxacin (113), 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), pradofloxacin (84), premafl oxacin (72), prulifloxacin (72), rufloxacin (57), sarafloxacin (62), sitafloxacin (75), sparfl oxacin (63), temafloxacin (58), tosufloxacin (60), trovafloxacin (73), ulifloxacin (89), vebufloxacin (69), zabofloxacin (93)

(b) itarnafloxin (103)

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

**-oxan(e) benzodioxane derivatives**

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

![Chemical structure](image)

(a) **α-adrenoreceptor antagonists**: azaloxan (52) (antidepressant), fluparoxan (58) (antidepressant), idazoxan (49) (a₂), imiloxan (52) (a₂) (antidepressant), piperoxan (1) (sympatholytic), proroxan (39)

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

**tranquillizers**: butamoxane (12), ethomoxane (12), pentamoxane (12)

**muscle relaxant**: ambeno xan (21)
oxa, axa, ox: acoxatrine (14) (cardiovascular analeptic), axamozide (53) (neuroleptic), cinepaxadil (50) (coronary vasodilator), dioxadilol (53) (slight β-adrenoreceptor antagonist), domoxin (14), doxazosin (47), enoxamast (52) (antiallergic), spiroxatrine (14) (analgesic)
related: dexefaroxan (76) (β-adrenoreceptor antagonist), efaroxan (59) (α₂)
(b) amoproxan (22), niroxane (35), razoxane (40), dextrazoxane (62), sobuzoxane (62), tolboxane (12)
(c) aplindore (92), bendacalol (59), binospirone (65), capeserod (94), etoprazine (57), lecozotan (93), lurtotecan (50), osemozotan (87), quincarbate (31), silibinin (38), sulamserod (82)

<table>
<thead>
<tr>
<th>USAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>-oxanide</td>
</tr>
<tr>
<td>-oxef</td>
</tr>
<tr>
<td>-oxepin</td>
</tr>
</tbody>
</table>

-oxetine serotonin and/or norepinephrine reuptake inhibitors, fluoxetine derivatives

(USAN: antidepressants (fluoxetine type))

C.3.0.0

|  
|-------|
| F₂C₆H₄O⁻ | N-CH₃ |

(a) atomoxetine (86), ampreloxetine (119), ansoxetine (58), dapoxetine (65),
duloxetine (68), edivoxetine (104), egreboxetine (99), femoxetine (36),
fluoxetine (34), ifoxetine (54), litoxetine (64), nisoxetine (34), omiloxetine (76),
paroxetine (38), reboxetine (54), sepoxetine (66), tedatioxide (107),
veyoroxetine (107)

-oxicam see -icam
-oxifene see -ifene
-oxopine see -pine
INN – the use of stems

BAN; USAN

- **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), rocepafant (71), setipafant (72), tulopafant (64)

- **pamide**

  diuretics, sulfamoylbenzoic acid derivatives
  (could be sulfamoylbenzamide)

  USAN

  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)

- **pamil**

  calcium channel blockers, verapamil derivatives

  USAN

  F.2.1.0

  (USAN: coronary vasodilators (verapamil type))

  ![Chemical Structure](image)

  (a) anipamil (49), dagapamil (52), devapamil (53), dexverapamil (65), emopamil (52), etripamil (113), falipamil (48), gallopamil (38), levemopamil (62), nexpamil (67), ronipamil (51), tiapamil (43), verapamil (16)

  related: bertosamil (64), bisaramil (60)
INN – the use of stems

**-parcin**  
Glycopeptide antibiotics  
S.6.0.0  
(a) avoparcin (29), orientiparcin (72)

**-parib**  
Poly-ADP-ribose polymerase inhibitors  
amelparib (119), iniparib (103), niraparib (107), olaparib (94), pamiparib (117), rucaparib (105), talazoparib (110), veliparib (102)

**-parin**  
Heparin derivatives including low molecular mass heparins  
I.2.0.0  
(USAN: heparin derivatives and low molecular weight (or depolymerized) heparins)

(a) adomiparin sodium (104), 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), semuloparin sodium (99), sevuparin sodium (107), tafoxiparin sodium (102), tinzaparin sodium (65)

**-parinux**  
Synthetic heparinoids  
(USAN: antithrombotic indirect selective synthetic factor Xa inhibitors)

(a) fondaparinux sodium (83) (replaces fondaparin sodium (79)), idrabiotaparinux sodium (97), idraparinux sodium (84)

**-patril/-patrilat**  
See -tril/-trilat

**-pendyl**  
See -dil

**-penem**  
Analogues of penicillanic acid antibiotics modified in the five-membered ring  
S.6.0.0  
(USAN: antibacterials, antibiotics (carbapenem derivatives))
INN – the use of stems

(a) biapenem (69), doripenem (83), ertapenem (84), faropenem (69), imipenem (50), lenapenem (73), meropenem (60), panipenem (64), razupenem (101), ritipenem (67), sulopenem (68), tacapenem (87), tebipenem pivoxil (82), tomopenem (95)

USAN

perfluorinated compounds used as blood substitutes and/or diagnostic agents

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

(a) perflenapent (78), perflexane (82), perflisobutane (92), perflisopent (78), perfluamine (45), perflubrodec (87), perflubron (66), perflubutane (91) perflunafene (45), perflutren (82)

-peridol see -perone

-peridone see -perone

USAN

-tranquillizers, neuroleptics, 4'-fluoro-4-piperidinobutyrophene

derivatives

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

(a) aceperone (14), amiperone (14), biriperone (51), carperone (24), cicarperone (28), cinuperone (53), cloroperone (38), declenperone (42), duoperone (54), fenaperone (28), flusiperone (34), lenperone (27), lumateperone (114), melperone (34), metrenperone (56), milenperone (37), mindoperone (38), moperone (14), nonaperone (44), pipamperone (17), pirenperone (46), prideperone (54), primaperone (17), propyperone (16), roxoperone (17), setoperone (51), spiperone (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)], haloperidol (10), trifluperidol (16)

-peridone  antipsychotics, risperidone derivatives

abaperidone (80), belaperidone (78), cloperidone (17), iloperidone (69), lusaperidone (82), ocaperidone (64), paliperidone (83), risperidone (57), roluperidone (119), 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)  tricyclic compounds (see also working document Pharm S/Nom 970 )

-dipine  see -dipine

(a) dosulepin (15)

-zepine  antidepressant/neuroleptic: C.3.2.0: dibenzepin (14), elanzepine (35), enprazepine (30), erizepine (54), 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), rispenzepine (63)

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), perilapine (23), quetiapine (74), rilapine (52), serazapine (63), tenilapine (52), zicronapine (100)
<table>
<thead>
<tr>
<th>Stems</th>
<th>meanings</th>
</tr>
</thead>
<tbody>
<tr>
<td>-cilpine</td>
<td>antiepileptic: A.3.1.0: dizocilpine (60)</td>
</tr>
<tr>
<td>-oxepin</td>
<td>beloxepin (75), cidoxepin (17), doxepin (15), maroxepin (54), metoxepin (33), pinoxepin (18), savoxepin (56), spiroxepin (32)</td>
</tr>
<tr>
<td>-oxopine</td>
<td>traboxopine (58)</td>
</tr>
<tr>
<td>-sopine</td>
<td>adosopine (63)</td>
</tr>
<tr>
<td>-tepine</td>
<td>citatepine (54), clorotepine (29), damotepine (27), metitepine (27), tropatepine (28)</td>
</tr>
<tr>
<td>(b)</td>
<td>atromepine (15), noscapine (7), prozapine (14)</td>
</tr>
<tr>
<td>(c)</td>
<td>clobenzepam (25), homopipramol (20), opipramol (15)</td>
</tr>
</tbody>
</table>

**USAN**

| -piprant | prostaglandin receptors antagonists, non-prostanoids |
| (USAN: prostaglandin receptors antagonists, non prostanoid structure) |
| K.0.0.0 | asapiprant (109), fevipiprant (109), grapiprant (110), laropiprant (97), setipiprant (104), timapiprant (116), vidupiprant (104) |

**USAN**

| -piprazole | see -prazole |

| -pirone | see -spirone |

**USAN**

| -pirox | see -ox/-alox |

| -pitant | see -tant |

**USAN**

| -plact | platelet factor 4 analogues and derivatives |

| iroplact (74) |

**USAN**

| -pladib | phospholipase A<sub>2</sub> inhibitors |
| W.0.0.0 | darapladib (94), ecopladib (90), efipladib (92), giripladib (96), goxalapladib (94), rilapladib (94), varespladib (87) |

**USAN**

| -planin | glycopeptide antibacterials (Actinoplanes strains) |
| S.5.0.0 | (USAN: antibacterials (Actinoplanes strains)) |

| actaplanin (34), mideplanin (66), ramoplanin (57), teicoplanin (48) |
### -plase

See `-teplase, -uplase under -ase`

### -plasmid

See `-gene for gene therapy substances (See also Annex 4)`

### -platin (x)

antineoplastic agents, platinum derivatives

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

(a) carboplatin (48), cisplatin (39), demplatin pegraglumer (117),
dexoraplatin (64), enloplatin (64), eptaplatin (83), iroplatin (51),
lobaplatin (65), miboplatin (66), miriplatin (85), nedaplatin (67), ormaplatin (63),
oxaliplatin (56), picoplatin (87), satraplatin (80), sebriplatin (68),
spiroplatin (48), triplatin tetranitrate (87), zeniplatin (63)

### -plermin

See `-ermin`

### -plestim

See `-stim and `-kin`

### -plon

imidazopyrimidine or pyrazolopyrimidine derivatives, used as anxiolytics, sedatives, hypnotics

A.2.2.0 (USAN: non-benzodiazepine anxiolytics, sedatives, hypnotics)

C.1.0.0 adipiplon (98), divaplon (61), fasiplon (61), indiplon (86), lorediplon (105),
ocinaplon (72), panadiplon (65), taniplon (61), zaleplon (72)

### -poetin (x)

erythropoietin type blood factors

I.3.0.0 (USAN: erythropoietins)

(a) darbepoeitin alfa (85), epoeitin alfa (62), epoeitin beta (62), epoeitin delta (85),
epoeitin gamma (67), epoeitin epsilon (72), epoeitin kappa (97), epoeitin omega (73),
epoeitin theta (95), epoeitin zeta (92)

### -porfin

benzoporphyrin derivatives

(a) exoperofrinium chloride (105), fimaporfir (110), lemuteporfin (91),
padeiporfin (96), padoporfin (93), redaporfin (114), rostaporfin (83),
stannsporfin (79), talaporfir (84), temoporfir (70), vertaporfin (71)
-poride  \( \text{Na}^+/\text{H}^+ \) antiport inhibitor

amiloride (18), cariporide (74), eniporide (79), rimeporide (92), sabiporide (84), zoniporide (85)

BAN, USAN

-pramine  substances of the imipramine group

C.3.2.0 (USAN: antidepressants (imipramine type))

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

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

-usan  proton pump inhibitors, not dependent on acid activation

linaprazan (92), revaprazan (91), soraprazan (88), tegoprazan (113),
vonoprazan (106)

-usan  antiulcer, benzimidazole derivatives

J.0.0.0 (USAN: antiulcer agents (benzimidazole derivatives))

(a) azeloprazole (116), cinprazole (34), dextrazoprazole (93), disoprazole
(56), esaprazole (45), esomeprazole (79), fuprazole (39), ilaprazole (86),
lansoprazole (60), leminoprazole (68), levolansoprazole (93), nepadoprazole
(74), nilprazole (37), omeprazole (46), pantoprazole (62), picoprazole (46),
pumoprazole (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), brexpiprazole (107), dapiprazole (45), elopiprazole (70), enpiprazole (24), loripiprazole (60), mepiprazole (24), sonepiprazole (80), tolpiprazole (25)

pred prednisone and prednisolone derivatives

Q.3.3.0 (USAN: pred-, -pred- or -pred: prednisone and prednisolone derivatives)

(a) chloroprednisone (12), cloprednol (31), difluprednate (21), domoprednate (47), etiprednol dicloacetate (88), fluprednidene (19), fluprednisolone (13), halopredone (36), isoflupredone (36), isoprednidene (24), loteprednol (64), mazipredone (32), meprednisone (15), methylprednisolone (8), methylprednisolone aceponate (52), methylprednisolone suleptanate (56), oxisopred (29), prednazate (16), prednazole (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) -betasol: clobetasol (26), doxibetasol (26), ulobetasol (54)

(c) -methasone or -metasone: alcmetasone (41), amelometasone (74), beclometasone (17), betamethasone (11), betamethasone acibutate (26), cormetasone (29), desoximetason (20), dexamethasone (8), dexamethasone acefurate (57), dexamethasone cipicate (94), flumetasone (13), halometasone (41), icometasone enbutate (70), mometasone (56), paramethasone (12)
-olone: steroids not used as glucocorticosteroids
(USAN: steroids (not prednisolone derivatives))
bardoxolone (101), brexanolone (117), clocortolone (16), descinolone (17), difluorotolone (18), fluclorolone acetonide (22), fluocinolone acetonide (11), fluocortolone (15), fluorometholone (8), fluperolone (13), golexanolone (119), halocortolone (31), omaveloxolone (113), rimexolone (38), triamcinolone (8), triamcinolone benetonide (36), triamcinolone furetonide (36), triamcinolone hexacetonide (15), vamorolone (115)

clobetasone (26), cloticasone (52), deprodone (20), dichlorisone (10), diflurasone (30), flunisolide (11), fluticasone (52), fluticasone furoate (96), meclorisone (40), timobesone (51)

-olone

A.1.2.0 general anesthetics, pregnanes: alfadolone (27), alfaxalone (27), eltanolone (65), ganaxolone (76), minaxolone (39), renanolone (8), sepranolone (107)

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

H.4.0.0 antihyperlipidaemic: colestolone (59)

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

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), oxabolone cipionate (14), quinbolone (14), roxibolone (40), stenbolone (17), tibolone (22), trenbolone (24)

-prenaline see –terol
INN – the use of stems

USAN

-pressin  vasoconstrictors, vasopressin derivatives

Q.1.2.0

H—Cys—Tyr—Phe—Gln—Asn—Cys—Pro—Arg—Gly—NH₂

(a) argipressin (13), desmopressin (33), felypressin (13), lypressin (13), ornipressin (22), selepressin (105), terlipressin (46), vasopressin injection (16)

-previr  see vir

BAN; USAN

-pride  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), denipride (58), etacepride (52), eticlopride (52), flubepride (35), nemonapride (63) (previously emonapride (61)), peralopride (43), prosulpiride (43), prucalopride (78), relenopride (111), sulmepride (43), sultopride (26), sulverapride (44), verbalipride (43)

J.1.0.0: alepride (40), bromopride (27), cinitapride (41), cipropride (41), clebopride (32), dobutipride (57), irolapride (55), isosulpride (36), itopride (66), lintopride (65), lirexapride (74), lorapride (44), mezacopride (56), minesapride (117), mosapride (66), naronapride (104), pancopride (62), raclopride (52), remoxipride (49), renzapride (60), revexepride (108), 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 (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), reniapirol (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, dihydrofolate reductase (DHFR) inhibitors,
trimethoprim derivatives

(USAN: antibacterials (trimethoprim type))

S.5.5.0

(a)  aditoprim (49), baquiloprim (56), brodimoprim (44), epiroprim (44),
iclapirom (88), metioprim (42), ormetoprim (21), talmetoprim (41),
tetroxoprim (33), trimethoprim (11), vaneprim (48)

(c)  diaveridine (18)

-pris-  steroidal compounds acting on progesterone receptors (excluding
-gest- compounds)

Q.2.0.0  (USAN: -prisnil: selective progesterone receptor modulators (SPRM);
-pristone: progesterone receptor antagonists)

(a)  aglepristone (70), asoprisnil (88), asoprisnil ecamate (89), lilopristone (54),
INN – the use of stems

lonaprisan (115), mifepristone (54), onapristone (58), telapristone (103), toripristone (61), ulipristal (107), vilaprisan (109)

epristeride (69), saprisartan (72), and the stem -pristin selected for antibacterials, streptogramins, protein-synthesis inhibitors, pristinamycin derivatives

**-pristin**
**antibacterials, streptogramins, protein-synthesis inhibitors, pristinamycin derivatives**

S.6.0.0 (USAN: antibacterials, pristinamycin derivatives)

(a) dalfopristin (67), efepristin (75), flopristin (98), quinupristin (65), linopristin (98), 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), cicloprofen (32), cliprofen (32), dexibuprofen (61), dexindoprofen (49), dextetoprofen (70), esflurbiprofen (61), fenoprofen (26), flunoxaprofen (44), fluprofen (18), flurbiprofen (28), frabuprofen (51), furaprofen (42), furcloprofen (44), hexaprofen (30), ibuprofen (16), indoprofen (32), isoprofen (40), ketoprofen (28), lobuprofen (53), lonaprofen (44), losmiprofen (61), loxoprofen (50), mabuprofen (64), mexoprofen (33), miroprofen (44), odalprofen (66), pelubiprofen (76), piketoprofen (40), pirprofen (32), pranoprofen (38), suprofen (31), tazeprofen (50), tetriprofen (29), tilmoprofen arbamel (74), tioxaprofen (39), vedaprofen (72), ximoprofen (37), zaltoprofen (64), zoliprofen (55)

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

(c) brofezil (31), protizinic acid (27), tiaprofenic acid (30)
INN – the use of stems

INN – the use of stems

BAN, USAN

prost (x) prostaglandins

Q.0.0.0 (USAN: -prost- or -prost: prostaglandins)

(a) alpaprostol (45), alprostadil (39), ataprost (62), beraprost (106), bimatoprost (85), butaprost (55), carboprost (36), cicaprost (54), ciprostone (51), clinprost (68), cloprostenol (33), cobiprostone (98), delprostenate (42), dimoxaprost (52), dinoprost (26), dinoprostone (26), doxaprost (34), ecraprost (83), eganoprost (84), enisoprost (50), epoprostenol (44), eptaloprost (56), esuberaprost (111), etiproston (46), fenprostalene (42), flunoprost (53), fluprostatenol (33), froxiprost (55), gemeprost (42), iloprost (48) (originally ciloprost (46)), lanproston (72), latanoprost (67), latanoprostene bunod (107), limaprost (56), lubiprostone (89), lubriprostil (44), meteneprost (45), misoprostol (47), naxaprostene (58), nileprost (45), nobiprostanol (109), noclopasto (51), oxoprostol (44), penprostene (37), pimilprost (71), piriprost (51), posaraprost (97), prostalene (34), remiprool (65), rivenprost (93), rosaprostol (48), sepetaprost (110), sulprostone (37), taprostene (58), tiaprost (41), tafluprost (89), tiluprost (51), tiprostanide (48), travoprost (80), treprostinil (87), unoprostone (66), vapiprost (58), viprostol (53)

-prostil prostaglandins, anti-ulcer

(a) arbaprostil (35), deprostil (32), enprostil (50), mexiprostil (52), ornoprostil (56), rioprostil (49), spiriprostil (63), trimoprostil (49)

-quidar drugs used in multidrug resistance; quinoline derivatives

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

dofequidar (88), encequidar (119), laniquidar (85), tariquidar (86), zosuquidar (86)

-quine (d) quinoline derivatives

(a) antimalarial: amodiaquine (1), amopyroquine (8), bulaquine (82), chloroquine (4), ferroquine (95), hydroxychloroquine (8), mefloquine (33), moxipraquine (26), pamaquine (4), pentaquine (4), primaquine (1), quinocide (34), tafenoquine (80), tebuqueine (49)
acequinoline (22), actinoquinol (15), aminoquinol (22), amquinate (21), amiquinsin (17), aminooquinuride (45), benzoquione (18), broquinaldol (17), buquieran (40), buquinolate (16), clamoxyquine (16), cletoquine (20), chlorquinaldol (1), cinoquido (40), ciproquinate (22), croquilinol (16), cloquinol (11), cloxiquine (30), debrisoquine (15), decoquinate (20), diiodohydroxyquinoline (1), esproquine (31), flumequine (34), guanisoquine (15), hedaquinium chloride (8), intiquinatine (99), iquindamine (34), isotiquimide (49), leniquinsin (18), mebiquine (29), nequinate (22), nifuroquine (36), olaquinate (31), oxamniquine (28), pareaquinins (29), pirquinozol (43), proquinolate (17), quindaline blue (17), quincarbonate (31), quindecamine (15), quindoxin (26), quinatalate (16), quinfamide (40), quiniocaine (4), quinprorenaline (17), quinuclium bromide (40), quipazine (17), sitamaquine (80), tilbroquinol (45), tiliquinol (45), tiquinamide (35), tiquizium bromide (47), toquizine (17), tretoquinol (21), viquidil (25)

c(12), cinchocaine (1), cinchophen (1), climiqualine (33),
dehydroemetine (15), dequalinium chloride (8), dimethylnortubocurarine chloride (1), dimoxyline (1), drotaverine (17), ethaverine (4), euprocin (22), famotine (23), flucarbril (14), glafenine (15), laudexium metilsulfate (4), laurulnium acetate (12), memotine (22), metofoline (12), neocinchophen (1), niceverine (15), nitroxoline (15), noscapine (7), octaverine (18), oxolinic acid (15), oxyccinchophen (6), pyrvinium chloride (6), trethinium tosilate (14), tritoqualine (14), tubocurarine chloride (1)

-quinil see -azenil

-racetam amide type nootrope agents, piracetam derivatives

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

(a) aloracetam (62), aniracetam (44), brivaracetam (93), cebaracetam (66), coluracetam (86), dimiracetam (68), doliracetam (53), dupracetam (38), etiracetam (40), fasoracetam (79), fonturacetam (104), imuracetam (42), levetiracetam (62), molracetam (55), nebracetam (62), nefiracetam (64), nicoracetam (63), omeracetam (117), oxiracetam (43), piracetam (22), pramiracetam (46), rolziracetam (54), seletracetam (93)

related: tenilsetam (51)
INN – the use of stems

**-racil**  uracil type antineoplastics

L.0.0.0

![Chemical structure](image)

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

**-thiouracil**  uracil derivatives used as thyroid antagonists

M.7.3.0  (USAN: -uracil: uracil derivatives used as thyroid antagonists and as antineoplastics)

(a) iodothiouracil (01), methylthiouracil (01), propylthiouracil (01)

**-rafenib**  Raf (rapidly accelerated fibrosarcoma) kinase inhibitors

(a) agerafenib (115), belvarafenib (118), dabrafenib (105), encorafenib (109), lifirafenib (117), sorafenib (88), regorafenib (100), vemurafenib (103)

**-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), zoptarelin doxorubicin (107)

**-morelin**  growth hormone release-stimulating peptides:

(a) anamorelin (97), capromorelin (83), dumorelin (59), examorelin (72), ipamorelin (78), lenomorelin (106), macimorelin (100), pralmorelin (77), relamorelin (110), rismorelin (74), sermorelin (56), tabimorelin (80), tesamorelin (96), ulimorelin (103)

(c) somatorelin (57)

**-tirelin**  thyrotropin releasing hormone analogues:

(a) azetirelin (60), fertirelin (42), montirelin (58), orotirelin (58), posatirelin (60), protirelin (31), rovatirelin (111), taltirelin (75)
other: corticorelin (64) (diagnostic agent)

(c) thyrotropin alfa (113) (thyroid stimulating hormone (TSH) analogue)

- **relix**
  **gonadotropin-releasing-hormone (GnRH) inhibitors, peptides**
  Q.0.0.0 (USAN: -relix: hormone-release inhibiting peptides)
  
  (a) abarelix (78), cetrorelix (66), degarelix (86), detirelix (56), ganirelix (65), iturelix (79), ozarelix (94), prazarelix (81), ramorelix (69), teverelix (78)

- **renone**
  **aldosterone antagonists, spironolactone derivates**
  N.1.8.0 (USAN: aldosterone antagonists (spironolactone type))

  
  (a) apararenone (115), canrenoic acid (20) and potassium canrenoate (20), canrenone (20), dicirenone (50), drospirenone (63), esaxerenone (116), eplerenone (77), finerenone (108), mespirenone (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)

- **reotide** see -tide

- **restat** see -stat

**retin**

**retinol derivatives**

P.1.0.0 (USAN: -retin- or -retin: retinol derivatives)
(a) acitretin (56) (previously etretin (51)), alitretinoin (80), doretinel (60), etretinate (41), fenretinide (51), isotretinoin (41), motretinide (38), pelretin (60), peretinoïn (98), retinol (18), tretinoin (25), tretinoin tocoferil (66), zuretinol acetate (112)

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

**USAN**  
-ribine **ribofuranyl-derivatives of the “pyrazofurin” type**

![Pyrazofurin structure](image)

(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)

**USAN**  
**rif-** **antibiotics, rifamycin derivatives**

![Rifamycin structure](image)

(a) rifabutin (52), rifalazil (78), rifametane (61), rifamexil (67), rifamide (15), rifampicin (17), rifamycin (13), rifapentine (43), rifaximin (49) (previously rifaxidine (48))
INN – the use of stems

**-rinone**  
Cardiac stimulants, amrinone derivatives

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

\[
\begin{array}{c}
\text{N} \quad \text{NH}_2 \\
\text{O} \quad \text{N}
\end{array}
\]

(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)

**-ritide**  
See -tide

**-rixin**  
Chemokine CXCR receptors antagonists

**S.7.0.0**  
(USAN: CXCR2 modulators)

\[ \text{dazirixin (107), elubrixin (107), ladarixin (105), navarixin (105), reparixin (91)} \]

**-rizine**  
See -izine

**-rolimus**  
See -imus

**-rozole**  
Aromatase inhibitors, imidazole-triazole derivatives

**L.0.0.0**

\[ \text{anastrozole (72), fadrozole (64), finrozole (81), leflutrozole (117), letrozole (70), liarozole (64), talarozole (99), vorozole (64)} \]

(b)  
aminitroazole (4), sulfatrozole (24), tenonitroazole (47)
-rsen  

**antisense oligonucleotides**

aganirsen (101), apatorsen (110), alicaforsen (118), anivamersen (105), aprinocarsen (89), atesidosiren (116), baliforsen (116), beclanosiren (01), casimersen (115), cenisersen (97), cobomarsen (117), custirosen (99), danvatirsen (117), dematisiren (116), drisaperson (106), euforsen (119), gataperson (103), eteplirsen (103), golodirsen (115), inotersen (115), mipomersen (99), mongersen (111), nusinersen (112), oblimersen (87), prexivirsenn (114), remlarsen (117), renapersen (117), rimigorsen (116), tofersen (119), trbedersen (97), varodarsen (116), viltolarsen (118), volanesorsen (113)

-virsen (antivirals): afovirsen (71), amlivirsen (119), fomivirsen (75), miravirsen (101), radavirsen (106), temavirsen (117), trecovirsen (77)

-rubicin  

**antineoplastics, daunorubicin derivatives**

L.5.0.0  

(USAN: antineoplastic antibiotics (daunorubicin type))

(a) aclarubicin (44), aldoxorubicin (108), amrubicin (65), berubicin (98), camsirubicin (119), 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), saborubicin (90), valrubicin (79), zorubicin (39), zoportelin doxorubicin (107)

Sal  

**salicylic acid derivatives**

(USAN: -sal-; -sal; or sal-: anti-inflammatory agents (salicylic acid derivatives))
INN – the use of stems

(a) **sal-** analgesic anti-inflammatory A.4.2.0
choline salicylate (15), imidazole salicylate (51), salacetamide (1), salcolex (23), saletamide (20), salfluerine (29), salicylamide (1), salnacedin (73), salprotoside (31), salsalate (28), salverine (15)

various
salafibrate (41) (antihyperlipidaemic), salantel (29) (anthelmintic), salcaprozic acid (88) (absorption promoter), salclobuzic acid (92) (pharmaceutical aid), salinazid (8) (antituberculosis agent), salirasib (97) (antineoplastic)

**-sal** analgesic anti-inflammatory A.4.2.0
detanosal (23), diflunisal (33), fendosal (35), flufenisal (22), fosfosal (37), guacetisal (40), guaimesal (50), paracetosal (65), pranosal (24), sulprosal (36), tenosal (63)

antithrombotic
flufosal (42)

various: antituberculosis
fenamisal (15), thiomersal (1) (disinfect.), trifulusal (37) (antithrombotic)

**-sal-** analgesic anti-inflammatory A.4.2.0
acetaminosalol (1), asalhydromorphone (119), 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), isalsteine (63) (mucolytic), lasalocid (30) (antibiotic (veterinary)), mersaly (4) (mercurial diuretic), octisalate (83) (sunscreen), osalmid (15) (choleretic), susalimod (73) (immunomodulator), xenysalate (12) (antiseborrhic)

**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), ipsalazine (48)

**-salan** brominated salicylamide derivatives disinfectant S.2.1.0
bensalan (18), dibromsalan (14), fursalan (16), fursalan (18), metabromsalan (16), tiosalan (18), tribromsalan (14)
(b) non-salicylic acid derivatives
fosalvudine tidoxil (95), macrosalb (99mTc) (33), rusalatide (96), trioxysalen (l6) (pigmenting agent)

bronchodilators
levosalbutamol (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), dipyrdocetyl (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 (l6), 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),
afoxanide (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 (x) angiotensin II receptor antagonists, antihypertensive (non-peptidic)

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

abitesartan (73), azilsartan (95), azilsartan medoxomil (97), candesartan
(71), elisartan (72), embusartan (78), eprosartan (71), fimasartan (94),
forasartan (74), irbesartan (71), losartan (66), milfasartan (76), olmesartan
(93), olmesartan medoxomil (86), pomasartan (73), pratosartan (85),
ripisartan (73), saprisartan (72), tasosartan (72), telmisartan (70), valsartan
(68), zolasartan (70)
INN – the use of stems

USAN

-semide diuretics, furosemide derivatives

N.1.1.0

(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)

-sertib serine/threonine kinase inhibitors

L.0.0.0

adavosertib (117), afuresertib (108), alisertib (104), amcasertib (113), barasertib (102), berzosertib (117), capivasertib (117), cenisertib (104), ceralasertib (119), danusertib (99), delcasertib (105), empesertib (116), galunisertib (109), ilorasertib (108), ipatasertib (108), miransertib (116), nedisertib (118), pimasertib (105), prexasertib (114), rabusertib (107), rigosertib (106), sapanisertib (112), selonsertib (113), silmitasertib (103), tanzisertib (106), tomivosertib (118), tozasertib (100), uprosertib (111), vactosertib (117), vistusertib (113), volasertib (102)
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), azasasetron (118), azasetron (68), bemesetron (64), cilansetron (68), dolasetron (65), fabesetron (74), galdansetron (72), granisetron (59), indisetron (76), itasetron (68), lerisetron (69), lurosetron (69), mirisetron (72), ondansetron (59), palonosetron (74), ramosetron (70), ricasetron (70), tropisetron (62), zatosetron (64)

oxytocin antagonists

atosiban (60), barusiban (88), cligosiban (118), epelsiban (105), nolasiban (114), retosiban (98)

small interfering RNA

asvasiran (111), bamosiran (106), bevasiranib (108), cemdisiran (114), cosdosiran (116), fitusiran (113), givosiran (114), inclisiran (115), lumasiran (117), patisiran (118), revusiran (111), sentisiran (114), teprasiran (116), tivanisiran (117), vutrisiran (119)

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 (74), somidobove (58)
   -por: porcine-type substances: somalapor (62), somenopor (62), somfasepor (66), sometripor (55)
   -salm: salmon-type substances: somatosalm (69)
   Others: albusomatropin (114), efpegsomatropin (115), eftansomatropin alfa (118), ionapegsomatropin (118), somcapatan (114), somatrogon (115), somatrem (54), somatropin (56), somatropin pegol (103), somavaratan (112)

(b) somatorelin (57), somantadine (51), somatostatin (46)
-sopine  see -pine

-spirone  anxiolytics, buspirone derivatives

C.1.0.0

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

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

-stat- or -stat

 enzyme inhibitors

-castat  dopamine β-hydroxylase inhibitors
(a)  etamicastat (101), nepicastat (78), zamicastat (108)

-dustat  hypoxia inducible factor (HIF) prolyl hydroxylase inhibitors
(a)  daprodustat (113), desidustat (117), enarodustat (117), molidustat (108), roxadustat (108), vadadustat (114)

-elestat  elastase inhibitors
(a)  alvelestat (104), depelestat (97), freselestat (89), sivelestat (78), tiprelestat (103)

-gacestat  gamma-secretase inhibitors
(a)  avagacestat (104), begacestat (97), crenigacestat (117), nirogacestat (115), semagacestat (99)

-inostat  histone deacetylase inhibitors
(a)  abexinostat (105), alteminostat (119), belinostat (97), citarinostat (116), dacinostat (89), domatinostat (118), entinostat (99), fimepinostat (118), givinostat (101), mocetinostat (101), panobinostat (96), pracinostat (119), quisinostat (107), remetinostat (115), resminostat (102), tefinostat (105), tinostamustine (116), tucidinostat (115), vorinostat (94)

-listat  gastrointestinal lipase inhibitors
(a)  cetilistat (91), orlistat (66)
INN – the use of stems

**matrix metalloproteinase inhibitors**

(a) batimastat (70), cipemastat (81), ilomastat (73), marimastat (75), otaplimastat (118), pronomastat (82), rebimastat (89), ricolinostat (109), solimastat (80), tanomastat (82)

**proteolytic enzyme inhibitors:**

(a) camostat (46), nafamostat (53), patamostat (69), sepimostat (68), upamostat (110)

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

**aldose reductase inhibitors**

M.5.0.0

(a) alrestatin (37), epalrestat (55), fidarestat (78), imirestat (59), lidorestat (87), minalrestat (76), ponalrestat (58), ranirestat (91), risarestat (82), tolrestat (51), zenarestat (64), zopolrestat (64)

**various:**

acebilustat (114) leukotriene A4 hydrolase inhibitor
afegostat (101) β-glucocerebrosidase inhibitor
alicapstat (115) calpain cysteine protease inhibitor
apratastat (93) inhibition of TNF-α converting enzyme
atabecstat (117) beta secretase inhibitor
avoralstat (112) kallikrein inhibitor
azalanstat (73) lanosterol 14α-demethylase inhibitor
benurestat (31) urease inhibitor
cavosonstat (116) alcohol dehydrogenase inhibitor
cilastatin (50) renal dehydropeptidase inhibitor
cindinustat (107) nitric oxide synthase inhibitor
cobicistat (103) cytochrome P450 3A4 (CYP3A4) inhibitor
conestat alfa (98) human plasma protease C1 inhibitor
dociparstat (114) heparanase inhibitor
duvoglustat (102) glucosylceramide synthase inhibitor
elenbecstat (117) beta secretase inhibitor
eliglustat (103) glucosylceramide synthase inhibitor
emixustat (108) retinol isomerase inhibitor
eyatiostat (98) glutathione-S-transferase inhibitor
febuxostat (85) xanthine oxydase and xanthine dehydrogenase inhibitor
firsocostat (118) allosteric inhibitor of acetyl-CoA carboxylase (ACC)
fulacimstat (117) chymase inhibitor
iadademstat (119) lysine-specific histone demethylase (LSD₁) inhibitor
imetelstat (101) antineoplastic, telomerase inhibitor
iofolastat (122) radiopharmaceutical
irosustat (104) antineoplastic
lanabecestat (116) beta secretase inhibitor
lapaquistat (96) squalene synthase inhibitor
linrodostat (119) antineoplastic
lucerastat (106) ceramide glucosyltransferase inhibitor
migalastat (95) alpha-galactosidase A enzyme inhibitor
miglustat (85) glucosyltransferase inhibitor
niraxostat (99) xanthine oxydase inhibitor
olumacostat glasateril (114) acetyl-CoA carboxylase inhibitor
osilodrostat (110) aldosterone and cortisol synthesis inhibitor
pentostatin (38) vidarabin activity potentiator; inhibitor of enzymatic deaminative metabolism
pepstatin (28) pepsin inhibitor
pevonedistat (109) antineoplastic
pinometostat (112) antineoplastic
pradigastat (106) acyl CoA:diacylglycerol acyltransferase inhibitor
rodatristat (119) tryptophan hydroxylase inhibitor
roneparstat (112) heparanase inhibitor
seclidemstat (118) lysine-specific histone demethylase 1 (LSD₁) inhibitor
selisistat (106) inhibitor of sirtuin enzymes
setafrastat (118) rotamase inhibitor and vascular endothelial growth factor (VEGF) promotor
somatostatin (43) growth hormone release inhibiting factor
soticlestat (119) hydroxylase inhibitor
talabostat (92) antineoplastic
technetium (¹⁹⁹mTc) radiolabelled diagnostic agent
trofolastat chloride (109)
telaglenastat (119) glutaminase inhibitor
telotristat (104) tryptophan hydroxylase inhibitor
tendamistat (44) amylase inhibitor
topiroxostat (102) xanthine oxidase and xanthine dehydrogenase inhibitor
tosedostat (99) antineoplastic, aminopeptidase inhibitor
umibecestat (119) beta-secretase inhibitor
vafidemstat (119) lysine-specific histone demethylase (LSD₁) inhibitor
valemetostat (118) histone methyltransferase inhibitor, antineoplastic
venglustat (114) ceramide glucosyltransferase inhibitor
verdiperstat (114) myeloperoxidase inhibitor
verubecestat (112) beta secretase inhibitor
vistatolon (25) antiviral antibiotic
zinostatin (40) antineoplastic
zinostatin stimalamer (74)

(b) nystatin (6)

-vastatin antihyperlipidaemic substances, HMG CoA reductase inhibitors

H.4.0.0

(a) atorvastatin (71), bervastatin (72), cerivastatin (74), crilvastatin (63), dalvastatin (64), fluvastatin (62), glenvastatin (70), lovastatin (57), mevastatin (44), pitavastatin (86) (replaces itavastatin (80)), pravastatin (57), rosuvastatin (94), simvastatin (58), tenivastatin (85)

-steine mucolytics, other than bromhexine derivatives

K.0.0.0 (BAN: substances of the acetylcysteine group)

(a) acetylcysteine (13), bencisteine (30), carbocisteine (34), cartasteine (72), dacisteine (49), danosteine (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)

-ster- androgens/anabolic steroids

Q.2.3.1

(a) -testosterone: cloxotestosterone (12), methyltestosterone (4), testosterone (4), testosterone ketolaurate (16)

-steron: bolasterone (13), fluoxymesterone (6), oxymesterone (12), prasterone (23), tiomesterone (14)

-ster-: mesterolone (15), penmesterol (14), rosterolone (59)

(b) progestational steroids

-gesterone: dydrogesterone (12), haloprogesterone (11), hydroxyprogesterone (8), medroxyprogesterone (10), norgesterone (14), progesterone (4), segesterone (89)
-sterone: dimethisterone (8), ethisterone (4), norethisterone (6), norvinisterone (10)

various: -sterone: aldosterone (6) (corticosteroid), calusterone (23) (antineoplastic)

-sterol: azacosterol (16) (hypocholesterolemic), dihydrotachysterol (1) (antihypoparathyroid), iodocholesterol (131I) (39)

ster: nisterime (38) (contraceptive agent), stercuronium iodide (21) (neuromuscular blocking agent)

-steride: testosterone reductase inhibitors

bexlosteride (81), dutasteride (78), epristeride (69), finasteride (62), izonsteride (81), lapisteride (85), turosteride (67)

-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), quilostigmine (76), rivastigmine (77), terestigmine (77)

(c) eseridine (53)

-stim: colony stimulating factors

I.5.0.0 (USAN: conjugates of two different types of colony-stimulating factors)

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

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

(a) ecogramostim (62), molgramostim (64), regramostim (64), sargramostim (66)
-grastim  granulocyte colony stimulating factor (G-CSF) type substances

(a)  balugrastim (107), eflapegrastim (112), efenograstim alfa (117), empegfilgrastim (107), filgrastim (64), lenograstim (64), lipegfilgrastim (105), mecaperfilgrastim (113), nartograstim (66), pegbovigrastim (109), pegfilgrastim (85), pegnartograstim (80), pegteograstim (109)

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

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

-plestim  interleukin-3 analogues and derivatives

(USAN: interleukin-3 derivatives, pleiotropic colony-stimulating factors)

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

-sulfa-  anti-infectives, sulfonamides

S.5.1.0  (BAN: sulpho-)

(USAN: antimicrobials (sulfonamides derivatives))

(a)  sulfabenz (17), sulfabenzamide (27), sulfacarbamide (12), sulfacetamide (30), sulfacetamid (1), sulfachlorpyridazine (10), sulfachrysoidine (1), sulfactine (23), sulfaclozine (25), sulfadocle (23), sulfadoxic acid (15), sulfamazine (40), sulfamerazine (4), sulfamidoxime (10), sulfadimidine (1), sulfadoxine (20), sulfaethidole (8), sulfafurazone (1), sulfapenamide (4), sulfapenoxazole (14), sulfamethoxypyridazine (8), sulfametoxazole (12), sulfathiazole (4), sulfathetazole (1), sulfamethoxazole (14), sulfamethoxypyridazine (8), sulfamethoxazole (12), sulfamethoxazole (10), sulfamoxazole (12), sulfamithazole (4), sulfanilamide (4), sulfanitrane (15), sulfaperin (14), sulfaphenazole (10), sulfaproxyl (4), sulfapyrazole (18), sulfapyridine (1), sulfaphenazole (46), sulfasalazine (55), sulfasomizole (10), sulfasuccinamide (41), sulfasymazine (12), sulfathiazole (4), sulfathiourea (1), sulfatolamide (10), sulfatroxazole (29), sulfatroxazole (24)
(b) galsulfase (92), idursulfase (90), sulfarsphenamine (4)

c) benzylsulfamide (1), glucosulfamide (1), maleylsulfathiazole (1), mesulfamide (41), nitrosulfathiazole (1), phthalylsulfamethizole (6), phthalylsulfathiazole (1), salazodine (22), salazosulfadimidine (11), salazosulfamide (1), salazosulfathiazole (1), stearylsulfamide (1), succinylsulfathiazole (4), sulfisomidine (1), vanyldisulfamide (1), mafenide (1) (sulfonamide, but not sulfanilamide)

- sulfan

**antineoplastic, alkylating agents, methanesulfonates**

L.2.0.0

H₂C=O

O O

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

-tacept see -cept

-tadekin see -kin

-tadine

**histamine-H₁ receptor antagonists, tricyclic compounds**

G.2.1.0 (USAN: -(a)tadine: tricyclic histaminic-H₁ receptor antagonists, loratadine derivative)

(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 –mandadine)

-tansine

**maytansinoid derivatives, antineoplastics**

emtansine (such as laprituximab emtansine (114), naratuximab emtansine (114), trastuzumab emtansine (103))
maitansine (40)
mertansine (such as cantuzumab mertansine (105), lorvotuzumab mertansine (103))
ravtansine (such as anetumab ravtansine (109), cantuzumab ravtansine (105), coltuximab ravtansine (109), indatuximab ravtansine (105))
soravtansine (such as mirvetuximab soravtansine (113))
-tant neurokinin (tachykinin) receptor antagonists

-phant neurokinin NK, (substance P) receptor antagonist

(a) aprepitant (84), befeitupitant (91), burapitant (101), casopitant (94),
dapitant (74), ezlopitant (82), figopitant (82), fosaprepitant (94),
ofnetupitant (113), lanepitant (77), maropitant (90), netupitant (90),
nolpitantium besilate (75), orvepitant (94), rolapitant (97), serlopitant
(100), telmapitant (108), tradipitant (111), vestipitant (91), vofopitant (82)

-ditant neurokinin NK, receptor antagonist

(a) ibodutant (98), nepadutant (78), saredutant (75)

-nertant neurotensin receptor antagonist

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

-netant neurokinin NK, receptor antagonist

(a) fezolinetant (115), osanetant (74), pavinetant (118), talnetant (81)

-tapide microsomal triglyceride transfer protein (MTP) inhibitors

H.4.0.0 dirlotapide (91), granotapide (104), implitapide (82), mitratapide (90),
lomitapide (101), usistapide (104)

-taxel antineoplastics, taxane derivatives

L.0.0.0 cabazitaxel (98), docetaxel (71), larotaxel (94), milataxel (91), ortataxel (87),
paclitaxel (68), paclitaxel ceribate (91), paclitaxel poliglumex (90), paclitaxel
trevatide (112), simotaxel (94), tesetaxel (93)

tecan antineoplastics, topoisomerase I inhibitors

L.0.0.0 (USAN: antineoplastics (camptothecine derivatives))
aferetecan (85), atiratecan (101), belotecan (91), cositecan (100),
davamotecan pegadexamer (117), delimotecan (97), diplomotecan
(84), elemotecan (92), etirinotecan pegol (107), exatecan (81), exatecan
alideximer (89), firtecan peglumer (108), firtecan pegol (107), gimatecan (86), irinotecan (64), labetuzumab govitecan (113), lurtotecan (74), mureletecan (85), namitecan (100), pegamotecan (91), rubitecan (82), sacituzumab govitecan (113), tenifatecan (102), topotecan (65), trastuzumab deruxtecan (116)

-tepa antineoplastics, thiotepa derivatives

L.2.0.0

(a) azatepa (12), pumitepa (48), thiotepa (10)

-tepine see -pine

-teplase tissue type plasminogen activators, see -ase

-termin see -ermin

-terol bronchodilators, phenethylamine derivatives

( previously -prenaline
or -terenol unofficial)

E.4.0.0

(a) abediterol (104), amiterol (26), arformoterol (90), batefenterol (110), bitoterol (34), broxaterol (51), carmoterol (91), cimaterol (54), colterol (36), difeterol (36), etanterol (53), fenoterol (26), formoterol (44), imoxiterol (52), indacaterol (91), milveterol (97), naminterol (53), nardeterol (62), olodaterol (106), picumeterol (64), procaterol (37), reprotoerol (30), rimiterol (26), salmeterol (55), sulfonterol (31), vilanterol (103), zilpaterol (60), zinterol (38)

-butero: bambuterol (49), carbuterol (29), clenbuterol (28), divauberol (51), fiver Butlerol (59), ibuterol (31), mabuterol (46), nisbuterol (38), pirbuterol (30), tobuterol (45), tuluberol (40)

cardiac stimulants: metaterol (43), prenalterol (38), xamoterol (48)
previously -prenaline or -terenol: clorprenaline (17), hexoprenaline (21), isoprenaline (1), levisoprenaline (10), metiprenaline (24), orciprenaline (14), quinprenaline (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), galeterone (105), inocoterone (54), osaterone (68), topterone (39), zanoterone (67)

(b) clometerone (15) (antiestrogen)

(c) cioteronol (62), orteronel (104), oxendolone (42), rosterolone (60),

-tiazem  calcium channel blockers, diltiazem derivatives

F.2.1.0

clentiazem (61), diltiazem (30), iprotiazem (56), nictiazem (54), siriatiazem (68)

-tibant  bradykinin receptors antagonists

(USAN : antiasthmatics (bradykinin antagonists))

anatibant (88), deltibant (75), fasitibant chloride (103), icatibant (67), safotibant (105)
-tide peptides and glycopeptides (for special groups of peptides see -actide, -pressin, -relin, -tocin)

-glutide glucagon-like Peptide (GLP) analogues
albiglutide (97), apraglutide (118), beinaglutide (117), dulaglutide (103),
elsiglutide (104), glepaglutide (116), liraglutide (87), semaglutide (101),
taspoglutide (99), teduglutide (90)

-motide immunological agents for active immunization
abecomotide (109), adegomotide (115), alicdamotide (109), amilomotide (105),
asudemotide (107), disomotide (94), elparomotide (103), graunimotide (113),
latromotide (107), nelatimotide (115), ovemotide (94), pradimotide (107),
sultimotide alfa (117), tanurmotide (109), tecemotide (108),
tertomotide (98), tiplimotide (82), trempamotide (107), zastumotide (110)

-reotide somatostatin receptor agonists/antagonists
depreotide (80), edotreotide (84), ilatreotide (68), lanreotide (64), lutetium ('²⁷Lu) oxodotreotide (116), octreotide (52), pasireotide (90), pentetreotide (66),
satoreotide (115), satoreotide trizoxetan (114), vaporeotide (62),
veldoreotide (117)

-ritide natriuretic peptides
anaritide (57), carperitide (65), cenderitide (105), nesiritide (80), ularitide (69),
vorosiritide (112)

various:
analgesic: leconotide (86), ziconotide (78)
angiogenesis inhibitor: cilengitide (81)
anti-inflammatory: brimapitide (114), dusquetide (113), icrocaptide (89)
antianaemic: peginesatide (108)
antidepressant: nemifitide (87)
antidiabetic: albenatide (114), amlintide (76), bamadutide (119),
cotadutide (119), dalazatide (111), davatinte (101), efpeglenatide (111),
efinopegduotide (119), exenatide (89), livoletide (118), lixisenatide (99),
pegapamodutide (116), pramlintide (74), seglitide (57), tirzepatide (119)
antineoplastic: fexpomatide (114), ruxotemitide (119)
antiviral: bulevirtide (118), enfuvirtide (85), tifuvirtide (91)
autoimmune disorders: dalazatide (111), dirucotide (100)
calcium sensing receptor agonist: etelcalcetide (112)
cardiovascular indications: acerastide (110), danegaptide (101),
elamipretide (113), ensereptide (107), eptifibatide (78), mibrentatide (111),
rotigaptide (94), rusalatide (96), teprotide (36)

chemokine CXCR4 receptor antagonist: balixafortide (112)

decoy receptor: nangibotide (117)

diagnostic: betiatide (58), bilapcitide (78), ceruletide (34), depreotide (80),
flotegatide (¹⁸F) (108), fluciclatide (¹⁸F) (103), maraciclatide (103), mertiatide
(60), pendetide (70), technetium (⁹⁹mTc) acapticte (78), technetium (⁹⁹mTc)
etatrolatide (107), teriparatide (50), tozuleristide (115)

expectorant (in cystic fibrosis): lancovutide (99)

gastrointestinal indications: dolcanatide (114), lagatide (75), larazotide
(99), linclotide (96), oclitide (52), plecanatide (104), renacaclotide (115),
sulglivotide (29), triletide (50)

growth stimulant-veterinary: nosiheptide (35)

hormone analogues: abaloparatide (109), semparatide (80), teriparatide
(50) (see also diagnostic)

immunological agents - antineoplastic: almurtide (74), brimapitide (114),
delmitide (92), edratide (89), goralatide (72), mifamurtide (95), murabutide
(49), paclitaxel trevatide (109), pentigetide (60), pimelautide (53), prezatide
copper acetate (67), rolipatide (94), romurtide (61), tabilautide (60),
temurtide (60), tigapotide (95)

kallicrein inhibitor: ecallantide (93)

melanocortin receptor agonists: afamelanotide (100), bremelanotide (95),
modimelanotide (111), setmelanotide (112)

neurological indications: alirinetide (117), cibinetide (114), ducunetide
(100), doreptide (58), ebratide (56), nertilide (119), obinepitide (96),
pareptide (38), trofinetide (112), vanutide cridificar (100)

peptides used as pulmonary surfactant: elopultide (119), lusupultide (80),
redipultide (119), sinapultide (78)

sedative: emideltide (70)

sodium channel activator: solnatide (113)

transforming growth factor inhibitor: disitertide (99)

urokinase plasminogen activator receptor (uPAR) inhibitor: cenupatide
(119)

(b) defibrotide (44) (nucleotide), diamfenetide (28) (fasciolicide), diclometide
(19) (behaviour modificator), fludroxy cortide (12), glisentide (58)

c) angiotensin II (65), angiotensinamide (12)
-tidine histamine-\( \text{H}_2 \)-receptor antagonists, cimetidine derivatives

G.2.2.0 (BAN: \( \text{H}_2 \)-receptor antagonists of the cimetidine group) (USAN: \( \text{H}_2 \)-receptor antagonists (cimetidine type))

![Chemical structure](image)

(a) bisfentidine (57), cimetidine (33), dalcotidine (76), donetidine (56), ebrotidine (57), etintidine (44), famotidine (48), lafutidine (70), lamtidine (48), lavoltidine (61) (previously loxtidine (48)), lupitidine (53), mifentidine (50), niperotidine (54), nizatidine (48), osutidine (76), oxmetidine (44), pibutidine (78), quisultidine (47) (replaced by quisultazine (51)), ramixotidine (55), ranitidine (41), roxatidine (54), sufotidine (54), tiotidine (44), tuvatidine (54), venritidine (67), zaltidine (54)

(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 -brutinib agammaglobulinaemia tyrosine kinase (Bruton tyrosine kinase) inhibitors

acalabrutinib (113), evobrutinib (115), fenebrutinib (118), ibrutinib (107), spebrutinib (112), tirabrutinib (115), vecabrutinib (117), zanubrutinib (117)

-citinib Janus kinase inhibitors

baricitinib (107), delgocitinib (117), itacitinib (115), oclacitinib (105), peficitinib (112), solcitinib (112), tofacitinib (105), upadacitinib (115)

-metinib MEK (MAPK\(^*\) kinase) tyrosine kinase inhibitors

\(^*\)MAPK: mitogen activated protein kinase

binimetinib (109), cobimetinib (107), pexmetinib (110), ralimetinib (109), refametinib (106), selumetinib (100), trametinib (105)
Others:
abivertinib (119), afatinib (104), alectinib (108), altiratinib (113),
amuvtinib (103), avapritinib (117), axitinib (94), bafetinib (101), belizatinib
(113), bencetinib (117), bosutinib (94), brigatinib (113), cabozantinib
(105), canertinib (87), capmatinib (111), cerdulatinib (111), ceritinib
(109), conteltinib (118), crizotinib (103), dacomitinib (103), dasatinib (94),
decernotinib (110), defactinib (111), derazantinib (116), dovitinib (97),
edicitinib (118), ensartinib (115), entospletinib (110), entrectinib (113),
epertinib (115), erdafitinib (113), erlotinib (85), fedratinib (108), filgotinib
(110), foretinib (102), fostamatinib (100), fruquintinib (116), futibatinib
(119), gandotinib (108), gefitinib (85), gilteritinib (112), glesatinib (115),
golvaltinib (107), iliginatinib (119), imatinib (86), infigratinib (112), lapatinib
(89), larotrectinib (115), lazertinib (117), lenvatinib (104), lestaurtinib
(91), linsitinib (104), lorlatinib (114), masitinib (96), mavelertinib (118),
merestinib (113), mivavotinib (119), momelotinib (107), mubritinib (90),
naquotinib (115), nazartinib (114), neratinib (97), nilotinib (95), orantinib
(103), osimertinib (113), pacritinib (104), pegcantratinib (113), pelitinib
(93), pemigatinib (118), pexidartinib (112), ponatinib (104), poseltinib
(116), poziotinib (108), quixartinib (104), radotinib (104), ravoxetine
(115), rebastinib (107), ripretinib (119), rob昕inib (118), rociletinib (111),
rugartinib (115), ruxolitinib (103), sapitinib (106), saracatinib (99),
savolitinib (111), sitravatinib (114), sunitinib (93), surufatinib (118),
tandutinib (91), tarloxtinib bromide (114), telatinib (96), tepotinib
(111), tesevatinib (113), tivantinib (103), tucatinib (113), ulixertinib (111),
varlitinib (102)

-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),
cyclophenthiazide (12), cyclothiazide (12), disulfamide (11), ethiazide
(14), flumethiazide (10), hydrochlorothiazide (10), hydroflumethiazide
(10), methyclothiazide (11), polythiazide (12), teclothiazide (12),
trichlormethiazide (11)
INN – the use of stems

**USAN**

**-tocin**  
Oxytocin derivatives

Q.1.2.0

\[H-\text{Cys} --- \text{Tyr} --- \text{Ile} --- \text{Gln} --- \text{Asn} --- \text{Cys} --- \text{Pro} --- \text{Leu} --- \text{Gly} --- \text{NH}_2\]

(a) argiprestocin (13), aspartocin (11), carbetocin (45), cargutocin (35), demoxytocin (22), merotocin (111), nacartocin (49), oxytocin (13)

**-toin (d)**  
Antiepileptics, hydantoin derivatives

A.3.1.1

\[
\begin{array}{c}
\text{O} \\
\text{H} \\
\text{N} \\
\text{O}
\end{array}
\]

(a) albutoin (13), doxenitoin (31), ethotoxin (6), fosphenytoin (62), imepitoin (96), mephenytoin (1), metetoin (12), phenytoin (4)

ropitoin (40) (H.2.0.0.)

(b) clodantoin (13) (antifungal), nitrofurantoin (11) (antibacterial)

**-tolimod**  
See -imod

**-trakin**  
See -kin

**-trakinra**  
See –kinra

**-traline**  
Serotonin reuptake inhibitors

dasotraline (110), indatraline (54), lometraline (28), sertraline (48), tametraline (46)

**-tredekin**  
See -kin

**-trexate**  
Folic acid analogues

L.4.0.0  
(USAN: antimetabolites (folic acid analogues))

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

\[
\begin{array}{c}
\text{N} \\
\text{N} \\
\text{H} \\
\text{N} \\
\text{HO}_2\text{C} \text{ CO}_2\text{H}
\end{array}
\]
edatrexate (61), ketotrexate (50), methotrexate (10), pralatrexate (92), trimetrexate (46)

aminopterin sodium (04)

**-trexed**  
**antineoplastics; thymidylate synthetase inhibitors**

L.0.0.0  
nolatrexed (78), pemetrexed (78), plevitrexed (89), raltitrexed (94)

**-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)

**-trigine**  
**sodium channel blockers, signal transduction modulators**

C.2.0.0  
(a) elpetrigine (101), lamotrigine (52), palatrigine (58), vixotrigine (116), raxatrigine (114), sipatrigine (74)

**tril/trilat**  
**endopeptidase inhibitors**

H.3.0.0  
candoxatril (62), candoxatrilat (62), sacubitril (109), sacubitrilat (113)

-dotril  
dexecadotril (73), ecadotril (68), fasidotril (74), racecadotril (73)

-lutril  
daglutril (90)

-patril/-patrilat  
gemopatrilat (84), ilepatril (95), omapatrilat (78), sampatrilat (74)
- triptan  serotonin (5-HT\textsubscript{1}) receptor agonists, sumatriptan derivatives

C.0.0.0  
(a)  almotriptan (76), avitriptan (76), donitriptan (82), eletriptan (74), frovatriptan (78), naratriptan (69), oxitriptan (39), rizatriptan (75), sumatriptan (59), zolmitriptan (74)  
(c)  alniditan (72)  

- triptyline  antidepressants, dibenzo[\textit{a,d}]cycloheptane or cyclopheptene derivatives

C.3.2.0  
(USAN: antidepressants (dibenzo[\textit{a,d}]cycloheptane derivatives))  

(a)  amitriptyline (11), amitriptylinoxide (36), butriptyline (16), cotriptyline (26), intriptyline (26), nortriptyline (12), octriptyline (33), protriptyline (14)  
(b)  oxitriptyline (21) (anticonvulsant)  
(c)  demexiptiline (43), hepzidine (15), levoprotiline (56), noxiptiline (20), oxaprotiline (45), setiptiline (56)  
see also Pharm S/Nom 970  

- troban  thromboxane \textsubscript{A\textsubscript{2}}-receptor antagonists; antithrombotic agents

I.2.1.0  
(USAN: antithrombotics (thromboxane \textsubscript{A\textsubscript{2}} receptor antagonists)  
argatroban (57), daltroban (57), domitroban (73), ifetroban (71), linotroban (69), mipitroban (73), ramatroban (73), sulotroban (55), terutroban (93)  

- trodast  see -ast
trop atropine derivatives

E.2.0.0 (USAN: trop- ; or –trop-)

parasympatholytic/anticholinergic: E.2.2.0:
tertiary amines: atropine oxyde (12), benzatropine (4), decitropine (18),
etybenzatropine (12), eucatropine (1), tropatepine (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 (49), decitropium bromide (50), homatropine methylbromide (1),
iletropium bromide (28), octatropium methylbromide (10), oxtropium bromide (36),
phenacropinium chloride (8), ritropirronium bromide (33),
sevitropium mesilate (56), sintropium bromide (47), sultroponium (18),
tematropium metilsulfate (64), tiotropium bromide (67), tipetropium bromide (42),
tropenziline bromide (11), xenytropium bromide (15)
various:
clobenzoprine (13) (antihistaminic), cyheptoprine (15) (antiarrhythmic),
deptropine (12) (antiasthmatic), revatropate (74) (bronchodilator),
tropabazate (41) (tranquilizer), tropanserin (55) (serotonin receptor antagonist),
tropantiol (97) (chelating agent), tropapride (48) (antipsychotic),
topirine (20) (respiratory disorders), tropisetron (62) (serotonin antagonist)

(b) dextropropoxyphene (7), eftansomatropin alfa (118), follitropin delta (112),
follitropin epsilon (115),somatropin (56), somatropin pegol (103),
varfollitropin alfa (101)

(c) parasympatholytic/anticholinergic, tertiary amines:
postkine (8), prampine (11), tigloidin (14)
various:
zepastine (26) (antihistaminic)
### -uplase

**urokinase type plasminogen activator, see -ase**

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### -uridine

**uridine derivatives used as antiviral agents and as antineoplastics**

(USAN: antivirals; antineoplastics (uridine derivatives))

<table>
<thead>
<tr>
<th>S.5.3.0</th>
<th>L.4.0.0</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.png" alt="Chemical Structure" /></td>
<td></td>
</tr>
</tbody>
</table>

(a) **L.4.0.0:** broxuridine (30), doxifluridine (44)

**related:** carmofur (45), clanfenur (58), tegafur (41)

S.5.3.0: fialuridine (68), floxuridine (16), fosfluridine tidoxil (93), idoxuridine (17), navuridine (84), ropidoxuridine (97), trifluridine (37), uridine triacetate (103)

### -vudine

(USAN: -vudine: antineoplastics; antivirals (zidovudine type))

(a) alovudine (68), brivudine (59), cedazuridine (118), censavudine (110), clevudine (78), epervudine (61), fosalvudidine tidoxil (95), fosifloxuridine nafalbenamide (119), fozivudine tidoxil (73), lamivudine (66), netivudine (72), sorivudine (64), stavudine (65), telbivudine (88), valnivudine (115), zidovudine (56)

(c) edoxudine (52)

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### -vaptan (x)

**vasopressin receptor antagonists**

H.0.0.0

(a) balovaptan (116), conivaptan (82), lixivaptan (83), mozavaptan (87), nelivaptan (98), relcovaptan (82), ribuvaptan (110), satavaptan (93), tolvaptan (83)

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### -vastatin

**see -stat**

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### -vec

**see -gene for gene therapy substances**
INN – the use of stems

BAN, USAN

-**verine**  
spasmolytics with a papaverine-like action

F.1.0.0  
(USAN: spasmolytic agents (papaverine type))

(a) alverine (16), amifloverine (28), bietamiverine (6), butaverine (13), camiverine (29), caroverine (28), clofeverine (31), demelverine (17), denaverine (25), dexsecoverine (53), dicycloverine (6), dihexyverine (4), dipiproverine (10), diprotverine (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), nafiverine (16), nicerverine (15), octaverine (18), pargeverine (38), pentoxyverine (6), preivmerine (21), preoverine (41), propiverine (45), rociverine (33), salfluverine (29), salverine (15), secoverine (38), temiverine (76), zardaverine (59)  
**Related:**  
fenpiverinium bromide (26), pinaverium bromide (32)

(b) cinnamaverine (10) (anticholinergic, tert. amine), diaveridine (18)

(c) spasmolytics 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), papaverolene (29), pentapiperide (10), prozamine (14), tricilaze (10), tropenzilone bromide (11)

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**vin- and vin-**  
vinca alkaloids

(USAN: vin-; or -vin-)

(a)  
B.1.0.0 stimulation of cerebrovascular circulation  
apovincamine (48), brovincamine (42), vinburnine (45), vincamine (22), vinconol (37), vincontril (51), vinconate (47), vindeburnol (49), vinmegallate (59), vinppecitine (36), vinoiline (35), vintoperol (61)  
L.5.0.0 cytostatic  
viblastine (12), vincristine (13), vindesine (35), vinepine (50), vinflunine (75), vinformide (38), vinosilistine (64), vinglycinate (16), vinleucinol (64), vinleurosine (13), vinorelbine (57), vinrosidine (13), vintafolide (107), vintriptol (51), vinzolidine (46)

(b)  
barbiturates  
vibarbital (l), vinylbital (12)  
others: vincofos (28) (phosphate, anthelmintic), vintiamol (16) (vitamin B derivative, antineuralgic)
<table>
<thead>
<tr>
<th>Stems</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-vir</td>
<td>antivirals (undefined group)</td>
</tr>
<tr>
<td>-amivir</td>
<td>neuraminidase inhibitors: laninamivir (100), oseltamivir (80), peramivir (86), zanamivir (72)</td>
</tr>
<tr>
<td>-asvir</td>
<td>antivirals, hepatitis C Virus (HCV) NS5A inhibitors: coblapasvir (119), daclatasvir (115), elbasvir (111), ledipasvir (109), odalasvir (111), ombitasvir (112), pibrentasvir (119), ravidasvir (114), samatasvir (110), velpatasvir (112)</td>
</tr>
<tr>
<td>-buvir</td>
<td>RNA polymerase (NS5B) inhibitors: adafosbuvir (117), beclabuvir (111), dasabuvir (109), deleobuvir (108), filibuvir (101), lomibuvir (107), nesbuvir (98), radalbuvir (112), setrobuvir (106), sofosbuvir (108), tegobuvir (103), uprifosbuvir (115)</td>
</tr>
<tr>
<td>-cavir</td>
<td>carbocyclic nucleosides: abacavir (76), entecavir (82), lobucavir (72)</td>
</tr>
<tr>
<td>-ciclovir</td>
<td>bicyclic heterocycle compounds: aciclovir (42), buclovir (52), desciclovir (55), detiviclovir (86), eprociclovir (112), famciclovir (61), filociclovir (111), ganciclovir (56), lagociclovir (101), lagociclovir valactate (101), omaciclovir (84), penciclovir (61), rociclovir (62), tiviclovir (86), valaciclovir (69), valganciclovir (78), valomaclovir (84)</td>
</tr>
<tr>
<td>-fovir</td>
<td>phosphonic acid derivatives: adefovir (72), alamivofir (89), besifovir (105), brinciclovir (110), cidofovir (72), pradefovir (93), rovafovir etalafenamide (119), tenofovir (82), tenofovir alafenamide (111), tenofovir exalidex (115)</td>
</tr>
<tr>
<td>-gosivir</td>
<td>glucoside inhibitors: celgosivir (77)</td>
</tr>
</tbody>
</table>
-navir  HIV protease inhibitors: amprenavir (79), atazanavir (88), brecanavir (94), darunavir (88), droxina
navir (74), fosamprenavir (83), indinavir (74), lasinavir (76), lopinavir (80), mozenavir (84), nelfinavir (76), palinavir (74), ritonavi
r (74), saquinavir (69), telinavir (73), tipranavir (80)

-previr  Hepatitis Virus C (HVC) protease inhibitors: asunaprevir (105), boceprevir (97), ciluprevir (90), danoprevi
r (102), deldeprevir (110), faldaprevir (106), furaprevir (111), glecaprevir (114), grazoprevir (111), narlaprevir (102), par
itaprevir (111), simaprevir (105), sovaprevir (106), telaprevir (94), vaniprevir (103), vedroprevir (112), voxilaprevir (113)

-tegravir  HIV integrase inhibitors: bictegravir (113), cabotegravir (111), dolutegravir (105), elvitegravir (97), raltegra
vir (97)

-virine  Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTI): capravirine (83), dapivirine (86), doravirine (109), elsulfavirine (117), emivirine (82), etravirine (88), fosdevirine (103), lersivirine (101), rilpivirine (82)

-viroc  CCR5 (Chemokine CC motif receptor 5) receptor antagonists: ancriviroc (92), aplavirocin (94), cenicriviroc (103), maravirocin (94), vicriviroc (94)

-virsen  see -rsen

-vi(.)mab  see mab

(b)  virginiacycin (18), viridofulvin (16)

(c)  aranotin (21), arildone (38), avridine (50), didanosine (64), disoxaril (55), dimepranol (42), foscarnet sodium (42), fosfonet sodium (35), ketoaxal (22), impacarzine (36), inosine (42), lodenosine (75), metisazone (14), moroxydine (22), pleconaril (77), tilorone (24), xenazoic acid (11)

-vircept  see -cept

-virine  see -vir

-viroc  see -vir

-virsen  see -rsen

-vi(.)mab  see -mab

-vos  see -fos

-vudine  see -uridine
INN – the use of stems

-xaban  
**blood coagulation factor $X_A$ inhibitors, antithrombotics**

(a) apixaban (93), betrixaban (98), darexaban (104), edoxaban (99), eribaxaban (98), fidexaban (91), letaxaban (104), otamixaban (86), razaxaban (90), rivaroxaban (90)

-xanox  
**see -ox/-alox**

-xetan  
**chelating agents**
cabiotraxetan (103), clivatuzumab tetraxetan (113), epitumomab cituxetan (89), ibritumomab tiuxetan (86), lutetium ($^{177}$Lu) lilotomab satetaxetan (112), satoreotide tetraxetan (118), satoreotide trizoxetan (114), tetraxetan (92), yttrium ($^{90}$Y) clivatuzumab tetraxetan (102), yttrium ($^{90}$Y) tacatuzumab tetraxetan (93)

-yzine  
**see -izine**

-zafone  
**alozafone derivatives**

C.1.0.0

(a) alozafone (40), avizafone (64), ciprazafone (50), dinazafone (46), dulozafone (56), lorzafone (48), oxazafone (45), rilmazafone (55)

-zepine  
**see –pine**

-zolast  
**see -ast**

-zolid  
**oxazolidinone antibacterials**
cadazolid (104), contezolid (118), delpazolid (116), eperezolid (76), furazolidone (13), linezolid (76), posizolid (88), radezolid (99), sutezolid (106), tedizolid (104), vinzolidine (46)
**zomib** | **proteasome inhibitors**
---|---
**L.0.0.0** | (USAN: proteozome inhibitors)

- bortezomib (88), carfilzomib (97), delanzomib (105), ixazomib (104), marizomib (102), oprozomib (107)

**-zone** | **see -buzone**
---|---

**-zotan** | **serotonin 5-HT<sub>1A</sub> receptor agonists/antagonists acting primarily as neuroprotectors**
---|---

**C.0.0.0** | ebalzotan (72), lecozotan (93), naluzotan (101), osemozotan (87), piclozotan (92), robalzotan (90), sarizotan (94)
Annex 1

Procedure for the selection of recommended international nonproprietary names for pharmaceutical substances

The following procedure shall be followed by the World Health Organization (hereinafter also referred to as “WHO”) in the selection of recommended international nonproprietary names for pharmaceutical substances, in accordance with resolution WHA3.11 of the World Health Assembly, and in the substitution of such names.

Article 1

Proposals for recommended international nonproprietary names and proposals for substitution of such names shall be submitted to WHO on the form provided therefor. The consideration of such proposals shall be subject to the payment of an administrative fee designed only to cover the corresponding costs of the Secretariat of WHO (“the Secretariat”). The amount of this fee shall be determined by the Secretariat and may, from time to time, be adjusted.

Article 2

Such proposals shall be submitted by the Secretariat to the members of the Expert Advisory Panel on the International Pharmacopoeia and Pharmaceutical Preparations designated for this purpose, such designated members hereinafter referred to as “the INN Expert Group”, for consideration in accordance with the “General principles for guidance in devising International Nonproprietary Names for Pharmaceutical Substances”, annexed 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.

Article 3

Subsequent to the examination provided for in article 2, the Secretariat shall give notice that a proposed international nonproprietary name is being considered.

a. Such notice shall be given by publication in WHO Drug Information and by letter to Member States and to national and regional pharmacopoeia commissions or other bodies designated by Member States.

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2 See Annex 2
3 Before 1987, lists of international nonproprietary names were published in the Chronicle of the World Health Organization.
(i) Notice shall also be sent to the person who submitted the proposal ("the original applicant") and other 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 the 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 WHO is acting and refer to these rules of procedure.

c. In forwarding the notice, the Secretariat 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 WHO.

Article 4
Comments on the proposed name may be forwarded by any person to WHO within four months of the date of publication, under article 3, of the name in WHO Drug Information.

Article 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 WHO Drug Information. Such objection shall:
   (i) identify the person objecting;
   (ii) state his or her interest in the name;
   (iii) set forth the reasons for his or her objection to the name proposed.

Article 6
Where there is a formal objection under article 5, WHO 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 WHO of a substitute name or names, a name shall not be selected by WHO as a recommended international nonproprietary name while there exists a formal objection thereto filed under article 5 which has not been withdrawn.

Article 7
Where no objection has been filed under article 5, or all objections previously filed have been withdrawn, the Secretariat shall give notice in accordance with subsection (a) of article 3 that the name has been selected by WHO as a recommended international nonproprietary name.
Article 8
In forwarding a recommended international nonproprietary name to Member States under article 7, the Secretariat 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 and to prohibit registration of the name as a trademark or trade name.

Article 9
a. In the extraordinary circumstance that a previously recommended international nonproprietary name gives rise to errors in medication, prescription or distribution, or a demonstrable risk thereof, because of similarity with another name in pharmaceutical and/or prescription practices, and it appears that such errors or potential errors cannot readily be resolved through other interventions than a possible substitution of a previously recommended international nonproprietary name, or in the event that a previously recommended international nonproprietary name differs substantially from the nonproprietary name approved in a significant number of Member States, or in other such extraordinary circumstances that justify a substitution of a recommended international nonproprietary name, proposals to that effect may be filed by any interested person. Such proposals shall be submitted on the form provided therefor and shall:

(i) identify the person making the proposal;
(ii) state his or her interest in the proposed substitution; and
(iii) set forth the reasons for the proposal; and
(iv) describe, and provide documentary evidence regarding, the other interventions undertaken in an effort to resolve the situation, and the reasons why these other interventions were inadequate.

Such proposals may include a proposal for a new substitute international nonproprietary name, devised in accordance with the General principles, which takes into account the pharmaceutical substance for which the new substitute international nonproprietary name is being proposed.

The Secretariat shall forward a copy of the proposal, for consideration in accordance with the procedure described in subsection (b) below, to the INN Expert Group and the original applicant or its successor (if different from the person bringing the proposal for substitution and provided that the original applicant or its successor is known or can be found through diligent effort, including contacts with industry associations).

In addition, the Secretariat shall request comments on the proposal from:

(i) Member States and national and regional pharmacopoeia commissions or other bodies designated by Member States (by including a notice to that effect in the letter referred to in article 3(a), and
(ii) any other persons known to be concerned by the proposed substitution.
The request for comments shall:

(i) state the recommended international nonproprietary name that is being proposed for substitution (and the proposed substitute name, if provided);

(ii) identify the person who submitted the proposal for substitution (if so requested by such person);

(iii) identify the substance to which the proposed substitution relates and reasons put forward for substitution;

(iv) set forth the time within which comments will be received and the person and place to whom they should be directed; and

(v) state the authority under which WHO is acting and refer to these rules of procedure.

Comments on the proposed substitution may be forwarded by any person to WHO within four months of the date of the request for comments.

b. After the time period for comments referred to above has elapsed, the Secretariat shall forward any comments received to the INN Expert Group, the original applicant or its successor and the person bringing the proposal for substitution. If, after consideration of the proposal for substitution and the comments received, the INN Expert Group, the person bringing the proposal for substitution and the original applicant or its successor all agree that there is a need to substitute the previously recommended international nonproprietary name, the Secretariat shall submit the proposal for substitution to the INN Expert Group for further processing.

Notwithstanding the foregoing, the original applicant or its successor shall not be entitled to withhold agreement to a proposal for substitution in the event the original applicant or its successor has no demonstrable continuing interest in the recommended international nonproprietary name proposed for substitution.

In the event that a proposal for substitution shall be submitted to the INN Expert Group for further processing, the INN Expert Group will select a new international nonproprietary name in accordance with the General principles referred to in article 2 and the procedure set forth in articles 3 to 8 inclusive. The notices to be given by the Secretariat under article 3 and article 7, respectively, including to the original applicant or its successor (if not the same as the person proposing the substitution, and provided that the original applicant or its successor is known or can be found through diligent effort, including contacts with industry associations), shall in such event indicate that the new name is a substitute for a previously recommended international nonproprietary name and that Member States may wish to make transitional arrangements in order to accommodate existing products that use the previously recommended international nonproprietary name on their label in accordance with national legislation.

If, after consideration of the proposal for substitution and the comments received in accordance with the procedure described above, the INN Expert Group, the original applicant or its successor and the person bringing the proposal for
substitution do not agree that there are compelling reasons for substitution of a previously recommended international nonproprietary name, this name shall be retained (provided always that the original applicant or its successor shall not be entitled to withhold agreement to a proposal for substitution in the event that the original applicant or its successor has no demonstrable continuing interest in the recommended international nonproprietary name proposed to be substituted). In such an event, the Secretariat shall advise the person having proposed the substitution, as well as the original applicant or its successor (if not the same as the person proposing the substitution, and provided that the original applicant or its successor is known or can be found through diligent effort, including contacts with industry associations), Member States, national and regional pharmacopoeia commissions, other bodies designated by Member States, and any other persons known to be concerned by the proposed substitution that, despite a proposal for substitution, it has been decided to retain the previously recommended international nonproprietary name (with a description of the reason(s) why the proposal for substitution was not considered sufficiently compelling).
Annex 2
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.

<table>
<thead>
<tr>
<th>Latin</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>-acum</td>
<td>anti-inflammatory agents, ibufenac derivatives</td>
</tr>
<tr>
<td>-adolum</td>
<td>analgesics</td>
</tr>
<tr>
<td>-adol</td>
<td>analgesics</td>
</tr>
<tr>
<td>-astum</td>
<td>antiasthmatic, antiallergic substances not acting primarily as antihistaminics</td>
</tr>
<tr>
<td>-azepamum</td>
<td>diazepam derivatives</td>
</tr>
<tr>
<td>bol</td>
<td>anabolic steroids</td>
</tr>
<tr>
<td>-cain-</td>
<td>class I antiarrhythmics, procainamide and lidocaine derivatives</td>
</tr>
<tr>
<td>-cainum</td>
<td>local anaesthetics</td>
</tr>
<tr>
<td>cef-</td>
<td>antibiotics, cefalosporanic acid derivatives</td>
</tr>
<tr>
<td>-cillinum</td>
<td>antibiotics, 6-aminopenicillanic acid derivatives</td>
</tr>
<tr>
<td>-conazolum</td>
<td>systemic antifungal agents, miconazole derivatives</td>
</tr>
<tr>
<td>cort</td>
<td>corticosteroids, except prednisolone derivatives</td>
</tr>
<tr>
<td>-coxibum</td>
<td>selective cyclo-oxygenase inhibitors</td>
</tr>
<tr>
<td>-entanum</td>
<td>endothelin receptor antagonists</td>
</tr>
<tr>
<td>gest</td>
<td>steroids, progestogens</td>
</tr>
<tr>
<td>gli</td>
<td>antihyperglycaemics</td>
</tr>
<tr>
<td>io-</td>
<td>iodine-containing contrast media</td>
</tr>
<tr>
<td>-metacinum</td>
<td>anti-inflammatory, indometacin derivatives</td>
</tr>
<tr>
<td>-mycinum</td>
<td>antibiotics, produced by Streptomyces strains</td>
</tr>
<tr>
<td>-nidazolum</td>
<td>antiprotozoals and radiosensitizers, metronidazole derivatives</td>
</tr>
<tr>
<td>-ololum</td>
<td>β-adrenoreceptor antagonists</td>
</tr>
<tr>
<td>-oxacinum</td>
<td>antibacterials, nalidixic acid derivatives</td>
</tr>
<tr>
<td>-platinum</td>
<td>antineoplastic agents, platinum derivatives</td>
</tr>
<tr>
<td>-poetinum</td>
<td>erythropoietin type blood factors</td>
</tr>
<tr>
<td>-pril(at)um</td>
<td>angiotensin-converting enzyme inhibitors</td>
</tr>
<tr>
<td>-profenum</td>
<td>anti-inflammatory agents, ibuprofen derivatives</td>
</tr>
<tr>
<td>prost</td>
<td>prostaglandins</td>
</tr>
</tbody>
</table>
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 3-a  Current scheme for monoclonal antibodies

INN for monoclonal antibodies (mAb) are composed by a random prefix, an infix, which indicates the target (molecule, cell and organ) class, and by the stem -mab as a suffix (Table 1).

The stem -mab is to be used for all substances containing an immunoglobulin variable domain which binds to a defined target.

Table 1: Nomenclature scheme for monoclonal antibodies (mAb).

<table>
<thead>
<tr>
<th>Prefix:</th>
<th>Infix: target class</th>
<th>Stem:</th>
</tr>
</thead>
<tbody>
<tr>
<td>random</td>
<td>-ami- serum amyloid protein (SAP)/amyloidosis (pre-substem)</td>
<td>-mab</td>
</tr>
<tr>
<td></td>
<td>-ba- bacterial</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ci- cardiovascular</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-fung- fungal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-gros- skeletal muscle mass related growth factors and receptors (pre-substem)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ki- interleukin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-li- immunomodulating</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ne- neural</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-os- bone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ta- tumour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-toxa- toxin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-vet- veterinary use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-vi- viral</td>
<td></td>
</tr>
</tbody>
</table>

Second word

If the monoclonal antibody is conjugated to another protein or to a chemical (e.g. chelator), identification of this conjugate is accomplished by use of a separate, second word or acceptable chemical designation. For instance, for mAbs conjugated to a toxin, the suffix -tox is used in the second word.

If the monoclonal antibody is radiolabelled, the radioisotope is listed first in the INN, e.g. technetium ($^{99m}$Tc) nofetumomab merpentan (81).

For information on monoclonal antibodies fused to other proteins and for more details, please refer to the “INN for biological and biotechnological substances, a review”, available on the WHO INN Programme website: http://www.who.int/medicines/services/inn/en/.
Annex 3-b Previous naming scheme for monoclonal antibodies
(From proposed INN Lists 103 up to 117)

- INN for monoclonal antibodies (mAb) are composed of a prefix, a substem A, a substem B and a suffix.
- The common stem for mAbs is -mab, placed as a suffix.
- The substem -mab is to be used for all products containing an immunoglobulin variable domain which binds to a defined target.
- Substem B indicates the species on which the immunoglobulin sequence of the mAb is based (shown in Table 2).

<table>
<thead>
<tr>
<th>Substem B</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>-a-</td>
<td>rat</td>
</tr>
<tr>
<td>-axo-</td>
<td>rat-mouse (pre-substem)</td>
</tr>
<tr>
<td>-e-</td>
<td>hamster</td>
</tr>
<tr>
<td>-i-</td>
<td>primate</td>
</tr>
<tr>
<td>-o-</td>
<td>mouse</td>
</tr>
<tr>
<td>-u-</td>
<td>human</td>
</tr>
<tr>
<td>-vet-</td>
<td>veterinary use (pre-substem)</td>
</tr>
<tr>
<td>-xi-</td>
<td>chimeric</td>
</tr>
<tr>
<td>-xizu-</td>
<td>chimeric-humanized</td>
</tr>
<tr>
<td>-zu-</td>
<td>humanized</td>
</tr>
</tbody>
</table>

The distinction between chimeric and humanized antibodies is as follows:

**Chimeric:** A chimeric antibody is one for which both chain types are chimeric as a result of antibody engineering. A chimeric chain is a chain that contains a foreign variable domain (originating from one species other than human, or synthetic or engineered from any species including human) linked to a constant region of human origin. The variable domain of a chimeric chain has a V region amino acid sequence which, analysed as a whole, is closer to non-human species than to human.

**Humanized:** A humanized antibody is one for which both chain types are humanized as a result of antibody engineering. A humanized chain is typically a chain in which the complementarity determining regions (CDR) of the variable domains are foreign (originating from one species other than human, or synthetic) whereas the remainder of the chain is of human origin. Humanization assessment is based on the resulting amino acid sequence, and not on the methodology per se, which allows protocols other than grafting to be used. The variable domain of a humanized chain has a V region amino acid sequence which, analysed as a whole, is closer to human than to other species.
Note: The infix

-\text{-xizu-}\ is used for an antibody having both chimeric and humanized chains.
-\text{-axo-}\ is used for an antibody having both rat and mouse chains.

\textbf{Substem A} indicates the target (molecule, cell and organ) class (shown in Table 3).

\begin{table}[h]
\centering
\begin{tabular}{|c|c|}
\hline
\text{-b(a)-} & \text{bacterial} \\
\hline
\text{-am(i)-} & \text{serum amyloid protein (SAP)/amyloidosis (pre-substem)} \\
\hline
\text{-c(i)-} & \text{cardiovascular} \\
\hline
\text{-f(u)-} & \text{fungal} \\
\hline
\text{-gr(o)-} & \text{skeletal muscle mass related growth factors and receptors (pre-substem)} \\
\hline
\text{-k(i)-} & \text{interleukin} \\
\hline
\text{-l(i)-} & \text{immunomodulating} \\
\hline
\text{-n(e)-} & \text{neural} \\
\hline
\text{-s(o)-} & \text{bone} \\
\hline
\text{-tox(a)-} & \text{toxin} \\
\hline
\text{-t(u)-} & \text{tumour} \\
\hline
\text{-v(i)-} & \text{viral} \\
\hline
\end{tabular}
\end{table}

In principle, a single letter, e.g. \text{-b-} for bacterial is used as substem A. Whenever substem B starts with a consonant (e.g. \text{x} or \text{z}), to avoid problems in pronunciation, an additional vowel indicated in the table, e.g. \text{-ba-} is inserted.

\textbf{Prefix}

The prefix should be random, i.e. the only requirement is to contribute to a euphonious and distinctive name.

\textbf{Second word}

If the monoclonal antibody is conjugated to another protein or to a chemical (e.g. chelator), identification of this conjugate is accomplished by use of a separate, second word or acceptable chemical designation. For instance, for mAbs conjugated to a toxin, the suffix \text{-tox} is used in the second word.

If the monoclonal antibody is radiolabelled, the radioisotope is listed first in the INN, e.g. \text{technetium (99mTc) nofetomab merpentan (81)}. 
Annex 3-c Previous naming scheme for monoclonal antibodies (up to proposed INN List 102)

The common stem for monoclonal antibodies is \(-mab\).

Sub-stems for source of product:

<table>
<thead>
<tr>
<th>Sub-stem</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>rat</td>
</tr>
<tr>
<td>(\alpha) (pre-sub-stem)</td>
<td>rat-murine hybrid</td>
</tr>
<tr>
<td>e</td>
<td>hamster</td>
</tr>
<tr>
<td>i</td>
<td>primate</td>
</tr>
<tr>
<td>o</td>
<td>mouse</td>
</tr>
<tr>
<td>u</td>
<td>human</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.

Sub-stems for disease or target class:

<table>
<thead>
<tr>
<th>Sub-stem</th>
<th>Disease or Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ba(c)-</td>
<td>bacterial</td>
</tr>
<tr>
<td>-ci(r)-</td>
<td>cardiovascular</td>
</tr>
<tr>
<td>-fung-</td>
<td>fungal</td>
</tr>
<tr>
<td>-ki(n)- (pre-sub-stem)</td>
<td>interleukin</td>
</tr>
<tr>
<td>-le(s)-</td>
<td>inflammatory lesions</td>
</tr>
<tr>
<td>-li(m)-</td>
<td>immunomodulator</td>
</tr>
<tr>
<td>-os-</td>
<td>bone</td>
</tr>
<tr>
<td>-vi(r)-</td>
<td>viral</td>
</tr>
</tbody>
</table>
tumours:

<table>
<thead>
<tr>
<th>Sub-stem</th>
<th>Disease/Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>-co(l)-</td>
<td>colon</td>
</tr>
<tr>
<td>-go(t)-</td>
<td>testis</td>
</tr>
<tr>
<td>-go(v)-</td>
<td>ovary</td>
</tr>
<tr>
<td>-ma(r)-</td>
<td>mammary</td>
</tr>
<tr>
<td>-me(l)-</td>
<td>melanoma</td>
</tr>
<tr>
<td>-pr(o)-</td>
<td>prostate</td>
</tr>
<tr>
<td>-tu(m)-</td>
<td>miscellaneous</td>
</tr>
</tbody>
</table>

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.

**Prefix:**
Should be random e.g. the only requirement is to contribute to a euphonious and distinctive name.

**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 ($^{99m}$Tc) pintumomab (86).

**-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.

**References**

World Health Organization. International Nonproprietary Names (INN) for biological and biotechnological substances (a review), INN Working Document 05.179, update November 2009*

World Health Organization. The use of stems in the selection of International Nonproprietary Names (INN) for pharmaceutical substances, 2009, WHO/PSM/QSM/2009.3*

* These documents are available on the INN Programme Website at: http://www.who.int/medicines/services/inn/en/index.html
Annex 4

INN for gene therapy substances

In 2005, a two-word nomenclature scheme for substances for gene therapies was formally adopted by the members of the INN Expert Group designated to deal with the selection of nonproprietary names. The 2016 updated scheme for substances for gene therapies using vectors based on recombinant nucleic acid sequences (DNA vectors, e.g. plasmid DNA, naked or complexed), genetically modified micro-organisms (bacterial vectors) or viruses (replication defective, replication competent or replication conditional viral vectors) as shown in 4. This scheme does not apply to gene therapies based on administration of genetically modified cells, although a vector might be used ex-vivo or in-vitro for manufacturing of those cells prior to administration.

Table 4: Two-word scheme for substances for gene therapies (plasmid-, viral vector- and bacteria-based).

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Infix</th>
<th>Suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>word 1</td>
<td>random to contribute to euphonious and distinctive name</td>
<td>to identify the gene using, when available, existing infixes for biological products, e.g.:</td>
</tr>
<tr>
<td>(gene component)</td>
<td>(a vowel)gene</td>
<td>e.g. -(o)gene</td>
</tr>
<tr>
<td>-cima-</td>
<td>cytosine deaminase</td>
<td></td>
</tr>
<tr>
<td>-ermin-</td>
<td>growth factor</td>
<td></td>
</tr>
<tr>
<td>-kin-</td>
<td>interleukin</td>
<td></td>
</tr>
<tr>
<td>-lim-</td>
<td>immunomodulator</td>
<td></td>
</tr>
<tr>
<td>-lip-</td>
<td>human lipoprotein lipase</td>
<td></td>
</tr>
<tr>
<td>-mul-</td>
<td>multiple gene</td>
<td></td>
</tr>
<tr>
<td>-stim-</td>
<td>colony stimulating factor</td>
<td></td>
</tr>
<tr>
<td>-tima-</td>
<td>thymidine kinase</td>
<td></td>
</tr>
<tr>
<td>-tusu-</td>
<td>tumour suppression</td>
<td></td>
</tr>
</tbody>
</table>

| word 2 | random to contribute to euphonious and distinctive name | to identify the viral vector type, e.g.: |
| (vector component) | (non-replicating viral vector) | (replicating viral vector) |
| -adeno- | adenovirus |
| -cana- | canarypox virus |
| -foli- | fowlpox virus |
| -erva- | herpes virus |
| -lenti- | lentivirus |
| -morbilli- | Paramyxoviridae morbillivirus |
| -parvo- | adeno-associated virus (Parvoviridae dependovirus) |
| -retro- | other retrovirus |
| -vaci- | vaccinia virus |

| to identify the bacterial vector type, e.g.: |
| -lis- | Listeria monocytogenes |
| -bac | (bacteria vector) |

| -plasmid (plasmid vector) |

In the case of substances for gene therapy based on non-plasmid DNA, there is no need for a second word in the name.
## Annex 5

Reference to publications containing proposed INN Lists

<table>
<thead>
<tr>
<th>List no. and reference</th>
<th>List no. and reference</th>
</tr>
</thead>
</table>
List no. and reference | List no. and reference
--- | ---
105 | *WHO Drug Information* **25**: No. 2 (2011)
106 | *WHO Drug Information* **25**: No. 4 (2011)
110 | *WHO Drug Information* **27**: No. 4 (2013)
111 | *WHO Drug Information* **28**: No. 2 (2014)
112 | *WHO Drug Information* **28**: No. 4 (2014)
113 | *WHO Drug Information* 29: No. 2 (2015)
114 | *WHO Drug Information* 29: No. 4 (2015)
115 | *WHO Drug Information* 30: No. 2 (2016)
116 | *WHO Drug Information* 30: No. 4 (2016)
117 | *WHO Drug Information* 31: No. 2 (2017)
118 | *WHO Drug Information* 31: No. 4 (2017)
119 | *WHO Drug Information* 32: No. 2 (2018)

Lists 1-117 of proposed INN are included in Cumulative List No. 17, WHO, Geneva, 2017 (available in CD-ROM only)
Annex 6

Why INN?

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 9824 names have been designated as INN, and this number is growing every year by some 200-240 new INN.

INN 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, INN 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 INN 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 INN 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 INN 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.

29/08/2018