The use of stems in the selection of International Nonproprietary Names (INN) for pharmaceutical substances 2018 (Stem Book 2018)
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FORMER DOCUMENT NUMBER: WHO/PHARM S/NOM 15

WHO/EMP/RHT/TSN/2018.1

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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.
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

Stem classification  Stem definition  National Name(s)

calci  Vitamin D analogues/derivatives  USAN

(alphacalcidiol (40), calcifedol (26), calcipotriol (61), calcitriol (39),
colecalciferol (13), doxercalciferol (82), ergocalciferol (13),
falcaltret (74), lexacalcit (71), maxacalcit (75), paricalcit (78),
secalciferol (62), seocalcit (78), tacrocalcit (65)

calcitonin (31) (polypeptide)
dihydrotachysterol (1)

Graphic Formula  INN (English)

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**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>-abine (see -arabine and -citabine)</td>
<td>-asvir (see –vir)</td>
<td>-caine</td>
</tr>
<tr>
<td>-ac</td>
<td>-azam (see -azepam)</td>
<td>-cain-</td>
</tr>
<tr>
<td>-acetam (see -racetam)</td>
<td>-azenil</td>
<td>-calci</td>
</tr>
<tr>
<td>-actide</td>
<td>-azepam</td>
<td>-capone</td>
</tr>
<tr>
<td>-adol/-adol-</td>
<td>-azepide</td>
<td>-carbef</td>
</tr>
<tr>
<td>-adom</td>
<td>-azocine</td>
<td>-carnil (see -azenil)</td>
</tr>
<tr>
<td>-afenone</td>
<td>-azolam (see -azepam)</td>
<td>-castat (see -stat)</td>
</tr>
<tr>
<td>-afil</td>
<td>-azoline</td>
<td>-catib</td>
</tr>
<tr>
<td>-aj-</td>
<td>-azone (see -buzone)</td>
<td>-cavir (see vir)</td>
</tr>
<tr>
<td>-al</td>
<td>-azosin</td>
<td>cef-</td>
</tr>
<tr>
<td>-alolate</td>
<td></td>
<td>-cel</td>
</tr>
<tr>
<td>-alol (see -olol)</td>
<td></td>
<td>cell-</td>
</tr>
<tr>
<td>-alox (see -ox)</td>
<td></td>
<td>cell-ate (see cell-/-cel-)</td>
</tr>
<tr>
<td>-amivir (see vir)</td>
<td></td>
<td>-cellose (see cell-/-cel-)</td>
</tr>
<tr>
<td>-ampanel</td>
<td></td>
<td>-cept</td>
</tr>
<tr>
<td>andr</td>
<td></td>
<td>-cetrapib</td>
</tr>
<tr>
<td>-anib</td>
<td></td>
<td>-cic</td>
</tr>
<tr>
<td>-anide</td>
<td></td>
<td>-ciclovir (see vir)</td>
</tr>
<tr>
<td>-anserin</td>
<td></td>
<td>-cidin</td>
</tr>
<tr>
<td>-antel</td>
<td></td>
<td>-ciguat</td>
</tr>
<tr>
<td>-antrone</td>
<td></td>
<td>-cillide (see -cillin)</td>
</tr>
<tr>
<td>-apine (see -pine)</td>
<td></td>
<td>-cillin</td>
</tr>
<tr>
<td>-apt-</td>
<td></td>
<td>-cillinam (see -cillin)</td>
</tr>
<tr>
<td>-(ar)abine</td>
<td></td>
<td>-cilpine (see -pine)</td>
</tr>
<tr>
<td>-arit</td>
<td></td>
<td>-cisteine (see -steine)</td>
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<tr>
<td>-arol</td>
<td></td>
<td>-citabine</td>
</tr>
<tr>
<td>-arone</td>
<td></td>
<td>-citinib (see –tinib)</td>
</tr>
<tr>
<td>-arotene</td>
<td></td>
<td>-clidine/-clidinium</td>
</tr>
<tr>
<td>arte-</td>
<td></td>
<td>-clone</td>
</tr>
<tr>
<td>-ase</td>
<td></td>
<td>-cocept (see -cept)</td>
</tr>
<tr>
<td>-ast</td>
<td></td>
<td>-cog</td>
</tr>
<tr>
<td>-astine</td>
<td></td>
<td>-cogin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-conazole</td>
</tr>
</tbody>
</table>
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/-aloxy)
-dralazine
-drine
-droneic acid
-dustat (see stat)
-dutant (see -tant)
-dyl (see -dil)

E
-ectin
-elestat (see -stat)
-elvekin (see -kin)
-emcinal

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
-gene
-gepant
-gest
-gestr- (see estr)
-giline
-gillin
-gli
-gliflozin (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-  
iod-/io-  
-irudin  
isant  
isomide  
ium  
-izine (-yzine)

K
-kacin  
kalant  
kalim  
-kef-  
-kin  
-kl(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)  
meline  
mer-/mer  
-mer  
-mesine  
mestane  
-metacin  
-met(h)asone (see pred)  
-metinib (see -tinib)  
micin  
mifene (see -ifene)  
milasta (see -ast)  
mito-  
-monam  
morelin (see -relin)  
-mostim (see -stim)  
motide (see -tide)  
motine  
moxin  
mulin  
mustine  
mycin  
nab  
nabant  
nacept (see -cept)  
nakina (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-)  
nicle  
nico-/nic/-ni-  
nidazole  
nidine (see -onidine)  
nifur-  
nil (see -azenil)  
nitro-/nitr-/nit-/ni-/ni-  
nixin  
(-)nonacog (see -cog)

N
-nab  
nabant  
nacept (see -cept)  
nakina (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-)  
nicle  
nico-/nic/-ni-  
nidazole  
nidine (see -onidine)  
nifur-  
nil (see -azenil)  
nitro-/nitr-/nit-/ni-/ni-  
nixin  
(-)nonacog (see -cog)

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 -icam)  
oxifene (see -ifene)  
oxopine (see -pine)
INN: the use of stems

- pafant
- pamide
- pamil
- parcin
- parib
- parin
- parinux (see -parin)
- patril/-patrilat (see -tril/-trilat)
- pendyl (see -dil)
- penem
- perfl(u)-
- peridol (see -perone)
- peridone (see -perone)
- perone
- pidem
- pin(e)
- piprazole (see -prazole)
- piron (see -spiron)
- pirox (see -ox/-alox)
- pitant (see -tant)
- plact
- pladib
- planin
- plase (see -ase)
- plasmid (see -gene)
- platin
- plermin (see -ermin)
- plestim (see -stim and -kin)
- plon
- poetin
- porfin
- poride
- pramine
- prazan
- prazole
- pred
- prenaline (see -terol)
- pressin
- previr (see vir)
- pride
- pril
- prilat (see -pril)
- prim
- pristin
- profen
- prost
- prostil (see prost)
- quidar
- quin(e)
- quinil (see -azenil)
- racetam
- racil
- rafenib
- relin
- relix
- renone
- reotide (see -tide)
- restat (see -stat)
- retin
- ribine
- rfa-
- rinone
- ritide (see -tide)
- rixin
- rizine (see -izine)
- rolimus (see -imus)
- rozole
- rsen
- rubicin
- sal
- salazo- (see sal)
- salazine/-salazide (see sal)
- salan (see sal)
- sartan
- semide
- sermin (see -ermin)
- serod
- serpine
- sertib
- setron
- siban
- siran
- som-
- sotine (see -pine)
- spirone
- stat/-stat-
- steine
- ster-
- steride (see -ster-)
- stigmine
- stim
- sulfa-
- sulfan
- tacept (see cept)
- tadine
- tansine
- tant
- tapide
- taxel
- tecan
- tegravir (see vir)
- tepa
- tepine (see -pine)
- teplase (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
-verbatim (see mab)
vin-/vin-
vir
-vircept (see -cept)
virine (see vir)
viroc (see vir)
virsen
-vi(.)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

-u
-uplase (see -ase)
-uridine

-v
-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>anthelminthics (undefined group)</td>
</tr>
<tr>
<td>-antrone</td>
<td>antineoplastics; anthraquinone derivatives</td>
</tr>
</tbody>
</table>
-apine (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
-bamate
  tranquillizers, propanediol and pentanediol derivatives

barb
  hypnotics, barbituric acid derivatives

-begron
  β₃-adrenoreceptor agonists

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

-bendan (see -dan)
  cardiac stimulants, pimobendan derivatives

-bendazole
  anthelminthics, tiabendazole derivatives

-bercept (see -cept)
  target: VEGF receptors

-bermin (see -ermin)
  vascular endothelial growth factors

-bersat
  anticonvulsants, benzoylamino-benzpyran derivatives

-betasol (see pred)
  prednisone and prednisolone derivatives

bol
  anabolic steroids

-bradine
  bradycardic agents

-brate (see -fibrate)
  clofibrate derivatives

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

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

-bulin
  antineoplastics; mitotic inhibitor, tubulin binder

-butazone (see -buzone)
  anti-inflammatory analgesics, phenylbutazone derivatives

-buvir (see vir)
  RNA polymerase (NS5B) inhibitors

-buzone
  anti-inflammatory analgesics, phenylbutazone derivatives

-caine
  local anaesthetics

-cain-
  class I antiarrhythmics, procainamide and lidocaine derivatives

calci
  vitamin D analogues/derivatives

-capone
  catechol-O-methyltransferase (COMT) inhibitors

carbef
  antibiotics, carbacephem derivatives
-carnil (see -azeni) 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
cort  corticosteroids, except prednisolone derivatives
-coxib  selective cyclo-oxygenase inhibitors
-crinat  diuretics, etacrynic acid derivatives
-crine  acridine derivatives
-cromil  antiallergics, cromoglicic acid derivatives
-curium (see -ium)  curare-like substances
-cycline  antibiotics, protein-synthesis inhibitors, tetracycline derivatives

**D**
-dan  cardiac stimulants, pimobendan derivatives
-dapsone  antimycobacterials, diaminodiphenylsulfone derivatives
-decakin (see -kin)  interleukin-10 analogues and derivatives
-degib  SMO receptor antagonists
-denoson  adenosine A receptor agonists
-dermin (see -ermin)  epidermal growth factors
-dil  vasodilators
-dilol (see -dil)  vasodilators
-dipine  calcium channel blockers, nifedipine derivatives
-dismase (see -ase)  enzymes with superoxide dismutase activity, see -ase
-distim (see -stim)  combination of two different types of colony stimulating factors
-dodekin (see -kin)  interleukin-12 analogues and derivatives
-domide  antineoplastics, thalidomide derivatives
-dopa  dopamine receptor agonists, dopamine derivatives, used as antiparkinsonism/prolactin inhibitors
-dotin  synthetic derivatives of dolastatin series
-dox (see -ox/-alox)  antibacterials, quinazoline dioxide derivatives
-dralazine  antihypertensives, hydrazinephthalazine derivatives
-drine  sympathomimetics
-dronic acid  calcium metabolism regulator, pharmaceutical aid
-dustat (see stat)  hypoxia inducible factor (HIF) prolyl hydroxylase inhibitors
-dutant (see -tant)  neurokinin NK₂ receptor antagonist
-dyl (see -dil)  vasodilators

E
-ectin  antiparasitics, ivermectin derivatives
-elestat (see -stat)  elastase inhibitors
-elvekin (see -kin)  interleukin-11 analogues and derivatives
-emcinal  erythromycin derivatives lacking antibiotic activity, motilin agonists
-enicokin (see -kin)  interleukin-21 human analogues and derivatives
-entan  endothelin receptor antagonists
(-)eptacog (see -cog)  blood coagulation VII
erg  ergot alkaloid derivatives
-eridine  analgesics, pethidine derivatives
-ermin  growth factors
estr  estrogens
-ethidine (see -eridine)  analgesics, pethidine derivatives
-exakin (see -kin)  interleukin-6 analogues and derivatives
-exine  mucolytic, bromhexine derivatives

F
-farcept (see -cept)  subgroup of interferon receptors
-fenacin  muscarinic receptor antagonists
-fenamate (see -fenamic acid)  “fenamic acid” derivatives
-fenamic acid  anti-inflammatory, anthranilic acid derivatives
-fenin  diagnostic aids; (phenylcarbamoyl)methyl iminodiacetic acid derivatives
-fenine analgesics, glafenine derivatives (subgroup of fenamic acid group)
-fensine norepinephrine, serotonin, dopamine reuptake inhibitors
-fentanil opioid receptor agonists, analgesics, fentanyl derivatives
-fentrine inhibitors of phosphodiesterases
-fermin (see -ermin) fibroblast growth factors
-fiban fibrinogen receptor antagonists (glycoprotein IIb/IIIa receptor antagonists)
-fibrate clofibrate derivatives, peroxisome proliferator activated receptor-α (PPAR-α) agonists
-filermin (see -ermin) leukemia-inhibiting factor
-flapon 5-lipoxygenase-activating protein (FLAP) inhibitor
-flurane halogenated compounds used as general inhalation anaesthetics
-formin antihyperglycaemics, phenformin derivatives
-fos insecticides, anthelminthics, pesticides etc., phosphorous derivatives
-fosfamide (see -fos) alkylating agents of the cyclophosphamide group
-fosine (see -fos) cytostatic
-fovir (see vir) phosphonic acid derivatives
-fradil calcium channel blockers acting as vasodilators
-frine (see -drine) sympathomimetic, phenethyl derivatives
-fungin antifungal antibiotics
-fylline N-methylated xanthine derivatives

g
-gab gabamimetic agents
gado-
diagnostic agents, gadolinium derivatives
-gacestat (see stat) gamma-secretase inhibitors
-gatran thrombin inhibitor, antithrombotic agent
-gene gene therapy substances
-gepant  calcitonin gene-related peptide receptor antagonists

gest  steroids, progestogens
-gestr- (see estr)  estrogens
-giline  monoamine oxydase (MAO)-inhibitors type B
-gillin  antibiotics produced by *Aspergillus* strains

gli  antihyperglycaemics
-gliflozin (see gli)  sodium glucose co-transporter inhibitors, phlorizin derivatives
-gliptin (see gli)  dipeptidyl aminopeptidase–IV inhibitors
-glitazar (see gli)  dual peroxisome proliferator activated receptors-α and γ (PPAR-α,γ) agonists
-glitazone (see gli)  peroxisome proliferator activating receptor-γ (PPAR-γ) agonists, thiazolidinedione derivatives
-glumide  cholecystokinin (CCK) antagonists, antiulcer, anxiolytic agent
-glurant  metabotropic glutamate receptor antagonists/ negative allosteric modulators
-glutide (see -tide)  Glucagon-Like Peptide (GLP) analogues
-golide  dopamine receptor agonists, ergoline derivatives
-gosivir (see vir)  glucoside inhibitors
-gramostim (see -stim)  granulocyte macrophage colony stimulating factor (GM-CSF) types substances
-grastim (see -stim)  granulocyte colony stimulating factor (G-CSF) type substances
-grel-/grel  platelet aggregation inhibitors
-guan-  antihypertensives, guanidine derivatives

I
-ibine (see -ribine)  ribofuranyl-derivatives of the "pyrazofurin" type
-icam  anti-inflammatory, isoxicam derivatives
-ifene  antiestrogens or estrogen receptor modulators, clomifene and tamoxifen derivatives
-igetide (see -tide)  peptides and glycopeptides
-ilde  
class III antiarrhythmics, sematilide derivatives

imex  
immunostimulants

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

-imod  
immunomodulators, both stimulant/suppressive and stimulant

imus  
immunosuppressants (other than antineoplastics)

-ine  
alkaloids and organic bases

-inostat (see stat)  
histone deacetylase inhibitors

io-  
iodine-containing contrast media

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

-irudin  
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 bekanamycin 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 (muscarine receptor agonists/partial antagonists used in the treatment of Alzheimer’s disease)
-mer/-mer mercury-containing drugs, antimicrobial or diuretic (deleted from General Principles in List 28 prop. INN)
-mer polymers
-mesine sigma receptor ligands
-mestane aromatase inhibitors
-metacin anti-inflammatory, 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)
-monom 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
-nerpert (see -tend) neurotensin antagonists
-netant (see -tant) neurokinin NK3 receptor antagonists
-netate (see -tend) 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

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 derivate

orphan
  opioid receptor antagonists/agonists, morphinan derivate
-otermin (see -ermin) bone morphogenetic proteins
-ox/-alox antacids, aluminium derivatives
-oxacin antibacterials, nalidixic acid derivatives
-oxan(e) benzodioxane derivatives
-oxanide (see -anide) antiparasitics, salicylanilides and analogues
-oxef (see cef-) antibiotics, oxacefalosporanic acid derivatives
-oxepin (see -pine) tricyclic compounds
-oxetine 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 -pirone) anxiolytics, buspirone derivatives
-pirox (see -ox/-alox) antifungal pyridone derivatives
-pitant (see -tant) neurokinin NK\(_1\) (substance P) receptor antagonist
-plact platelet factor 4 analogues and derivatives
-pladib phospholipase A\(_2\) 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
-prazole antiulcer, benzimidazole derivatives
-pred prednisone and prednisolone derivatives
-prealine (see -terol) bronchodilators, phenylethylamine 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
**INN – the use of stems**

- **-pris-**
  steroidal 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 antineoplastic agents

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

  - **-relin**
    pituitary hormone-release stimulating peptides

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

  - **-renone**
    aldosterone antagonists, spironolactone derivatives

  - **-reotide (see tide)**
    somatostatin receptor agonists/antagonists

  - **-restat (see -stat)**
    aldose reductase inhibitors

  - **retin**
    retinol derivatives

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

  - **rifa-**
    antibiotics, rifamycin derivatives

  - **-rinone**
    cardiac stimulants, amrinone derivatives

  - **-ritide**
    natriuretic peptides

  - **-rixin**
    chemokine CXCR receptors antagonists
<table>
<thead>
<tr>
<th>Stem</th>
<th>Description</th>
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<tr>
<td>-rizine (see -izine)</td>
<td>antihistaminics/cerebral (or peripheral) vasodilators</td>
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<tr>
<td>-rolimus (see -imus)</td>
<td>immunosuppressants, rapamycin derivatives</td>
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<tr>
<td>-rozole</td>
<td>aromatase inhibitors, imidazole-triazole derivatives</td>
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<td>-rsen</td>
<td>antisense oligonucleotides</td>
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<tr>
<td>-rubricin</td>
<td>antineoplastics, daunorubicin derivatives</td>
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<tr>
<td>sal</td>
<td>salicylic acid derivatives</td>
</tr>
<tr>
<td>salazo-</td>
<td>phenylazosaliclyc acid derivatives antibacterial</td>
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<tr>
<td>-salan</td>
<td>brominated salicylamide derivatives disinfectant</td>
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<tr>
<td>-sartan</td>
<td>angiotensin II receptor antagonists, antihypertensive (non-peptidic)</td>
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<td>-semide</td>
<td>diuretics, furosemide derivatives</td>
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<td>-sermin (see -ermin)</td>
<td>insulin-like growth factors</td>
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<tr>
<td>-serod</td>
<td>serotonin receptor antagonists and partial agonists</td>
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<tr>
<td>-serpine</td>
<td>derivatives of <em>Rauwolfia</em> alkaloids</td>
</tr>
<tr>
<td>-sertib</td>
<td>serine/threonine kinase inhibitors</td>
</tr>
<tr>
<td>-setron</td>
<td>serotonin receptor antagonists (5-HT₃) not fitting into other established groups of serotonin receptor antagonists</td>
</tr>
<tr>
<td>-siban</td>
<td>oxytocin antagonists</td>
</tr>
<tr>
<td>-siran</td>
<td>small interfering RNA</td>
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<tr>
<td>som-</td>
<td>growth hormone derivatives</td>
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<td>-sopine (see -pine)</td>
<td>tricyclic compounds</td>
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<tr>
<td>-spirone</td>
<td>anxiolytics, buspirone derivatives</td>
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<td>-stat/-stat-</td>
<td>enzyme inhibitors</td>
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<tr>
<td>-steine</td>
<td>mucolytics, other than bromhexine derivatives</td>
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<tr>
<td>-ster-</td>
<td>androgens/anabolic steroids</td>
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<tr>
<td>-steride (see -ster-)</td>
<td>androgens/anabolic steroids</td>
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<td>-stigmine</td>
<td>acetylcholinesterase inhibitors</td>
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<tr>
<td>-stim</td>
<td>colony stimulating factors</td>
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<tr>
<td>-sulfam</td>
<td>anti-infectives, sulfonamides</td>
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<tr>
<td>-sulfan</td>
<td>antineoplastic, alkylating agents, methanesulfonates</td>
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<tr>
<td>Stem</td>
<td>Definition</td>
</tr>
<tr>
<td>------</td>
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<tr>
<td>-tacept (see -cept)</td>
<td>cytotoxic T lymphocyte-associated antigen 4 (CTLA-4) receptors</td>
</tr>
<tr>
<td>-tadine</td>
<td>tricyclic histamine-H&lt;sub&gt;1&lt;/sub&gt; receptor antagonists, tricyclic compounds</td>
</tr>
<tr>
<td>-tansine</td>
<td>maytansinoid derivatives, antineoplastics</td>
</tr>
<tr>
<td>-tand</td>
<td>neurokinin (tachykinin) receptor antagonists</td>
</tr>
<tr>
<td>-tapipe</td>
<td>microsomal triglyceride transfer protein (MTP) inhibitors</td>
</tr>
<tr>
<td>-taxel</td>
<td>antineoplastics; taxane derivatives</td>
</tr>
<tr>
<td>-tecan</td>
<td>antineoplastics, topoisomerase I inhibitors</td>
</tr>
<tr>
<td>-tegravir</td>
<td>HIV integrase inhibitors</td>
</tr>
<tr>
<td>-tupa</td>
<td>antineoplastics, thiotepa derivatives</td>
</tr>
<tr>
<td>-tapiro (see -pine)</td>
<td>tricyclic compounds</td>
</tr>
<tr>
<td>-teplase (see -ase)</td>
<td>tissue type plasminogen activators, see -ase</td>
</tr>
<tr>
<td>-tercept (see -cept)</td>
<td>transforming growth factors receptors</td>
</tr>
<tr>
<td>-termin (see -ermin)</td>
<td>transforming growth factor</td>
</tr>
<tr>
<td>-terol</td>
<td>bronchodilators, phenethyamine derivatives</td>
</tr>
<tr>
<td>-terone</td>
<td>antiandrogens</td>
</tr>
<tr>
<td>-thiouracil (see -racil)</td>
<td>uracil derivatives used as thyroid antagonists</td>
</tr>
<tr>
<td>-tiazem</td>
<td>calcium channel blockers, diltiazem derivatives</td>
</tr>
<tr>
<td>-tibant</td>
<td>bradykinin receptor antagonists</td>
</tr>
<tr>
<td>-tide</td>
<td>peptides and glycopeptides (for special groups of peptides see -actide, -pressin, -relin, -tocin)</td>
</tr>
<tr>
<td>-tidine</td>
<td>histamine-H&lt;sub&gt;2&lt;/sub&gt;-receptor antagonists, cimetidine derivatives</td>
</tr>
<tr>
<td>-tilide (see -ilide)</td>
<td>class III antiarrhythmics, sematilide derivatives</td>
</tr>
<tr>
<td>-tiline (see -tripyline)</td>
<td>antidepressants, dibenzo[a,d]cycloheptane or cycloheptene derivatives</td>
</tr>
<tr>
<td>-tinib</td>
<td>tyrosine kinase inhibitors</td>
</tr>
<tr>
<td>-tirelin (see -relin)</td>
<td>thyrotropin releasing hormone analogues</td>
</tr>
<tr>
<td>-tizide</td>
<td>diuretics, chlorothiazide derivatives</td>
</tr>
<tr>
<td>-tocin</td>
<td>oxytocin derivatives</td>
</tr>
</tbody>
</table>
-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 (SHT₁) receptor agonists, sumatriptan derivatives
-triptyline  antidepressants, dibenzo[a,d]cycloheptane 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, anthelmintics, pesticides etc., phosphorus derivatives
-vudine (see -uridine)  uridine derivatives used as antiviral agents and as antineoplastics

X
-xaban  blood coagulation factor XA 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-HT1A 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><strong>A100</strong></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><strong>A200</strong></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>A240</td>
<td>Chloral derivatives, hypnotic sedatives</td>
</tr>
<tr>
<td><strong>A300</strong></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><strong>A400</strong></td>
<td>Analgesics and antipyretics, please see AA code here below.</td>
</tr>
<tr>
<td><strong>A500</strong></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>Category</th>
<th>Subcategory</th>
<th>Stems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analgesics</td>
<td>-adol or -adol-</td>
<td>analgesics</td>
</tr>
<tr>
<td>Opioids</td>
<td>-azocine</td>
<td>narcotic antagonists/agonists related to 6,7-benzomorphan</td>
</tr>
<tr>
<td></td>
<td>-eridine</td>
<td>analgesics, pethidine derivatives</td>
</tr>
<tr>
<td></td>
<td>-ethidine</td>
<td>see -eridine</td>
</tr>
<tr>
<td></td>
<td>-fentanil</td>
<td>opioid receptor agonists, analgesics, fentanyl derivatives</td>
</tr>
<tr>
<td></td>
<td>nal-</td>
<td>opioid receptor antagonists/agonists related to normorphine</td>
</tr>
<tr>
<td></td>
<td>orphan</td>
<td>opioid receptor antagonists/agonists, morphinan derivatives: -orphine, -orphinol, -orphone</td>
</tr>
<tr>
<td>Analgesics - Antipyretics</td>
<td>-ac</td>
<td>anti-inflammatory agents, ibufenac derivatives</td>
</tr>
<tr>
<td></td>
<td>-adol or -adol-</td>
<td>analgesics</td>
</tr>
<tr>
<td></td>
<td>-arit</td>
<td>antiarthritic substances, acting like clobutar and lobenzar (mechanism different from anti-inflammatory type substances, e.g. -fenamates or -profens)</td>
</tr>
<tr>
<td></td>
<td>-bufen</td>
<td>non-steroidal anti-inflammatory agents, arybutanoic acid derivatives</td>
</tr>
<tr>
<td></td>
<td>-butazone</td>
<td>-buzone: anti-inflammatory analgesics, phenylbutazone derivatives</td>
</tr>
<tr>
<td></td>
<td>-buzone</td>
<td>anti-inflammatory analgesics, phenylbutazone derivatives</td>
</tr>
<tr>
<td></td>
<td>-coxib</td>
<td>selective cyclo-oxygenase inhibitors</td>
</tr>
<tr>
<td></td>
<td>-fenamate</td>
<td>“-fenamic acid” derivatives</td>
</tr>
<tr>
<td></td>
<td>-fenamic acid</td>
<td>anti-inflammatory, anthranilic acid derivatives</td>
</tr>
<tr>
<td></td>
<td>-icam</td>
<td>anti-inflammatory, isoxicam derivatives</td>
</tr>
<tr>
<td></td>
<td>-metacin</td>
<td>anti-inflammatory, indometacin derivatives</td>
</tr>
<tr>
<td></td>
<td>-nixin</td>
<td>anti-inflammatory, anilonicotic acid derivatives</td>
</tr>
</tbody>
</table>
### A420
- **-profen**
- Anti-inflammatory agents, ibuprofen derivatives

### A430
- **Analgesics, other**
- **-adom**
- Analgesics, tifluadom derivatives

### A430
- **-fenine, phenine**
- Analgesics, glafenine derivatives - (subgroup of fenamic acid group)

### A440
- **Central antiemetics**

### B000
- **CNS STIMULANTS**
- **-ampanel**
  - Antagonists of the ionotropic non-NMDA (N-methyl-d-aspartate) glutamate receptors (Namely the AMPA (amino-hydroxymethylisoxazole-propionic acid) and/or KA (kainite antagonist) receptors)

### B100
- **Analeptics**
  - **-fylline**
    - N-methylated xanthine derivatives

### B100
- **-racetam**
  - Amide type nootrope agents, piracetam derivatives

### B100
- **vin-** (and **-vin-**)
  - Vinca alkaloids

### B200
- **Opioid receptor antagonists**
  - **nal-**
    - Narcotic antagonists/agonists related to normorphine

### B200
- **orphan**
  - Opioid receptor antagonists/agonists, morphinan derivates

### B300
- **Benzodiazepine receptor antagonists**

### C000
- **PSYCHOPHARMACOLOGICS**
  - **-glurant**
    - Metabotropic glutamate receptor antagonists/negative allosteric modulators

  - **-isant**
    - Histamine H₁ receptor antagonists

  - **-orexant**
    - Orexin receptor antagonists

  - **-piprazole**
    - Psychotropics, phenylpiperazine derivatives (future use is discouraged due to conflict with the stem –prazole)

### C000
- **-pride**
  - Sulpiride derivatives

### C000
- **-racetam**
  - Amide type nootrope agents, piracetam derivatives

### C000
- **-triptan**
  - Serotonin (5-HT₁) receptor agonists, sumatriptan derivatives

### C000
- **-zotan**
  - Serotonin 5-HT₁₅ receptor agonists/antagonists acting primarily as neuroprotectors

### C100
- **Anxiolytic sedatives**
  - **-azenil**
    - Benzodiazepine receptor antagonists/agonists (Benzodiazepine derivatives)

### C100
- **-azepam**
  - Diazepam derivatives
<table>
<thead>
<tr>
<th>Code</th>
<th>Classification</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>C100</td>
<td>Antipsychotics (neuroleptics)</td>
<td>-bamate: tranquillizers, propanediol and pentanediol derivatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-carnil: benzodiazepine receptor antagonists/agonists (carboline derivatives)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-peridone: see -perone: antipsychotics, risperidone derivatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-perone: tranquillizers, neuroleptics, 4'-fluoro-4-piperidino-butyrophenone derivatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-pidem: hypnotics/sedatives, zolpidem derivatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-plon: imidazopyrimidine or pyrazolopyrimidine derivatives, used as anxiolytics, sedatives, hypnotics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-quinil: benzodiazepine receptor agonists also partial or inverse (quinoline derivatives), see -azenil</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-spirone: anxiolytics, buspirone derivatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-zafone: alozafone derivatives</td>
</tr>
<tr>
<td>C200</td>
<td>Antipsychotics (neuroleptics)</td>
<td>-perone: tranquillizers, 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>
<td></td>
</tr>
<tr>
<td>C220</td>
<td>Central adrenoreceptor antagonists</td>
<td></td>
</tr>
<tr>
<td>C300</td>
<td>Antidepressants</td>
<td>-fensine: Norepinephrine, serotonin, dopamine reuptake inhibitors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-oxetine: serotonin and/or norepinephrine reuptake inhibitors, fluoxetine derivatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-traline: serotonin reuptake inhibitors</td>
</tr>
<tr>
<td>C310</td>
<td>MAO inhibitors</td>
<td>-giline: MAO-inhibitors type B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-moxin: monoamine oxidase inhibitors, hydrazine derivatives</td>
</tr>
<tr>
<td>C320</td>
<td>Tricyclic antidepressants</td>
<td>-pin(e): tricyclic compounds; dipine: see -dipine; -zepine: antidepressant/neuroleptic; C.0.0.0 -apine: psychoactive; A.3.1.0 cipine: antidepressant; -oxepin, -oxopine, -sopine, -tepine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-pramine: substances of the imipramine group</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-triptyline: antidepressants, dibenzo[a,d] cycloheptane or cycloheptene derivatives</td>
</tr>
<tr>
<td>C330</td>
<td>Tetracyclic antidepressants</td>
<td></td>
</tr>
<tr>
<td>C340</td>
<td>Bicyclic antidepressants</td>
<td></td>
</tr>
<tr>
<td>C400</td>
<td>Indirect releasers of catecholamines</td>
<td></td>
</tr>
<tr>
<td>C500</td>
<td>Psychodysleptics (hallucinogens)</td>
<td></td>
</tr>
<tr>
<td>C600</td>
<td>CNS metabolites</td>
<td></td>
</tr>
<tr>
<td>C700</td>
<td>Serotonin receptor antagonists</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-anserin serotonin receptor antagonists (mostly 5-HT&lt;sub&gt;2&lt;/sub&gt;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>erg ergot alkaloid derivatives</td>
<td></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>
<td></td>
</tr>
</tbody>
</table>

| E000 | DRUGS ACTING AT SYNAPTIC AND NEUROEFFECTOR JUNCTIONAL SITES | gab | gabamimetic agents |
| E000 | -nabant cannabinoid receptors antagonists |
| E000 | -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>-drine: sympathomimetics; -frine: sympathomimetic, phenethyl derivatives</td>
<td>E400-frine</td>
</tr>
<tr>
<td></td>
<td>-terol: bronchodilators, phenethylamine derivatives [previously -prenaline or -terenol]</td>
<td>E400-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></td>
<td>-oxan(e): benzodioxane derivatives</td>
<td>E510-oxan(e)</td>
</tr>
<tr>
<td></td>
<td>-olol: beta-adrenoreceptor antagonists; -alol: aromatic ring -CH&lt;sub&gt;2&lt;/sub&gt;-NH-R related to -olols</td>
<td>E520-olol</td>
</tr>
<tr>
<td></td>
<td>Catecholamines false transmitters</td>
<td>E530</td>
</tr>
<tr>
<td></td>
<td>Adrenergic neurone blocking agents -serpine: derivatives of Rauwolfia alkaloids</td>
<td>E540-serpine</td>
</tr>
</tbody>
</table>

### AGENTS ACTING ON SMOOTH MUSCLES

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>F000</td>
<td>Spasmolytics, general -verine: spasmyotics with a papaverine-like action</td>
<td>F100-verine</td>
</tr>
<tr>
<td></td>
<td>Vasodilators -afil: inhibitors of PDE5 with vasodilator action</td>
<td>F200-afil</td>
</tr>
<tr>
<td></td>
<td>-ciguat: guanylate cyclase activators and stimulators</td>
<td>F200-ciguat</td>
</tr>
<tr>
<td></td>
<td>-dil: vasodilators</td>
<td>F200-dil</td>
</tr>
<tr>
<td></td>
<td>-entan: endothelin receptor antagonists</td>
<td>F200-entan</td>
</tr>
<tr>
<td></td>
<td>Coronary vasodilators, also calcium channel blockers -dipine: calcium channel blockers, nifedipine derivatives</td>
<td>F210-dipine</td>
</tr>
<tr>
<td></td>
<td>-fradil: calcium channel blockers acting as vasodilators</td>
<td>F210-fradil</td>
</tr>
<tr>
<td></td>
<td>-pamil: calcium channel blockers, verapamil derivatives</td>
<td>F210-pamil</td>
</tr>
<tr>
<td></td>
<td>-tiazem: calcium channel blockers, diltiazem derivatives</td>
<td>F210-tiazem</td>
</tr>
<tr>
<td></td>
<td>Peripheral vasodilators -nicate: anti-hypercholesterolaemic and/or vasodilating nicotinic acid esters</td>
<td>F220-nicate</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 -erg: ergot alkaloid derivatives</td>
<td>F400-erg</td>
</tr>
</tbody>
</table>
### G000  HISTAMINE AND ANTIHISTAMINICS

<table>
<thead>
<tr>
<th>G100</th>
<th>Histamine and histamine-like drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>G200</td>
<td>Antihistaminics</td>
</tr>
<tr>
<td></td>
<td>-astine</td>
</tr>
<tr>
<td></td>
<td>antihistaminics</td>
</tr>
<tr>
<td>G210</td>
<td>Histamine H₁-receptor antagonists</td>
</tr>
<tr>
<td></td>
<td>-tadine</td>
</tr>
<tr>
<td></td>
<td>histamine-H₁ receptor antagonists,</td>
</tr>
<tr>
<td></td>
<td>tricyclic compounds</td>
</tr>
<tr>
<td>G220</td>
<td>Histamine H₂-receptor antagonists</td>
</tr>
<tr>
<td></td>
<td>-tidine</td>
</tr>
<tr>
<td></td>
<td>histamine-H₂-receptor antagonists,</td>
</tr>
<tr>
<td></td>
<td>cimetidine derivatives</td>
</tr>
<tr>
<td>G230</td>
<td>Histamine H₃-receptor antagonists</td>
</tr>
</tbody>
</table>

### H000  CARDIOVASCULAR AGENTS

<table>
<thead>
<tr>
<th>H100</th>
<th>Cardiac glycosides and drugs with similar action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-dan</td>
</tr>
<tr>
<td></td>
<td>cardiac stimulants, pimobendan derivatives</td>
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<td>H100</td>
<td>-rinone</td>
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<td>cardiac stimulants, amrinone derivatives</td>
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<td>H200</td>
<td>Antiarrhythmics</td>
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<td></td>
<td>-afenone</td>
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<td>antiarrhythmics, propafenone derivatives</td>
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<tr>
<td>H200</td>
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<td>antiarrhythmics, ajmaline derivatives</td>
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<td>H200</td>
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<td>Class I antiarrhythmics, procainamide and lidocaine derivatives (antifibrillants with local anaesthetic activity)</td>
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<td>H200</td>
<td>-ilide</td>
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<td>Class III antiarrhythmics, sematilide derivatives</td>
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<td>H200</td>
<td>-kalant</td>
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<td>potassium channel blockers</td>
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<td>H300</td>
<td>Antihypertensives</td>
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<tr>
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<td>-azosin</td>
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<td>antihypertensive substances, prazosin derivatives</td>
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<td>potassium channel activators, antihypertensive</td>
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<tr>
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<td>-kiren</td>
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<td>renin inhibitors</td>
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<td>-(o)nidine</td>
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<td>antihypertensives, clonidine derivatives</td>
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<tr>
<td>H300</td>
<td>-pril(at)</td>
</tr>
<tr>
<td></td>
<td>angiotensin-converting enzyme inhibitors</td>
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</tbody>
</table>
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
| I210 | -grel- or -grel | platelet aggregation inhibitors |
| I210 | -irudin | hirudin derivatives |
| I210 | -pafant | platelet-activating factor antagonists |
| I210 | -troban | thromboxane A2-receptor antagonists; antithrombotic agents |
| I220 | Prothrombin inhibitors |
| I230 | Prothrombin synthesis inhibitors |
| I240 | Anticoagulant inhibitors |
| I250 | Agents affecting fibrinolysis |
| I260 | Coagulation promoting agents |
| I261 | Blood clotting factors |
| I300 | Blood proteins and their fractions | -poetin | erythropoietin type blood factors |
| I310 | Blood substitutes (macromolecular) |
| I400 | Platelet-function regulators |
| I500 | Colony stimulating factors | -stim | colony stimulating factors; -distim: combination of two different types of CSF; -gramostim: granulocyte macrophage colony stimulating factor (GM-CSF) type substances; -grastim: granulocyte colony stimulating factor (G-CSF) type substances; -mostim: macrophage stimulating factors (M-CSF) type substances; -plestim: interleukin-3 analogues and derivatives |
| I500 | Granulocyte stimulating factors | -grastim | see -stim |
| I500 | Macrophage stimulating factor | -mostim | macrophage stimulating factors (M-CSF) type substances; see -stim |

<p>| J000 | AGENTS INFLUENCING THE GASTROINTESTINAL TRACT | -emcinal | erythromycin derivatives lacking antibiotic activity, motilin agonists |
| J000 | -glumide | cholecystokinin antagonists, antiulcer, anxiolytic agents |
| J000 | -prazan | Proton pump inhibitors, not dependent on acid activation |
| J000 | -prazole | antiulcer, benzimidazole derivatives |
| J000 | -serod | serotonin receptor antagonists and partial agonists |
| J100 | Drugs acting on gastrointestinal system | -azepeide | cholecystokinin receptor antagonists |
| J100 | -pride | sulpiride derivatives |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Category</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>J120</td>
<td>Choleretics (and hepatoprotective agents)</td>
<td>-cic hepatoprotective substances with a carboxylic acid group</td>
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<tr>
<td>J130</td>
<td>Digestive enzymes</td>
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<tr>
<td>J200</td>
<td>Emetics</td>
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<td>J300</td>
<td>Hepato-protective agents</td>
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<tr>
<td>J400</td>
<td>Gastro-intestinal anti-infectives (see S000)</td>
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</tr>
<tr>
<td>J500</td>
<td>Antidiarrhoeals</td>
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</tbody>
</table>

### AGENTS INFLUENCING THE RESPIRATORY TRACT AND ANTIALLERGICS

- **K000 - ast** antiallergics or anti-inflammatory, not acting as antihistaminics; -lukast: leukotriene receptor antagonists; -milast: phosphodiesterase IV (PDE IV) inhibitors; -trodast: thromboxane A₂ receptor antagonists, antiasthmatics, -zolast: leukotriene biosynthesis inhibitors

<table>
<thead>
<tr>
<th>Code</th>
<th>Agent</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>K000</td>
<td>-cromil</td>
<td>antiallergics, cromoglicic acid derivatives</td>
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<tr>
<td>K000</td>
<td>-exine</td>
<td>mucolytic, bromhexine derivatives</td>
</tr>
<tr>
<td>K000</td>
<td>-fentrine</td>
<td>inhibitors of phosphodiesterases</td>
</tr>
<tr>
<td>K000</td>
<td>-lukast</td>
<td>leukotriene receptor antagonists, see -ast</td>
</tr>
<tr>
<td>K000</td>
<td>-steine</td>
<td>mucolytics, other than bromhexine derivatives</td>
</tr>
<tr>
<td>K000</td>
<td>-trodast</td>
<td>thromboxane A₂ receptor antagonists, antiasthmatics; see -ast</td>
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<tr>
<td>K000</td>
<td>-xanox</td>
<td>antiallergic respiratory tract drugs, xanoxic acid derivatives</td>
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### K100 Antitussives

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<th>Type</th>
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<td>K110</td>
<td>Antitussives - central</td>
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<tr>
<td>K120</td>
<td>Antitussives - peripheral</td>
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### K200 Expectorants
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<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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</thead>
<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>
<td></td>
</tr>
<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>
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<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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<tr>
<td>L000</td>
<td>-racil</td>
<td>uracil type antineoplastics</td>
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<tr>
<td>L000</td>
<td>-rafenib</td>
<td>Raf (rapidly accelerated fibrosarcoma) kinase inhibitors</td>
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<tr>
<td>L000</td>
<td>-ribine</td>
<td>ribofuranil-derivatives of the &quot;pyrazofurin&quot; type</td>
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<tr>
<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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<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>immunosuppressants</td>
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<td>Alkylating agents</td>
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<td>antineoplastic, alkylating agents, (beta-chloroethyl)amine derivatives</td>
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<td>-sulfan</td>
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<td>Radioisotopes (except diagnostics)</td>
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<td>Radioisotopes - systemic</td>
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<td>L320</td>
<td>Radioisotopes - locally applied</td>
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<td>Code</td>
<td>Description</td>
<td>Stems</td>
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<td>Antineoplastics - antimetabolites</td>
<td>-abine</td>
<td>see -arabine, -citabine</td>
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<td>-citabine</td>
<td>nucleosides antiviral or antineoplastic agents, cytarabine or azacitidine derivatives</td>
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<td>-tretate</td>
<td>folic acid analogues</td>
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<td>-uridine</td>
<td>uridine derivatives used as antiviral agents and as antineoplastics; also -udine</td>
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<td>L410</td>
<td>Ornithine decarboxylase inhibitors</td>
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<td>Antineoplastics - natural products (incl. antibiotics)</td>
<td>-rubin</td>
<td>antineoplastics, daunorubicin derivatives</td>
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<td>vin- or -vin-</td>
<td>vinca alkaloids</td>
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<td>Antineoplastics - sex hormone analogues and inhibitors</td>
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<td>L610</td>
<td>Aromatase inhibitors</td>
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<td>L620</td>
<td>Luteinizing hormone-releasing hormone agonists</td>
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<td>METABOLISM AND NUTRITION (EXCL. WATER AND MINERAL METABOLISM)</td>
<td>-stat (or -stat-)</td>
<td>enzyme inhibitors; -lipastat: pancreatic lipase inhibitors; -restat or -restat-: aldose-reducing inhibitors; -vastatin: antihyperlipidaemic substances, HMG CoA reductase inhibitors</td>
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<td></td>
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<td>-imibe</td>
<td>antihyperlipidaemics, acyl CoA:cholesterol acyltransferase (ACAT) inhibitors</td>
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<td></td>
<td>-listat</td>
<td>see -stat</td>
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<td>Anorectics</td>
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<td>anorectics</td>
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<td>M200</td>
<td>Dietetics and antiadipositas drugs</td>
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<td>M210</td>
<td>Bulk forming drugs</td>
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<td>Agents influencing lipid and fat metabolism</td>
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<td>antihyperlipidaemics, acyl CoA:cholesterol acyltransferase (ACAT) inhibitors</td>
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<tr>
<td></td>
<td></td>
<td>-listat</td>
<td>see -stat</td>
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<tr>
<td>M310</td>
<td>Antiatherosclerosis agents</td>
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<td>M320</td>
<td>Lipotropic agents</td>
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<td>-begron</td>
<td>β3-adrenoreceptor agonists</td>
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<td>Lipogenesis inducing agents</td>
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<td>Agents influencing protein metabolism</td>
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<td>Anabolic steroids</td>
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<td>Amino acids</td>
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<td>Agents influencing carbohydrate metabolism</td>
<td>-restat (or -restat-)</td>
<td>see -stat; aldose-reductase inhibitors</td>
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<td>M510</td>
<td>Insulins</td>
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<td>Oral antidiabetics - islet mediated</td>
<td>-formin</td>
<td>antihyperglycaemics, phenformin derivatives</td>
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<td>gli, -gli-</td>
<td>previously gly-; antihyperglycaemics</td>
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<td>-gliptin</td>
<td>dipeptidyl aminopeptidase-IV inhibitors</td>
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<td>-glitazar</td>
<td>dual peroxisome proliferator activated receptors-α and γ (PPAR-α,γ) agonists</td>
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<td>-glitazone</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>Uricosurics</td>
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<td>Uric acid synthesis inhibitors</td>
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<td>Thyroid and antithyroids</td>
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<td>Thyroid and thyroid hormones</td>
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<td>M720</td>
<td>Thyroid stimulators</td>
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<td>Antithyroids</td>
<td>-thiouracil</td>
<td>uracil derivatives used as thyroid antagonists</td>
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<td>Radioactive iodine agents (for therapy)</td>
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<td>Enzymes</td>
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<td>Enzyme stimulators</td>
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<td>AGENTS INFLUENCING WATER AND MINERAL METABOLISM</td>
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<td>Diuretics</td>
<td>-semide</td>
<td>diuretics, furosemide derivatives</td>
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<td>N110</td>
<td>Carbonic anhydrase inhibitors</td>
<td>-anide</td>
<td>N.1.2.0 -etanide: diuretics, piretanide derivatives; S.3.0.0 -oxanide: antiparasitic, salicylanilides and analogues</td>
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<td>N120</td>
<td>Saluretics</td>
<td>-anide</td>
<td>diuretics, piretanide derivatives; see -anide</td>
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<td></td>
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<td>Examples</td>
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<tr>
<td>N120</td>
<td>Thiazide derivatives</td>
<td>-tizide diuretics, chlorothiazide derivatives</td>
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<td>Ethacrynic acid derivatives</td>
<td>-crinat diuretics, etacrynic acid derivatives</td>
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<td>N122</td>
<td>Chlortalidone derivatives</td>
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<tr>
<td>N129</td>
<td>Saluretics, other</td>
<td></td>
<td></td>
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<tr>
<td>N130</td>
<td>Mercurial diuretics</td>
<td>-mer-(or -mer-) mercury-containing drugs, antimicrobial or diuretic (\text{mer-}) and (\text{mer-}) can be used for any type of substances and are no longer restricted to use in INNs for mercury-containing drugs; (\text{-mer}): polymers</td>
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<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>N200</td>
<td>Acidifiers</td>
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<td>N510</td>
<td>Parenteral alkalizer solutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N520</td>
<td>Oral antacids</td>
<td>-aldrate antacids, aluminium salts</td>
<td></td>
</tr>
<tr>
<td>N600</td>
<td>Fluid and electrolyte replacement therapy</td>
<td></td>
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</tr>
<tr>
<td>N610</td>
<td>Electrolyte and carbohydrate solutions</td>
<td></td>
<td></td>
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<tr>
<td>N700</td>
<td>Mineral salts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N710</td>
<td>Ion exchange resins</td>
<td></td>
<td></td>
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<tr>
<td>N800</td>
<td>Vitamin D group and calcium metabolism drugs</td>
<td>calci Vitamin D analogues/derivatives</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-dronic acid calcium metabolism regulator, pharmaceutical aid</td>
<td></td>
</tr>
<tr>
<td>P000</td>
<td>VITAMINS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P100</td>
<td>Vitamin A</td>
<td>-arotene arotinoid derivatives</td>
<td></td>
</tr>
<tr>
<td>P100</td>
<td></td>
<td>retin retinol derivatives</td>
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</tr>
<tr>
<td>P200</td>
<td>Vitamin B1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P300</td>
<td>Vitamin B2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P400</td>
<td>Vitamin B6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P500</td>
<td>Vitamin C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Vitamin E

- **Use:** Vitamin E

### Nicotinic acid derivatives

- **Use:** Nicotinic acid or nicotinoyl alcohol derivatives

### Vitamins, other

- **Use:** Vitamin derivatives

### HORMONES OR HORMONE RELEASE-STIMULATING PEPTIDES

<table>
<thead>
<tr>
<th>HORMONES OR HORMONE RELEASE-STIMULATING PEPTIDES</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>-morelin</td>
<td>see -relin; pituitary hormone release-stimulating peptides</td>
</tr>
<tr>
<td>prost</td>
<td>prostaglandins; -prostil: prostaglandins, anti-ulcer</td>
</tr>
<tr>
<td>-relin</td>
<td>pituitary hormone-release stimulating peptides: -morelin: growth hormone release-stimulating peptides; -tirelin: thyrotropin releasing hormone analogues</td>
</tr>
<tr>
<td>som-</td>
<td>growth hormone derivatives</td>
</tr>
<tr>
<td>-tirelin</td>
<td>see -relin; thyrotropin releasing hormone analogues</td>
</tr>
</tbody>
</table>

### Hypophysis hormones

- **Hypophysis anterior lobe hormones**
- **Hypophysis anterior lobe inhibitors**
- **Hypophysis posterior lobe (incl. other oxytocics)**

### Sex hormones and analogues

- **Sex hormones and analogues**
- **Estrogens, also interceptive contraceptive agents e.g. epostane**
- **Progestogens**
- **Androgens**
- **Androgens**

### Gonadotrophins and gonadotrophin secretion stimulating drugs
### Q241
Antigonadotrophins

### Q300 Adrenocortical hormones and analogues
- **cort** corticosteroids, except prednisolone derivatives
- **-alone** steroids other than prednisolone derivatives
- **-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

#### S100 Ectoparasiticides

#### S200 Antiseptics and disinfectants
- **-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
- **-oxanide** antiparasitics, salicylanilides and analogues; see -anide

#### S310 Anthelmintics (excl. antinematode agents)
- **-antel** anthelmintics (undefined group)
- **-bendazole** anthelmintics, tiabendazole derivatives
- **-fós (-vos)** insecticides, anthelmintics, pesticides etc., phosphorous derivatives

#### S310 Antinematode agents

#### S330 Antiprotozoal agents (incl. all arsphenamines)
- **arte-** antimalarial agents, artemisinin related compounds
- **-nidazole** antiprotozoals and radiosensitizers, metronidazole derivatives
<table>
<thead>
<tr>
<th>5400</th>
<th>Chemotherapeutics of fungal diseases</th>
<th>-conazole</th>
<th>systemic antifungal agents, miconazole derivatives</th>
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</thead>
<tbody>
<tr>
<td>5410</td>
<td>Antifungal agents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5420</td>
<td>Fungicides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5430</td>
<td>Antifungal antibiotics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5500</td>
<td>Antibiotics, antibacterial and antiviral agents</td>
<td>-planin</td>
<td>glycopeptide antibacterials (Actinoplanes strains)</td>
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<tr>
<td>5510</td>
<td>Sulfonamides</td>
<td>sulfo-</td>
<td>anti-infectives, sulfonamides</td>
</tr>
<tr>
<td>5520</td>
<td>Antimycobacterials</td>
<td>-dapsone</td>
<td>antituberculosisials, diaminodiphenylsulfone derivatives</td>
</tr>
<tr>
<td>5520</td>
<td></td>
<td>-pirox</td>
<td>see -ox</td>
</tr>
<tr>
<td>5530</td>
<td>Antiviral</td>
<td>-arabine</td>
<td>arabinofuransyl derivatives</td>
</tr>
<tr>
<td>5530</td>
<td></td>
<td>-motine</td>
<td>antivirals, quinoline derivatives</td>
</tr>
<tr>
<td>5530</td>
<td></td>
<td>-ribine</td>
<td>ribofuranil-derivatives of the pyrazofurin type</td>
</tr>
<tr>
<td>5530</td>
<td></td>
<td>-uridine</td>
<td>uridine derivatives used as antiviral agents and as antineoplastics; -udine</td>
</tr>
<tr>
<td>5530</td>
<td></td>
<td>vir</td>
<td>antivirals (undefined group): -amivir, -cavir, -ciclovir, -fovir, -gosivir, -navir, -virsen, …</td>
</tr>
<tr>
<td>5550</td>
<td>Antibacterial/other</td>
<td>-citabine</td>
<td>nucleosides antiviral or antineoplastic agents, cytarabine or azacitidine derivatives</td>
</tr>
<tr>
<td>5550</td>
<td>-oxacin</td>
<td>antibacterials, nalidixic acid derivatives</td>
<td></td>
</tr>
<tr>
<td>5550</td>
<td>-prim</td>
<td>antibacterials, dihydrofolate reductase (DHFR) inhibitors, trimethoprim derivatives</td>
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<tr>
<td>5600</td>
<td>Antibiotics (except antineoplastic antibiotics)</td>
<td>-cidin</td>
<td>naturally occurring antibiotics (undefined group)</td>
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<tr>
<td>5600</td>
<td>fungin</td>
<td>antifungal antibiotics</td>
<td></td>
</tr>
<tr>
<td>5600</td>
<td>-gillin</td>
<td>antibiotics produced by Aspergillus strains</td>
<td></td>
</tr>
<tr>
<td>5600</td>
<td>-monam</td>
<td>monobactam antibiotics</td>
<td></td>
</tr>
<tr>
<td>5600</td>
<td>-mycin</td>
<td>antibiotics, produced by Streptomyces strains (see also -kacin)</td>
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<tr>
<td>5600</td>
<td>-parcin</td>
<td>for glycopeptide antibiotics</td>
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<tr>
<td>5600</td>
<td>-penem</td>
<td>analogues of penicillanic acid antibiotics modified in the five-membered ring</td>
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<tr>
<td>5600</td>
<td>-pristin</td>
<td>antibacterials, streptogramins, protein-synthesis inhibitors, pristinamycin derivatives</td>
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<tr>
<td>S610</td>
<td>Antibiotics acting on the bacterial cell wall</td>
<td>-carbef</td>
<td>antibiotics, carbacephem derivatives</td>
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<tr>
<td>------</td>
<td>--------------------------------------------</td>
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</tr>
<tr>
<td>S610</td>
<td>antibiotics, cefalosporanic acid derivatives</td>
<td></td>
<td></td>
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<tr>
<td>S610</td>
<td>-cillin</td>
<td>antibiotics, 6-aminopenicillanic acid derivatives</td>
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<tr>
<td>S610</td>
<td>-oxef</td>
<td>see cef; antibiotics, oxacefalosporanic acid derivatives</td>
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<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>antibiotics, kanamycin and bekamycin derivatives (obtained from <em>Streptomyces kanamyceticus</em>); S.6.5.0: -micin: aminoglycosides, antibiotics obtained from various <em>Micromonospora</em></td>
<td></td>
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<tr>
<td>S630</td>
<td>-zolid</td>
<td>Oxazolidinone antibacterials</td>
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<tr>
<td>S640</td>
<td>Antibiotics affecting nucleic acid metabolism</td>
<td>-rifa-</td>
<td>antibiotics, rifamycin derivatives</td>
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<tr>
<td>S650</td>
<td>Antibiotics-action unclassified (including β-lactamase inhibitors)</td>
<td>-bactam</td>
<td>β-lactamase inhibitors</td>
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<tr>
<td>S650</td>
<td>-micin</td>
<td>see -kacin; aminoglycosides, antibiotics obtained from various <em>Micromonospora</em></td>
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</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>immunostimulants</td>
<td></td>
</tr>
<tr>
<td>S700</td>
<td>-imod</td>
<td>immunomodulators, both stimulant/suppressive and stimulant</td>
<td></td>
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<tr>
<td>S700</td>
<td>-imus</td>
<td>immunosuppressants (other than antineoplastics)</td>
<td></td>
</tr>
<tr>
<td>S700</td>
<td>-kin</td>
<td>interleukin type substances: -nakin, -leukin, -trakin, -exakin, -octakin, -decakin, -elvekin, -dodekin, tredekin, -octadekin</td>
<td></td>
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<tr>
<td>S700</td>
<td>-kinra</td>
<td>interleukin-receptors antagonists: -nakirna, -trakirna</td>
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<tr>
<td>S700</td>
<td>-mab</td>
<td>monoclonal antibodies (see also Annex)</td>
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</tr>
<tr>
<td>S710</td>
<td>Interferons and immunomodulators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
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<td></td>
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<tr>
<td>T000</td>
<td><strong>LOCALLY ACTING AGENTS (INCL. DERMATOLOGIC AND INTERNALLY USED DRUGS)</strong></td>
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<tr>
<td>T100</td>
<td>Locally acting externally-applied agents</td>
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<tr>
<td>T110</td>
<td>Vasodilators (external) - rubefaciens</td>
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</tr>
<tr>
<td>T200</td>
<td>Locally acting internally-applied agents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T210</td>
<td>Adsorbents, astringents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T220</td>
<td>Lubricant cathartics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T230</td>
<td>Irritant cathartics</td>
<td></td>
<td></td>
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<tr>
<td>T240</td>
<td>Gastro-intestinal anti-infectives, non-resorbed</td>
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<tr>
<td>T250</td>
<td>Saponins</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T260</td>
<td>Detergents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T300</td>
<td>Intravaginal contraceptives</td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>U000</td>
<td><strong>MISCELLANEOUS DRUGS</strong></td>
</tr>
<tr>
<td>U000</td>
<td>- ermin: growth factors; - dermin: epidermal growth factors; - fermin: fibrin-blast growth factors; - nermin: tumour necrosis factor; - sermin: insulin-like growth factors</td>
</tr>
<tr>
<td>U100</td>
<td>Diagnostic aids</td>
</tr>
<tr>
<td>U110</td>
<td>Radiographic media</td>
</tr>
<tr>
<td>U120</td>
<td>Diagnostic aids, other</td>
</tr>
<tr>
<td>U130</td>
<td>Diagnostic radioisotopes</td>
</tr>
<tr>
<td>U200</td>
<td>Chelating agents, detoxicants, etc.</td>
</tr>
<tr>
<td>U210</td>
<td>Alcohol deterrents</td>
</tr>
<tr>
<td>U300</td>
<td>Anti-inflammatory agents</td>
</tr>
<tr>
<td>U310</td>
<td>Non-antipyretic antirheumatics</td>
</tr>
<tr>
<td>U320</td>
<td>Anti-inflammatory agents, other</td>
</tr>
<tr>
<td>U400</td>
<td>Pharmaceutical adjuncts</td>
</tr>
<tr>
<td>U400</td>
<td>- dronic acid</td>
</tr>
</tbody>
</table>

- gado- diagnostic agents, gadolinium derivatives
- -fenin diagnostic aids; (phenyl-carbamoyl) methyl iminodiacetic acid derivatives
- io- iodine-containing contrast media
- -io- or iod- iodine-containing compounds other than contrast media

- xetan Chelating agents
- -lubant phospholipase A2 inhibitors
- cell- or cel- cellulose derivatives; (cell-ate and -cellose)
- -dronic acid calcium metabolism regulator, pharmaceutical aid
<table>
<thead>
<tr>
<th>UNCLASSIFIED PHARMACOLOGICAL MECHANISMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrauterine contraceptive device</td>
</tr>
<tr>
<td>Medicinal plants</td>
</tr>
<tr>
<td>Homoeopathic preparations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ENZYMES AND VARIOUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ase enzymes; -dismase, -teplase, -uplase</td>
</tr>
<tr>
<td>-pladib phospholipase A&lt;sub&gt;2&lt;/sub&gt; inhibitors</td>
</tr>
<tr>
<td>-stat enzyme inhibitors</td>
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<thead>
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<th>VETERINARY DRUGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>-nizazole antiprotozoals and radiosensitizers, metronidazole derivatives</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>GENE and cell THERAPY SUBSTANCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>-cel cell therapy substances</td>
</tr>
<tr>
<td>-gene gene therapy substances, please refer to Annex 4</td>
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</tbody>
</table>
## Part IV

Alphabetical list of stems together with corresponding INN

<table>
<thead>
<tr>
<th>Stem</th>
<th>Description</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), cinfenoac (41), clidanac (39), clofurac (42), clopirac (30), eltenac (53), felbinac (54), fenclorac (33), fentiazac (32), isoxepac (37), ketaorlac (51), oxepinac (36), oxindanac (54), (quinclorac, ISO name for a herbicide), sulindac (33), tianafac (31), tifurac (57), tiopinac (40), zomepirac (37)

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

(c)  
amlotmetin guacil (65), clamidoxic acid (17), fenclozic acid (22), metiazinic acid (20), prodolic acid (29), tolmetin (23)
### -acetam

see -racetam

### -actide

**synthetic polypeptides with a corticotropin-like action**

<table>
<thead>
<tr>
<th>INN</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>-acetam</td>
<td>see -racetam</td>
</tr>
<tr>
<td>-actide</td>
<td>synthetic polypeptides with a corticotropin-like action</td>
</tr>
<tr>
<td>Q.1.1.1</td>
<td>(USAN: synthetic corticotropins)</td>
</tr>
<tr>
<td>(a) alsactide (45), codactide (24), giractide (29), norleusactide (18), seractide (31), tetracosactide (18), tosactide (24), tricosactide (44), tridecactide (97)</td>
<td></td>
</tr>
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</table>

### -adol (x) or -adol-

**analgesics**

<table>
<thead>
<tr>
<th>INN</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>A.4.1.0</td>
<td>(USAN: analgesics (mixed opiate receptor agonists/antagonists))</td>
</tr>
<tr>
<td>A.4.2/3.0</td>
<td>(USAN: analgesics (mixed opiate receptor agonists/antagonists))</td>
</tr>
<tr>
<td>(a)</td>
<td>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)</td>
</tr>
<tr>
<td>A.4.2/3.0:</td>
<td>apadoline (74), asimadoline (74), befiradol (99), bromadoline (49), cebrapadol (107), ciprefadol (41), ciramadol (39), cloracetadol (16), desmetramadol (117), dibusadol (24), dimenoxad (7), diproxadol (34), eluxadoline (109), enadoline (68), faxeladol (97), filenadol (47), flumexad (36), fluadoline (48), gadoxad (48), insalmdol (92), levonxadr (43), lexanopadol (109), lorcinadol (57), moxadolen (45), (deleted in List 48: moxifad (47)), myfadol (17), nafoxad (50), nantradol (42), nerbacad (56), oxapadol (40), picenad (47), pinadoline (50), pipradimad (42), pipramad (42), pravadoline (60), vadoline (60), profad (20), radolmide (82), ruzadoline (71), spiradoline (53), tazadoline (52), tolpadol (48), tramadol (22), veradoline (47)</td>
</tr>
<tr>
<td>(b)</td>
<td>alfadoline (27), hexapradol (12) (CNS stimulant), nadolol (34), quinestradol (15) (estrogenic)</td>
</tr>
<tr>
<td>(c)</td>
<td>A.4.1.0: dimepeptanol (5)</td>
</tr>
</tbody>
</table>
-adom  analgesics, tifluadom derivatives

A.4.3.0

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

-afenone  antiarrhythmics, propafenone derivatives

H.2.0.0

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

-afil  inhibitors of phosphodiesterase PDE5 with vasodilator action

F.2.0.0  (USAN: 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

(a)  detajmium bitartrate (34), lorajmine (34), prajmalium bitartrate (23)
<table>
<thead>
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<th>Stem</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>-al (d)</td>
<td>aldehydes</td>
</tr>
<tr>
<td>-aldo</td>
<td>antacids, aluminium salts</td>
</tr>
</tbody>
</table>

### USAN

**N.5.2.0**

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

\[ \text{algeldrate (15), almadrate sulfate (15), almagodrate (52)} \]

(c) alexitol sodium (45), almagate (41), almasilate (43), dosmalfate (110), glucalox (13), hydrotalcite (23), lactalfate (53), sucralox (13)

**USAN**

<table>
<thead>
<tr>
<th>Stem</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-alol</td>
<td>see -olol</td>
</tr>
<tr>
<td>-alox</td>
<td>see -ox</td>
</tr>
<tr>
<td>-amivir</td>
<td>see -vir</td>
</tr>
</tbody>
</table>

**USAN**

**-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)

### USAN

**B.0.0.0**

(USAN: ionotropic non-NMDA glutamate receptors (AMPA and/or KA receptors) antagonists)

(a) becampanel (90), dasolampanel (105), fanapan (80), irampanel (82), perampanel (97), selurampanel (104), talampanel (80), tezampanel (95), zonampanel (85)

**USAN**

<table>
<thead>
<tr>
<th>Stem</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>andr (d)</td>
<td>steroids, androgens</td>
</tr>
</tbody>
</table>

### USAN

**Q.2.3.0**

(USAN: -andr- androgens)

(a) \[ i. \text{ andr: androstanolone (4), methandriol (1), nandrolone (22), norethandrolone (6), ovandrotone albumin (52), silandrone (18)} \]

\[ ii. \text{-stan- (d): androstanolone (4), drostanolone (13), epitiostanol (31), mestanolone (10), stanozolol (18), epostane (51) (contraceptive)} \]
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)

-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)

-anide

-etanide  diuretics, piretanide derivatives

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

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

(c) besunide (30)
INN – the use of stems

INN – the use of stems

-oxanide: antiparasitics, salicylanilides and analogues

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

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

thioanalogues: brotianide (24)

related: diloxanide (8), nitazoxanide (45)

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

(c) oxyclozanide (16)

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

BAN, USAN

-anserin: serotonin receptor antagonists (mostly 5-HT₂)

C.7.0.0 (USAN: serotonin 5-HT₂ receptor antagonists)

(a) adatanserin (70), altanserin (50), blonanserin (76), butanserin (51), eplivanserin (80), fananserin (69), flibanserin (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), glemananserin (68), mianserin (20), ritanserin (51)

USAN

-antel: anthelminthics (undefined group)

S.3.1.0

(a) amidantel (40), antelmicin (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 (l7), 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), mercaptomerin (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), dexelvucitabine (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), troxicitabine (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))

\[
\text{actarit (62), bindarit (64), clobuzarit (44), lobenzarit (46), romazarit (60)}
\]

c) tarenflurbil (97)

-arol (d)

anticoagulants, dicoumarol derivatives

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

\[
\text{acenocoumarol (6), clocoumarol (31), coumetarol (13), dicoumarol (23), tioclomarol (31), xylocoumarol (15)}
\]

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

c) diarbarone (15), ethyl biscoumacetate (4), phenprocoumon (11), tecarfarin (101), warfarin (23)
INN – the use of stems

USAN -arone

(USAN: antiarrhythmics)

amiodarone (16) (antiarrhythmic), benzarone (13), benz bromarone (13) (uricosuric), benzdarone (11), brinazarone (64) (calcium channel blocker), bucmarone (48) (antiarrhythmic), budiodarone (101), celivarone (94), diabarone (15), dronedarone (75) (antianginal, antiarrythmic), etabenzarone (17), fantofarone (65) (calcium channel blocker), furidarone (19), inicarone (27), mecinarone (30), pyridarone (16), rilozarone (58)

USAN -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)

USAN arte-

antimalarial agents, artemisinin related compounds

S.3.3.0

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

USAN -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/

USAN -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)  bucelpiase alfa (95), burlulipase (107), rizolipase (22), sebelipase alfa (107)

-teplase  tissue-type plasminogen activators
(a)  alteplase (73), desmoteplase (80), duteplase (62), lanoteplase (76),
monteplase (72), nateplase (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)

The following suffixes have also been used:

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

-glucerase  glucosylceramidase
          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),
reloxiase (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
apadamtase 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) acetylalkylglycerol 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
pegaspargase (64) L-asparaginase
pegcrisantaspase (111) L-asparaginase
pegunigalsidase alfa (115) α-galactosidase
pegvorhyaluronidase alfa (115) hyaluronoglucosaminidase
pegzilarginase (117) arginine amidinase
penicilllinase (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

-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)  acizanast (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), piromodalast (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)  abluast (61), cinalukast (70), gemilukast (110), iralukast (70), masilukast (94), montelukast (73), pobilukast (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), lirimilast (86), lotamilast (118), oglemilast (94), piclamilast (73), revamilast (102), roflumilast (77), tetomilast (91), tofimilast (85)
<table>
<thead>
<tr>
<th>Stem</th>
<th>Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>-tegrast</td>
<td><strong>integrin antagonists</strong></td>
<td>carotegrast (102), firategrast (96), lifitegrast (107), valategrast (93), zaurategrast (101)</td>
</tr>
<tr>
<td>-trodst</td>
<td><strong>thromboxane A2 receptor antagonists, antiasthmatics</strong></td>
<td>imitrodast (70), seratrodast (70)</td>
</tr>
<tr>
<td>-zolast</td>
<td><strong>leukotriene biosynthesis inhibitors</strong></td>
<td>binizolast (60), eclazolast (55), ontazolast (72), quazolast (55), tetrazolast (67)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bufrolin (34), oxarbazole (38), pirolate (44)</td>
</tr>
<tr>
<td>-astine (x)</td>
<td><strong>antihistaminics</strong></td>
<td>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)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cloperastine (18) (antitussive), vinblastine (12) (vinca-alkaloid)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>astemizole (45), carbinoxamine (4)</td>
</tr>
</tbody>
</table>

**-asvir** see -vir

**-azam** see -azepam
<table>
<thead>
<tr>
<th>Stem</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-azenil</td>
<td>benzodiazepine receptor antagonists/agonists (benzodiazepine derivatives)</td>
</tr>
<tr>
<td>C.1.0.0</td>
<td>(USAN: benzodiazepine receptor antagonists/agonists)</td>
</tr>
<tr>
<td></td>
<td>![Chemical structure of benzodiazepine receptors/agonists]</td>
</tr>
<tr>
<td>(a)</td>
<td>bretazenil (60), flumazenil (55), iomazenil $^{125}$I (66), sarmazenil (59)</td>
</tr>
<tr>
<td>(b)</td>
<td>nabazenil (49)</td>
</tr>
<tr>
<td>-carnil</td>
<td>benzodiazepine receptor antagonists/agonists (carboline derivatives)</td>
</tr>
<tr>
<td></td>
<td>![Chemical structure of carboline derivatives]</td>
</tr>
<tr>
<td>(a)</td>
<td>abecarnil (60), gedocarnil (61)</td>
</tr>
<tr>
<td>-quinil</td>
<td>benzodiazepine receptor agonists, also partial or inverse (quinoline derivatives)</td>
</tr>
<tr>
<td></td>
<td>(USAN: benzodiazepine receptor agonists, also partial or inverse (quinoline derivatives)</td>
</tr>
<tr>
<td></td>
<td>![Chemical structure of quinoline derivatives]</td>
</tr>
<tr>
<td>(a)</td>
<td>lirequinil (72), radequinil (93) (replaces resequin (90)), terbequinil (63)</td>
</tr>
<tr>
<td>-azepam (x)</td>
<td>diazepam derivatives</td>
</tr>
<tr>
<td>C.1.0.0</td>
<td>(BAN: substances of the diazepam group)</td>
</tr>
<tr>
<td></td>
<td>(USAN: antianxiety agents (diazepam type))</td>
</tr>
<tr>
<td></td>
<td>![Chemical structure of diazepam derivatives]</td>
</tr>
</tbody>
</table>
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), pinazepam (32), pivoxazepam (34), prazepam (14), proflazepam (31), quazepam (36), reclazepam (53), sulazepam (14), temazepam (22), tetrazepam (17), tolufazepam (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), clobenzepam (25), cloxazolam (29), ecopipam (80), estazolam (31), flutazolam (32), haloxazolam (38), ketazolam (26), levotofisopam (92), lofendazam (36), loprazolam (44), mexazolam (40), midazolam (40), nefopam (25), oxazolam (25), razobazam (52), remimazolam (102), tofisopam (26), trepipam (38), triazolam (30), triflubazam (28), zapizolam (43), zomebazam (49)

(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**

cholecytokinin receptor antagonists, benzodiazepine derivatives

J.1.0.0 (USAN: cholecystokinine receptor antagonists)

(a) cecazepide (116), devazepide (62), nastorzepide (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), prednazole (22), talazoline (01), tefazoline (24), tinazoline (39), trazoline (15), xylometazoline (8)

(b)  cefazolin (25) (antibiotic)

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

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

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

(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  (BAN; USAN)
(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: tranquilizers/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**

**INN – the use of stems**

**BAN, USAN**

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

**A.2.1.0**

(BAN: -barb, -barb-: for barbiturates)

(USAN: -barb; or -barb-: barbituric acid derivatives)

![Chemical structure of barbituric acid derivatives](image)

(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), probarbital sodium (1), proxibarbal (33), secbutabarbital (12),
secobarbital (4), tetrabarbital (4), thialbarbital (4), thiotetraphorbital (4),
vinbarbital (1)

(c) butalbital (4), buthalital sodium (8), metharbital (1), methitural (6),
methohexital (8), phetharbital (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)

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**USAN**

### -begron **β₃-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

---

**INN – the use of stems**
-**bendazole**  **anthelmintics, tiabendazole derivatives**

S.3.I.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)  L.0.0.0: nocodazole (36), procodazole (36) (also benzimidazole derivative)

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

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

**-bercept**  see -cept

**-bermin**  see -ermin

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**-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), clostebol (22), enestebol (22), furazabol (16), mebolazine (21), mibolerone (27), norboleton (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), propetandroli, oxandroli, tihemesterone (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, aryIlbutanoic 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), lisabanbulin (115), mivobulin (77), ombrabulin (99), plinabulin (102), plocabulin (118), rosabulin (95), taltobulin (91), tirbanibulin (119), valecobulin (119), verubulin (103)

(b) thyroglobulin (26)

-butazezone see -buzone
-buzone | anti-inflammatory analgesics, phenylbutazone derivatives

A.4.2.0

(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), bisfenazole (33), famprofazone (21), morazone (12), nifenazone (15), nimazone (20), niprofazone (29), phenazone (4), propyphenazone (1), sulfinpyrazone (8)

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

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

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

-caine (x) | local anaesthetics

E.0.0.0

(a) ambucaine (6), amoxecaïne (1), aptocaine (21), articaïne (47) (previously carticaïne (27)), benzocaïne (42), betocaïne (13), bucricaïne (49), bumecaïne (25), bupivocaïne (17), butacaïne (4), butaniëlaïne (16), chlorprocaïne (6), cinchocaïne (1), clibucaïne (14), clodacaine (13), clormecaïne (17), cyclomethecaïne (6), dexionacaïne (20), diamocaïne (22), edronocaïne (84), elucaïne (29), etidocaïne (29), fexicaïne (25), fomocaïne (18), hextylaïne (4), hydroxyprocaïne (1), hydroxytetracaïne (1), ipravacaïne (85), ketocaïne (15), leucinocaïne (17), levobupivocaïne (74), lidocaïne (1), lotucaïne (27), mepivocaïne (11), merylcaïne (4), myrtecaine (15), octacaïne (14), oxetacaïne (13), oxybuprocaïne (8), parethoxcaïne (l), paridocaïne (8), phenaçaïne (4), pinolcaïne (32), pipercocaïne (l), piridocaïne (l), pramocaïne (4), pribecaïne (32), prinocaïne (14), procaine (10), propanocaïne (6), propiopocaïne (16), propoxycaine (4) proxymetacaïne (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 of procainamide](image)

(a) acecainide (39), asocainol (47), barucainide (52), bucanide (35), carcaainium chloride (36), carocainide (46), droxicainide (47), encainide (40), epicainide (40), erocainide (50), flecaainide (37), guafecainol (38), indecainide (48) (originally ricainide (47)), itrocainide (54), ketocainol (32), lorcaainide (38), milacainide (77), modecainide (63), murocainide (46), nicainoprol (46), nofecainide (44), pilsicainide (62), pincaainide (49), procainamide (1), quinacainol (50), recainam (54), solpecainol (55), stirocainide (47), suricainide (55), tocainide (36), transcainide (51), (verocainine (42) - replaced by tiapamil in List 43), zocainone (41)

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

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

![Chemical structure of vitamin D analogues](image)

(a) alfacalcidol (40), atocalcitol (88), becocalciol (92), calcifediol (26), calcipotriol (61), calcitriol (39), colecalciferol (13), doxercalciferol (82), ecalcidene (85), eldecacitrol (97), elocalcitol (95), ergocalciferol (13), falecacitriol (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)

(a) cefacetrile (25), cefaclor (36), cefadroxil (33), cefalexin (18), cefaloglycin (16), cefaloridine (15), cefalotin (14),
cefamandole (30), cefaparole (33), cefapirin (23), cefatrizine (34), cefazaflur (36), cefazedone (36), cefazolin (25), cefbuperazone (48), cefcanel (60), cefcanel daloxate (59), ceficapene (68), cefclidin (64), cefdaloxime (64), cefdinir (61), cefditoren (66), cefedrolo (53), cefempidone (58), cefepime (57), cefetamet (49), cefetecol (63), cefetizole (44), cefiderocel (114), cefilavancin (111), cefivitril (52), cefixime (53), cefluprenam (71), cefmatilen (81), cefmenoxime (44), cefmepidium chloride (57), cefmetazole (39), cefminox (53), cefodizime (44), cefonicid (42), cefoperazone (42), ceforanide (39), cefoselis (71), cefotaxime (42), cefotetan (48), cefotiam (40), cefovecin (87), cefoxazole (34), cefoxitin (29), cefozopran (66), cefpimizole (50), cefpirome (47), cefpiramide (50), cefpodoxime (58), cefprozil (62), cefquinome (59), cefradine (26), cefrotol (34), cefroxadine (42), cefsulodin (38), cefsumide (38), ceftaroline fosamil (97), ceftazidime (44), ceftarolam (55), ceftezole (34), ceftobutene (60), ceftiofur (53), ceftirolene (49), ceftriaxime (43), ceftriaxime alapivoxil (77), ceftobiprole (92), ceftobiprole medocaril (92), ceftolozane (105), ceftriacezone (44), cefuracetam (45), cefuroxime (34), cefuzonam (55)

-oxef antibiotics, oxacefalosporanic acid derivatives

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

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

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

**cell-or cel-** 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**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.4.0.0</td>
<td>[-celosa in Spanish]</td>
</tr>
</tbody>
</table>

#### (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/](http://www.who.int/medicines/services/inn/en/)

adimlecleucel (117), audencel (115), avoplacel (119), axicabtagene ciloleucel (117), balraleucel (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 leralucel (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  
      mirococept (91)
    - **-far-** subgroup of interferon receptors  
      bifarcept (86)
    - **-lefa-** lymphocyte function-associated antigen 3 receptors  
      alefacept (84)
-na- interleukin-1 receptors
rilonacet (95)

-ner- Tumour Necrosis Factor (TNF) receptors
asuncercept (114), baminercept (99), etanercept (81), lenercept (72), oncercept (82), opinercept (118), pegsunercept (87), tulinercept (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)

-cetrapib cholesteryl ester transfer protein (CETP) inhibitors
anacetrapi (98), dalcetrapi (96), evacetrapib (105), obicetrapi (115), rocacetrapi (119), torcetrapi (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) bisorcic (34) (psychostimulant)

(c) stepronin (46)

-ciclib cyclin dependant kinase inhibitors

L.0.0.0 abemaciclib (112), atuveciclib (117), briciclib (111), dinaciclib (102), milciclib (105), palbociclib (109), ribociclib (111), riviciclib (109), roniciclib (111), seliciclib (92), trilaciclib (117), voruciclib (109)
INN – the use of stems

-ciclovir  see -vir

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

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

(a)  brilacidin (108), candidicidin (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), praligaciguat (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), apalacillin (39), aspoxicillin (50), azidocillin (19), azlocillin (36), bacampicillin (32), benethamine penicillin (1), benzathine benzylpenicilllin (18), benzylpenicillin (53), carbenicillin (20), farcilllin (30), carindacillin (29), ciclacillin (22), clemizole penicillin (8), clometocillin (12), cloxacinllin (13), dicloxacillin (16), epicapillin (25), fenbenicillin (13), fibracillin (30), flucloxacillin (17), fomidacillin (55), fumoxicillin (47), furbacilllin (31), fuzlocillin (47), hetacillin (16), isopropicillin (12), lenamicillin (50), levopropicillin (12), metampicillin (20), meticillin (12), mezlocillin (34), nafcillin (13), oxacillin (15), oxetacillin (33), penamecillin (16), pheneticillin (11), phenoxyethyl penicillin (6), phenyrcillin (8), piperacillin (38), pirbenicillin (35), piridicillin (43), piroxicillin (49), pivampicillin (23), prazocillin (27), propicillin (13), quinacillin (14), rotamccillin (35),
sarmoxicillin (41), sarpicillin (36), sulbenicillin (26), sultamicillin (48), suncillin (25), talampicillin (31), tameticillin (35), temocillin (46), ticarcillin (29), tifencillin (12), tobicillin (78)

(b) xantocillin (12)

(c) penimepicycline (6), penimocycline (22)

-cillide

S.6.1.0 libecillide (32)

-cillinam

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

-cillinam see -cilllin

-cilpine see -pine

-cisteine see -steine

-citidine 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), dextelvucitabine (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), troxacinabine (81), valopicitabine (93), valtorcitabine (90), zalcitabine (66)

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

-clidine/-clidinium muscarinic receptors agonists/antagonists

E.1.0.0 aceclidine (13), benzoclidine (25), eticyclidine (44), gacyclidine (76), phencyclidine (11), procyclidine (01), rolacyclidine (44), talsacldine (72), tenocyclidine (44), vedaclidine (76)
acldinium bromide (100), clidinium bromide (06), droclidinium bromide (33)
umeclidinium bromide (106)

-clone hypnotic tranquillizers

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

(a) barbexaclone (16), eszopiclone (87), pacoclone (74), pazinaclone (70), suproclone (46), suriclone (43), suproclone (46), zopiclone (39)

(b) gestaclone (23), pimeclone (20)

-cocept see -cept

-cog blood coagulation factors

I.2.0.0

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

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

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

(-)tridecacog blood factor XIII: catridecacog (99)

Other: vonicog alfa (102)
-cogin

**blood coagulation cascade inhibitors**

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))

\[
\begin{align*}
\text{Albaconazole} & : (87), \\
\text{Aliconazole} & : (43), \\
\text{Alteconazole} & : (53), \\
\text{Arasertaconazole} & : (93), \\
\text{Azaconazole} & : (45), \\
\text{Becliconazole} & : (65), \\
\text{Brolaconazole} & : (58), \\
\text{Butoconazole} & : (40), \\
\text{Cisconazole} & : (59), \\
\text{Croconazole} & : (55), \\
\text{Cyproconazole} & : (ISO), \\
\text{Dapaconazole} & : (111), \\
\text{Democonazole} & : (42), \\
\text{Diniconazole} & : (ISO), \\
\text{Doconazole} & : (37), \\
\text{Eberconazole} & : (64), \\
\text{Econazole} & : (27), \\
\text{Efinaconazole} & : (104), \\
\text{Embeconazole} & : (92), \\
\text{Eniconazole} & : (44), \\
\text{Etaconazole} & : (ISO), \\
\text{Fenticonazole} & : (44), \\
\text{Fluconazole} & : (54), \\
\text{Fosfluconazole} & : (83), \\
\text{Fosravuconazole} & : (110), \\
\text{Furconazole} & : (ISO/TC 81 N 872 C_{13}H_{14}Cl_2F_3N_3O_2), \\
\text{Hexaconazole} & : (ISO), \\
\text{Isavuconazole} & : (96), \\
\text{Isoconazole} & : (30), \\
\text{Itraconazole} & : (50), \\
\text{Ketoconazole} & : (43), \\
\text{Lanoconazole} & : (66), \\
\text{Luliconazole} & : (114), \\
\text{Miconazole} & : (86), \\
\text{Neticonazole} & : (63), \\
\text{Omoconazole} & : (45), \\
\text{Orconazole} & : (40), \\
\text{Otesaconazole} & : (115), \\
\text{Oxiconazole} & : (42), \\
\text{Parconazole} & : (39), \\
\text{Penconazole} & : (ISO), \\
\text{Posaconazole} & : (82), \\
\text{Propiconazole} & : (ISO), \\
\text{Pramiconazole} & : (95), \\
\text{Quiseconazole} & : (116), \\
\text{Ravuconazole} & : (83), \\
\text{Saperconazole} & : (59), \\
\text{Sertaconazole} & : (56), \\
\text{Sulconazole} & : (38), \\
\text{Terconazole} & : (45), \\
\text{Tericonazole} & : (40), \\
\text{Uniconazole} & : (ISO), \\
\text{Valconazole} & : (40), \\
\text{Voriconazole} & : (73), \\
\text{Zinoconazole} & : (50), \\
\text{Zoficonazole} & : (43)
\end{align*}
\]

(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 C_{17}H_{17}Cl_2N_3O)), 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 C_{13}H_{14}Cl_2F_3N_3O_2)), (hexaconazole (ISO C_{14}H_{15}Cl_2N_3O)), isavuconazole (96), isoconazole (30), itraconazole (50), ketoconazole (43), lanoconazole (66), levoketonazole (114), luliconazole (86), miconazole (22), neticonazole (63), omoconazole (45), orconazole (40), otesaconazole (115), oxiconazole (42), parconazole (39), (penconazole, (ISO)), posaconazole (82) (propiconazole (ISO)), pramiconazole (95), quiseconazole (116), ravuconazole (83), saperconazole (59), sertaconazole (56), sulconazole (38), (tebuconazole (ISO C_{16}H_{22}CIN_3O)), terconazole (45) (originally triaconazole), tioconazole (40), (uniconazole (ISO C_{16}H_{18}CIN_3O)), valconazole (40), voriconazole (73), zinoconazole (50), zoficonazole (43)

(c)  
bifenazole (44), isavuconazonium chloride (96)
**cort (x)**  
**corticosteroids, except prednisolone derivatives**

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

![corticosteroids molecule]

(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), fludroxyctide (12), fluocortin (31), formocortal (18), hydrocortamate (6), hydrocortisone (1), hydrocortisone acetoponate (54), locicortolone dicibate (60), naflcort (50), nivacortol (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: cyclooxygenase-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, etacrylic acid derivatives**

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

![diuretics molecule]

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

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

![Acridine Derivatives](image)

(a) antineoplastic: amsacrine (44), nitracrine (35)
antihelmintic: flucacrine (34), mepacrine (4)
antidepressant: 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),
ethacridine (l), proflavine (l)

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**-cromil**  antiallergics, cromoglicic acid derivatives

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

![Cromoglicic Acid Derivatives](image)

(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)

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**-curium**  see -ium

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

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

![Tetracycline Derivatives](image)
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), mecloycline (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)

**-deca**  
see -kin

**-degib**  
SMO receptor antagonists

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

H.0.0.0  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)

-dermin  see -ermin

-dil  vasodilators

F.2.0.0  (USAN: -dil; dil-; or -dil-: vasodilators (undefined group))
F.2.1/2.0
F.2.0.0  (a)  alprostadil (39), aviptadil (78), belfosdil (61), benfurodil hemisuccinate (16), biclodil (52), buflomedil (33), burodiline (26), carprazidil (45), cetiedil (27), cinepaxadil (50), dopropidil (59), eliprodil (66), fasudil (64), fenoxedil (27), flosatidil (64), fostedil (51), fronepidil (59), ifenprodil (27), levosemotiadil (72), manozodil (47), melenidil (48), minoxidil (25), naftopidil (52), naminidil (87), nesapidil (52), perfomedil (60), pinacidil (46), piribedil (23), pitenodil (37), podilfen (22), ripasudil (109), stevaladil (34), suloctidil (30), tipropidil (44), traxoprodil (86), urapidil (27), verosudil (112), viquidil (25)
(b)  radiprodil (98)
(c)  dilmefone (33)

F.2.1.0  (a)  coronary vasodilators: bepridil (30), bumepidil (44), ecipramidil (40), fendiline (24), fenetradil (30), floredil (28), hexadiline (13), ipramidil (51), mepramidil (27), metrifudil (23), nicorandil (44), pirozadil (33), pretiadil (27), razinodil (38), semotiadil (64), sinitrodil (74), terodiline (16), tixadil (18), trapidil (29)
(c)  dilazep (22), diltiazem (30)

-dilol  carvedilol (50), dioxadilol (53), dramedilol (57), flavodilol (48), mindodilol (52), nipradilol (50) (previously nipradolol), oberadilol (77), parodilol (57), prizidilol (44), tribendilol (54)
(b)  diloxanide (8) (amebicide), methdilazine (10) (antihistaminic), phenobutiodil (6) (contrast medium), prodilidine (12) (analgesic)
**INN – the use of stems**

- **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))

  ![Chemical structure](image)

  (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)**, **levni**guldipine (67), mesudipine (40), **ni**cardipine (42), nifedipine (27), **ni**guldipine (60), **ni**ludipine (38), **ni**lvadipine (52), **ni**modipine (40), **ni**soldipine (42), **ni**rendipine (42), olradipine (69), oxodipine (52), riocandipine (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
**INN – the use of stems**

### USAN

- **domide**
  - antineoplastics, thalidomide derivatives
  - L.0.0.0
  - (a) avadomide (117), endomide (40), iberdomide (117), lenalidomide (101), mitindomide (70), pomalidomide (97), thalidomide (08)

- **-dopa**
  - dopamine receptor agonists, dopamine derivatives, used as antiparkinsonism/prolactin inhibitors
  - E.1.1.0
  - (USAN: dopamine receptor agonists)
  - ![Chemical Structure](image)
  - (a) carbidopa (37), ciladopa (52), dopamantine (31), droxidopa (57), etilevodopa (80), fluorodopa ($^{18}$F) (64), levodopa (21), melevodopa (83), methyldopa (12)

- **-opamine**
  - dopaminergic agents dopamine derivatives used as cardiac stimulant/antihypertensives/diuretics
  - (USAN: -pamine: dopaminergics (butopamine type))
  - (a) butopamine (43), cliropamine (59), denopamine (50), dopamine (18), fosopamine (69), ibopamine (43), octopamine (32), oxidopamine (37) (glaucoma), ractopamine (54) (1 of 4 isomers of butopamine)
  - (b) tiopropamine (36) (gastric and duodenal ulcers), tolpropamine (13) (antihistaminic)
  - (c) dobutamine (29), docarpamine (59), dopexamine (50), fenoldopam (53), levdobutamine (65), methyldopa (12) (alpha-2 adrenoreceptor agonist, cardiotonic), zelandopam (84)

- **-dotin**
  - synthetic derivatives of dolastatin series
  - amadotin: luptumab amadotin (115)
  - cemadotin (75)
  - ixadotin: aprutumab ixadotin (115)
  - mafodotin: belantamab mafodotin (118), denintuzumab mafodotin (111),
depatuxizumab mafodotin (115), vorsetuzumab mafodotin (107)
pelidotin: cofetuzumab pelidotin (117)
soblidotin (84)
tasidotin (93)
vedotin: azintuxizumab vedotin (116), brentuximab vedotin (103),
enapotamab vedotin (118), enfentumab vedotin (109), glembatumumab vedotin (113), iladatuzumab vedotin (117), indusatub vedotin (112), ladiratuzumab vedotin (117), lifastuzumab vedotin (110), losatuxizumab vedotin (116), pinatuzumab vedotin (108), polatuzumab vedotin (108), samrotamab vedotin (118), sirtratumab vedotin (117), sofizumab vedotin (110), tisotumab 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))

(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), cafedrine (14), cinnamedrine (19), corbadrine (1), dioxethedrin (6), dioxifedrine (41), etafedrine (14), meluadrine (78), methoxyphedrine (6), midodrine (27), norbukdrine (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), chlomerodrin (¹⁹⁷Hg) (24), dieldrin (10) (insecticide), orphenadrine (8) (spasmolytic)
**-frine**  
**sympathomimetic, phenethyl derivatives**  
E.4.0.0

\[
\text{NH}_2
\]

(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), racepinefrine (41)

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**-dronic acid**  
**calcium metabolism regulator, pharmaceutical aid**  
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)

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**-dutant**  
see **-tant**

**-dyl**  
see **-dil**

---

**-ectin**  
**antiparasitics, ivermectin derivatives**  
(SUSAN: antiparasitics (ivermectin derivatives))  
S.3.0.0

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

-elvekin 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),
zebotentan (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), delergotri (42), dihydroergotamine
(16), disulergine (45), dosergoside (54), ergometrine (4), ergamine (4),
etisulergine (47), fludihydroergotamine (115), lergotri (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), voxergolid (61)

(b) ergocalciferol (l3)
**-eridine**  analgesics, pethidine derivatives  
A.4.1.0 (USAN: analgesics (meperidine type))

- **(a)** anileridine (5), carperidine (11), etoxeridine (6), morheridine (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**  growth factors  
U.0.0.0

- **-bermin**  vascular endothelial growth factors  
- **(a)** telbermin (85)

- **-dermin**  epidermal growth factors  
- **(a)** murodermin (63), nepidermin (97)

- **-fermin**  fibroblast growth factors  
- **(a)** ersofermin (66), palifermin (86), repifermin (82), sprifermin (105), trafermin (74), velafermin (94)

- **-filermin**  leukemia-inhibiting factor  
- **(a)** emfilermin (82)

- **-nermin**  tumour necrosis factor  
- **(a)** ardenermin (88), dulanermin (99), eftozanermin alfa (119), plusonermin (73), sonermin (68), tasonermin (76), tengermerin (118)

- **-plermin**  platelet-derived growth factor  
- **(a)** becaplermin (74)
-sermin  **insulin-like growth factors**
(a)  mecasermin (66), mecasermin rinfabate (91)

-termin  **transforming growth factor**
(a)  cetermin (74), liatermin (81)

-otermin  **bone morphogenic proteins**
(a)  avotermin (77), dibotermin alfa (89), eptotermin alfa (89), nebotermin (109), radotermin (92)

*Others*:  cenegermin (115), cimaglermin alfa (110), dapiclermin (93)

<table>
<thead>
<tr>
<th>estr</th>
<th>estrogens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q.2.1.0</td>
<td>(USAN: estr-; or -estr-: estrogens)</td>
</tr>
<tr>
<td>(a)</td>
<td>almestron (24), benzoestrol (1), broparestrol (8), cloxestradiol (12), dienestrol (1), diethylstilbestrol (4), epiestriol (12), epimestrol (22), (eptamestrol/etamestrol (49 deleted), estradiol (4), estradiol benzoate (4), estradiol undecylate (16), estradiol valerate (35), estramustine (24), estrapronicate (34), estrazinol (16), estriol succinate (14), estrofurate (25), estrone (4), ethinylestradiol (1), fenestrel (18), fosfostrol (15), furostilbestrol (1), hexestrol (1), mestranol (12), methallenestrol (6), methestrol (1), moxestrol (24), nilestrol (32), orestrate (17), polyestradiol phosphate (36), promestriene (31), quinestradiol (15), quinestrol (14)</td>
</tr>
<tr>
<td>(b)</td>
<td>alfatradiol (84) (topical), allylestrenol (10) (progest.), ethylestrenol (13) (anabol.), lynestrenol (13) (progest.) estrogens receptor antagonists: brilanestrant (115), elacestrant (115), fulvestrant (78),</td>
</tr>
<tr>
<td>-gestr-:</td>
<td>edogestrone (22), levonorgestrel (30), megestrol (13), melengestrol (13), norelgestromin (84), norgestrel (17), norgestrienone (18), pentagestrone (14), quingestrone (13)</td>
</tr>
<tr>
<td>(c)</td>
<td>estetrol (116), chlorotrianisene (6), clomifene (12), enclomifene (33), zuclomifene (33) (antiestrogens)</td>
</tr>
</tbody>
</table>

**-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), revfenacin (114),
    solifenacin (85), tarafenacin (100), tofenacin (15), zamifenacin (68)

-fenamate  see -fenamic acid

-fenamic acid  anti-inflammatory, anthranilic acid derivatives

-fenamate  “fenamic acid” derivatives

    (USAN: -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), ofcitantil (61), remifentanil (67), sufentanil (36), trefentanil (67)
-fentrine  
**inhibitors of phosphodiesterases**

K.0.0.0

(a)  benafentrine (44), ensifentrine (119), pumafentrine (86), tolfafentrine (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))

(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), ronifibrate (55), salafibrate (41), serfibrate (34), simfibrate (22), sitofibrate (32), tiafibrate (33), timofibrate (40), tocofibrate (33), urefibrate (37), xantifibrate (31)  
clofibric acid (20), clofibrate (13), aluminium clofibrate (31), calcium clofibrate (34), cinnarizine clofibrate (38), etofylline clofibrate (38), magnesium clofibrate (31)  
clofibrate (28), plafibrate (39)  
related: 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)
-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))

\[
\begin{align*}
\text{NH} & \quad \text{NH} \\
\text{NH} & \quad \text{NH}
\end{align*}
\]

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

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

(a)  vet. insecticides:

quintiofos (25)
(b) toldimfos (23) (vet. phosphorous source)

(c) **vet. insecticides and anthelmintics:**

metrifonate (16)

**anthelmintic:** butonate (30)

2. **phosphates:**

\[ R\overset{\ARING}{O}\overset{\ARING}{O}R' \]

(a) **vet. insecticides:** clofenvinfos (23)

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

**anthelmintics:** vincofos (28)

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

(c) **vet. anthelmintics:** fospirate (21), haloxon (16)

3. **phosphorothioates:**

\[ R\overset{\ARING}{S}\overset{\ARING}{O}R' \]

**vet. insecticides:**

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

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

4. **phosphorodithioates:**

\[ R\overset{\ARING}{S}R' \]

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

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

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

crufomate (16), uredofos (37)

anthelmintic:
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), creatinolfosfate (20), dexfosfoserine (68), ferfifosfate sodium (69), furifosmin (70), monophosphothiamine (8), rabacfosadine (111), sodium picofosfate (37), sofosbuvir (108), sparfosic acid (46), technetium (\(^{99}\text{Tc}\)), tetrofosmin (66), trifosmin (74)

-fosfamide: alkylating agents of the cyclophosphamid 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-
fosalyudine tidoxil (95), fosamprenavir (83), fosaprepitant (94), fosarilate (53), fosazepam (27), fosbretabulin (100), fossaracet sodium (42), foscolic acid (12), fosdagrocorat (111), fosdevirine (103), fosenzide (48), fosfostrol (15), fosflunconazole (83), fosfluridine tidoxil (93), fosfocreatinine (50), fosfomycin (25), fosfonet sodium (35), fosfosal (37), fosfructose (81), fosinopril (69), fosinoprilat (62), fosmanogepix (119), fosmenic acid (49), fosmetpentotenane (116), fosmidomycin (46), fosopamine (69), fosphenytoin (62), fospirate (21), fospoprofol (100), fosquidone (64), fosvuconazone (110), fostamatinib (100), fostedil (51), fostriecein (55), fosveset (83)

-fovir see vir
-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), diprofylline (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), istradeffylline (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), rololfylline (98), spirofylline (58),
stacofylline (73), tazifylline (52), theophylline ephedrine (14), tonapofylline
(102), torbafylline (56), triclofylline (19), verozifylline (43), visnafylline (24),
choline theophyllinate (8), fenetylline (16)

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

radicals and groups: teprosilate (29)
**gab (x)**  
**gabamimetic agents**

_E.0.0.0_  
(a)  
atagabalin (102), fengabine (53), gabapentin (46), gabapentin enacarbil (94), gadoxadol (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_  
(a)  
gadobenic acid (64), gadobutrol (66), gadocoletic acid (85), gadodenterate (91), gadodiamide (63), gadofosveset (86), gadoxemilol (85), gadopenamidade (60), gadopenetetic acid (50), gadopiclenol (118), gadoterdol (70), gadoteric acid (59), gadoversetamide (71), gadoxetic acid (71)

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

_I.2.0.0_  
(a)  
atecegatran (103), atecegatran metoxil (105), dabigatran (83), dabigatran etexilate (87), efegatran (71), flovagatran (97), inogatran (72), melagatran (74), napsagatran (72), sofagatran (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)
A two-word name approach has been selected:

**Word 1** - 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
- *repvec* replicating viral vector
- *adeno*- adenovirus
- *cana*- canarypox virus
- *foli*- fowlpox virus
- *herpa*- herpes virus
- *lenti*- lentivirus
- *morbilli*- paramoxyviridae
  - morbillivirus
- *parvo*- adeno-associated virus
  - (paroviridae dependovirus)
- *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
timagene 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 reldparvovec (119),
onasemnogene abeparvovec (117), pexastimogene devacirepvec (108),
rebisufligene etisparvovec (118), riferminogene pecaplasmid (100),
rilimogene galvacirepvec (107), rilimogene glafolivec (113), sitimagene
ceradenovec (97), taberminogene vadenovec (100), talimogene
laherpirepvec (104), timrepigene empavarvec (117), tipapkinogene
sovavivec (102), valoctocogene roxaparvovec (116), vomicagene
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 aliplasmid (97)

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**gest (x) steroids, progestogens**

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

(a) altenogest (46), anagestone (16), cingestone (20), clogestone (21),
clomestone (20), demestone (24), desogestrel (38), dexnorgestrel
(30), dienogest (49), hydroxyprogesterone (11), hydroxyprogesterone (8),
progesterone caproate (8), levonorgestrel (33) (previously dexnorgestrel),
medrogestone (15), medroxyprogesterone (10), megestrol (13), melengestrol (13),
metestone (33), nomegestrol (49), norelgestromin (83), norgesterone (14),
norgestimate (35), norgestomet (32), norgestrel (17), norgestrienone (18),
oxogestrel (19), pentagestrone (14), progesterone (4), proligestone (28),
progestone (38), quingestanol (15), quingestrone (13), segesterone (89),
tigest (20), tosagtest (86),
trengestone (22), trimegestone (66)

(b) algestone (22) (glucorticoid)

(c) allylestrenol (10), chlormadinone (12), cismadinone (12), delmadinone
(23), dimethisterone (8), ethisterone (4), ethynodiol (17), ethynodiol (13),
hydromadinone (12), lynestrenol (13), metestone (27), norethisterone (6),
norethynodrel (13), norvinisterone (10)

closterolone (15) (antiestrogen), dimepregnen (24) (antiestrogen)
INN – the use of stems

-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), gliazide (25), (deleted: glidanile (23)), glicondamide (44), gidazamide (24), gliflumide (33), glimepiride (53), glipalamide (62), glipizide (27), gliquidone (28), glisamuride (45), glisentide (58) (previously glipentide (27)), glisindamide (43), glisolamide (43), glisoxepide (24), glybuthiazol (8), glybuzole (15), glycopryamide (17), glycyclamide (12), glyhexamid (15), glymidine sodium (15), glyoctamide (14), glyparamide (USAN only), glypinamide (13), glyprothiazol (8), glysozulose (12)

2. other than sulfonamide derivatives: adomeglivant (115), camiglilose (67), dorzaglan (116), deriglucol (66), emiglitate (55), fasigilam (107), firuglil (116), imeglinim (98), inlgifor (85), isaglulide (61), limiglulide (100), linoglidire (48), managlinat dianetil (96), meglinitide (34), midaglizole (57), miglitol (55), mitiglucose (78), naglivan (65), nateglinide (77), piraglulide (97), pioglibide (40), repaglulide (65), teglicar (91), tigeblosene (64), voglibose (65)

3. peptide: seglitide (57)

(b) cromoglicate lisetil (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), tolpymramide (13)

gly-
prior to revision of the General Principles
(a) glybuthiazol (08), glybuzole (15), glycropyramide (17), glycyclamide (13), glyhexamide (15), glymidine sodium (15), glyoctamide (14), glypinamide (13), glyprothiazol (08), glysobuzole (12)
(c) glycerol (4), glycobiarsol (l), glycopyrronium bromide (12)

-gliptin sodium glucose co-transporter inhibitors, phlorizin derivatives   USAN
(USAN: phlorozin derivatives, phenolic glycosides)
atigliflozin (100), bexagliflozin (113), canagliflozin (102), dapagliflozin (97), empagliflozin (104), ertragliflozin (107), ipragliflozin (103), licogliflozin (118), mulegloflazol (104), mizagliflozin (114), remogliflozin etabonate (98), sergfliflozin etabonate (98), sotagliflozin (110), tofogliflozin (103), velagliflozin (115)

gliptin dipeptidyl aminopeptidase–IV inhibitors   USAN
M.5.2.0
(a) alogliptin (96), anagliptin (103), bisegliptin (103), carmegliptin (98), denagliptin (94), dutogliptin (100), evogliptin (107), garvaglilptin (117), gemigliptin (103), gosoglptin (101), linagliptin (99), melogliptin (99), omarigliptin (107), saxagliptin (92), sitagliptin (94), teneligliptin (99), trelagliptin (106), vildagliptin (90)
-glirzar dual peroxisome proliferator activated receptors-α and γ (PPAR-α,γ) agonists   USAN
M.5.2.0 (USAN: PPAR agonists (not thiazolidene derivatives))
(a) aleglitazar (95), cevoglitazar (94), farglitaraz (84), imiglitaraz (91), indeglitazar (100), muroglitaraz (90), naveglitaraz (92), oxeglitazar (88), peliglitaraz (92), pemaiglitaraz (92), ragaglitaraz (85), reglitaraz (87), saroglitazar (108), sipoglitazar (93), sodelglitaraz (95), tesaglitaraz (85)
-glizone peroxisome proliferator activating receptor-γ (PPAR-γ) agonists, thiazolidinedione derivatives   USAN
M.5.2.0 (USAN: PPST agonists (thiazolidene derivatives))
(a) ciglitazone (50), balaglitazone (84), darglizone (69), edaglitazone (91), englitzone (64), leriaglitzone (119), lobeglitzone (95), netoglitazone (85), pioglitzone (60), rivoglitazone (87), rosoglitazone (78), trogglitzone (69)
(c) efatutazone (102)
-gliflozin see gli

-gliptin see gli

-glitazar see gli

-glitazone see gli

-glumide cholecystokinin antagonists, antiulcer, anxiolytic agents

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

-glurant metabotropic glutamate receptor antagonists / negative allosteric modulators

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

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

(c) rotigotine (83)

-gosivir see vir

-gramostim see -stim

-grastim see -stim
-grel-
grel

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

(a) anagrelide (42), camonagrel (61), cangrelor (97), 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), rolafagrel (65), samixogrel (72), sarpogrelate (63), satigrel (67), selatogrel (119), sunagrel (52), temanogrel (103), terbogrel (75), ticagrelor (95), trifenagrel (53)

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-grel-
grel

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

(a) anagrelide (42), camonagrel (61), cangrelor (97), 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), rolafagrel (65), samixogrel (72), sarpogrelate (63), satigrel (67), selatogrel (119), sunagrel (52), temanogrel (103), terbogrel (75), ticagrelor (95), trifenagrel (53)

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-grel-
grel

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

(a) anagrelide (42), camonagrel (61), cangrelor (97), 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), rolafagrel (65), samixogrel (72), sarpogrelate (63), satigrel (67), selatogrel (119), sunagrel (52), temanogrel (103), terbogrel (75), ticagrelor (95), trifenagrel (53)

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-grel-
grel

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

(a) anagrelide (42), camonagrel (61), cangrelor (97), 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), rolafagrel (65), samixogrel (72), sarpogrelate (63), satigrel (67), selatogrel (119), sunagrel (52), temanogrel (103), terbogrel (75), ticagrelor (95), trifenagrel (53)

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-ifene  
antiestrogens or estrogen receptor modulators, clomifene and tamoxifen derivatives

(Q.2.1.0 L.6.0.0)

(a) acolbifene (86), clomifenoxide (54), tesmilifene (81)
-oxifene: afimoxifene (95), arzoxifene (80), bazedoxifene (86), droloxifene (53), idoxifene (68), lasofoxifene (81), levormeloxifene (73), miproxifene (74), ormeloxifene (69), pipendoxifene (84), raloxifene (54), tamoxifen (28), trioxifene (41), zindoxifene (54)
-mifene: clomifene (12), enclomifene (33), fispemifene (89), nitromifene (33), ospemifene (85), panomifene (58), sivifene (99), toremifene (53), zuclomifene (33)

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

(c) nafoxidine (16)

-iletide  see -tide

-ilide  
class III antiarrhythmics, sematilide derivatives

H.2.0.0 (USAN: class III antiarrhythmic agents)

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

(b) bromacrylide (13), ftaxilide (32), gliamilide (33)
<table>
<thead>
<tr>
<th>imex (d)</th>
<th>immunostimulants</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.7.0.0</td>
<td>USAN</td>
</tr>
<tr>
<td>(a)</td>
<td>azimexon (40), forfenimex (55), imexon (37), roquinimex (53), ubenimex (56), veledimex (110)</td>
</tr>
</tbody>
</table>

**-imibe**

**antihyperlipidaemics, acyl CoA: cholesterol acyltransferase (ACAT) inhibitors,**

<table>
<thead>
<tr>
<th>M.3.0.0</th>
<th>USAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>avasimibe (80), canosimibe (100), eflucimibe (84), eldacimibe (76), ezetimibe (83), lecimibide (70), nevanimibe (119), octimibrate (52), pactimibe (89)</td>
</tr>
</tbody>
</table>

**-imod**

**immunomodulators, both stimulant/suppressive and stimulant**

<table>
<thead>
<tr>
<th>S.7.0.0</th>
<th>USAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>amiselimod (112), apilimod (95), atiprimod (75), bevifimod (119), blisibimod (107), cenerimod (118), ceralifimod (109), cridanimo (83), cupabimod (115), defoslimod (79), efizonerimod alfa (117), eftilagimod alfa (116), efartigimod alfa (116), epetirimod (97), esonarimod (79), etrasimo (116), fingolimod (91), forigerimod (104), golotimod (97), glasipimod (74), iguratimod (86), imiquimod (66), indoximod (111), iverimod (60), laquinimod (85), lietenimod (96), mocravimod (116), mosedipimod (118), navoximod (115), orilimod (111), ozanimod (112), paquinimod (94), pidotimod (63), pixatimod (117), ponesimod (103), rabeximod (97), reticlimod (115), resiquimod (82), siponimod (106), sotirimod (94), susalimod (73), tasquinimod (93), tiprotimod (57)</td>
</tr>
</tbody>
</table>

**-mapimod**

**mitogen-activated protein (MAP) kinase inhibitors**

<table>
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<tr>
<th>USAN</th>
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<tbody>
<tr>
<td>(a)</td>
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**-tolimod**

**toll-like receptors (TLR) agonists**

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<tr>
<th>USAN</th>
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<tbody>
<tr>
<td>(a)</td>
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</tbody>
</table>
### -imus

**Immunosuppressants (other than antineoplastics)**

USAN 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**

USAN

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

### -ine (d)

**Alkaloids and organic bases**

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

### -inostat

**See stat**

### io- (x)

**Iodine-containing contrast media**

BAN, USAN

<table>
<thead>
<tr>
<th>U.1.1.0</th>
<th>io- (x)</th>
<th>Iodine-containing contrast media</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>iobenzamic acid (14), iobitridol (68), iobutoic acid (20),iocarmic acid (22),iocetamic acid (18), iodamide (15), iodecimol (51), iodetryl (1),iodixanol (53),iodophthalein sodium (1), iodoxamic acid (26), iofendylate (12),ioforminol (103), iofratol (67),ioglicic acid (33), ioglucol (41), ioglucamid (41),iogluclid (40), ioglycamic acid (15), iohexol (43), iodmonic acid (26),iolixanic acid (26), iomeglicamic acid (26), iomepr (54), iominic acid (37), iopamidol (40), iopanoic acid (1), iopentol (52), iophtalamic acid (4),ioxamic acid (39), iopromide (44), iopronic acid (28), iopydol (14),iopydone (14), iocer (54), ioseamic acid (14), ioseric acid (33), iosimenol (88),iosimide (50), iosulamide (39), iotic acid (33), iotalamic acid (13),iotasul (43), iotetric acid (37), iotranic acid (28), iotrise (60), iotrizoic acid (22), iotrolan (51), iotroxic acid (32), ioversol (56), ioxabrolic acid (53),ioxaglic acid (37), ioxilan (59), ioxitalamic acid (22), ioxotrizoic acid (33),ioxozic acid (24)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>adipiodone (4), bunamiodyl (10), dimethiodal sodium (1), diodone (1),ethyl cartrizoate (12), methiodal sodium (1), metrizamide (26), pheniodol sodium (1), phenobutiodil (6), propyl docetrizoate (10), propylidone (1),sodium acetizone (4), sodium amidotrizoate (4), sodium diprotrizoate (6),sodium metrizoate (13), sodium tyropanoate (12)</td>
<td></td>
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</tbody>
</table>
iodinated radiopharmaceuticals, iodine-contained

(a) ethiodized oil (\(^{131}\)I) (24), iobenguane (\(^{131}\)I) (57), iocanlic acid (\(^{123}\)I) (77), iodinated (\(^{125}\)I) human serum albumin (24), iodinated (\(^{131}\)I) human serum albumin (24), iodine (\(^{131}\)I) apamistamab (119), iodine (\(^{125}\)I) derlotuximab biotin (113), iodine (\(^{124}\)I) girentuximab (101), iodocetylic acid (\(^{123}\)I) (47), iodocholesterol (\(^{131}\)I) (39), iodofiltic acid (\(^{123}\)I) (95), iofolastat (\(^{131}\)I) (105), iofetamine (\(^{123}\)I) (51), iofluxenamide (\(^{131}\)I) (103), ioflupe (\(^{123}\)I) (75), iolopride (\(^{123}\)I) (73), iomazenil (\(^{123}\)I) (66), iometin (\(^{125}\)I) (24), iometin (\(^{131}\)I) (24), iometopane (\(^{123}\)I) (76), sodium iodide (\(^{125}\)I) (24), sodium iodide (\(^{131}\)I) (24), sodium iodohippurate (\(^{131}\)I) (24), sodium iotalamate (\(^{125}\)I) (24), sodium iotalamate (\(^{131}\)I) (24)

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

<table>
<thead>
<tr>
<th>USAN</th>
<th>-irudin</th>
<th>hirudin derivatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.2.1.0</td>
<td>(USAN: anticoagulants (hirudin type))</td>
<td>bivalirudin (72), desirudin (70), lepirudin (73), pegmusirudin (77)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>USAN</th>
<th>-isant</th>
<th>histamine H(_3) receptor antagonists</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>bavisant (103), cipralisant (85), enerisant (113), irdabisant (105), pitolisant (100)</td>
<td></td>
</tr>
</tbody>
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<thead>
<tr>
<th>USAN</th>
<th>-isomide</th>
<th>class I antiarrhythmics, disopryamide derivatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.2.0.0</td>
<td>(USAN: -isomide: antiarrhythmics (disopryamide derivatives))</td>
<td></td>
</tr>
</tbody>
</table>

(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), sofpironium 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), pentacyonium 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), nitric oxide perchlorate (110) (antihypertensive), distigmine bromide
(16), ecethiopate iodide (6), neostigmine bromide (4), obidoxime chloride
(16), pralidoxime iodide (10), pyridostigmine bromide (6)

E.2.0.0  **anticholinergic agents**

(a) aclidinium bromide (100), benzilonium bromide (13), benzopyrronium
bromide (12), beperidium (57), bevonium metilsulfate (19), butropium
bromide (30), ciclionium bromide (19), ciclotropium bromide (50),
cimetropium bromide (51), clidinium bromide (6), cyclopyrronium
bromide (12), dimetipirium bromide (37), dipironium bromide (15),
dotefonium bromide (24), droclidinium bromide (33), emepronium
bromide (18), etipirium iodide (22), fenclxonium metilsulfate (20),
fenpiperinium bromide (26), fentonium bromide (29), flutropium
bromide (50), glycopyrronium bromide (12), heteronium bromide (14),
hexazonium iodide (15), hexocyclium metilsulfate (6), hexopyrronium
bromide (13), ipratropium bromide (31), methantherinium bromide (1),
methylbenactyzium bromide (34), metoxacinium iodide (26), nolinium
bromide (37), otilonium bromide (38), oxapium iodide (26), oxetefonium
bromide (18), oxtropium bromide (36), oxyphenonium bromide (1),
oxopyrronium bromide (13), oxysonium iodide (15), pentapiperium
metilsulfate (26), prifinium bromide (20), ritropirronium bromide (33),
sintropium bromide (47), sulprotonium (18), tematropium metilsulfate (64),
tiemonium iodide (13), timepidium bromide (29), tiotropium bromide (67),
tiquizium bromide (47), trantelinium bromide (24), trospium chloride (25),
umeclidinium bromide (106), xenytropium bromide (15)

(c) atropine methonitrate (4), buzepide metiodide (14), chlorisondamine
chloride (6), diphemianil 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), thihexinol
methylbromide (1), tricyclamol chloride (4)

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

(a) acriflavinium chloride (1), amantanium bromide (39), benzalkonium
chloride (1), benzethonium chloride (1), benzododecinium chloride
(1), benzozenium chloride (1), cefalonium (16), cefmepidium chloride
(57), cetalkonium chloride (15), cethexonium chloride (36), cetrimonium
bromide (1), cetylpyridinium chloride (1), chlorphenoclum 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), mecetronium etilsulfate (51), metalkonium
chloride (60), methylbenzethonium chloride (1), methylrosanilinium
chloride (1), methylthioninium chloride (1), miripirium chloride (63),
miristalkonium chloride (41), octafonium chloride (16), oprartonium
iodide (76), penoctonium bromide (20), pirralkonium bromide (19),
polidronium chloride (67), polixetonium chloride (70), prononium iodide
(14), sanguinarium chloride (68), sepanzonium chloride (34), tetradonium
bromide (18), tibezonium iodide (32), tiodonium chloride (36), toloconium
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),
bephename hydroxyxynaphthoate (11), bibenonium 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),
ditercalmium chloride (49), edrophonium chloride (4), elliptinium acetate
(43), emilium tosilate (37), enisamium iodide (101), famiraprinium chloride
(58), feniodium chloride (23), gallium $^{67}$Ga citrate (33), homidium
bromide (36), isauvonazonium 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), propageranarium (65), propsidium chloride (22),
pyritidium bromide (16), pyrvinium chloride (6), quindonium bromide (14),
quinuclium bromide (40), repageranarium (63), rizamolium metilsulfate
(26), roxolinium metilsulfate (33), samarium ($^{153}$Sm) lexidronam (74),
sepantronium bromide (105), sevitropium mesilate (56), spirogermanium
(43), stilbazium iodide (13), thenium closilate (12), tipetroprop bromide
(42), tolonium chloride (4), trazium esilate (54), trethinium tosilate (14),
troxonium tosilate (13), troxypyrrolium tosilate (13)

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

\[
\text{Ar}^1 \text{N} \text{Ar}^2 \text{R}
\]

(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: benacizine (6) (tranquillizer), benaprizine (26) (antiparkinsonian)

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

antibiotic “cef”: cefatrizine (34)

pyrazine derivatives: ampyzine (15) (central nervous stimulant), triampyzone (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))

(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), levcromakalim (66), mazokalim (75), rilmakalim (65), sarakalim (81)
**INN – the use of stems**

### -kef-

**enkephalin agonists**

(USAN: enkephalin agonists (various indications))

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

### -kin

**interleukin type substances**

<table>
<thead>
<tr>
<th>USAN</th>
<th>S.7.0.0 (a)</th>
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<tbody>
<tr>
<td><strong>IL-1</strong></td>
<td>-nakin: interleukin-1 analogues and derivatives; pifonakin (77)</td>
</tr>
<tr>
<td></td>
<td>-onakin: interleukin-1 α analogues and derivatives: mobenakin (72)</td>
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<td></td>
<td>-benakin: interleukin-1 β analogues and derivatives: mobenakin (72)</td>
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<tr>
<td><strong>IL-2</strong></td>
<td>-leukin: interleukin-2 analogues and derivatives: adargileukin alfa (89), aldesleukin (63), bempegaldesleukin (119), celmoleukin (65), cergutuzumab amunaleukin (113), denileukin diftitox (78), efavaleukin alfa (118), pegaldesleukin (74), teceleukin (54), tucotuzumab celmoleukin (95)</td>
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<tr>
<td><strong>IL-4</strong></td>
<td>-trakin: interleukin-4 analogues and derivatives: binetraclin (82)</td>
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<td><strong>IL-6</strong></td>
<td>-exakin: interleukin-6 analogues and derivatives: atexakin alfa (72)</td>
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<td><strong>IL-7</strong></td>
<td>-eptakin: interleukin-7 analogues and derivatives: efineptakin alfa (118)</td>
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<tr>
<td><strong>IL-8</strong></td>
<td>-octakin: interleukin-8 analogues and derivatives: canoctakin (110), emoctakin (74)</td>
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<tr>
<td><strong>IL-10</strong></td>
<td>-decakin: interleukin-10 analogues and derivatives: ilodecakin (81), pegilodecakin (117)</td>
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<td><strong>IL-11</strong></td>
<td>-elvekin: interleukin-11 analogues and derivatives: oprelvekin (76)</td>
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<td><strong>IL-12</strong></td>
<td>-dodekin: interleukin-12 analogues and derivatives: edodekin alfa (79)</td>
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<td><strong>IL-13</strong></td>
<td>-tredekin: interleukin-13 analogues and derivatives: cintredekin besudotox (92)</td>
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<tr>
<td><strong>IL-18</strong></td>
<td>-octadekin: interleukin-18 human analogues and derivatives: iboctadekin (92) tadekinig alfa (90) (fraction of IL-18 human)</td>
</tr>
</tbody>
</table>
IL-21: -enicokin interleukin-21 human analogues and derivatives: denenicokin (99)

(c) IL-3: -plestim: interleukin-3 analogues and derivatives: muplestim (72), daniplestim (76)

-kinra interleukin receptor antagonists

S.7.0.0

IL-1: -nakinra interleukin-1 receptor antagonists: anakinra (72), isunakinra (113)

IL-4: -trakinra interleukin-4 receptor antagonists: pitrakinra (84)

-kiren renin inhibitors

H.3.0.0

(a) aliskiren (84), ciprokiren (69), ditekiren (84), enalkiren (84), imarikiren (116), remikiren (66), terlakiren (66), zankiren (84)

-laner antagonists of GABA (gamma-aminobutyric acid) regulated chloride channels, antiparasitic agents

S.1.0.0 (USAN: antiparasitics (isoxazoline compounds))

(a) afoxolaner (108), fluralaner (107), lotilaner (112), sarolaner (111), tigolaner (117)

-lefacept see -cept

-leukin see -kin

-lisib phosphatidylinositol 3-kinase inhibitors, antineoplastics

L.0.0.0 (USAN: phosphatidylinositol 3-kinase inhibitors)

acalisib (109), apitolisib (108), alpelisib (110), bimiralisib (116), buparlisib (106), copanlisib (108), dactolisib (107), dezapelif (116), idelalisib (107), duvelisib (110), gedatolisib (111), leniolisib (116), nemiralisib (116), omipalisib (111), panulisib (109), panaclisib (117), pellatol (107), pilaralisib (108), recalisib (108), seletalisib (112), serabelisib (115), tenalisib (114), umbralisib (118)
<table>
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<tr>
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<th>Definition</th>
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<tr>
<td>-listat</td>
<td>see -stat</td>
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<tr>
<td>-lubant</td>
<td>leukotriene B₄ receptor antagonists</td>
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<td></td>
<td>(USAN: leukotriene receptor antagonists (treatment of inflammatory skin disorders))</td>
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<td>U.3.0.0</td>
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<td>amelubant (85), moxilubant (78), ticolubant (76)</td>
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<tr>
<td>-lukast</td>
<td>leukotriene receptor antagonists, see -ast</td>
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<td>-lutamide</td>
<td>non-steroid antiandrogens</td>
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<td>Q.2.3.1</td>
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<td></td>
<td>apalutamide (113), bicalutamide (70), darolutamide (115), enzalutamide (107), flutamide (33), nilutamide (56), topilutamide (91)</td>
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<td>aceglutamide (15)</td>
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<td>-lutril</td>
<td>see -tril</td>
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<td>-mab</td>
<td>monoclonal antibodies (see also Annex 3)</td>
</tr>
</tbody>
</table>

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.

-ami- for *serum amyloid protein (SAP)/amyloidosis* (previously as -am(i)-) (pre-substem):

| New naming scheme | birtamimab (119) |
| humanized: -zumab | dezamizumab (115) |

-ba- for *bacterial* (previously as -b(a)-, -ba(c)-):

| mouse: -omab | edobacomab (80) |
| chimeric: -ximab | pagibaximab (93) |
| humanized: -zumab | rivazabumab (114), rivazabumab pegol (113), tefįbazumber (92) |
| human: -umab | nebącumab (66), panobacumab (100), raxidacumab (92) |
-ci- for cardiovascular (previously as -c(i)-, -ci(r)-):

New naming scheme: abelacimab (119), dilpacimab (119), faricimab (118),
frrovocimab (119), marstacimab (119), olinvacimab
(119), osocimab (119)

mouse: -omab biciromab (66), imciromab (66)
chimeric: -ximab abciximab (80), volociximab (93)
chimeric-humanized/human: -xizumab navicixizumab (114)

humanized: -zumab 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), ralpencizumab (110), tadocizumab (94),
avanucizumab (113)

human: -umab alirocumab (107), ascrinvacumab (113), enoticumab
(107), evinacumab (112), evolocumab (108),
ircrucumab (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), olokizumab (103),
perakizumab (108), risankizumab (113), tildrakizumab
(108), vunakizumab (115)

human: -umab afasevikumab (113), brazikumab(115), briakinumab
(101), canakinumab (97), dectrekumab (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:**
bersanlimab (118), budigalimab (119), cemiplimab (119), cetrelimab (118),
crovalimab (119), dostarlimab (119), etigilimab (118), imaprelimab (118), iscalimab
(118), lerontlimab (118), mitazalimab (119), obexelimab (119), ontamalimab
(119), onvatilimab (118), orilanolimab (119), otilimab (119), prolgolimab (119),
ravagalimab (118), relatlimab (119), sintilimab (119), spesolimab (119), sutimlimab
(118), tavolimab (118), temelimab (119), toripalimab (119), vopratelimab (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),
tezlizumab (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), lirilumab (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), galcanezumab (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(o)-; -ma(r)-; -me(l)-; pr(o)-):

New naming scheme:
belantamab (118), belantamab mafodotin (118), enapotamab (118), enapotamab vedotin (118), gancotamab (119), iodine (¹³¹I) 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), igovomab (86), ilotomab (112), lutetium (¹⁷⁷Lu) ilotomab satetraxetan (112), minretumomab (80), mitumomab (82), moxetumomab pasudotox (102), nacolomab tafenoax (80), naptumomab estafenatox (96), oregovomab (86), racotumomab (100), satumomab (81), solitomab (106), taplitumomab paptox (84), technetium (⁹⁹ᵐTc) nofetumomab merpentan (81), technetium (⁹⁹mTc) pintumomab (86), tenatumomab (99), tositumomab (80)

chimeric: -ximab
amatuximab (104), bavituximab (95), brentuximab vedotin (103), carotuximab (114), cetuximab (82), coltuximab ravtansine (109), dinutuximab (109), dinutuximab beta (113), ecromeximab (87), ensituximab (103), futuximab (107), girentuximab (101), indatuximab ravtansine (105), iodine (¹³¹I) derlotuximab biont (113), iodine (¹²⁴I) girentuximab (101), isatuximab (112), laprituximab (114), laprituximab emtansine (114), margetuximab (109), mirvetuximab (114), mirvetuximab soravtansine (113), modotuximab (110), naratumiximab (114), naratumiximab emtansine (114), rituximab (77), siltuximab (100), tabituximab (119), tabituximab barzuxetan (119), tomuzotuximab (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
abituzumab (109), alemtuzumab (83), bemarituzumab (117), bivatuzumab (86), brontictuzumab (111), cantuzumab mertansine (105), cantuzumab ravtansine (105), cergutuzumab amunaleukin (113), citatuzumab bogatox (99), clivatuzumab tetraxetan (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), ficlatuzumab (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), onartuzumab (104), oportuzumab monatox (100), otltuzumab (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), sofizumab vedotin (110), sontuzumab (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 $^{90}$Y clivatuzumab tetraxetan (102), yttrium $^{90}$Y tacatuzumab tetraxetan (93), zenocutuzumab (118)

human: -umab
adeccatumab (90), anetumab ravtansine (109), aprutumab (115), aprutumab ixadotin (115), cixutumumab (100), conatumumab (99), daratumumab (101), drozitumab (103), dusigitumab (108), elgentumab (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), luponatumab (115), luponatumab amadotin (115), mapatumumab (93), narratumumab (105), necitumumab (100), ofatumumab (93), olaratumab (103), panitumumab (96), patritumab (106), pritumumab (89), radretumab (104), rilotumumab (101), robatumumab (100), seribantumab (108), sirtratumab (117), sirtratumab vedotin (117), tarextumab (109), teprotumumab (109), tisotumab (113), tisotumab vedotin (113), tovetumab (109), vantictumab (109), votumumab (80), zalutumumab (93), zolbetuximab (117)

-toxa- for toxin (previously as -tox(a)-):
  chimeric: -ximab  obiltoxaximab (113), pritoxaximab (108), setoxaximab (108)
  humanized: -zumab  urtoxazumab (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), navivumab (113), rafivirumab (100), regavirumab (80), sevirumab (66), supavirumab (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** adamantane derivatives
- **mantine**
- **mantone** (USAN: -mantadine or -mantine: antivirals/antiparkinsonians (adamantane derivatives))

**USAN**
(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: idramantine (71)

(b) anthelminthic: S.3.1.0: 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), amantocillin (17) (antibiotic), artelorane (97) (antimalarial), bolmantalate (16) (anabolic), meclinertant (88) (neurotensin antagonist), mantabegron (88) (β3-adrenoreceptor agonist), saxagliptin (92) (antidiabetic), vildagliptin (90) (antidiabetic)

-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))

\[
\text{CH}_3
\]
\[\text{O}\]
\[\text{CH}_3\]

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)

1mer- 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), chlormerodrin (197Hg) (24), meralluride
INN – the use of stems

(1), mercaptomerin (1), mercuderamide (1), mercumatinil sodium (4), mercurophylline (1), merisoprol ($^{97}$Hg) (24) (diagnostic), mersaly (1)

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

(c) hydrargaphen (10)

-mer polymers

(a) amilomer (33), azoximer bromide (97), berdaizimer sodium (117), bixalomer (103), caexomer (60), carbetimer (50), carbomer (21), crilanomer (53), davamotecan pegadexamer (117), demplatin pegralumer (117), dexranomer (33), eldexomer (60), exatecan alideximer (89), firtecan peglumer (108), hemoglobin glutamer (80), hemoglobin raffimer (89), leucilgumer (68), maletamer (14), ompinamer (108), patriomer 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)
atamesane (54), exemestane (65), formestane (66), minamestane (64), plomestane (66)

-metacin (x) anti-inflammatory, indometacin derivatives

A.4.2.0 (BAN: anti-inflammatory substances of the indomethacin group)	(USAN: -metacin: anti-inflammatory substances (indomethacin type))
(a) acemetacin (32), cinmetacin (24), clometacin (27), delmetacin (48)
    (originally demetacin (42)), duometacin (27), glucametacin (32),
    indometacin (13), niometacin (33), oxametacin (37), pimetacin (47),
    proglumetacin (35), sermetacin (36), talmetacin (46), zidometacin (39)

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

-met(h)asone see pred

-metinib see -tinib

-micin aminoglycosides, antibiotics obtained from various Micromonospora

(S.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), pentisomicin (41),
    plazomicin (106), repromicin (37), rosamicin (41) (prev. rosamicin),
    semduramcin (60), sisomicin (25)

-mifene see -ifene

-milast see -ast

mito- (d) antineoplastics, nucleotoxic agents

L.0.0.0

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

(c) mitindomide (48)
-monam  monobactam antibiotics

S.6.0.0

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

(c)  aztreonam (48)

-morelin  see -relin

-mostat  see -stat

-mostim  see -stim

-motine  antivirals, quinoline derivatives

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

(a)  famotide (23), memotide (22)

-moxin (d)  monoamine oxidase inhibitors, hydrazine derivatives

C.3.1.0

(a)  benmoxin (20), cimemoxin (17), domoxin (14), octamoxin (15)

(c)  carbenzide (11), etryptamine (12), fenoxypopazine (12), iproclozide
(13), iproniazid (1), isocarboxazid (11), mebanazine (15), nialamide (10),
pargline (13), phenelzine (10), pheniprazine (11), tranylcyromine (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

INN – the use of stems

USAN

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

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

(a) alestramustine (68), ambamustine (60), atrimustine (61), bendamustine (48), bofumustine (44), carmustine (24), ditiomustine (49), ecomustine (61), elmustine (49), estramustine (24), fotemustine (57), galamustine (61), 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), metemelfalan (41), mitoclomine (18), mitotenamine (17), palfosfamide (99), perfosfamide (66), sarcolysin (17), sufosfamide (36), trichlormethine (11), trofosfamide (23)

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), daptothromycin (58), dihydrostreptomycin (1), diproleandomycin (33), dirithromycin (53), efrotomycin (53), endomycin (6), enramycin (23), enviomyin (31), erythromycin (4), estomycin (14 - deleted in List 28), flurithromycin (51), fosfomycin (25), fosmidomycin (46), gamithromycin (95), ganefromycin (68), hachimycin (23), heliomycin (25), hydroxymycin (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), nebramyacin (19), neomyacin (1), neutramycin (15), oleandomycin (6), paldimycin (55), paromomycin (10), paulomycin (47), pirlimycin (47), primycin (38), pristinamycin (12), ranimycin (20), reloamyacin (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), cactinomycin (15), dactinomycin (18), duazomycin (13), lucimycin (13), mitomycin (26), nogalamycin (16), olivomycin (18), peliomycin (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), lidimycin (20), rutamycin (14)

(b) tobramycin (28)

(c) **antibiotic, antibacterial:**
aspartocin (11), azidamfenicol (14), cetofenicol (14), chloramphenicol (1), cloramphenicol pantotenate complex (14), cycloserine (6), novobiocin (6), ostreogrycin (6), rifamide (15), rifampicin (17), streptoniazid (13), streptovarycin (6), thiamphenicol (10), tylosin (16)

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

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

see also -rubicin

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**nab**

**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), pinnabin (41), tedalinab (103), tinabinol (49)
(b) fenabutene (26), guanabenz (26), muromonab-CD3 (59), nabumetone (44),
prinaberel (95)

-nabant  cannabinoid receptors antagonists
USAN
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
USAN
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
nalmetrene (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 \textit{prostaglandins receptors agonists, non-prostanoids}

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

(c) selexipag (102)

-nermin see -ermin

-nercept see -cept

-nertant see -tant

-netant see -tant

-nicate see nico-

-nicline \textit{nicotinic acetylcholine receptor partial agonists / agonists}

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)

\textbf{nico- or nic- or ni-} \textit{nicotinic acid or nicotinoyl alcohol derivatives}

\begin{figure}[h!]
\centering
\includegraphics[width=0.2\textwidth]{nicotinic_acid_structure}
\caption{Nicotinic acid structure}
\end{figure}

P.7.0.0

\textbf{nico-}: nicoboxil (43), nicoconate (29), nicocodine (12), nicocortone (40), nicodicodine (15), nicofibrate (31), nicofuranose (14), nicofurate (28), nicomol (23), nicomorphine (7), nicopholine (1), nicorandil (44), nicothazone (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), niceritrol (23), niceverine (15), nictindole (28), nizofenone (44)

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

**-nicate**: antihypercholesterolaemic and/or vasodilating nicotinic acid esters

H.4.0.0
F.2.2.0

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

(b) nitrile derivative: nimazone (21)

others: nifungin (24), nimidane (34), nisbuterol (38)

(c) **NO₂** - derivatives: acenocoumarol (6) (anticoag.), azathioprine (12) and tiamigrine (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 (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)
**-nidine** see -onidine

### nifur- (d) 5-nitrofuran derivatives

S.2.1.0

(a) nifuradene (16), nifuraldezone (17), nifuralide (34), nifuratel (17), nifuratrone (24), nifurdazil (16), nifurethazone (10), nifurfoline (20), nifurimide (18), nifurizone (22), nifurmazole (22), nifurmerone (16), nifuroquine (36), nifuroxazine (14), nifuroxime (11), nifurpiperone (20), nifurpirinol (22), nifurprazine (16), nifurquinazol (18), nifursemizone (16), nifursol (20), nifurthiazole (14), nifurtimox (21), nifurtinol (36), nifurvidine (17), nifurzide (37)

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

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

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

**NO₂ - derivatives**

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

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

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

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

**ni-** nibroxane (35), niclofolan (20), niclosamide (13), nidoxyzone (6), nifenalol (22), nihydrazone (10), nimesulide (44), nimirazole (22), nirdazole (17)

**ni-dipine** nicardipine (42), nifedipine (27), niludipine (38), nisoldipine (42), nitrendipine (42), vatamidipine (77)

**-nidazole** for INNs of this series see under –nidazole
-nixin  anti-inflammatory, anilinonicotinic acid derivatives

A.4.2.0

\( \text{USAN} \)

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

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

(-)nonacog  see -cog

-octakin  see -kin

(-)octocog  see -cog

-ol (d)  for alcohols and phenols

\( \text{BAN; USAN} \)

-olol (x)  \( \beta \)-adrenoreceptor antagonists

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

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

(a) 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), bupronolol (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)), dextrimonolol (98), dextropropranolol (21), diacetolol (41), draquinolol (54), ecastolol (56), epanolol (52), ericolol (50), esatenolol (76), esmolol (50), exaprolol (32), falintolol (53), flesstolol (53), flusoxolol (50), idropranolol (31), imidolol (49) (replaced by adimolol (50)), indenolol (37), indopanolol (48), iprocrolol (39), isoxaprolol (45), landiolol (75), levetaxolol (61), levobunolol (42), levanoprolol (58), levanolol (98), mepindolol (36), metipranolol (38), metoprolol (30), meprolol (36), nadolol (34), nadoxolol (28), nafetolol (39), nebivolol (56), nipradilol (50)
INN – the use of stems

(previously nipradolol (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), tertilolol (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)

\[
\begin{array}{c}
\text{Ar} \\
\text{OH} \\
\text{H} \\
\text{N-R}
\end{array}
\]

(a) amosulalol (50), bendacalol (59), breforalol (56), bufuralol (31), dextotalol (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), dexbudesonide (80), drocinonide (29), flucorolone acetonide (22), fluocinolone acetonide (11), flumoxonide (38), fluocinonide (25), halcinonide (29), itrocinonide (62), nicocortonide (40), procinonide (38), rofleponide (72), traloniode (27), triamcinolone benetonide (36), triamcinolone furetonide (36), triamcinolone 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)

veterinary 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 amfebutamone (31)), amfecloral (12), amfepramone (13), amfetamine (55), amfetaminil (40), benzfetamine (55), brolamfetamine (55), chlorphentermine (11), clortermine (22), dexamfetamine (55), dexionfluramine (54), dimetamfetamine (38), etilamfetamine (40), fenbutrazate (12), fenfluramine (14), hexapradol
INN – the use of stems

INN – the use of stems

(12), levamfetamine (12), levmetamfetamine (83), levofenfluramine (57), lisdexamfetamine (94), mephentermine (6), ortetamine (13), phendimetrazine (11), phenmetrazine (6), phentermine (11)

OREXANT

orexin receptor antagonists

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

OREXIN RECEPTOR ANTAGONISTS

USAN

USAN

OPHAN

opioid receptor antagonists/agonists, morphinan derivates

A.4.1.0

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

H
H

NH

(a)

A.4.1.0: butorphanol (31), deudextromethorphan (114), dextromethorphan (1), dextrorphan (1), dimemorfan (30), ketorfanol (49), levomethorphan (1), levophaenacylmorphan (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)

-B.2.0.0-: levallorphan (2)

-Morphinan derivates

-orphine: acetorphine (17), alletorphine (25), buprenorphine (29), cyprenorphine (17), desomorphine (5), diprenorphine (21), etorphine (17), homprenorphine (25), methyldeorphine (5), methyldihydromorphone (5), morphine glucuronide (92), nalorephine (1), nicomorphine (7), normorphine (7)

-orphinol: hydromorphinol (11)

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

\[
\begin{array}{c}
\text{carbadox (19), ciadox (44), cinoquidox (40), drazidox (24), mequidox (19), olaquindox (31), temodox (27)}
\end{array}
\]

-pirox antifungicals, pyridone derivatives:
(USAN: antifungal respiratory tract drugs (pyridone derivatives))

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

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

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

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**

**BAN, USAN**

-oxacin (x)  antibacterials, nalidixic acid derivatives

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

\[
\begin{align*}
H_2C & \quad N \quad N \\
& \quad O \\
& \quad CO_2H \\
& \quad \text{CH}_3
\end{align*}
\]

(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), cadrofloxacin (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), premafloxacin (72), prulifloxacin (72), rufloxacin (57), sarafloxacin (62), sitafloxacin (75), sparflloxacin (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), metoxate (34)

-oxan(e)  benzodioxane derivatives

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

\[
\begin{align*}
\text{O} \\
\text{enzymes}
\end{align*}
\]

(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: ambenoxan (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) (b-adrenoreceptor antagonist), efaroxan (59) (α₂)

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

c) aplindore (92), bendacalol (59), binosiprine (65), capeserod (94), etoprazine (57), lecozotan (93), lurtotecan (50), osemozotan (87), quincarbate (31), sibilinin (38), sulamserod (82)

-oxanide see -anide

-oxef see cef-

-oxepin see -pine

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

(USAN: antidepressants (fluoxetine type))

C.3.0.0

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

-oxicam see -icam

-oxifene see -ifene

-oxopine see -pine
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)

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

(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)

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

(a) anipamil (49), dagapamil (52), devapamil (53), dexverapamil (65), emopamil (52), etripamil (113), falipamil (48), gallopamil (38), levemopamil (62), nexpamil (67), onipamil (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))

\[
\begin{align*}
\text{H}_2\text{C} & \quad \text{CO}_2^- \\
\text{H}_2\text{N} & \quad \text{S} \\
\text{H}_2\text{N} & \quad \text{NH}_2^+ \\
\text{OH} & \quad \text{OH}
\end{align*}
\]
(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**

perfl(u)- **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**

-perone  **tranquillizers, neuroleptics, 4'-fluoro-4-piperidinobutyrophenone derivatives**

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

(a) aceperone (14), amiperone (14), biriperone (51), carperone (24), cicarperone (28), cinuperone (53), cloroperone (38), declenperone (42), duoperone (54), fenaperone (28), 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), trifluoperidol (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), tilozonepide (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), flumezepine (47), fluperlapine (46), loxapine (22), metiapine (22), mirtazapine (61), olanzapine (67), pentiapine (56), perlapine (23), quetiapine (74), rilapine (52), serazapine (63), tenilapine (52), ziconapine (100)
-cilpine  antiepileptic: A.3.1.0: dizocilpine (60)

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

-oxopine  traboxopine (58)

-sopine  adosopine (63)

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

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

(c)  clobenzepam (25), homopipramol (20), opipramol (15)

-piprant  prostaglandin receptors antagonists, non-prostanoids
(USAN: prostaglandin receptors antagonists, non prostinoid structure)

K.0.0.0  asapiprant (109), fevipiprant (109), grapiprant (110), laropiprant (97), setipiprant (104), timapiprant (116), vidupiprant (104)

-piprazole  see -prazole

-pirone  see -spirone

-pirox  see -ox/-alox

-pitant  see -tant

-plact  platelet factor 4 analogues and derivatives

iroplact (74)

-pladib  phospholipase A₂ inhibitors

W.0.0.0  darapladib (94), ecopladib (90), efipladib (92), giripladib (96), goxalapladib (94), rilapladib (94), varespladib (87)

-planin  glycopeptide antibacterials (Actinoplanes strains)
(USAN: antibacterials (Actinoplanes strains))

S.5.0.0  actaplanin (34), mideplanin (66), ramoplanin (57), teicoplanin (48)
INN – the use of stems

-plase  see -teplase, -uplase under -ase

-plasmid see -gene for gene therapy substances (See also Annex 4)

-platin (x) antineoplastic agents, platinum derivatives

USAN
L.0.0.0 (USAN: antineoplastic (platinum derivatives))
(a) carboplatin (48), cisplatin (39), demplatin pegraglumer (117),
dexormaplatin (64), enloplatin (64), eptaplatin (83), iproplatin (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

USAN
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

BAN, USAN
1.3.0.0 (USAN: erythropoietins)
(a) darbepoetin alfa (85), epoetin alfa (62), epoetin beta (62), epoetin delta
(85), epoetin gamma (67), epoetin epsilon (72), epoetin kappas (97), epoetin
omega (73), epoetin theta (95), epoetin zeta (92)

-porfin benzoporphyrin derivatives

USAN
(a) exeporfinium chloride (105), fimaporfin (110), lemuteporfin (91),
padeliporfin (96), padoporfin (93), redaporfin (114), rostaporfin (83),
stannsoporfin (79), talaporfin (84), temoporfin (70), verteporfin (71)
<table>
<thead>
<tr>
<th><strong>-poride</strong></th>
<th><strong>Na⁺/H⁺ antiport inhibitor</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>amiloride (18), cariporide (74), eniporide (79), rimeporide (92), sabiporide (84), zoniporide (85)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>-pramine</strong></th>
<th><strong>substances of the imipramine group</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>C.3.2.0</td>
<td>(USAN: antidepressants (imipramine type))</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Chemical Structure" /></td>
</tr>
<tr>
<td>(a)</td>
<td>saturated dibenzazepine:</td>
</tr>
<tr>
<td></td>
<td>azipramine (36), carpipramine (16), cianopramine (47), ciclopramine (29), clozapramine (28), clomipramine (17), depramidine (31), desipramine (13), imipramine (8), imipraminoxide (36), ketimipramine (17), lofoprizam (24), lopramine (24) (replaced by lofepramine (34)), metapramin (34), mosapramine (64), quinupramine (32), tampramine (54), tienopramine (38), trimipramine (13)</td>
</tr>
<tr>
<td>(c)</td>
<td>unsaturated dibenzazepine:</td>
</tr>
<tr>
<td></td>
<td>carbamazepine (15), homopipramol (20), opipramol (15)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>-prazan</strong></th>
<th><strong>proton pump inhibitors, not dependent on acid activation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>linaprazan (92), revaprazan (91), soraprazan (88), tegoprazan (113), vonoprazan (106)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>-prazole</strong></th>
<th><strong>antiulcer, benzimidazole derivatives</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>J.0.0.0</td>
<td>(USAN: antiulcer agents (benzimidazole derivatives))</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Chemical Structure" /></td>
</tr>
<tr>
<td>(a)</td>
<td>azeloprazole (116), cinprazole (34), dextansoprazole (93), disuprazole (56), esaprazole (45), esomeprazole (79), fuprazole (39), ilaprazole (86), lansoprazole (60), leminoprazole (68), levolansoprazole (93), nepaprazole (74), nilprazole (37), omeprazole (46), pantoprazole (62), picoprazole (46), pumaprazole (76), rabeprazole (69), saviprazole (62), tenatoprazole (80), timoprazole (35), ufiprazole (58)</td>
</tr>
</tbody>
</table>
-piprazole  **psychotropics, phenylpiperazine derivatives** *(future use is discouraged due to conflict with the stem –prazole)*

C.0.0.0

![Chemical structure](image)

(a) aripiprazole (75), brexpiprazole (107), dapiprazole (45), elopiprazole (70), enpiprazole (24), lorpiprazole (60), mepiprazole (24), sonepiprazole (80), tolpiprazole (25)

**USAN**

**pred**  **prednisone and prednisolone derivatives**

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

![Chemical structure](image)

(a) chloroprednisone (12), cloprednol (31), difluprednate (21), domoprednate (47), etiprednol dicloacetate (88), fluprednidene (19), fluprednisolone (13), halopredone (36), isofoxipredone (36), isoprednidene (24), loteprednol (64), mazipredone (32), meprednisone (15), methylprednisolone (8), methylprednisolone acetate (52), methylprednisolone suleptanate (56), oxisopred (29), prednazate (16), prednazolone (22), prednicarbate (44), prednimustine (31), prednisolamate (13), prednisolone (6), prednisolone steaglate (16), prednisone (6), prednylidene (13), tipredane (54)

(b) various non-steroidal compounds
citizolone (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**: alclometasone (41), amelometasone (74), beclometasone (17), betamethasone (11), betamethasone acibutate (26), crometasone (29), desoximetasone (20), dexamethasone (8), dexamethasone acefurate (57), dexamethasone cipiclate (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), diflucortolone (18), fluclorolone acetonide (22), fluocinolone acetonide (11), flucortolone (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), diflorasone (30), flunisolide (11), fluticasone (52), fluticasone furoate (96), meclorisone (40), timbesone (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 glycyrhrhetic 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), rostrolone (59)

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

-prenaline see –terol
-pressin  vasoconstrictors, vasopressin derivatives

Q.1.2.0  
\[
\text{H} \text{--} \text{Cys} \text{--} \text{Tyr} \text{--} \text{Phe} \text{--} \text{Gln} \text{--} \text{Aan} \text{--} \text{Cys} \text{--} \text{Pro} \text{--} \text{Arg} \text{--} \text{Gly} \text{--} \text{NH}_2
\]

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

-previr  see vir

-pride  sulpiride derivatives

C.0.0.0

J.1.0.0  
\[
\text{H}_2\text{N} \text{--} \text{S} \text{--} \text{N} \text{--} \text{CH}_3 \text{--} \text{O} \text{--} \text{OCH}_3 \text{--} \text{H} \text{--} \text{N}\text{--} \text{C}_{\text{O}} \text{--} \text{O}\text{--} \text{N}\text{--} \text{CH}_3
\]

(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), prosulpride (43), prucalopride (78), relenopride (111), sulmepride (43), sultopride (26), sulverapride (44), veralipride (43)

J.1.0.0: alepride (40), bromopride (27), cinitapride (41), cipropride (41), clebopride (32), dobutapride (57), ilorapride (55), isosulpride (36), itopride (66), lintopride (65), lirezapride (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),
      indolapril (50), libenzapril (58), lisinopril (50), moexipril (60),
      moveltipril (58), orbutopril (57), pentopril (53), perindopril (53), pivopril (52),
      quinapril (54), ramipril (52), reniaipril (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

S.5.5.0  (USAN: antibacterials (trimethoprim type))

(a)  aditoprim (49), baquiloprim (56), brodimoprim (44), epiroprim (44),
      iclaprim (88), metioprim (42), ormetoprim (21), talmetoprim (41),
      tetroxoprim (33), trimethoprim (11), vanerprim (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)  aplepristone (70), asoprisnil (88), asoprisnil ecamate (89), lilocepristone (54),

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

(c) 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),
dexketoprofen (70), esflurbiprofen (56), fenoprofen (26), flunoxaprofen
(44), fluprofen (18), flurbiprofen (28), frabuprofen (61), furaprofen
(42), furciprofen (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), tilnoprofen arbamel (74), tioxaproxen (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)
**prost (x)**

**prostaglandins**

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

(a) alfpaprostol (45), alprostadiol (39), ataprost (62), beraprost (106), bimatoprost (85), butaprost (55), carboprost (36), cicaprost (54), ciprostene (51), clinprost (68), cloprostenol (33), cobiprost (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), flunoproston (53), fluprostalene (33), froxiprost (55), gemeprost (42), iloprost (48) (originally ciloprost (46)), lanproston (72), latanoprost (67), latanoprostene bunod (107), limaprost (56), lubiprostone (89), lubrostiol (44), metenaprost (45), misoprostol (47), naxaprostene (58), nileprost (45), nobiprostolan (109), nocloprost (51), oxoproston (44), penprostene (37), pimilprost (71), piriprost (51), posaraprost (97), prostalene (34), remiprostol (65), rivenprost (93), rosaprostol (48), sepaprost (110), sulprostone (37), taprostene (58), tiaprost (41), tafluprost (89), iltaspulone (51), tiprostanide (48), travoprost (80), treprostensil (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), tebuquine (49)
acequinoline (22), actinoquinol (15), aminoquinol (22), amquinate (21), amiqinsin (17), aminoquinuride (45), benzoxiquine (18), broquinaldol (17), buquineran (40), buquinolate (16), clamoxyquine (16), cletoquine (20), chlorquinaldol (1), cinoquidox (40), ciproquinate (22), cloquinol (16), cloquinate (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), olaquinox (31), oxamniquine (28), peraquinsin (29), pirquinozol (43), proquinolate (17), quinaldine blue (17), quincarbate (31), quindecamine (15), quindoxin (26), quinetalate (16), quinfamide (40), quinisocaine (4), quinprenacline (17), quinuclium bromide (40), quipazine (17), sitamaquine (80), tilbroquinol (45), tiliquinol (45), tiquinamide (35), tiquizium bromide (47), toquizine (17), tretoquinol (21), viquidil (25)

broxaldine (12), cinchocaine (1), cinchophen (1), climiquinaline (33), dehydroemetine (15), dequalinium chloride (8), dimethyltubocuraririn chloride (1), dimoxyline (1), drotaverine (17), ethaverine (4), euprocin (22), famotine (23), flucarbril (14), glafenine (15), laudexium metilsulfate (4), laurocinium 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), tubocuraririn 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))

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

(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

-uracil type antineoplastics

L.0.0.0

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

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

-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

BAN; USAN

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

-Relin (x) pituitary hormone-release stimulating peptides

BAN; USAN

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:

USAN

(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) somatoterein (57)

-Tirelin thyrotropin releasing hormone analogues:

USAN

(a) azetirelin (60), fertirelin (42), montirelin (58), orotirelin (58), posatirelin (60), protirelin (31), rovarelin (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), spironorenone (45)

(b) bromchlorenone (12) (antifungal), menatetrenone (28) (antihemorrhagic), teprenone (50), ubidecarenone (48) (in congestive heart failure)

(c) oxprenoate potassium (53), prorenatoe 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), peretinoin (98), retinol (18), tretinoin (25), tretinoin tocoferil (66), zuretinol acetate (112)

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

-ribine ribofuranyl-derivatives of the “pyrazofurin” type

USAN

(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)

rif- antibiotics, rifamycin derivatives

USAN

(a) rifabutin (52), rifalazil (78), rifametane (61), rifamexil (67), rifamide (15), rifampicin (17), rifamycin (13), rifapentine (43), rifaximin (49) (previously rifaxidine (48))
-rinone  cardiac stimulants, amrinone derivatives

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

(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)

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

anastrozole (72), fadrozole (64), finrozole (81), leflutrozole (117), letrozole (70), liarozole (64), talarozole (99), vorozole (64)

(b)  aminitrozole (4), sulfatrozole (24), tenonitrozole (47)
antisense oligonucleotides

aganirsen (101), apatorsen (110), alicaforsen (118), anivamersen (105), aprinocarsen (89), atesidorsen (116), baliforsen (116), beclanorsen (01), casimersen (115), cenersen (97), cobomarsen (117), custirsen (99), danvatirsen (117), dematirsen (116), drisapersen (106), eluforsen (119), gataparsen (103), eteplirsen (103), golodirsen (115), inotersen (99), miprogersen (99), mongersen (111), nusinersen (112), oblimersen (87), prexigebersen (114), remlarsen (117), renapersen (117), rimigorsen (116), tofersen (119), trabedersen (97), varodarsen (116), viltolarsen (118), volanesorsen (113)

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

antineoplastics, daunorubicin derivatives

(a) aclorubicin (44), aldoxorubicin (108), amrubicin (65), berubicin (98), camsirubicin (119), carubicin (40), daunorubicin (20), detorubicin (41), doxorubicin (25), epirubicin (48) (originally piodorubicin (47)), esorubicin (47), galarubicin (80), idarubicin (47), ladirubicin (83), leurubicin (64), medorubicin (47), nemorubicin (71), pirarubicin (55), rodorubicin (54), sabarubicin (90), valrubicin (79), zerubicin (39), zoctarelin doxorubicin (107)

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), salcaprozoic acid (88) (absorption promoter), salcolbuzic 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), guaiimesal (50), parcetasal (65), pranosal (24), sulprosal (36), tenosal (63)

-antithrombotic
flufosal (42)

-various: antituberculosis
fenamisal (15), thiomersal (1) (disinfect.), triflusal (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)), mersalyl (4) (mercurial diuretic), octisalate (83) (sunscreen), osalmid (15) (choleretic), susalimod (73) (immunomodulator), xenysalate (12) (antiseborrhoeic)

-salazo-

-phenylazosalicylic acid derivatives antibacterial S.5.1.0
salazodine (22), salazosulfadimidine (11), salazosulfamide (1), salazosulfathiazole (1)

-salazine/-salazide
dersalazine (86), mesalazine (52), olsalazine (52), sulfasalazine (55), balsalazine (48), ipsalazide (48)

-salan-

-brominated salicylamide derivatives disinfectant S.2.1.0
bensalan (18), dibromsalan (14), flusalan (16), fursalan (18), metabolmsalan (16), tiosalan (18), tribromsalan (14)
(b) **non-salicylic acid derivatives**
- fosalyudine tidoxil (95), macrosalb (\(^{99m}\)Tc) (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), dipyrocetyl (6), ethenzamide (10), fenamifuril (16), gentisic acid (01), hydroxytoluic acid (17), sodium gentisate (1), sodium glucaspaldrate (17)

**various**
- 4-amino- salicylates 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.I.2.0:** xipamide (22) (sulfamoyl derivative),

**mercurial diuretics N.I.3.0:** mercuderamide (1)

**anthelmintics S.3.l.0:** bromoxanide (31), clioxanide (19), niclosamide (13), rafoxanide (24), closantel (36), flurantel (25), resorantel (23)

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

See also Pharm S/Nom 557

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**-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), pomisartan (73), pratosartan (85), ripisartan (73), saprisartan (72), tasosartan (72), telmisartan (70), valsartan (68), zolasartan (70)
### -semide

#### diuretics, furosemide derivatives

N.1.1.0

![Furosemide molecule]

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

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

(a) alosetron (66), arazasetron (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), zatosexualtrons (64)

-siban oxytocin antagonists

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

-siran 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)

som- 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), efpegomatropin (115), eftansomatropin alfa (118), lonapegomatropin (118), somacapitan (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

![Buspirone molecular structure](image)

(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) daproduct (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)
-mastat  
(matrix metalloproteinase inhibitors)
(a) batimastat (70), cipemastat (81), ilomastat (73), marimastat (75),
     otaplimastat (118), pronomastat (82), rebimastat (89), ricolinostat (109),
     solimastat (80), tanomastat (82)

-mostat  
(proteolytic enzyme inhibitors:)
(a) camostat (46), nafamostat (53), patamostat (69), sepimostat (68),
     upamostat (110)
(c) aloxistatin (57), ulinastatin (56)

-restat or -restat-

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
alicapistat (115) calpain cysteine protease inhibitor
apratastat (93) inhibition of TNF-α converting enzyme
atabecestat (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
duvooglustat (102) glucosylceramide synthase inhibitor
elenbecestat (117) beta secretase inhibitor
eliglustat (103) glucosylceramide synthase inhibitor
emixustat (108) retinol isomerase inhibitor
ezatiostat (98) glutathione-S-transferase inhibitor
febuoxostat (85) xanthine oxydase and xanthine
     dehydrogenase inhibitor
firsoocostat (118) allosteric inhibitor of acetyl-CoA carboxylase
     (ACC)
fulacimstat (117) chymase inhibitor
iadademstat (119) lysine-specific histone demethylase (LSD₁) inhibitor
imetelesthat (101) antineoplastic, telomerase inhibitor
iofolastat (122) (105) 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
talabostat (92) antineoplastic
technetium (99mTc) radiolabelled diagnostic agent
trofolastat chloride (109) glutaminase inhibitor
telaglenstatat (119) 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
verubecstat (112)  beta secretase inhibitor
vistatolon (25)  antiviral antibiotic
zinostatin (40)  antineoplastic
zinostatin stimalamer (74)

(b)  nystatin (6)

- 

-vastatin  antihyperlipidaemic substances, HMG CoA reductase inhibitors  USAN

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  BAN

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  USAN

Q.2.3.1

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

-sterone: 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) (hydrocholesterolemic), dihydrotachysterol (1) (antihipoparathyroid), iodocholesterol (131) (39)

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

<table>
<thead>
<tr>
<th>-steride</th>
<th>testosterone reductase inhibitors</th>
<th>USAN</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>bexlosteride (81), dutasteride (78), epristeride (69), finasteride (62), izonsteride (81), lapisteride (85), turosteride (67)</td>
<td></td>
</tr>
</tbody>
</table>

**-stigmine (d) acetylcholinesterase inhibitors**

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

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

(c) eseridine (53)

**-stim colony stimulating factors**

I.5.0.0

(a) ancestim (79) (cell growth factor), garnocestim (85) (immunomodulator), pegacaristim (80) (megakaryocyte growth factor), romiplostim (97) (platelet stimulating factor)

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

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

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

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

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

(a) balugrastim (107), eflapegrastim (112), efenograstim alfa (117), empegfilsgrastim (107), filgrastim (64), lenograstim (64), lipgefilgrastim (105), mecapegilgrastim (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: sulpha-)
(USAN: antimicrobials (sulfonamides derivatives))

(a) sulfabenz (17), sulfabenzamide (27), sulfacarbamide (12), sulfacecole (30), sulfacetamide (1), sulfachlorpyridazine (10), sulfachrysoidine (1), sulfactine (23), sulfaclomide (17), sulfaclozine (25), sulfadiazine (4), sulfadiazine sodium (4), sulfadiazine sodium (4), sulfacicamidine (4), sulfadiazemone (10), sulfadimidine (1), sulfadoxine (20), sulfadithidole (8), sulfadiflazole (1), sulfaguanidine (4), sulfaguanole (23), sulfalene (12), sulfaloxenic acid (15), sulfamazine (40), sulfamerazine (4), sulfamerazine sodium (4), sulfamethizole (1), sulfamethoxazole (14), sulfamethoxypyridazine (8), sulfametomidine (12), sulfamethoxypidazine (17), sulfametrole (31), sulfamonomethoxine (11), sulfamoxole (12), sulfanilamide (4), sulfanitran (15), sulfaperin (14), sulfaphenazole (10), sulfaproxyline (4), sulfapyrazole (18), sulfapyridine (1), sulfaquinoxaline (46), sulfasalazine (55), sulfasomizole (10), sulfasuccinamide (41), sulfasymazine (12), sulfathiazole (4), sulfathiourea (1), sulfatolamide (10), sulfatroxazole (29), sulfatrozo (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), stearyl sulfamide (1), succinylsulfathiazole (4), sulfisomidine (1), vanillylsulfamide (1), mafenide (1) (sulfonamide, but not sulfanilamide)

- sulfan antineoplastic, alkylating agents, methanesulfonates

L.2.0.0

(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 –mantadine)

-tansine maytansinoid derivatives, antineoplastics

emtansine (such as laprituximab emtansine (114), narutaximab 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))
INN – the use of stems

**-tant**  
**neurokinin (tachykinin) receptor antagonists**

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

**-pitant**  
**neurokinin NK, (substance P) receptor antagonist**

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

**-dutant**  
**neurokinin NK, receptor antagonist**

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

**-ertant**  
**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))

afeletoecan (85), atiratecan (101), belotecan (91), cositecan (100),  
davamotecan pegadexamer (117), delimotecan (97), diflomotecan (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), toptotecan (65), trastuzumab deruxtecan (116)

**-tepa**  
antineoplastics, thiotepa derivatives

L.2.0.0

![Thiotepa structure formula](image)

(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

![Bronchodilator structure formula](image)

(a) abediterol (104), amiterol (26), arformoterol (90), batefenterol (110), bitolterol (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), reproterol (30), rimiterol (26), salmeterol (55), sulfonterol (3l), vilanterol (103), zilpaterol (60), zinterol (38)

**-buterol:** bambuterol (49), carbuterol (29), clenbuterol (28), divabuterol (51), flerbuterol (59), ibuterol (31), mabuterol (46), nisbuterol (38), pirbuterol (30), tobuterol (45), tulobuterol (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) cioteronel (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), siratiazem (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), adegramotide (115), alicdamotide (109), amilomotide (105), asudemotide (107), disomotide (94), elpamotide (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 (177)Lu oxodotreotide (116), octreotide (52), pasireotide (90), pentetreotide (66), satoreotide (115), satoreotide trizoxetan (114), vapreotide (62), veldoreotide (117)

-ritide natriuretic peptides
anaritide (57), carperitide (65), cenderitide (105), nesiritide (80), ularitide (69) vosoritide (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), davalintide (101), efpeglenatide (111), efinopegdutide (119), exenatide (89), lixisenatide (99), pegapamodutide (116), pramlintide (74), seglitide (57), tirzepatide (119)
antineoplastic: fexapotide (114), ruxotemitide (119)
antiviral: bulevirtide (118), enfuvirtide (85), tifuvirtide (91)
autoimmune disorders: dalazatide (111), dirucotide (100)
calcium sensing receptor agonist: etelcalcetide (112)
cardiovascular indications: aclerastide (110), danegaptide (101),
elamipretide (113), ensereptide (107), eptifibatide (78), mibenratide (111), rotigaptide (94), rusalatide (96), teprotide (36)

chemokine CXCR4 receptor antagonist: balixafortide (112)

decoy receptor: nangibotide (117)

diagnostic: betiatide (58), bibapcitide (78), ceruletide (34), depreotide (80), flotegatide ($^{18}$F) (108), fluciclatide ($^{18}$F) (103), maraciclatide (103), mertiatide (60), pendentide (70), technetium ($^{99m}$Tc) acpitate (78), technetium ($^{99m}$Tc) etarfolatide (107), teriparatide (50), tozuleristide (115)

expectorant (in cystic fibrosis): lancovutide (99)

gastrointestinal indications: dolcanatide (114), lagatide (75), larazotide (99), linaclotide (96), oclitide (52), plecanatide (104), renacaclotide (115), sulglicotide (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), pimeltaotide (53), prezatide copper acetate (67), rolipoltide (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), davunetide (100), doreptide (58), ebratide (56), nerinetide (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)

defibrotide (44) (nucleotide), diamfenetide (28) (fasciolicide), diclometide (19) (behaviour modifier), fluodorexocortide (12), glisentide (58)

angiotensin II (65), angiotensinam ide (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))

(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  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),
amuvatinib (103), avapritinib (117), axitinib (94), bafetinib (101), belizatinib
(113), bencentinib (117), bosutinib (94), , brigatinib (113), cabozantinib
(105), canertinib (87), capmatinib (111), cerdulatinib (111), ceritinib
(109), conteltnib (118), crizotinib (103), dacomitinib (103), dasatinib (94),
decernotinib (110), defactinib (111), derazantinib (116), dovitinib (97),
edicotinib (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),
golatinib (107), ilginatinib (119), imatinib (86), infigratinib (112), lapatinib
(89), laroctatinib (115), lazertinib (117), lenvatinib (104), leustatinib
(91), linsitinib (104), lorlatinib (114), masitinib (96), mavelertinib (118),
merestinib (113), mivavotinib (119), momelotinib (107), mubritinib (90),
naqnotinib (115), nazartinib (114), neratinib (97), nilotinib (95), orantinib
(103), osimertinib (113), pacritinib (104), pegcantratinib (113), petinib
(93), pemigatinib (118), pexidartinib (112), ponatinib (104), poseltinib
(116), poziotinib (108), quizartinib (104), radotinib (104), ravoxertinib
(115), rebastinib (107), ripretinib (119), roblitinib (118), rociletinib (111),
rogaratinib (115), ruxolitinib (103), sapitinib (106), saracatinib (99),
savolitinib (111), sitravatinib (114), sunitinib (93), surufatinib (118),
tandutinib (91), tarloxotinib bromide (114), telatinib (96), tepotinib
(111), tessevatnib (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),
cyclopendthiazide (12), cyclothiazide (12), disulfamide (11), ethiazide
(14), flumethiazide (10), hydrochlorothiazide (10), hydroflumethiazide
(10), methyclothiazide (11), polythiazide (12), teclothiazide (12),
trichlormethiazide (11)
**-tocin**  oxytocin derivatives

Q.1.2.0

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(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

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

ropitoan (40) (H.2.0.0.)

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

**-tolimod**  see -imod

**-trakin**  see -kin

**-trakinra**  see –kinra

**-traline**  serotonin reuptake inhibitors

dasotraline (110), indatruline (54), lometraline (28), sertruline (48), tametraline (46)

**-tredekin**  see -kin

**-trexate**  folic acid analogues

L.4.0.0  (USAN: antimetabolites (folic acid analogues))
(a) edatrexate (61), ketotrexate (50), methotrexate (10), pralatrexate (92), trimetrexate (46)

(c) 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), candicidin (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) elphetrigine (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)
INN – the use of stems

-**triptan** serotonin (5-HT<sub>1</sub>) 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[a,d]cycloheptane or cycloheptene derivatives

C.3.2.0 (USAN: antidepressants (dibenzo[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 A<sub>2</sub>-receptor antagonists; antithrombotic agents

I.2.1.0 (USAN: antithrombotics (thromboxane A<sub>2</sub> receptor antagonists)

argatroban (57), daltroban (57), domtroban (73), ifetroban (71), linotroban (69), mipirotroban (73), ramatroban (73), sulotroban (55), terutroban (93)

-**trodast** see -ast
trop | atropine derivatives
---|---
E.2.0.0 | (USAN: trop-; or –trop-)

(a) **parasympathomlytic/anticholinergic:** E.2.2.0:
tertiary amines: atropine oxyde (12), benztropine (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 (51), darotropium bromide (99), flutropium  
bromide (50), homatropine methylbromide (1), ilmetropium iodine (115),  
iratropium bromide (28), octatropine methylbromide (10), oxitropium  
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:
clobenztropine (13) (antihistaminic), cyheptropine (15) (antiarrhythmic),  
deptropine (12) (antiasthmatic), revatropate (74) (bronchodilator),  
tropabazate (41) (tranquilizer), tropanserin (55) (serotonin receptor  
antagonist), tropantiot (97) (chelating agent), tropapride (48)  
(antipsychotic), tropirine (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) **parasympathomlytic/anticholinergic, tertiary amines:**
poskine (8), prampine (11), tigloidin (14)

various:
zepastine (26) (antihistaminic)
-uplase  urokinase type plasminogen activator, see -ase

-uridine  uridine derivatives used as antiviral agents and as antineoplastics
  (USAN: antivirals; antineoplastics (uridine derivatives))

S.5.3.0
L.4.0.0

(a)  L.4.0.0: broxuridine (30), doxifluoridine (44)

related: carmofur (45), clanfenur (58), tegafur (41)

S.5.3.0: fialuridine (68), floxuridine (16), fosfluoridine tidoxil (93), idoxuridine (17), navuridine (84), rupidoxuridine (97), trifluoride (37), uridine triacetate (103)

-vudine  (USAN: -vudine: antineoplastics; antivirals (zidovudine type))

(a)  alovudine (68), brivudine (59), cedazuridine (118), censavudine (110),
    clevudine (78), epervudine (61), fosalvudine 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)

-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)

-vastatin  see -stat

-vec  see -gene for gene therapy substances
-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), dextemperiverine (53), dicycloverine (6), dihexyverine
    (4), dipropoverine (10), diproverine (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), niceverine (15),
    octaverine (18), pargoverine (38), pentoxyverine (6), pramiverine (21),
    renoverine (41), propiverine (45), rociaverine (33), safluverine (29),
    salverine (15), secoverine (38), temiverine (76), zardaverine (59)

Related:
fenpiverinium bromide (26), piperine 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), dimoxitin (1),
    fenpiprane (17), fenpyramidol (12), metindizate (16), oxybutynin (13),
    papaveroline (29), pentapiperide (10), prozpine (14), triclabazide (10),
    tropenziline bromide (11)

vin- and  vinca alkaloids
- and -vin-  (x)

(a)  B.1.0.0 stimulation of cerebrovascular circulation
    apovincamine (48), brovincamine (42), vinburnine (45), vincamine (22),
    vincanol (37), vincastral (51), vinconate (47), vindeburnol (49), vinmegallate
    (59), vinpocetine (36), vinpoline (35), vintoperol (61)

L.5.0.0 cytostatic
    vinblastine (12), vincristine (13), vindesine (35), vinepide (50), vinflunine
    (75), vinformide (38), vinsosital (64), vinglycinate (16), vinleucinol (64),
    vinleurosine (13), vinorelbine (57), vinrosidine (13), vintafolide (107),
    vintriptol (51), vinzolidine (46)

(b)  barbiturates
    vinbarbital (l), vinylbital (12)
    others: vincofos (28) (phosphate, anthelmintic), vintiamol (16) (vitamin B
    derivative, antineuralgic)
INN – the use of stems

- **vir** antivirals (undefined group)

  **S.5.3.0** (USAN: -vir; -vir; or vir-: antivirals)

  - **(a)** alisporivir (100), alvircept sudotox (69), amdoxovir (85), amenamevir (100), amitivir (67), atevirdine (69), balapiravir (100), baloxavir marboxil (116), bevirimat (96), delavirdine (71), denotivir (70), efavirenz (78), enfuvirtide (85), enviradene (49), enviroxime (44), enzaplatovir (115), favipiravir (98), fostemsavir (115), galidesivir (114), inarigivir soproxil (116), letermovir (104), litomeglovir (84), maribavir (80), nevirapine (66), opaviraline (83), pimodivir (115), pirodavir (63), pocapavir (107), presatovir (111), pritelivir (106), remdesivir (116), riamilovir (117), ribavirin (31), rupintrivir (88), taribavirin (95), talviraline (75), tecovirimat (99), temsavir (112), teslexivir (116), tifuvirtide (91), tivirapin (74), tomeglovir (84), trovirdine (73), umifenovir (103), vapendavir (106), viroxime (49), zinviroxime (44)

- **-amivir** neuraminidase inhibitors: laninamivir (100), oseltamivir (80), peramivir (86), zanamivir (72)

- **-asvir** antivirals, Hepatitis C Virus (HCV) NS5A inhibitors: coblopasvir (119), daclatasvir (115), elbasvir (111), ledipasvir (109), odalasvir (111), ombitasvir (112), pibrentasvir (119), ravidasvir (113), ruzasvir (114), samatasvir (110), velpatasvir (112)

- **-buvir** 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)

- **-cavir** carbocyclic nucleosides: abacavir (76), entecavir (82), lobucavir (72)

- **-ciclovir** 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)

- **-fovir** phosphonic acid derivatives: adefovir (72), alamifovir (89), besifovir (105), brincidofovir (110), cidofovir (72), pradefovir (93), rovafovir etalafenamide (119), tenofovir (82), tenofovir alafenamide (111), tenofovir exalidex (115)

- **-gosivir** glucoside inhibitors: celgosivir (77)
-navir  HIV protease inhibitors: amprenavir (79), atazanavir (88), brecanavir (94),
daranavir (88), droxinaivir (74), fosamprenavir (83), indinavir (74), lasinavir
(76), lopinavir (80), mozenavir (84), nelfinavir (76), palinavir (74), ritonavir
(74), saquinavir (69), telinavir (73), tipranavir (80)

-previr  Hepatitis Virus C (HVC) protease inhibitors: asunaprevir (105), boceprevir
(97), ciluprevir (90), danoprevir (102), deldeprevir (110), faldaprevir (106),
furaprevir (111), glecaprevir (114), grazoprevir (111), narlaprevir (102),
paritaprevir (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), raltegravir (97)

-virine  Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTI): capravirine
(83), dapivirine (86), doravirine (109), elsvfuravirine (117), emivirine (82),
etravirine (88), fosdevirine (103), lersivirine (101), rilpivirine (82)

-viroc  CCR5 (Chemokine CC motif receptor 5) receptor antagonists: ancriviroc
(92), aplaviroc (94), cenicriviroc (103), maraviroc (94), vicriviroc (94)

-virsen  see -rsen

-vi(.mab  see mab

(b)  viriniacycin (18), viridofulvin (16)

(c)  aranotin (21), arildone (38), avridine (50), didanosine (64), disoxaril (55),
dimepranol (42), foscarnet sodium (42), fosfonet sodium (35), ketoxal
(22), impacarzine (36), inosine (42), lodenosine (75), metisazone (14),
moroxydine (22), pleconaril (77), tilarone (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
-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

cabiortaxetan (103), clivatuzumab tetraxetan (113), epitumomab cituxetan (89), ibritumomab tiuxetan (86), lutetium ($^{177}$Lu) lilotomab satetraxetan (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 $5HT_{1A}$ 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 therefore 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></td>
</tr>
<tr>
<td>-astum</td>
<td>antiasthmatic, antiallergic substances not acting primarily as antihistaminics</td>
</tr>
<tr>
<td>-astinum</td>
<td>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>gab</td>
<td>gabamimetic agents</td>
</tr>
<tr>
<td>gado-</td>
<td>diagnostic agents, gadolinium derivatives</td>
</tr>
<tr>
<td>-gatranum</td>
<td>thrombin inhibitors, antithrombotic agents</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 <em>Streptomyces</em> 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>
-relinum -relin pituitary hormone release-stimulating peptides
-sartanum -sartan angiotensin II receptor antagonists, antihypertensive (non-peptidic)
-vaptanum -vaptan vasopressin receptor antagonists
vin- vin- ) vinca alkaloids
-vin- -vin- )

* In its twentieth report (WHO Technical Report Series, No. 581, 1975), the WHO Expert Committee on Nonproprietary Names for Pharmaceutical Substances reviewed the general principles for devising, and the procedures for selecting, international nonproprietary names (INN) in the light of developments in pharmaceutical compounds in recent years. The most significant change has been the extension to the naming of synthetic chemical substances of the practice previously used for substances originating in or derived from natural products. This practice involves employing a characteristic “stem” indicative of a common property of the members of a group. The reasons for, and the implications of, the change are fully discussed.
Annex 3

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: mab</th>
</tr>
</thead>
<tbody>
<tr>
<td>random</td>
<td>serum amyloid protein (SAP)/amyloidosis (pre-substem)</td>
<td></td>
</tr>
<tr>
<td>-ami-</td>
<td>bacterial</td>
<td></td>
</tr>
<tr>
<td>-ba-</td>
<td>cardiovascular</td>
<td></td>
</tr>
<tr>
<td>-ci-</td>
<td>fungal</td>
<td></td>
</tr>
<tr>
<td>-fung-</td>
<td>fungal</td>
<td></td>
</tr>
<tr>
<td>-gros-</td>
<td>skeletal muscle mass related growth factors and receptors (pre-substem)</td>
<td></td>
</tr>
<tr>
<td>-ki-</td>
<td>interleukin</td>
<td></td>
</tr>
<tr>
<td>-li-</td>
<td>immunomodulating</td>
<td></td>
</tr>
<tr>
<td>-ne-</td>
<td>neural</td>
<td></td>
</tr>
<tr>
<td>-os-</td>
<td>bone</td>
<td></td>
</tr>
<tr>
<td>-ta-</td>
<td>tumour</td>
<td></td>
</tr>
<tr>
<td>-toxa-</td>
<td>toxin</td>
<td></td>
</tr>
<tr>
<td>-vet-</td>
<td>veterinary use</td>
<td></td>
</tr>
<tr>
<td>-vi-</td>
<td>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/](http://www.who.int/medicines/services/inn/en/).
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 stem -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

-\textit{xizu}- is used for an antibody having both chimeric and humanized chains.
-\textit{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).

\textbf{Table 3: Substem A for target class.}

<table>
<thead>
<tr>
<th>Substem A</th>
<th>Target Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>-b(a)-</td>
<td>bacterial</td>
</tr>
<tr>
<td>-am(i)-</td>
<td>serum amyloid protein (SAP)/amyloidosis (pre-substem)</td>
</tr>
<tr>
<td>-c(i)-</td>
<td>cardiovascular</td>
</tr>
<tr>
<td>-f(u)-</td>
<td>fungal</td>
</tr>
<tr>
<td>-gr(o)-</td>
<td>skeletal muscle mass related growth factors and receptors (pre-substem)</td>
</tr>
<tr>
<td>-k(i)-</td>
<td>interleukin</td>
</tr>
<tr>
<td>-l(i)-</td>
<td>immunomodulating</td>
</tr>
<tr>
<td>-n(e)-</td>
<td>neural</td>
</tr>
<tr>
<td>-s(o)-</td>
<td>bone</td>
</tr>
<tr>
<td>-tox(a)-</td>
<td>toxin</td>
</tr>
<tr>
<td>-t(u)-</td>
<td>tumour</td>
</tr>
<tr>
<td>-v(i)-</td>
<td>viral</td>
</tr>
</tbody>
</table>

In principle, a single letter, e.g. -\textit{b}- for bacterial is used as substem A. Whenever substem B starts with a consonant (e.g. x or z), to avoid problems in pronunciation, an additional vowel indicated in the table, e.g. -\textit{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 -tox is used in the second word.

If the monoclonal antibody is radiolabelled, the radioisotope is listed first in the INN, e.g. technetium (\textit{\textsuperscript{99m}Tc}) nofetumomab 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>Stem</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>rat</td>
</tr>
<tr>
<td>axo (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>Stem</th>
<th>Disease/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>Stems</th>
<th>Tumours</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) pimutomab (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 (gene component)</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></td>
<td>-cima-</td>
<td>cytosine deaminase</td>
</tr>
<tr>
<td></td>
<td>-ermin-</td>
<td>growth factor</td>
</tr>
<tr>
<td></td>
<td>-kin-</td>
<td>interleukin</td>
</tr>
<tr>
<td></td>
<td>-lim-</td>
<td>immunomodulator</td>
</tr>
<tr>
<td></td>
<td>-lip-</td>
<td>human lipoprotein lipase</td>
</tr>
<tr>
<td></td>
<td>-mul-</td>
<td>multiple gene</td>
</tr>
<tr>
<td></td>
<td>-stim-</td>
<td>colony stimulating factor</td>
</tr>
<tr>
<td></td>
<td>-tima-</td>
<td>thymidine kinase</td>
</tr>
<tr>
<td></td>
<td>-tusu-</td>
<td>tumour suppression</td>
</tr>
<tr>
<td></td>
<td>-(a vowel)gene</td>
<td>e.g. -(o)gene</td>
</tr>
</tbody>
</table>

| word 2 (vector component) | random to contribute to euphonious and distinctive name | to identify the viral vector type, e.g.: |
| | -adeno- | adenoivirus |
| | -cana- | canarypox virus |
| | -foli- | fowlpox virus |
| | -erna- | herpes virus |
| | -lenti- | lentivirus |
| | -morbilli- | Paramyxoviridae morbillivirus |
| | -parvo- | adeno-associated virus |
| | -retro- | Parvoviridae dependovirus |
| | -vaci- | other retrovirus |
| | -vec | (non-replicating viral vector) |
| | -revec | (replicating viral vector) |

| 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.
<table>
<thead>
<tr>
<th>List no. and reference</th>
<th>List no. and reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chron. Wild Hlth Org. 7: 299 (1953)</td>
</tr>
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<td>2</td>
<td>Chron. Wild Hlth Org. 8: 216 (1954)</td>
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<td>3</td>
<td>Chron. Wild Hlth Org. 9: 313 (1954)</td>
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<tr>
<td>4</td>
<td>Chron. Wild Hlth Org. 10: 28 (1956)</td>
</tr>
<tr>
<td>5</td>
<td>Chron. Wild Hlth Org. 11: 231 (1957)</td>
</tr>
<tr>
<td>6</td>
<td>Chron. Wild Hlth Org. 12: 102 (1958)</td>
</tr>
<tr>
<td>7</td>
<td>WHO Chronicle 13: 105 (1959)</td>
</tr>
<tr>
<td>8</td>
<td>WHO Chronicle 13: 152 (1959)</td>
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<td>9</td>
<td>WHO Chronicle 14: 168 (1960)</td>
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<td>10</td>
<td>WHO Chronicle 14: 244 (1960)</td>
</tr>
<tr>
<td>11</td>
<td>WHO Chronicle 15: 314 (1961)</td>
</tr>
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<td>12</td>
<td>WHO Chronicle 16: 385 (1962)</td>
</tr>
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<td>13</td>
<td>WHO Chronicle 17: 389 (1963)</td>
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<tr>
<td>14</td>
<td>WHO Chronicle 18: 433 (1964)</td>
</tr>
<tr>
<td>15</td>
<td>WHO Chronicle 19: 446 (1965)</td>
</tr>
<tr>
<td>16</td>
<td>WHO Chronicle 20: 216 (1966)</td>
</tr>
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<td>17</td>
<td>WHO Chronicle 21: 70 (1967)</td>
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<td>18</td>
<td>WHO Chronicle 21: 478 (1967)</td>
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<td>WHO Chronicle 22: 112 (1968)</td>
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<td>WHO Chronicle 22: 407 (1968)</td>
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<td>WHO Chronicle 24: 413 (1970)</td>
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<td>26</td>
<td>WHO Chronicle 25: 415 (1971)</td>
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<td>27</td>
<td>WHO Chronicle 26: 121 (1972)</td>
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<td>28</td>
<td>WHO Chronicle 26: 414 (1972)</td>
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<td>29</td>
<td>WHO Chronicle 27: 120 (1973)</td>
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<tr>
<td>30</td>
<td>WHO Chronicle 27: 380 (1973)</td>
</tr>
<tr>
<td>32</td>
<td>WHO Chronicle 28: No. 9, suppl. (1974)</td>
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<tr>
<td>33</td>
<td>WHO Chronicle 29: No. 3, suppl. (1975)</td>
</tr>
<tr>
<td>34</td>
<td>WHO Chronicle 29: No. 9, suppl. (1975)</td>
</tr>
<tr>
<td>35</td>
<td>WHO Chronicle 30: No. 3, suppl. (1976)</td>
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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