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

2002
The use of common stems in the selection of International Nonproprietary Names (INN) for pharmaceutical substances

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THE ORIGINAL AND SUBSEQUENT EDITION OF THIS DOCUMENT HAD THE REFERENCE NUMBER WHO/PHARM S/NOM 15
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Preface

WHO’S INN PROGRAMME

WHO has a constitutional responsibility to "develop, establish and promote international standards with respect to biological, pharmaceutical and similar products". This is the basis for many activities within WHO, such as International Nonproprietary Names (INN), WHO Good Manufacturing Practices, the International Pharmacopoeia, the WHO Certification Scheme and many others. The section of the WHO specifically dealing with selection of International Nonproprietary Names for pharmaceutical substances falls under the Department of Essential Drugs and other Medicines.

INN SELECTION PROCEDURE AND CRITERIA

A request for an INN is usually submitted on a form to the World Health Organization. In certain countries, where national nomenclature commissions exist, this is done through the corresponding national nomenclature authority.

Precise information on the chemistry, pharmacological action and use, as well as suggested nonproprietary names, name and address of the manufacturer are to be provided on the form. Each name proposed by the originator of such a request is then examined and a name selected.

All members of the WHO Expert Panel on the International Pharmacopoeia and Pharmaceutical Preparations designated to select nonproprietary names have to agree to the name which is then first published as a proposed INN. During a four-month period, any person can forward comments, or lodge a formal objection to a name, e.g. on grounds of similarity with a trade-name. If no objection is raised the name will be published a second time as recommended INN.

The primary principles for selection are that an INN should be

- distinctive in sound and spelling,
- not too long,
- not liable to confusion with other names in common use.

INNs for substances belonging to a particular group of pharmacologically related substances show their relationship by the use of common stems, which are listed and defined in this document.

In addition to the above rules, certain rules have been established to allow the use of INNs internationally, i.e. in various languages. For example, the letters "h" and "k" should be avoided; "e" should be used instead of "ae" and "oe", "i" instead of "y" and "t", "f" instead of "th" and "ph".

Further information on the selection procedure and general principles in devising INNs may be found in Annex 2 and 3.
THIS DOCUMENT

This document lists common stems for which chemical and/or pharmacological categories have been established. These stems and their definitions have been selected by the INN experts and are for use when selecting new international nonproprietary names for pharmaceutical substances that belong to an established series of related compounds.

The list is not exhaustive in that it might not include all stems used by the INN Committee. It is the nature of the nomenclature process that new, potential stems are constantly being created and that definitions of older stems may need to be modified as new information becomes available.

Examples of nonproprietary names have been selected from Lists 1 - 84 of Proposed International Nonproprietary Names. They were compared with:

- Stems listed in article 9 of the "General Principles for Guidance in Devising International Nonproprietary Names for Pharmaceutical Substances", Annex to List 81 of proposed INN and some well-established old or new stems not included in article 9 of the general principles. Details on stems are indicated as follows:
  - (x) stems that are included in article 9 of the general principles
  - (d) stems deleted from article 9 of the general principles

The reference to TRS 581* indicates that the stem is listed in Annex 3 of the 20th Report of the WHO Expert Committee on Nonproprietary Names for Pharmaceutical Substances.

References to syllables 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 given in brackets under the INN definition.

For each stem, the names have been classified as:

- (a) names in which the preferred stem has been used in accordance with its definition;
- (b) names in which the preferred stem has been used but not in accordance with its definition;
- (c) 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 always complete).

The codes given on the left-hand side under each stem refer to the WHO pharmacological classification used in the WHO Drug Evaluation and Monitoring Programme.

Note for trade-mark officers:

In line with the WHO World Health Assembly resolution (WHA46.19**) it would be appreciated if trade-marks were not derived from INNs and if INN stems were not used in trade-marks. This practice endangers the principle that INNs are public property; it can frustrate the rational selection of further INNs for related substances, and it will ultimately compromise the safety of patients by promoting confusion in drug nomenclature.

*Nonproprietary names for pharmaceutical substances, Twentieth Report of the WHO Expert Committee (1975)
** WHA resolution on nonproprietary names for pharmaceutical substances (1993)
Acknowledgements

The INN Secretariat extends its thanks to Dr R. Boudet-Dalbin, France, for the graphic representations of the chemical formulae in this document.
Reference to the volumes of the *WHO Drug Information* in which the respective proposed lists of INNs have been published:

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Lists 1-85 of proposed INN are included in *Cumulative List* No. 10, WHO, Geneva, 2002 (available in CD-ROM only)
Layout of information

INN – The use of common stems

Stem

Pharmacological Classification  Action and Use  National Name(s)

calci  N.8.0.0  Vitamin D analogues/derivatives  USAN

(a)  alfacalcidol (40), calcifediol (26), calcipotriol (61), calcitriol (39), colecalciferol (13), doxercalciferol (82), ergocalciferol (13), falecalcitriol (74), lexacalcitol (71), maxacalcitol (75), paricalcitol (78), secalciferol (62), seocalcitol (78), tacalcitol (65)

(b)  calcitonin (31) (polypeptide)

(c)  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 always complete)
INN – The use of common stems
Pharmacological classification with corresponding examples of common stems and their definitions

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<td>CNS DEPRESSANTS</td>
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<tr>
<td>A100</td>
<td>General anaesthetics</td>
<td></td>
<td></td>
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<td>A110</td>
<td>General anaesthetics, volatile</td>
<td>-flurane</td>
<td>general inhalation anaesthetics, halogenated alkane derivatives</td>
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<td>A120</td>
<td>General anaesthetics, other</td>
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<td>Hypnotics - sedatives</td>
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<td>Barbiturates</td>
<td>barb</td>
<td>hypnotics, barbituric acid derivatives</td>
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<td>-clone</td>
<td>hypnotic tranquilizers</td>
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<td></td>
<td>-plon</td>
<td>pyrazolo[.]pyrimidine derivatives, used as anxiolytics, sedatives, hypnotics</td>
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<td>Chloral derivatives, hypnotic sedatives</td>
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<td>Analgesics</td>
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<td>Narcotic analgesics -adol or -adol- analgesics</td>
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<td>-azocine narcotic antagonists/agonists related to 6,7-benzomorphan</td>
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<td>-fentanil narcotic analgesics, fentanyl derivatives</td>
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<td>orphan narcotic antagonists/agonists, morphinan derivates; -orphine, -orphinol, -orphone</td>
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<td>-arit antiarithmetic substances, acting like clobuzarit and lobenzarit (mechanism different from anti-inflammatory type substances, e.g. -fenamates or -profens)</td>
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<td>narcotic antagonists/agonists related to normorphine</td>
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<td>-bamate</td>
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<td>Antipsychotics (neuroleptics) -perone tranquillizers, neuroleptics, 4'-fluoro-4-piperidinobutyrophene derivatives; -peridol: antipsychotics, haloperidol derivatives; -peridone: antipsychotics, risperidone derivatives</td>
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<td>Brain amine depleters</td>
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<td>Central adrenoreceptor antagonists</td>
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<td>Antidepressants -oxetine antidepressants, fluoxetine derivatives</td>
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<td>MAO inhibitors -giline MAO-inhibitors type B</td>
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<td>-moxin monoamine oxidase inhibitors, hydrazine derivatives**not part of definition</td>
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<td>Tricyclic antidepressants -pin(e) tricyclic compounds; dipine: see -zepine: antidepressant/neuroleptic; C.0.0.0 -apine: psychoactive; A.3.1.0 cilpine: antiepileptic; -oxepin, -oxopine, -sopine, -tepines</td>
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<td>Bicyclic antidepressants</td>
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<td>Indirect releasers of catecholamines</td>
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<td>Psychodysleptics (hallucinogens)</td>
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<td>Cholinergic agents</td>
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<td>Muscarinic receptor agonists</td>
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<td>antihistaminics or local vasoconstrictors, antazoline derivatives</td>
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<td>-drine</td>
<td>sympathomimetics; -frine: sympathomimetic, phenethyl derivatives</td>
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<td>-terol</td>
<td>bronchodilators, phenethylamine derivatives [previously -prenaline or -terenol]</td>
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<td>Beta adrenoreceptor agonists</td>
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<td>AGENTS ACTING ON SMOOTH MUSCLES</td>
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<td>antihypercholesterolaemic and/or vasodilating nicotinic acid esters</td>
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<td>Agents influencing heart muscle excitability and conductivity -afenone</td>
<td>Antiarrhythmics, propafenone derivatives</td>
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<td>Antihypertensives -azosin</td>
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<td>Capillary-active drugs, haemostyptics</td>
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<td>(-)eptacog blood coagulation VII, (-)octocog blood factor VIII, (-)nonacog blood factor IX</td>
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<td>I200</td>
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<td>fibrinogen receptor antagonists (glycoprotein IIb/IIIa receptor antagonists)</td>
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<td>fibrinogen receptor antagonists (glycoprotein IIb/IIIa receptor antagonists)</td>
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<td>thrombin inhibitor, antithrombotic agents</td>
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<td>I200</td>
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<td>heparin derivatives including low molecular mass heparins</td>
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<td>I210</td>
<td>Anticoagulants</td>
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<td>-arol</td>
<td>anticoagulants, dicoumarol derivatives</td>
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<td>platelet aggregation inhibitors</td>
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<td>-pafant</td>
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<td>I210</td>
<td>-troban</td>
<td>thromboxane A2-receptor antagonists; antithrombotic agents</td>
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<td>I220</td>
<td>Prothrombin inhibitors</td>
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<td>Prothrombin synthesis inhibitors</td>
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<td>Anticoagulant inhibitors</td>
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<td>Agents affecting fibrinolysis</td>
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<td>I260</td>
<td>Coagulation promoting agents</td>
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<td>Blood clotting factors</td>
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<td>Blood proteins and their fractions</td>
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<td>erythropoietin type blood factors</td>
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<td>Platelet-function regulators</td>
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<td>I500</td>
<td>Colony stimulating factors</td>
<td>-stim</td>
<td>colony stimulating factors: -grastim: granulocyte colony stimulatory factor (G-CSF) type substances; -gramostim: granulocyte macrophage colony stimulating factor (GM-CSF) type substances; -mostim: macrophage stimulating factors (M-CSF) type substances; plestim</td>
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<td>Granulocyte stimulating factors</td>
<td>-grastim</td>
<td>see -stim</td>
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<td>Macrophage stimulating factor</td>
<td>-mostim</td>
<td>macrophage stimulating factors (M-CSF) type substances; see -stim</td>
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<td>-prazole</td>
<td>antiulcer, benzimidazole derivatives</td>
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<td>-pride</td>
<td>sulpiride derivatives</td>
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<td>Digestives</td>
<td>-azepide</td>
<td>cholecystokinin receptor antagonist</td>
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<td>Stomachics</td>
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<td>Choleretics (and hepatoprotective agents)</td>
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<td>hepatoprotective substances with a carboxylic acid group</td>
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<td>Digestive enzymes</td>
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<td>Hepato-protective agents</td>
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<td>Gastro-intestinal anti-infectives</td>
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<td>(see S000)</td>
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<td>-ribine</td>
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<td>ribofuranil-derivatives of the &quot;pyrazofurin&quot; type</td>
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<td>Example</td>
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<td>Immunosuppressants</td>
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<td>Radioisotopes (except diagnostics)</td>
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<td>Radioisotopes - systemic</td>
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<td>Radioisotopes - locally applied</td>
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<td>Antineoplastics - antimetabolites</td>
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<td>see -arabine, -citabine</td>
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<td>nucleoside antiviral or antineoplastic agents, cytarabine or azarabine derivatives</td>
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<td>-trexate</td>
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<td>uridine derivatives used as antiviral agents and as antineoplastics; also -udine</td>
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<td>Ornithine decarboxylase inhibitors</td>
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<td>Aromatase inhibitors</td>
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<td>METABOLISM AND NUTRITION (EXCL. WATER AND MINERAL METABOLISM)</td>
<td>-stat (or -stat-) enzyme inhibitors; -lipastat: pancreatic lipase inhibitors; -restat or -restat-: aldose-reducing inhibitors; -vastatin: antilipidemic substances, HMG CoA reductase inhibitors</td>
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<td>Agents influencing lipid and fat metabolism</td>
<td>-lipastat see -stat</td>
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<td>-vastatin see -stat; antilipidemic substances, HMGCoA reductase inhibitors</td>
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<td>Lipotropic agents</td>
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<td>Agents influencing uric acid metabolism</td>
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<td>AGENTS INFLUENCING WATER AND MINERAL METABOLISM</td>
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<td>N.1.2.0 -etanide: diuretics, piretanide derivatives; S.3.0.0 -oxanide: antiparasitic, salicylanilides and analogues</td>
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<td>Thiazide derivatives</td>
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<td>Ethacrynic acid derivatives</td>
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<td>-alox</td>
<td>see -ox</td>
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<td>Vitamin D analogues/derivatives</td>
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<td>nicotinic acid or nicotinoyl alcohol derivatives</td>
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<td>Vitamins, other</td>
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<td>Q000</td>
<td>HORMONES OR HORMONE RELEASE-STIMULATING PEPTIDES</td>
<td>-morelin</td>
<td>see -relin; growth hormone release-stimulating peptides</td>
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<td>Q000</td>
<td></td>
<td>prost</td>
<td>prostaglandins; -prostil: prostaglandins, anti-ulcer</td>
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<td>-relin</td>
<td>prehormones or hormone-release stimulating peptides: -morelin: growth hormone release-stimulating peptides; -tirelin: thyrotropin releasing hormone analogues</td>
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<td>Q000</td>
<td>som-</td>
<td>growth hormone derivatives</td>
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<td>Q000</td>
<td>-tirelin</td>
<td>see -relin; thyrotropin releasing hormone analogues</td>
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<td>Q100</td>
<td>Hypophysis hormones</td>
<td></td>
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<tr>
<td>Q110</td>
<td>Hypophysis anterior lobe</td>
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<tr>
<td>Q111</td>
<td>Hypophysis anterior lobe hormones</td>
<td>-actide</td>
<td>synthetic polypeptides with a corticotropin-like action</td>
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<tr>
<td>Q112</td>
<td>Hypophysis anterior lobe inhibitors</td>
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<td>Q120</td>
<td>Hypophysis posterior lobe (incl. other oxytocics)</td>
<td>-pressin</td>
<td>vasoconstrictors, vasopressin derivatives</td>
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<tr>
<td>Q120</td>
<td>-tocin</td>
<td>oxytocin derivatives</td>
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<tr>
<td>Q200</td>
<td>Sex hormones and analogues</td>
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<tr>
<td>Q210</td>
<td>Estrogens, also interceptive contraceptive agents e.g. epostane (51)</td>
<td>estr</td>
<td>estrogens</td>
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<tr>
<td>Q210</td>
<td>-ifene</td>
<td>antiestrogens, clomifene and tamoxifen derivatives</td>
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<tr>
<td>Q220</td>
<td>Progestogens</td>
<td>gest</td>
<td>steroids, progestogens</td>
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<tr>
<td>Q230</td>
<td>Androgens</td>
<td>andr or -stan- or -ster-</td>
<td>steroids, androgens</td>
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<tr>
<td>Q230</td>
<td>-ster-</td>
<td>androgens/anabolic steroids: -testosterone, -sterone, -ster, -gesterone, -sterone, sterol, ster, -(a)steride</td>
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<td>Q231</td>
<td>Androgens</td>
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<td>Q240</td>
<td>Gonadotrophins and gonadotrophin secretion stimulating drugs</td>
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<td>Q241</td>
<td>Antigonadotrophins</td>
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<td>Q300</td>
<td>-olone</td>
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<td>steroids other than prednisolone derivatives</td>
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<td>-onide</td>
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<td>steroids for topical use, acetal derivatives</td>
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<td>Q310</td>
<td>Mineralosteroids</td>
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<td>Q320</td>
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<td>Q330</td>
<td>Glucosteroids</td>
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<td>prednisone and prednisolone derivatives; -methasone or -metasone, -betasol, -olone</td>
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<td>R200</td>
<td>Vaccines</td>
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<td>R220</td>
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<td>ANTI-INFECTIONS</td>
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<td>Ectoparasiticides</td>
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<td>Antiseptics and disinfectants</td>
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<td>Antiseptics (excl. heavy metal antiseptics)</td>
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<td>Chemotherapeutics of parasitic diseases</td>
<td>-ectin</td>
<td>antiparasitics, ivermectin derivatives</td>
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<td>-oxanide</td>
<td>antiparasitics, salicylanides and analogues; see -anide</td>
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<td>Anthelminthics (excl. antinematode agents)</td>
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<td>anthelminthics (undefined group)</td>
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<td>-bendazole</td>
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<td>-fos (-vos)</td>
<td>insecticides, anthelmintics, pesticides etc., phosphorous derivatives</td>
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<td>-fos- or fos-</td>
<td>various pharmacological categories belonging to -fos (other than above)</td>
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<td>Antiprotozoal agents (incl. all arsphenamines)</td>
<td>arte-</td>
<td>antimalarial agents, artemisinin related compounds</td>
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<td>Chemotherapeutics of fungal diseases</td>
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<td>Antibiotics, antibacterial and antiviral agents</td>
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<td>antibacterials (Actinoplanes strains)</td>
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<td>Sulfonamides</td>
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<td>anti-infectives, sulfonamides</td>
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<td>Antimycobacterials</td>
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<td>antitymocobacterials, diaminodiphenylsulfone derivatives</td>
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<td>S520</td>
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<td>-pirox</td>
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<td>Antiviral</td>
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<td>-motine</td>
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<td>-ribine</td>
<td>ribofuranil-derivatives of the pyrazofurin type</td>
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<td>-uridine</td>
<td>uridine derivatives used as antiviral agents and as antineoplastics; -udine</td>
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<td>vir</td>
<td>antivirals (undefined group): -amivir: neuraminidase inhibitors, -cavir: carbocyclic nucleosides, -virsen: antisense oligonucleotides</td>
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<td>Antibacterial/other</td>
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<td>nucleoside antiviral or antineoplastic agents, cytarabine or azarabine derivatives</td>
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<td>-oxacin</td>
<td>antibacterials, nalidixic acid derivatives</td>
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<td>-prim</td>
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<td>Antibiotics (except antineoplastic antibiotics)</td>
<td>-cidin</td>
<td>naturally occurring antibiotics (undefined group)</td>
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<td>-fungin</td>
<td>antifungal antibiotics; USAN: antifungal antibiotics (undefined group)</td>
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<td>-gillin</td>
<td>antibiotics produced by Aspergillus strains</td>
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<td>-monam</td>
<td>monobactam antibiotics</td>
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<td>Example</td>
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<td>-mycin</td>
<td>antibiotics, produced by <em>Streptomyces strains</em> (see also -kacin)</td>
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<td>-parcin</td>
<td>for glycopeptide antibiotics</td>
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<td>-penem</td>
<td>analogues of penicillanic acid antibiotics modified in the five-membered ring</td>
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<td>Antibiotics acting on the bacterial cell wall</td>
<td>-carbef</td>
<td>antibiotics, carbacepham derivatives</td>
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<td>cef-</td>
<td>antibiotics, cefalosporanic acid derivatives</td>
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<td>-cillin</td>
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<td>-oxef</td>
<td>see cef-; antibiotics, oxacefalosporanic acid derivatives</td>
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<td>S620</td>
<td>Antibiotics affecting cell membrane and with detergent effect</td>
<td>-tricin</td>
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<td>-kacin</td>
<td>antibiotics, kanamycin and bekanamycin derivatives (obtained from <em>Streptomyces kanamyceticus</em>); S.6.5.0: -cin: antibiotics obtained from various <em>Micromonospora</em></td>
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<td>Antibiotics affecting nucleic acid metabolism</td>
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<td>immunomodulators, both stimulant/suppressive and stimulant</td>
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<td>interleukin type substances: -nakin, -leukin, -plestim, -exakin, -kinra, -nakinra</td>
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**ALPHABETICAL LIST OF STEMS TOGETHER WITH CORRESPONDING INNS**

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<td>-abine</td>
<td>see -arabine, -citabine</td>
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<td>-ac (x)</td>
<td>anti-inflammatory agents, ibufenac derivatives</td>
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<td>(USAN: anti-inflammatory agents (acetic acid derivatives))</td>
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<tr>
<td>(a)</td>
<td>aceclofenac (52), alclofenac (23), amfenac (38), anirolac (52), bendazac (22), bromfenac (55), cinfenac (41), clidanac (39), clofurac (42), clopirac (30), dexpemedolac (71), diclofenac (28), eltenac (53), etodolac (45), felbinac (54), fenclofenac (30), fenclorac (33), fentiazac (32), furofenac (40), ibufenac (14), isoxepac (37), ketorolac (51), lexofenac (38), nepafenac (78), oxepinanac (36), oxindanac (54), pemedolac (58), (quinclorac, ISO name for a herbicide), sulindac (33), tianafac (31), tifurac (57), tiopinac (40), zomepirac (37)</td>
</tr>
<tr>
<td></td>
<td>-zolac: bufezolac (39), isofezolac (39), lonazolac (34), mofezolac (64), pirazolac (43), trizezolac (34)</td>
</tr>
<tr>
<td>(b)</td>
<td>amtolmetin guacil (65), bufexamac (20) (anti-inflammatory; acetohydroxamic acid group instead of acetic acid group)</td>
</tr>
<tr>
<td>(c)</td>
<td>clamidoxic acid (17), fenclozic acid (22), metiazinic acid (20), prodolic acid (29), tolmetin (23)</td>
</tr>
<tr>
<td>TRS 581</td>
<td></td>
</tr>
<tr>
<td>-acetam</td>
<td>see -racetam</td>
</tr>
<tr>
<td>-actide (x)</td>
<td>synthetic polypeptides with a corticotropin-like action</td>
</tr>
<tr>
<td></td>
<td>(USAN: synthetic corticotropins)</td>
</tr>
<tr>
<td>(a)</td>
<td>alsactide (45), codactide (24), giractide (29), norleusactide (18), seractide (31), tetracosactide (18), tosactide (24), tricosactide (44)</td>
</tr>
<tr>
<td>TRS 581</td>
<td></td>
</tr>
</tbody>
</table>
-adol (x) analgesics (14th Report, 1967)

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

(a) acetylmethadol (5), alimadol (39), alphacetylmethadol (5), alphamethadol (5), axomadol (87), betacetylmethadol (5), betamethadol (5), levacetylmethadol (27), noracymethadol (12), tapentadol (87)

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

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

(c) dimephtanol (5)

-adom analgesics, tifluadom derivatives

A.4.3.0

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

-afenone antiarrhythmics, propafenone derivatives

H.2.0.0

(a) alprafenone (62), berlafenone (63), diprafenone (48), etafenone (19), propafenone (29)
-aj- antiarrhythmics, ajmaline derivatives

H.2.0.0

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

-al (d) aldehydes
(deleted from General Principles in 14th Report)

-aldrate antacids, aluminium salts

N.5.2.0

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

-alol see -olol

-alox see -ox

andr (d) steroids, androgens

Q.2.3.0 (USAN: -andr- androgens)

(a) i. andr: androstanolone (4), methandriol (1), nandrolone (22), norethandrolone (6), ovandrotonone albumin (52), silandrone (18)

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

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

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

TRS 581

-anide

-etanide diuretics, piretanide derivatives

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

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

(c) besunide (30)

-oxanide antiparasitic, salicylanilides and analogues

S.3.0.0

(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) (anti-arthritic; gout-remedy), ceforanide (39) (antibiotic), oglufanide (86) (immunomodulator), polihexanide (24) (antibacterial), tiprostanide (48) (antihypertonic)
-anserin  serotonin receptor antagonists (mostly 5-HT₂)

C.7.0.0 (USAN: serotonin receptor antagonists (undefined group))

(a)  adatanserin (70), altanserin (50), blonanserin (76), butanserin (51), eplivanserin (80),
fananserin (69), flibanserin (75), ketanserin (46), lidanserin (62), pelanserin (57), seganserin
(56), tropanserin (55)

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

-antel  anthelminthics (undefined group)

S.3.1.0

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

TRS 581

-apine  see -pine

-(ar)abine  arabinofuranosyl derivatives

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

(a)  ancitabine (36), capecitabine (73), cytarabine (14), decitabine (61), emtricitabine (80),
enocitabine (46), fazarabine (56), fiacitabine (59), fludarabine (48), flurocitabine (38),
galocitabine (65), gemcitabine (62), ibacitabine (57), nelarabine (80), vidarabine (23),
zalcitabine (66)

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

A.4.2.0 (USAN: antirheumatic substances, acting similarly to lobenzarit)

\[
\begin{align*}
\text{Cl} & -\text{[C8H5]} - \text{O} - \text{CO}_2\text{H} \\
\text{CH}_3 & -\text{[C8H5]} - \text{N} - \text{CO}_2\text{H}
\end{align*}
\]

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

-aron (d) anticoagulants, dicoumarol derivatives

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

\[
\begin{align*}
\text{C6} & -\text{C3} - \text{O} - \text{CO}_2\text{H}
\end{align*}
\]

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

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

(c) diaborone (15), ethyl bisscoumacetate (4), phenprocoumon (11), warfarin (23)

TRS 58l

-aron amiodarone (16) (anti-arrhythmic), benzaron (13), benzobromaron (13) (uricosuric), benziodarone (11), brinazarone (64) (calcium channel blocker), bucromarone (48) (antiarrhythmic), diaborone (15), dronedarone (75) (anti-anginal, antiarrhythmic), etabenzarone (17), fantofarone (65) (calcium channel blocker), furidarone (19), inicarone (27), mecinarone (30), pyridarone (16), rilozarone (58)
arte- antimalarial agents, artemisinin related compounds

S.3.3.0

(a) artemether (61), artemisinin (56), artemotil (80), artemimol (81), artesunate (61), arteflene (70)

-ase enzymes

W.0.0.0

(a) agalsidase alfa (84), agalsidase beta (84), alglucerase (68), brinase (22), cocarboxylase (1), dornase alfa (70), eufauserase (84), hyalosidase (50), hyaluronidase (1), idusulfase (87), kallidinogenase (22), ocrase (28), pegaspargase (64), penicillinase (10), promelase (47), rizolipase (22), serrapeptase (31), sfericase (40), streptodornase (6), streptokinase (6), tilactase (50), urokinase (48)

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

Classification of enzymes

I proteinase

(a) with -ase suffix:

<table>
<thead>
<tr>
<th>(INN)</th>
<th>(origin)</th>
<th>(use, action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>brinase (22)</td>
<td><em>Aspergillus oryzae</em></td>
<td>fibrinolytic</td>
</tr>
<tr>
<td>kallidinogenase (22)</td>
<td>pancreas or urine of mammals</td>
<td>splitting kinin, kallidin from kininogen (vasodilator)</td>
</tr>
<tr>
<td>ocrase (28)</td>
<td><em>Aspergillus ochraceus</em></td>
<td>fibrinolytic (topically: cleaning wounds)</td>
</tr>
<tr>
<td>pegaspargase (64)</td>
<td></td>
<td>asparaginase</td>
</tr>
<tr>
<td>promelase (46)</td>
<td><em>Aspergillus melleus</em></td>
<td>proteinase (chronic bronchitis)</td>
</tr>
<tr>
<td>Name</td>
<td>Species</td>
<td>Function</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>rasburicase</td>
<td><em>Aspergillus flavus</em></td>
<td>urate oxidase (hyperuricaemia)</td>
</tr>
<tr>
<td>serrapeptase</td>
<td><em>Serratia sp. E15</em></td>
<td>proteinase (chronic paranasal sinusitis etc.)</td>
</tr>
<tr>
<td>sfericase</td>
<td><em>Bacillus sphaericus</em></td>
<td>proteinase (chronic paranasal sinusitis etc.)</td>
</tr>
<tr>
<td>streptokinase</td>
<td><em>Streptococcus haemolyticus</em></td>
<td>changing plasminogen into plasmine (activator of fibrinolysis)</td>
</tr>
<tr>
<td>urokinase</td>
<td>human origin</td>
<td>plasminogen activator</td>
</tr>
<tr>
<td>urokinase alfa</td>
<td>recombinant material</td>
<td>plasminogen activator</td>
</tr>
</tbody>
</table>

(b) **without -ase suffix:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>batroxobin</td>
<td>the venom of the serpent <em>Bothropsatrox</em></td>
<td>thrombin like enzyme</td>
</tr>
<tr>
<td>bromelains</td>
<td><em>Ananas comosus</em> Merr.</td>
<td>fibrin depolymerizing (antiinflammatory)</td>
</tr>
<tr>
<td>chymopapain</td>
<td>papaya late</td>
<td>proteolytic (chemonucleosis)</td>
</tr>
<tr>
<td>chymotrypsin</td>
<td>mammalian pancreas</td>
<td>proteolytic (antiinflammatory, antioedema)</td>
</tr>
<tr>
<td>defibrotide</td>
<td>mammalian pancreas</td>
<td>proteolytic (antiinflammatory, antioedema)</td>
</tr>
<tr>
<td>sutilains</td>
<td><em>Bacillus subtilis</em></td>
<td>proteolytic</td>
</tr>
</tbody>
</table>

II **-lipase**

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>rizolipase</td>
<td><em>Rhizopus arrhizus</em> var. Delemar</td>
<td>lipase</td>
</tr>
</tbody>
</table>

III **co-enzymes**

<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>cocarboxylase</td>
<td>chemically defined</td>
</tr>
<tr>
<td></td>
<td>co-enzyme in the metabolism of pyruvic acid</td>
</tr>
<tr>
<td>INN</td>
<td>The use of common stems</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>IV</th>
<th>-<strong>dismase</strong> enzymes with superoxide dismutase activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(USAN: superoxide dismutase activity (exception: orgotein))</td>
</tr>
<tr>
<td>(a)</td>
<td>ledismase (70), sudismase (58)</td>
</tr>
<tr>
<td>(c)</td>
<td>isomerase</td>
</tr>
<tr>
<td></td>
<td>orgotein (31) mammalian tissue (liver, red blood cell etc.) superoxide dismutase activity (anti-inflammatory)</td>
</tr>
<tr>
<td></td>
<td>pegorgotein (72)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>V</th>
<th>-<strong>dipase</strong> plasminogen activator combined with another enzyme</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>amedipase (79)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VI</th>
<th>-<strong>teplase</strong> tissue-type-plasminogen activators</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>alteplase (59), anistreplase (59), desmoteplase (80), duteplase (62), lanoteplase (76), monteplase (71), nateplase (73), pamiteplase (78), reteplase (69), silteplase (65), tenecteplase (79)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VII</th>
<th>-<strong>uplase</strong> urokinase-type-plasminogen activators</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>nasaruplase (68), nasaruplase beta (85), saruplase (58)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VIII</th>
<th>others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>agalsidase alfa (84) human origin treatment of deficiency of alpha-galactosidase activity (Fabry’s disease)</td>
</tr>
<tr>
<td></td>
<td>agalsidase beta (84) hamster treatment of deficiency of alpha-galactosidase activity (Fabry’s disease)</td>
</tr>
<tr>
<td>Name</td>
<td>Origin</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>alfimeprase (85)</td>
<td><em>Agkistrodon contix contix</em></td>
</tr>
<tr>
<td>dornase alfa (70)</td>
<td>human origin</td>
</tr>
<tr>
<td>epafipase (85)</td>
<td>human origin</td>
</tr>
<tr>
<td>eufauserase (84)</td>
<td><em>Euphausia Superba</em></td>
</tr>
<tr>
<td>hyalosidase (50)</td>
<td></td>
</tr>
<tr>
<td>hyaluronidase (1)</td>
<td>various origins</td>
</tr>
<tr>
<td>idusulfase (87)</td>
<td></td>
</tr>
<tr>
<td>imiglucerase (72)</td>
<td>human origin (placenta isoenzyme)</td>
</tr>
<tr>
<td>laronidase (85)</td>
<td>human origin</td>
</tr>
<tr>
<td>penicillinase (10)</td>
<td><em>Bacillus cereus</em></td>
</tr>
<tr>
<td>ranpirnase (81)</td>
<td><em>Rana pipiens</em></td>
</tr>
<tr>
<td>streptodornase (6)</td>
<td><em>Streptococcus haemolyticus</em></td>
</tr>
<tr>
<td>tilactase (50)</td>
<td>β-D-glactosidase</td>
</tr>
</tbody>
</table>

-ast (x) antiasthmatic, antiallergics, not acting primarily as antihistaminics

K.0.0.0 (BAN: antiasthmatics, antiallergics when not acting primarily as antihistamines) (USAN: antiasthmatics or antiallergic substances not acting primarily as antihistamines)

(a) acitazanolast (72), acreozast (77), andolast (67), asobamast (63), ataquimast (82), bamaquimast, (76), batebulast (66), binizolast (60), bunaprolast (60), cilomilast (82), dametralast (54), dazoquinast (54), doqualast (48), eclazolast (55), eflumast (61), enofelast
(67), enoxamast (52), fenprinast (48), filaminast (75), ibudilast (58), idenast (58), lirimilast (85), loxanast (46), melquinast (62), ontazolast (72), oxalinast (49), pemirolast (61), piclamilast (73), picumast (47), pirodomast (64), quazolast (55), raxofelast (68), repirinast (55), revenast (51), roflumilast (77), scopinast (76), suplatast tosilate (64), tazanolast (59), tetrazolast (67), tiacrilast (52), tibenelast (58), tioxamast (53), tiprinast (50), tofimilast (85), tranilast (46), zaprinast (46)

-lukast    leukotriene receptor antagonist

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

trodast    thromboxane A2 receptor antagonists, antiasthmatics

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

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

-astine (x) antihistaminics

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

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

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

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

-azam    see - azepam
-azenil  benzodiazepine receptor antagonists/agonists (benzodiazepine derivatives)

(a) bretazenil (60), flumazenil (55), iomazenil $^{123}$I (66), sarmazenil (59)
(b) nabazenil (49)

-carnil  benzodiazepine receptor antagonists/agonists (carboline derivatives)

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

-quinil  benzodiazepine receptor partial agonists (quinoline derivatives)

(a) lirequinil (72), terbequinil (63)

-azepam (x)  diazepam derivatives

C.1.0.0  (BAN: substances of the diazepam group)
(USAN: antianxiety agents (diazepam type))

(a) bromazepam (22), camazepam (30), carburazepam (39), cinolazepam (46), clonazepam (22),
cyprazepam (16), delorazepam (40), diazepam (12), doxefazepam (43), elfazepam (36),
flazepam (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
The use of common stems

not true benzodiazepines: bendazepam (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), lopendazam (36), loprazolam (44), mexazolam (40), midazolam (40), nefopam (25), oxazolam (25), razobazam (52), tofisopam (26), trepipam (38), triazolam (30), triflubazam (28), zapizolam (43), zomebazam (49)

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

TRS 581 not related: anti-anx.: fenobam (36), muscle relax.: xilobam (36)

-azepide cholecystokinin receptor antagonist

J.1.0.0

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

(c) lorglumide (56)

-azocine narcotic antagonists/agonists related to 6,7-benzomorphan

A.4.1.0 (USAN: narcotic antagonists/agonists related to 6,7-benzo-morphan)

(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)

(b) streptozocin (33)
related compounds: dezocine (35)

TRS 581

-azolam  see -azepam

-azoline  antihistaminics or local vasoconstrictors, antazoline derivatives

E.4.0.0  (USAN: antihistaminics or local vasoconstrictors of the antazoline group)

-\[
\begin{array}{c}
\text{H} \\
\text{N} \\
\text{N} \\
\text{OCH}_3 \\
\text{OCH}_3 \\
\text{NH}_2 \\
\text{O} \\
\text{O}
\end{array}
\]

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

(b) cefazolin (25) (antibiotic)

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

TRS 581

-azone  see -buzone

-azosin  antihypertensive substances, prazosin derivatives

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

-\[
\begin{array}{c}
\text{O} \\
\text{N} \\
\text{N} \\
\text{N} \\
\text{NH}_2 \\
\text{OCH}_3 \\
\text{OCH}_3
\end{array}
\]

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

related: alfuzosin (49), tamsulosin (65), tipentosin (55)
-bactam  β-lactamase inhibitors

S.6.5.0

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

(c) clavulanic acid (44)

-bamate  tranquillizers, propanediol and pentanediol derivatives

C.1.0.0

(a) cyclarbamate (13), 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)

TRS 581

barb (d)  hypnotics, barbituric acid derivatives

A.2.1.0  

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

(a) allobarbital (1), amobarbital (1), aprobarbital (1), barbexa-clone (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), thiotetramobarbital (4), vinbarbital (1)

(c) butalbital (4), buthalital sodium (8), metharbital (1), methitural (6), methohexital (8), phetharbital (10), talbutal (17), thiopental sodium (4), vinylbital (12)
prazitone (19) (barbituric acid derivative used as antidepressive), bucolome (17) (barbituric acid derivative used as anti-inflammatory uricosuric)

TRS 581

-bendan

see -dan

-bendazole

anthelmintics, tiabendazole derivatives

S.3.1.0

(USAN: anthelmintics (tiabendazole type))

\[
\text{USAN

}[H]
\text{N}
\text{N}
\text{S}
\]

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

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

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

c) oxfendazole (35), tioxidazole (39)

related: furodazole (37) (S.3.1.0)

TRS 581

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), formebolone (31), furazabol (16), mebolazine (21), mesabolone (29), metribolone (17), mibolerone (27), norboletone (15), norclostebol (22), oxabolone cipionate (14), quinbolone (14), roxibolone (40), stenbolone (17), tibolone (22), trenbolone (24)

(c) ethylestrenol (13), hydroxystenozole (10), metandienone (12), metenolone (12), oxandrolone (12), propetandrol (13), tiomesterone (14)
-bradine  bradycardic agents

H.0.0.0

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

-brate  see -fibrate

-buzone (x)  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 of the phenylbutazone type)

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

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

-zone  clofezone (17), proxifezone (24)

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

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

TRS 581

-caine (x)  local anaesthetics

D.1.0.0

(a)  ambucaaine (6), amoxecaine (1), aptocaine (21), articaine (47) (previously carticaine (27)), benzocaine (42), betoxycaine (13), bucricare (49), bumecaine (25), bupivacaine (17),
butacaine (4), butanilicaine (16), chloroprocaine (6), cinchocaine (1), clibucaine (14),
clodacaine (13), clormecaine (17), cyclomethycaine (6), dexivacaine (20), diamocaine (22),
edronocaine (84), elucaine (29), etidocaine (29), fexican (25), fomocaine (18), hexylcaine
(4), hydroxyprocaine (1), hydroxytetraecaine (1), ipravacaine (85), ketocaine (15), leucinocaine
(17), levobupivacaime (74), lidocaine (1), lotucaine (27), mepivacaime (11), meprylecaine (4),
myrtcamine (15), octacaine (14), oxetacaine (13), oxybuprocaine (8), parethoxycaine (1),
paridocaine (8), phenacaine (4), pinolcaine (32), piperocaine (1), piridocaine (1), pramocaine
(4), pribecaine (32), prilocaine (14), procaine (10), propanocaine (6), propipocaime (16),
propoxycaine (4) proxymetacaine (6), pyrrocaine (13), quatacaine (18), quinisocaine (4),
risocaine (26), rodocaine (27), ropivacaine (50), tetracaine (4), tolcaime (16), trapencaine (56),
trimecaine (11), vadocaine (57)

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

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

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

(a) acecainide (39), asocainol (47), barucaime (52), bucaine (35), carcaimium 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), lorcaimide (38), milacainide (77), modecainide (63), murocaimide (46), nicainoprol (46),
nofecainide (44), pilscainide (62), pincaimide (49), procainamime (1), quinaicainol (50),
recainam (54), solpecainol (55), stirocainide (47), suricainide (55), tocainide (36), transcainide
(51), (verocainine (42) - replaced by tiapamil in List 43), zocainone (41)

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calci Vitamin D analogues/derivatives

N.8.0.0

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(a) alfacalcidol (40), calcifediol (26), calcipotriol (61), calcitriol (39), colecalciferol (13),
doxercalciferol (82), ecalcidene (85), ergocalciferol (13), falecalcitriol (74), inecalcitol (87),
lexacalcitol (71), maxacalcitol (75), paricalcitol (78), secalciferol (62), seocalcitol (78),
tacalcitol (65)

(b) calcitonin (31) (polypeptide)

(c) dihydrotachysterol (1)

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**USAN**

- **carbef** antibiotics, carbacephem derivatives

  S.6.1.0

  (a) loracarbef (60)

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- **carnil** see -azenil

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**BAN, USAN**

- **cef- (x)** antibiotics, cefalosporanic acid derivatives

  S.6.1.0 (USAN: cephalosporins)

  ![Chemical Structure](image)

  (a) cefacetrile (25), cefaclor (36), cefadroxil (33), cefalexin (18), cefaloglycin (16), cefalonium
  (16), cefaloram (16), cefaloridine (15), cefalotin (14), cefamandole (30), cefaparole (33),
  cefapirin (23), cefatrizine (34), cefazafur (36), cefazedone (36), cefazolin (25), cefbuperazone
  (48), cefcanel (59), cefcanel daloxate (59), cefcapene (68), cefclidine (64), cefdaloxime (64),
  cefdinir (61), cefditoren (66), cefedrolor (53), cefemepidine (58), cefepime (57), cefetamet
  (49), cefetecol (64), cefetrizole (44), cefivitril (52), cefixime (53), cefizopran (66), cefluprenam
  (71), cefmatilen (81), cefmenoxime (44), cefmepidium chloride (57), cefmetazole (39),
  cefminox (53), cefodizime (44), cefonicid (42), cefoperazone (42), ceforanide (39), cefoselis
  (71), cefotaxime (40), cefotetan (48), cefotiam (40), cefoxazole (34), cefoxitin (29), cefozopran
  (66), cefpimizole (50), cefpiramide (47), cefpirome (50), cefpodoxime (58), cefprozil (60),
  cefquinome (59), cefradine (26), cefrotid (34), cefroxadine (42), cefsulodin (38), cefsulodine
  (38), ceftazidine (44), ceftetan (55), ceftizole (34), ceftributin (60), ceftiofur (53), ceftiolene
  (49), ceftizoxime (43), ceftizoxime (42), ceftizoxime alaproxil (77), ceftriaxone (44),
  cefuracetam (45), cefuroxime (34), cefuzonam (55)

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TRS 581
**-oxef**  antibiotics, oxacefalosporanic acid derivatives  

S.6.1.0  (USAN: antibiotic oxacefalosporanic acid derivatives)

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

<table>
<thead>
<tr>
<th>prefix</th>
<th>description</th>
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</table>
| 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  

U.4.0.0  [-ELOSA in spanish]  
(a)  -  
(c)  carmellose (45), croscarmellose (48), ethylcellulose (80), hyetellose (80), hymetellose (80), hyprolose (80), hypromellose (18), methylcellulose (4)

**-cic**  hepatoprotective substances with a carboxylic acid group  

J.1.2.0  (USAN: hepatoprotectives (timonacic group))  
(a)  limazocic (69), tidiacic (33), timonacic (33), (tiofacic (45) replaced by stepronin (46))  
(b)  bisorcic (34) (psychostimulant)  
(c)  stepronin (46)
-cidin  naturally occurring antibiotics (undefined group) (14th Report, 1964)

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

(a)  candididin (17), gramicidin (1), gramicidin S (26), methocidin (6)

(b)  guancidine (18) (hypotensive)

-cillin  antibiotics, 6-aminopenicillanic acid derivatives

S.6.1.0  (USAN: penicillins)

(a)  adicillin (14), almecillin (14), amantocillin (17), amoxicillin (27), ampicillin (13), apalcillin (39), aspoxicillin (50), azidocillin (19), azlocillin (36), bacampicillin (32), benethamine penicillin (1), benzathine benzylpenicillin (18), benzylpenicillin (53), carbenicillin (20), carfecillin (30), carindacillin (29), cialcillin (22), clemizole penicillin (8), clometocillin (12), cloxacillin (13), dicloxacillin (16), epicillin (25), fenbenicillin (13), fibracillin (30), flucloxacillin (17), fomadacillin (55), fumoxicillin (47), furbucillin (31), fuzlocillin (47), hetacillin (16), isopropicillin (12), lenampicillin (50), levopropicillin (12), metampicillin (20), meticillin (12), mezlocillin (34), nafcillin (13), oxacillin (15), oxetacillin (33), penamecillin (16), pheneticillin (11), phenoxyethanil penicillin (6), phenyrcillin (8), piperacillin (38), pirbenicillin (35), pirudicillin (43), piroxicillin (49), pivampicillin (23), prazocillin (27), propicillin (13), quinacillin (14), rotamicillin (35), sarvoxicillin (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 (16), penimocycline (22)

cilde:

S.6.1.0  libecillide (32)

cillinam:

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

TRS 581
-cisteine see -steine

-citabine nucleoside antiviral or antineoplastic agents, cytarabine or azarabine derivatives
L.4.0.0

(a) ancitabine (36), capecitabine (72), decitabine (61), enocitabine (46), fiacitabine (59), flurocitabine (38), galocitabine (65), gemcitabine (62), ibacitabine (57), tezacitabine (84), torcitabine (87), troxacitabine (81), zalcitabine (66)

(b) cytarabine (14), azacitidine (40)

-clone hypnotic tranquillizers
A.2.2.0

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

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

-cog blood coagulation factors
I.2.0.0

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

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

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

related: drotrecogin alfa (85),.tifacogin (78)
-conazole (x) systemic antifungal agents, miconazole derivatives

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

(a) albaconazole (87), aliconazole (43), alteconazole (53), azaconazole (45), becliconazole (65), brolaconazole (58), butoconazole (40), cisconazole (59), croconazole (55), cyproconazole (ISO), democonazole (42), diniconazole (ISO C₁₇H₁₇Cl₂N₃O), doconazole (37), eberconazole (64), econazole (27), enilconazole (44), etaconazole (ISO), fenticonazole (44), fluconazole (54), fosfluconazole (83), furconazole (ISO/TC 81 N 872 C₁₅H₁₄Cl₂F₃N₃O₂), hexaconazole (ISO C₁₄H₁₇Cl₂N₃O), isoconazole (30), itraconazole (50), ketoconazole (43), lanoconazole (66), luliconazole (86), miconazole (22), neticonazole (63), omoconazole (45), orconazole (40), oxiconazole (42), parconazole (39), penconazole, (ISO), posaconazole (82), propiconazole (ISO), ravaconazole (83), saperconazole (59), sertaconazole (56), sulconazole (38), tebuconazole (ISO C₁₆H₂₀ClN₃O), terconazole (45) (originally triaconazole), tioconazole (40), uniconazole (ISO C₁₅H₁₈ClN₃O), valconazole (40), voriconazole (73), zinoconazole (50), zoficonazole (43)

(c) bifonazole (44)

cort (x) corticosteroids, except prednisolone derivatives

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

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

TRS 581

-crinat  diuretics, etacrynic acid derivatives

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

\[
\begin{array}{c}
\text{H}_2\text{C} - \text{CH}_2 - \text{O} - \text{H} \\
\text{Cl} - \text{Cl}
\end{array}
\]

(a) brocrintat (51), sulicrinat (52)

(c) etacrynic acid (14), furacrinic acid (29), indacrinone (51), tienilic acid (25)

-crine (d) acridine derivatives

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

(c) acridorex (21), acriflavinium chloride (l), acrisorcin (l3), aminoa|idine (l), ethacridine (l), proflavine (l)

cromil  antiallergics, cromoglicic acid derivatives

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

\[
\begin{array}{c}
\text{HO}_2\text{C} - \text{O} - \text{OH} \\
\text{O} - \text{O} - \text{CO}_2\text{H}
\end{array}
\]
(a) ambicromil (48) (replacement of probicromil (46)), isocromil (39), minocromil (50), nedocromil (50), proxicromil (39), terbucromil (38), texacromil (58)

(c) cromitrile (46), cromoglicate lisetil (72), cromoglicic acid (l8)

-curium see -ium

-cycline (d) antibiotics, tetracycline derivatives

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

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

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

TRS 58l

-dan cardiac stimulants, pimobendan derivatives

H.1.0.0

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

(b) nitrodan (15), tyromedan (15)
-dapsone  antimycobacterials, diaminodiphenylsulfone derivatives (14th Report, 1964)

S.5.2.0  (USAN: antimycobacterial diaminodiphenylsulfone derivatives)

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

-dermin  see -ermin

-dil  vasodilators (18th Report, 1968)

F.2.0.0  (USAN: -dil; dil-; or -dil-: vasodilators (undefined group))

F.2.1.0  (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), fenoxedil (27), flosatidil (64), fostedil (51), fronepidil (59), ifenprodil (27), levosemotiadil (72), manozodil (47), mfenidil (48), minoxidil (25), naftopidil (52), naminidil (87), nesapidil (52), perfomedil (60), pirbedil (23), pitenodil (37), podilfen (22), stevaladil (34), suloc tidil (30), tipropidil (44), urapidil (27), viquidil (25)

(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), pretiadi l (27), razi-nodil (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)

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

| bisacodyl (13) (lax.), bunamiodyl (10), iofendylate (12), trihexyphenidyl (l) (antiparksonian) |

TRS 581

-dipine (x)  

| calcium channel blockers, nifedipine derivatives |

F.2.1.0  

| (BAN: calcium ion channel antagonists) |
| (USAN: phenylpyridine vasodilators (nifedipine type)) |

(a)  

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

(b)  

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

-dismase  

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

-dopa  

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

E.1.1.0  

| carbidopa (37), ciladopa (52), dopamantine (31), droxidopa (57), etilevodopa (80), fluorodopa (18F) (64), levodopa (21), melevodopa (83) |

-opamine  

| dopaminergic agents dopamine derivatives used as cardiac stimulant/antihypertensives/diuretics |
(a) butopamine (43), cliropamine (59), denopamine (50), dopamine (18), fosopamine (69), ibopamine (43), octopamine (32), oxidopamine (37) (glaucoma), ractopamine (54) (1 of 4 isomers of butopamine)

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

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

-**dralazine**  antihypertensives, hydrazinephthalazine derivatives

**USAN**

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

-**drine**  sympathomimetics (16th Report, 1966)

**TRS 581**

-**-frine**  sympathomimetic, phenethyl derivatives
(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)

USAN
-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)

USAN
-ectin  antiparasitics, ivermectin derivatives

S.3.0.0

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

USAN
-entan  endothelin receptor antagonists

F.2.0.0

(a) ambrisentan (85), atrasentan (83), bosentan (70), darusentan (82), edonentan (86), enrasentan
(80), fandosentan (87), feloprentan (85), sitaxentan (83), tezosentan (81)

USAN
erg  ergot alkaloid derivatives

F.4.0.0
C.7.0.0  (USAN: -erg-: ergot alkaloid derivatives)
acetylgmamine (18), amesergide (67), brazergoline (37), bromerguride (51), cabergoline (54), cianergoline (47), delergotrile (42), dihydroergotamine (16), disulergine (45), dosergoside (54), ergometrine (4), ergotamine (4), etisulergine (47), lergotrile (32), lysergide (8), m ergocriptine (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), tiorgidine (42), voxergolide (61)

(b) ergocalciferol (13)

-eridine

analgesics, pethidine derivatives (14th Report, 1964)

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

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

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

(b) diaveridine (l8) (coccidiostat.), eseridine (53), nexeridine (34) (somewhat related)

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

-ermin

growth factors

U.0.0.0 (USAN: growth factors)

-bermin

vascular endothelial growth factors

(a) telbermin (85)

-dermin

epidermal growth factors

(a) murodermin (63)

-fermin

fibrinoblast growth factors

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

-filermin

leukemia-inhibiting factor
INN – The use of common stems

(a) emfilermin (82)

-nermin  tumour necrosis factor

(a) plusonermin (73), sonermin (68), tasonermin (76)

-plermin  platelet-derived growth factor

(a) becaplermin (74)

-sermin  insulin-like growth factors

(a) mecasermin (66)

-termin  transforming growth factor

avotermin (77), cetermin (74), liatermin (81)

estr  estrogens

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

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

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

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

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

TRS 581

-etanide  see -anide
-ethidine  see -eridine

-exine  mucolytic, bromhexine derivatives

K.0.0.0

\[
\text{CH}_3
\]
\[
\text{NH}_2
\]
\[
\text{Br}
\]
\[
\text{Br}
\]

(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))

-fenamic acid  anti-inflammatory, anthranilic acid derivatives

-fenamate  "fenamic acid" derivatives

USAN

A.4.2.0

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

(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)
-fenine

Phenine

Analgesics, glafenine derivatives (subgroup of fenamic acid group)

A.4.3.0

\[ \text{structure image} \]

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

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

Other: bufenine (8) (vasodil.), cinfenine (27) (antidepressant)

-fenin

Diagnostic aids; (phenylcarbamoyl)methyl iminodiacetic acid derivatives

U.1.0.0

\[ \text{structure image} \]

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

-fentanil

Narcotic analgesics, fentanyl derivatives

A.4.1.0

\[ \text{structure image} \]

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

-fiban

Fibrinogen receptor antagonists (glycoprotein IIb/IIIa receptor antagonists)

I.2.0.0

carafiban (78), elarofiban (83), fradafiban (72), gantofiban (80), lamifiban (72), lefradafiban (75), lotrafiban (78), orbofiban (75), roxifiban (77), sibrafiban (77), tirofiban (73), xemilofiban (74)
-fibrate (x) clofibrate derivatives

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

\[
\text{O} 
\text{Cl} 
\text{H}_3 
\text{C} 
\text{H}_3 
\text{O} 
\text{O} 
\text{CH}_3 
\]

(a) bezafibrate (35), biclofibrate (28), binifibrate (44), ciprofibrate (36), clinofibrate (39), dulofibrate (43), etofibrate (31), fenifibrate (49), fenofibrate (35), lifibrate (30), nicofibrate (31), picafibrate (35), ponifibrate (37), ronfibrate (55), salafibrate (41), serfibrate (34), simfibrate (22), sitofibrate (32), tiafibrate (33), timofibrate (40), tocifibrate (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)

clofibride (28), plafibrate (39)

related: beclobrate (35), eniclobrate (39), gemfibrozil (34), halofenate (20), lifibrol (62), metibride (53), terbufibrrol (35), tibrac acid (33), (fibrafylline (43) deleted)

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

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

TRS 581

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

K.0.0.0
J.0.0.0

quiqlaplon (72)

-flurane halogenated compounds used as general inhalation anaesthetics

A.1.1.0

(a) aliflurane (36), cryofluorane (6), desflurane (62), enflurane (25), isoflurane (28), methoxyflurane (11), norflurane (20), roflurane (12), sevoflurane (25), teflurane (12)
INN – The use of common stems

(b) apaflurane (73)
(c) halothane (6)

TRS 581

- **perfl(u)**-

perfluorinated compounds used as blood substitutes and/or diagnostic agents

(a) perflexane (82), perfluamine (45), perflubrodec (87), perflubron (66), perflunafene (45), perflutren (82)

- **formin (d)**

antihyperglycaemics, phenformin derivatives

USAN

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

![Chemical structure]

(a) benfosformin (29), buformin (17), etoformin (34), metformin (21), phenformin (10), tiformin (22)

TRS 581

- **fos**

insecticides, anthelminthics, pesticides etc., phosphorous derivatives

(-vos)

S.3.1.0 Y.0.0.0

1. organophosphorous derivatives:

![Chemical structure]

(a) vet. insecticides:

quintiofos (25)

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

(c) vet. insecticides and anthelminthics:
2. phosphates:

   \[
   R\overset{\text{O}}{\text{P}}\overset{\text{O}}{\text{R'}}
   \]

   (a) **vet. insecticides:**
   
   clofenvinfos (23)
   
   **vet. anthelminthics:**
   
   bromofenofos (43), dichlorvos (28), naftalofos (16)
   
   **anthelminthics:**
   
   vincofos (28)
   
   (b) triclofos (13) (hypnotic, sedative)
   
   (c) **vet. anthelminthics:**
   
   fospirate (21), haloxon (16)

3. phosphorothioates:

   \[
   R\overset{\text{S}}{\text{P}}\overset{\text{O}}{\text{R'}}
   \]

   **vet. insecticides:**
   
   (a) bromofos (25), coumafos (16), fenclofos (23), temefos (31)
   
   (c) dimpylate (16), phoxim (20) (vet. insecticide and anthelmintic), pyrimitate (16)

4. phosphorodithioates:

   \[
   R\overset{\text{S}}{\text{P}}\overset{\text{O}}{\text{R'}}
   \]

   (a) benoxafos (22) (vet. pesticide)
(c) carbofenation (23) (vet. insecticide), dioxa tion (l6) (vet. insecticide), (malathion (46) (deleted!))

5. phosphoramidates

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

crufomate (16), uredofos (37)

anthelminthic:

imcarbofos (44)

-fos- or fos-

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

-fos-
alafosfalin (41), amifostine (44), belfosdil (61), benfosformin (29), butafosfan (38), cifostodine (50), creatinolfosate (20), dexfosferosine (68), ferfiposate sodium (69), fosmenic acid (49), fosopamine (69), fosquidone (64), furifosmin (70), monophosphothiamine (8), sodium picofosfate (37), sparfosic acid (46), technetium (99m-Tc), tetrofosmin (66), trifosmin (74)

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

-fosine cytostatic
edelfosine (59), fostriecin (55), ilmofosine (56), miltefosine (61), perifosine (78)

fos-
fasarilate (53), fosazepam (27), foscarnet sodium (42), foscolic acid (12), fosenazide (46), fosfestrol (15), fosfocreatinine (50), fosfomycin (25), fosfonet sodium (35), fosfosal (37), fosfructose (81), fosmidomycin (46), fostedil (51)

-fradil alclium channel blockers acting as vasodilators

F.2.1.0

mibefradil (72)

-frine see -drine
-fungin **antifungal antibiotics (18th Report, 1968)**

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), sinefungin (39), triafungin (40)

TRS 581

---

-fylline **N-methylated xanthine derivatives**

B.1.0.0

(a) acefylline clofibrol (44), acefylline piperazine (14), albiffylline (66), aminophylline (4), apaxifylline (71), arofylline (75), bamifylline (15), cipamfylline (71), denbufylline (55), dimabefylline (19), diniprofylline (18), diprophylline (1), doxofylline (47), enprofylline (44), etamiphylline (6), etofylline (14), etofylline clofibrate (38), fibrafylline (43) (deleted), flufylline (48), fluprofylline (50), furafylline (48), guaifylline (16), isbufylline (62), 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 (2), propentofylline (46), proxyphylline (10), pyridofylline (14), spirofylline (58), stacofylline (73), tazifylline (52), theophylline ephedrine (14), torbafylline (56), triclofylline (19), verofylline (43), visnafylline (24), choline theophyllinate (8), fenetylline (16)

(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)

TRS 581
### gab

**gabamimetic agents**

E.0.0.0

(a) fengabine (53), gabapentin (46), gaboxadol (48) (used as analgesic), pivagabine (66), pregabaline (78), pregabide (43) (used as antiepileptic), retigabine (76), tiagabine (63), tolGabide (53), vigabatrin (52) (anticonvulsants)

(b) gabexate (35) (proteolytic)

### gado-

**diagnostic agents, gadolinium derivatives**

U.0.0.0

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

### -gatran

**thrombin inhibitor, antithrombotic agent**

I.2.0.0

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

(c) argatroban (57)

### gest (x)

**steroids, progestogens**

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

(a) altrenogest (46), anagostone (16), cingestol (20), clogestone (21), clomegestone (20), demegestone (24), desogestrel (38), dnxorgestrel (30), dienogest (49), hydrogesterone (12), edo5estrone (22), etonogestrol (65), flugestone (16), gestaclone (23), gestadienol (22), gestodene (37), gestonorone caproate (16), gestrinone (39), haloprogesterone (11), hydroxyprogesterone (8), levonorgestrel (33) (previously dnxorgestrel), medrogestone (15), medroxyprogesterone (10), medoxyprogesterone (10), medrogestone (15), megestrol (13), melengestrol (13), metogest (33), norelgestomim (83), norgesterone (14), norgestimate (35), norgestomet (32), norgestrel (17), norgestrienone (18), oxogestone (19), pentagestrone (14), progesterone (4), proliferone (28), promegestone (38), quingestanol (15), quingestrone (13), tigestol (20), tosagestin (86), trengestone (22), trimegestone (66)
### (b) algestone (22) (glucorticoid)

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

clometerone (15) (antiestrogen), dimepregnen (24) (antiestrogen)

<table>
<thead>
<tr>
<th>-giline</th>
<th>MAO-inhibitors type B</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.3.1.0</td>
<td></td>
</tr>
</tbody>
</table>

| (a) | clorgiline (23), mofegiline (69), pargiline (13), rasagiline (70), selegiline (39) |

<table>
<thead>
<tr>
<th>-gillin</th>
<th>antibiotics produced by <em>Aspergillus strains</em> (16th Report, 1966)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.6.0.0</td>
<td></td>
</tr>
</tbody>
</table>

| (a) | fumagillin (1), mitogillin (17) |
| (c) | mitosper (24), nifungin (24) |

<table>
<thead>
<tr>
<th>gli (x)</th>
<th>antihyperglycaemics, sulfonamide derivatives (previously gly-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.5.2./3.0</td>
<td>(BAN: sulphonamide hypoglycaemics) (USAN: gli-: oral hypoglyceemics (glipizide type))</td>
</tr>
</tbody>
</table>

| (a) | gliamilide (33), glibenclamide (18), glibornuride (22), glibutimine (31), glicaramide (28), glicetanile (37), gliclazide (25), (deleted: glidanile (23)), glicondamid (44), gldazamide (24), gliflumide (33), glimepiride (53), glipalamide (62), (glipentide (27) replaced by glisentide (58)), glipizide (27), gliquidone (28), glisamuride (45), glisentide (58) (previously glipentide), glisindamide (43), glisolamide (43), glisoxepide (24), glybuthiazol (8), glybuazole (15), glyclopymamide (17), glycyclamide (12), glyhexamide (15), glymidine sodium (15), glyoctamide (14), glyparamide (USAN only), glypinamide (13), glyprothiazol (8), glysobuazole (12) |

| (b) | glycerol (4), glycobiarsol (1), glycopyrronium bromide (12) |

| (c) | L- acetohexamide (12), butadiazamide (10), chlorpropamide (8), heptolamide (12), metahexamide (10), thiohexamide (12), tolazamide (12), tolbutamide (6), tolpentamide (12), tolpreamide (13) |
2. other than sulfonamide derivatives: balaglitazone (84), camiglibose (67), ciglitazone (50), darglitazone (69), deriglidole (66), emiglitate (55), englitazone (64), farglitazar (84), ingliforib (85), isaglidole (61), linogliride (48), meglitinide (34), midaglizole (57), migtitol (55), mitiglinide (78), naglivan (65), nateglinide (77), netoglitazone (85), pioglitazone (60), piroglinride (40), ragaglitazar (85), reglitazar (84), repaglinide (65), rivoglitazone (84), rosiglitazone (78), tesaglitazar (85), tiaglizine (64), troglitazone (68), voglibose (65)

3. peptide: seglitide (57)

TRS 581

-golide dopamine receptor agonists, ergoline derivatives

E.1.1.0

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

(c) rotigotine (83)

-grastim see -stim

-grel- platelet aggregation inhibitors

I.2.1.0 (USAN: platelet antiaggregants (undefined group))

(a) anagrelide (42), camonagrel (61), cangrelor (82), clopidogrel (57), dazmegrel (51), furegrelate (53), isbogrel (59), itazigrel (56), midazogrel (53), nafagrel (64), nicogrelate (48), oxagrelate (47), ozagrel (55), pamicogrel (70), pirmagrel (53), ridogrel (59), rolafagrel (65), samixogrel (72), sarpogrelate (63), satigrel (67), sunagrel (52), terbogrel (75), trifenagrel (53)

-guan- antihypertensives, guanidine derivatives

H.3.0.0 (USAN: anti-hypertensive substances (guanidine type))
(a) guanabenz (26), guanacline (16), guanadrel (20), guanazodine (27), guancidine (18),
guanclofine (36), guanethidine (11), guanfacine (35), guanisoquine (15), guanoclor (15),
guanoctine (16), guanoxan (15), guanoxabenz (31), guanoxyfen (16), guabenxan (32)

(c) guabenxan (32)

-ibine  see -ribine

-icam  anti-inflammatory, isoxicam derivatives
A.4.2.0 (USAN: anti-inflammatory agents (isoxicam group))

(a) ampiroxicam (56), droxicam (52), enolicam (45), isoxicam (30), lornoxicam (59), meloxicam
(52), piroxicam (32), sudoxicam (27), tenoxicam (44), tesicam (25)

-ifene  antiestrogens, clomifene and tamoxifen derivatives
(Q.2.1.0 L.6.0.0)

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

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

(c) nafoxidine (16)

-igetide  see -tide
-ilde   class III antiarrhythmics, sematilide derivatives
H.2.0.0

(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)

imex (d)    immunostimulants
S.7.0.0

(a) azimexon (40), forfenimex (55), imexon (37), roquinimex (53), ubenimex (56)

-imod    immunomodulators, both stimulant/suppressive and stimulant
S.7.0.0

(a) atiprimod (75), cridanimod (83), defoslimod (79), esonarimod (79), glaspimod (74), iguratimod (86), imiquimod (66), ivarimod (60), laquinimod (85), pidotimod (63), resiquimod (82), susalimod (73), tiprotimod (57)

-imus    immunosuppressants (other than antineoplastics)
S.7.0.0

(a) abetimus (81), anisperimus (82), everolimus (82), gusperimus (68), iguratimod (86), laflunimus (70), laquinimod (85), napirimus (60), pimecrolimus (81), sirolimus (69), tacrolimus (66), trespemus (75)

-ine (d)    alkaloids and organic bases

(a) 1120 (24.04%) INNs ending in *-ine* in Lists 1-48 of Proposed INNs

TRS 581
io- (x)  iodine-containing contrast media

U.1.1.0

(a)  iobenzamic acid (14), iobitridol (68), iobutoic acid (20), iocarmic acid (22), iocetamic acid (18), iocanilic acid (77), iodamide (15), iodemol (51), iodetryl (1), iodixanol (53), iodophthalein sodium (1), iodoxamic acid (26), iofendylate (12), iofratol (67), ioglicic acid (33), ioglucol (41), ioglucomide (41), ioglycemic acid (15), iohexol (43), iolidonic acid (26), iolixanic acid (26), iomeglamic acid (26), iomepil (54), iomorinic acid (37), iopamidol (40), iopanoic acid (1), iopentol (52), iophtenic acid (4), ioprocemic acid (39), iopromide (44), iopronic acid (28), iopydol (14), iopydone (14), iosarcol (54), iosefamic acid (14), ioseric acid (33), iotaracic acid (39), iotatalamic acid (13), iotasmol (43), iotetric acid (37), iotranic acid (28), iotriside (60), iotrozoic acid (22), ioversol (56), ioxabrolic acid (53), ioxaglic acid (37), ioxilan (59), ioxativam (22), ioxotrizoic acid (33), iozonic acid (24)

(c)  adipiodone (4), bunamiodone (10), dimethiodal sodium (1), diiodone (1), ethyl cartrizoate (12), methiodal sodium (1), metrizamide (26), pheniodol sodium (1), phenobutiodil (6), propyl docetrizoate (10), propyliodone (1), sodium acetrizoate (4), sodium amidotrizoate (4), sodium diprotrizoate (6), sodium metrizoate (13), sodium tyropanoate (12)

TRS 58I

iod-)  iodine-containing compounds other than contrast media

-io-

io(d)-/io-

iodine-containing radiopharmaceuticals

(a)  ethidized oil (13I) (24), iobenguane (13I) (57), iodinated (125I) human serum albumin (24), iodinated (131I) human serum albumin (24), iodoctyl acid (125I) (47), iodocholesterol (131I) (39), iofetamine (125I) (51), iolopride (125I) (73), iomazenil (125I) (66), iometin (125I), iometin (131I) (24), sodium iodide (125I) (24), sodium iodide (131I) (24), sodium iodohippurate (131I) (24), sodium iotalamate (125I (24), sodium iotalamate (131I) (24)

(c)  fibrinogen (125I), macrosalb (13I) (33), rose bengal (13I) sodium (24), tolpovidone (13I) (24)

-usan

-irudin  hirudin derivatives

1.2.1.0

bivalirudin (72), desirudin (70), lepirudin (73), pegmusirudin (77)
-isomide antiarrhythmics, disopyramide derivatives

H.2.0.0

H3CN
NH2
CH3

(a) actisomide (60), bidisomide (63), pentisomide (59)
(c) disopyramide (12)

-ium (x) qaernary ammonium compounds

(USAN: -ium or onium)

E.3.0.0 neuromuscular blocking agents with a flexible structure

(a) azamethonium bromide (1), decamethonium bromide (1), dicolinium iodide (25), dimecolinium iodide (14), fubrogenium iodide (18), hexamethonium bromide (1), mebezonium iodide (16), oxapropanium iodide (1), oxydipentonium chloride (1), pentamethonium bromide (1), pentolonium tartrate (4), prodeconium bromide (6), stilonium iodide (32), suxamethonium chloride (1), suxethonium chloride (1), 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 ammonium derivatives)

(a) alcuronium chloride (17), atracurium besilate (42), candocuronium iodide (70), cisatracurium besilate (73), dacuronium bromide (21), dimethyltubocurarinium chloride (1), doxacurium chloride (58), fazadinium bromide (32), hexafluronium bromide (12), laudexium metilsulfate (4), mivacurium chloride (58), pancuronium bromide (19), pentacyonium chloride (6), phenactropinium chloride (8), pipercuronium bromide (69), piprocurarium iodide (11), rapacuronium bromide (78), rocuronium bromide (66), stercuronium iodide (21), thiazinamium metilsulfate (37), trimethidinium methosulfate (8), trxicurium iodide (22), truxipicurium iodide (22), vecuronium bromide (46)
(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 (1), choline salicylate (15) (analgesic), choline theophyllinate (8) (smooth muscle relaxant), methacholine chloride (1), nitricholine perchlorate (6) (antihypertensive), distigmine bromide (16), ecothiopate iodide (6), neostigmine bromide (4), obidoxime chloride (16), pralidoxime iodide (10), pyridostigmine bromide (6)

E.2.0.0 anticholinergic agents

(a) benzilonium bromide (13), benzyopyrroloin bromide (12), beperidium (57), bevonium metilsulfate (19), butropium bromide (30), cicionium bromide (19), ciclotropium bromide (50), cimetropium bromide (51), clidinium bromide (6), cyclopyrroloin bromide (12), dimetipirium bromide (37), diponium bromide (15), dotefonium bromide (24), droclidinium bromide (33), epepronium bromide (18), etipirium iodide (22), fenclaxonium metilsulfate (20), fenpiverinium bromide (26), fentonium bromide (29), flutropium bromide (50), glycopyrrolonium bromide (12), heteronium iodide (14), hexasonium iodide (15), hexocyclium metilsulfate (6), hexopyrroloin bromide (13), ipratropium bromide (31), methanthelinium bromide (1), methylbenactyzium bromide (34), metocinium iodide (26), nolinium bromide (37), otilonium bromide (38), oxapium iodide (26), oxetfonium bromide (18), oxitropium bromide (36), oxyphenonium bromide (1), oxypyrroloin bromide (13), oxysonium iodide (15), pentapiperium metilsulfate (26), prifinium bromide (20), ritropirronium bromide (33), sintropium bromide (47), sultruponium (18), tematropium metilsulfate (64), tiemonium iodide (13), timepidium bromide (29), tiotropium bromide (67), tiquizium bromide (47), trantelinium bromide (24), tropium chloride (25), xenytropium bromide (15)

(c) atropine methonitrate (4), buzeptide metiodide (14), chlorisondamine chloride (6), diphenamil metilsulfate (4), homatropine methylbromide (1), isopropramide iodide (8), mepenzolate bromide (10), octatropine methylbromide (10), parapenzolate bromide (14), pipenzolate bromide (6), poldine metilsulfate (11), propanyline bromide (1), propyzamine 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), benzalkonoium chloride (1), benzethonium chloride (1), benzododecinium chloride (1), benzofoxonium chloride (36), cefalonium (16), cefmepidium chloride (57), cetalkonium chloride (15), cethexonium chloride (36), cetrimonium bromide (1), cetylpyridinium chloride (1), chlorphenoxoetamsonate (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),
mirstalkonium chloride (41), octonium chloride (16), opratonium iodide (76), penoctonium bromide (20), pirralkonium bromide (19), polidronium chloride (67), polixetonium chloride (70), prolonium iodide (14), sanguinarium chloride (68), separezonium chloride (34), tetradonium bromide (18), tibezonium iodide (32), tiodonium chloride (36), toliodium chloride (36), tolonium metilsulfate (17), tonzonium bromide (14), triclobisonium chloride (10)

c) domiphen bromide (23)

other agents

amezinium metilsulfate (36), amprolium chloride (16), azaspirium chloride (25), bephenium hydroxynaphthoate (11), bibenzonium bromide (12), bidimazium iodide (27), bretylium tosilate (10), butopyrammonium iodide (8), carcainium chloride (36), clofilium phosphate (42), datelliptium chloride (57), detajmium bitartrate (34), dibrospidium chloride (51), ditercalinium chloride (49), edrophonium chloride (4), elliptinium acetate (43), emilium tosilate (37), famiraprinium chloride (58), feniodium chloride (23), gallium (67) citrate (33), homidium bromide (36), isometamidium chloride (18), melenidramium metilsulfate (52), meldonium (86), mequitamium iodide (61), nolpitantium besilate (75), pinaverium bromide (32), pirdonium bromide (28), praizine diphenylmethyl piperazine derivatives

(c) alazanine triclofenate (13) (anthelminthic), colfosceril palmitate (64) (pulmonary surfactant), dithiazanine iodide (8) (anthelminthic), homochlorcyclizine (10) (serotonin antagonist)

-durium (-dinium) curare-like substances

-izine diphenylmethyl piperazine derivatives

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

homochlorcyclizine (10) (serotonin antagonist)
tranquillizers: etodroxizine (18), hydroxyzine (6)

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

-rizine antihistaminics/cerebral (or peripheral) vasodilators

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

chemically related: pipoxizine (32) (respiratory insufficiency)

(b) phenothiazine derivatives: chloracyzine (12) (vasodilator), fluacizine (25) (sedative), moracizine (25) (antiarrhythmic), tiracizine (62) (antiarrhythmic)

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

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

antibiotic "cef": cefatrizine (34)

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

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

(c) medibazine (16)

-kacin antibiotics, kanamycin and bekamycin derivatives (obtained from Streptomyces kanamyceticus)

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

(a) amikacin (30), arbekacin (56), butikacin (4l), 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)

<table>
<thead>
<tr>
<th>-kalant</th>
<th>potassium channel blockers</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.2.0.0</td>
<td>(a) adekalant (83), almokalant (64), clamikalant (81), nifekalant (75), terikalant (66), pinokalant (82)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>-kalim</th>
<th>potassium channel activators, antihypertensive</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.3.0.0</td>
<td>(a) aprikalim (64), bimakalim (64), cromakalim (58)/levcromakalim (66), emakalim (66), mazokalim (75), rilmakalim (65), sarakalim (81)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>-kef-</th>
<th>enkephalin agonists</th>
</tr>
</thead>
<tbody>
<tr>
<td>USAN</td>
<td>casokefamide (65), frakefamide (81), metkefamide (44)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>-kin</th>
<th>interleukin type substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.7.0.0</td>
<td>IL-1: -nakin interleukin-1 analogues and derivatives:</td>
</tr>
<tr>
<td></td>
<td>-onakin interleukin-1 analogues and derivatives: pifonakin (77)</td>
</tr>
<tr>
<td></td>
<td>-benakin interleukin-1 analogues and derivatives: mobenakin (72)</td>
</tr>
<tr>
<td>IL-2 : -leukin interleukin-2 analogues and derivatives: aldesleukin (63), celmoleukin (65),</td>
<td></td>
</tr>
</tbody>
</table>
denileukin diftitox (78), tecaleukin (54)

pegaldesleukin (67)

IL-3 : -plestim interleukin-3 analogues and derivatives: muplestim (72)

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

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

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

IL-10 : -decahn interleukin-10 analogues and derivatives: ilodecahn (81)

IL-11 : -elvehkn interleukin-11 analogues and derivatives: oprelevken (76)

IL-12 : -dodekhn interleukin-12 analogues and derivatives: edodekin alfa (79)

IL-13 : -nakenh interleukin-1 receptor antagonists: anakinra (72)

-kiren renin inhibitors

H.3.0.0

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

-lubant leukotriene B₄ receptor antagonist

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

-lukast leukotriene receptor antagonists, see -ast

-mab monoclonal antibodies (see also Annex)

S.7.0.0

-amab rat origin
-emab  hamster origin

-imab  primate origin

-omab  mouse origin:

\begin{itemize}
  \item \textit{ba(c)}  \textbf{bacterial}: edobacomab (69)
  \item \textit{co(l)}  \textbf{colon}: edrecolomab (74), nacolomab tafenatox (71)
  \item \textit{go(v)}  \textbf{ovary (tumours)}: igovomab (74), oregovomab (86)
  \item \textit{li(m)}  \textbf{lymphocyte}: afelimomab (72), dorlimomab aritox (66), enlimomab (70), enlimomab pegol (77), faralimomab (76), gavilimomab (84), inolimomab (71), maslimomab (66), nerelimomab (76), odulimomab (73), telimomab aritox (66), vepalimomab (80), zolimomab aritox (69)
  \item \textit{ci(r)}  \textbf{cardiovascular}: biciromab (66), imciromab (66)
  \item \textit{le(s)}  \textbf{infectious lesions}: lemalesomab (84), sulesomab (75), technetium (\textsuperscript{99m}Tc) fanolesomab (86)
  \item \textit{pr(o)}  \textbf{tumour (prostate)}: capromab (70)
  \item \textit{tu(m)}  \textbf{tumour (miscellaneous)}: anatumomab mafenatox (79), arcitumomab (74), altumomab (68), bectumomab (75), detumomab (70), epitumomab (82), ibritumomab tiuxetan (81), minretumomab (80), mitumomab (82), satumomab (67), taplitumomab papttx (84), technetium (\textsuperscript{99m}Tc) nofetumomab merpentan (76), technetium (\textsuperscript{99m}Tc) pintumomab (75), tositumomab (80)
\end{itemize}

-umab  human origin:

\begin{itemize}
  \item \textit{ba(c)}  \textbf{bacterial}: nebacumab (66)
  \item \textit{li(m)}  \textbf{immunomodulator}: adalimumab (82), atorolimumab (80), leredlimumab (83), metelimumab (86), morolimumab (79), ziralimumab (84)
  \item \textit{tu(m)}  \textbf{tumour}: votumumab (70)
  \item \textit{vi(r)}  \textbf{viral}: regavirumab (71), sevirumab (66), tuvirumab (66)
\end{itemize}

-ximab  chimeric origin

\begin{itemize}
  \item \textit{ci(r)}  \textbf{cardiovascular}: abciximab (70)
\end{itemize}
**li(m)**  
immunomodulator: basiliximab (76), clenoliximab (77), infliximab (77), keliximab (76), priliximab (72), teneliximab (87), vapaliximab (87)

**me(l)**  
melanoma: ecromeximab (87)

**tu(m)**  
tumor: cetuximab (82), rituximab (77)

(c)  
muromonab CD3 (59)

**zumab**  
**humanized origin**

**ci(r)**  
cardiovascular: bevacizumab (83)

**li(m)**  
lymphocyte: apolizumab (87), daclizumab (78) (previously: dacliximab), eculizumab (87), efalizumab (85), erlizumab (84), fontolizumab (87), mepolizuma (81), natalizumab (79), omalizumab (84), palivizumab (79), pascolizumab (87), pexelizumab (85), reslizumab (85), rovelizumab (81), ruplizumab (83), siplizumab (87), toralizumab (87), visilizumab (84)

**tu(m)**  
tumor: (miscellaneous): alemtuzumab (83), bivatuzumab (83), cedelizumab (77), epratuzumab (82), gemtuzumab (83), labetuzumab (85), lintuzumab (76), sibrotuzumab (81), trastuzumab (78)

**vi(r)**  
viral: felvizumab (77)

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**USAN**

**adamantane derivatives**

**mantadine**

**-mantine**

**-mantone**

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

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

- immunostimulant: S.7.0.0: idramantone (71)

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

(c)  
adamexine (36) (mucolytic), amantocillin (17) (antibiotic), bolmantalate (16) (anabolic)
-meline  cholinergic agents (muscarine receptor agonists/partial antagonists used in the treatment of Alzheimer's disease)

E.1.0.0

\[
\begin{align*}
\text{alvameline (79), cevimeline (76), itameline (71), milameline (74), sabcomeline (76), tazomeline (77), xanomeline (70)}
\end{align*}
\]

**mer- or -mer-** (d)  1mercury-containing drugs, antimicrobial or diuretic (deleted from General Principles in List 28 prop. INN)

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

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

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

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

(antituss.), suxemerid (25) (antituss.)

(c)  hydrargaphen (10)

**mer-** polymers:

(a)  amilomer (33), cadexomer (60), carbetimer (50), carboxer (21), crilanomer (53), dextranomer (33), eldeoxomer (51), leuciglumer (68), maletamer (14), poloxamer (34), porfimer sodium (64), sevelamer (77), surfromer (44), zinostatin stimalamer (74)

(b)  succimer (42)
-mesine  sigma receptor ligands

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

-mestane  aromatase inhibitors

L.0.0.0/Q.2.1.0

  exemestane (65), formestane (66), minamestane (64)

-met(h)asone  see pred

-metacin (x)  anti-inflammatory, indometacin derivatives

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

  \[
  \text{\begin{tikzpicture}
    \node[draw, anchor=base] (node) at (0,0) {
      \begin{tabular}{c}
        \text{\textbf{CO}_2\text{H}} \\
        \text{\textbf{Cl}} \\
        \text{\textbf{H}_3\text{CO}} \\
      \end{tabular}
    \end{tikzpicture}
  };

  \end{tikzpicture}
  \]

(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)

-micin  antibiotics obtained from various Micromonospora

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

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

TRS 581
-mifene see -ifene

mito- (d) antineoplastics, nucleotoxic agents (deleted from General Principles in List 24 prop. INN)
L.0.0.0
(a) mitobronitol (20), mitocarcin (25), mitoclomine (18), mitoflaxone (60), mitogillin (17), mitoguazone (20), mitolactol (26), mitomalcin (19), mitomycin (26), mitonafide (40), mitopodozide (17), mitoquidone (54), mitosper (24), mitotane (21), mitotenamine (17), mitoxantrone (44), mitozolomide (51)
mitindomide (48)

-monam monobactam antibiotics
S.6.0.0

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

-mostim see -stim

-motine antivirals, quinoline derivatives (19th Report 1970)
S.5.3.0 (USAN: antiviral quinoline derivatives)

famotine (23), memotine (22)

-moxin (d) monoamine oxidase inhibitors, hydrazine derivatives*
C.3.1.0
(a) benmoxin (20), cimemoxin (17), domoxin (14), octamoxin (15)
*not part of definition

(c) carbenzide (11), etryptamine (12), fenoxypropazine (12), iprocluzo (13), iproniazid (1), isocarboxazid (11), mebanazine (15), nialamide (10), pargyline (13), phenelzine (10), pheniprazine (11), tranylcypromine (11)

**TRIS 58I**

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

  **L.2.0.0** (USAN: antineoplastic agents (β-chlorethyl)amine derivatives))

  ![Chemical structure](image)

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

  (c) chlorambucil (6), chlormethine (1), chlornaphazine (1), cyclophosphamide (10), defosfamide (12), ifosfamide (23), mafosfamide (51), melphalan (8), mitoclomine (18), mitotenamine (17), perfosfamide (66), sarcolysin (17), sufosfamide (36), trichlormethine (11), trofosfamide (23)

**TRIS 58I**

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

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

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

antibiotics, antineoplastics:
ambomycin (13), antramycin (17), azotomycin (13), bleomycin (23), cactinomycin (15), daclintomycin (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), talisomycin (41)

antibiotics, antineoplastics, antibacterial:
cirolemycin (21)

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

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

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

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

see also -rubacin

nab cannabinol derivatives

(USAN: -nab; or -nab-: cannabinol derivatives)
(a) cannabinol (23), dronabinol (51), menabitan (49), nabazenil (49), nabilone (49), nabitan (42), naboctate (45), nonabine (47), pirnabin (41), rimonabant (83), tinabinol (49)

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

nalc- narcotic antagonists/agonists related to normorphine

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

\[
\text{H} \quad \text{N} \\
\text{H} \quad \text{OH} \\
\text{H} \quad \text{H}
\]

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

(b) nalidixic acid (13)

TRS 581

-naritide see -tide

-nermin see -ermin

-nercept tumour necrosis factor antagonist

etanercept (81), lenercept (72), onercept (82)

nico- or nic- nicotinic acid or nicotinoyl alcohol derivatives

\[
\text{N} \quad \text{CO}_{2}\text{H}
\]

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

inositol nicotinate (16), xanthinol nicotinate (16)

nic-: nicafenine (40), nicainoprol (46), nicametate (15), nicardipine (42), nicanartine (72), nicergoline (26), niceritrol (23), niceverine (15), nictindole (28), nizofenone (44)

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

-nicate: antihypercholesterolaemic and/or vasodilating nicotinic acid esters
H.4.0.0
F.2.2.0

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

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

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

---

nitro- or nitr- or nit-
or ni- or -ni-
nifur- all INNs of this series (see under nifur-)

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

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

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

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

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

-nidazole: for INNs of this series see under -nidazole
-nidazole (x) antiprotozoals, metronidazole derivatives

BAN, USAN

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

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

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

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-nidine see -onidine

nifur- (d) 5-nitrofuran derivatives

USAN

S.2.1.0

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

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

TRS 58l

-nil see -azenil, also for -carnil, -quinil
-nixin  anti-inflammatory, anilinonicotinic acid derivatives

A.4.2.0

(a) butanixin (32), clonixin (22), diclonixin (31), flunixin (31), isonixin (34), metanixin (31)
(c) clonixeril (22), niflumic acid (17), nixylic acid (17)

TRS 58l

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

-olol (x)  β-adrenoreceptor antagonists

E.5.2.0  (BAN: beta-adrenoreceptor antagonists)

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

(BAN: beta adrenoreceptor blocking agents of the propranolol group)
(USAN: beta-blockers)

(a) acebutolol (28), adaprolol (63), adimolol (50), afurolol (40), alpenrolol (19), ancarolol (47), arnolol (56), artonolol (48), atenolol (33), befunolol (39), betaxolol (40), bevantolol (36), bisoprolol (48), bometolol (42), borpinolol (42), bornaprolol (46), buciprolol (43), bucumolol (35), bufetolol (30), bunitrolol (28), bunolol (22), butaprolol (27), butocrolol (38), butofilolol (40), carazolol (36), carpindolol (42), carteolol (35), cetamolol (47), cicloprolol (48), cinamolol (44), cloranolol (41), crinolol (41) (replaced by pacrinolol (44)), dexpromproanolol (21), diacetolol (41), draquinoxolol (54), ecastolol (56), epanolol (52), ericolol (50), esatenolol (76), esmolol (50), exaprolol (32), falintolol (53), flestolol (53), flusoxolol (50), idropranalol (31), imidolol (49) (replaced by adimolol (50)), idenolol (37), indapanolol (48), iprocorolol (39), isoxaprolol (45), landiolol (75), levobetaxolol (61), levobunolol (42), levomoprolol (58), mezipropranolol (44), metipranolol (36), metoprolol (30), nafetolol (39), nebivolol (56), nipradilol (50) (previously niperadolol (49)), oxprenolol (20), pacrinolol (44), pafenolol (46), pamalolol (36), pargolol (36), penbutolol (25), peniroxolol (36), pindolol (23), pirepolol (48), practolol (23), primidolol (42), procinolol (25), propranolol (15), ridazolol (51), ronactolol (57), soquinolol (43), spiremolol (46), talinolol (28), tazolol (31), teoprolol (43), tertatolol (48), tienoxolol (56), tilsolol (57), timolol (29), tiprenolol (23), tolomolol (29), tolpropranolol (28), trigevvalol (56), xibenolol (48), xipranolol (22)
(b) Q.2.3.0: stanozolol (18) (anabolic steroid)

TRS 581

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

\[
\text{OH} \\
\text{Ar} \\
\text{OH} \quad \text{N=R}
\]

(USAN: combined alpha and beta blockers)

amosulalol (50), bendacalol (59), brefonalol (56), bufuralol (31), dexostralol (74), dilevalol (50), labetalol (35), medroxalol (43), nifenalol (22), pronetralol (14), sotalol (18), sulfinalol (41), butidrine (16)

(c) butidrine (16)

-olone see pred

-ketones

(a) 448 (9.62%) INNs ending in -one in Lists 1-48 of Proposed INNs

-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), fluclorolone acetonide (22), fluocinolone acetonide (11), flumoxonide (38), fluocinonide (25), halcinonide (29), itrocinonide (62), nicocortonide (40), procinonide (38), rofileponide (72), tralonide (27), triamcinolone benetonide (36), triamcinolone furetonide (36), triamcinolone hexacetonide (15), triclonide (30)

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

TRS 581
-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 antiinfective: octenidine (43), pirtenidine (57)  
antibacterial: sulfaguanidine (4)  
vet. coccidiostat: 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: anorexants)

(a)  acridorex (21), amfeporentrex (16), aminorex (14), benfluorex (25), clobenzorex (18), cloforex (16), clominorex (14), difemetorex (41), etolorex (20), fenisorex (29), fenproporex (17), flucetorex (30), flurorex (19), fluminorex (14), formetorex (14), furfenoresentrex (16), indanorex (30), mfenorex (19), morforex (26), oxifentorex (20), pentorex (16), picilorrex (40), tiflorex (34)
amfebutamone (31), amfecloral (12), amfepramone (13), amfetamine (55), amfetaminil (40), benzfetamine (55), brolamfetamine (55), chlorphentermine (11), clortermine (22), dexamfetamine (55), dimetamfetamine (38), etilamfetamine (40), fenbutrazate (12), fenfluramine (14), hexapradol (12), levamfetamine (12), mephentermine (6), ortetamine (13), phendimetrazine (11), phenmetrazine (6), phentermine (11)

TRS 581

orphan narcotic antagonists/agonists, morphinan derivates

A.4.1.0
B.2.0.0 (USAN: -orphan: morphinan derivatives that are narcotic antagonists or agonists)

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

TRS 581 B.2.0.0: levallorphan (2)

-orph-  -orphine: acetorphine (17), alletorphine (25), buprenorphine (29), cyprenorphine (17), desomorphine (5), diprenorphine (21), etorphine (17), homprenorphine (25), methyldesomorphine (5), methyldihydro-morphine (5), nalorphine (1), nicomorphine (7), normorphine (7)

-orphinol: hydromorphinol (11)

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

(b) emorfazone (44), morforex (26), morpheridine (6), orphenadrine (8)
-ox antacids, aluminium derivatives: glucalox (13), sucralox (13)

-alox

-dox antibacterials, quinazoline dioxide derivatives:

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

-pirox antimycotic pyridone derivatives:

\[ \text{ciclopirox (26), metipirox (26), rilopirox (56)} \]

-xanox anti-allergics, tixanox group:

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

(c) xanoxic acid (33)

others: bifeprunox (87) (antipsychotic), cefminox (53) (antibiotic), deferasirox (86) (chelating agent), nifurtimox (21) (antipROTOZOAL), sulbenox (37) (animal growth regulator), acipimox (33) (antilipemic), etofenprox (57) (insecticide)
-oxacin (x) antibacterials, nalidixic acid derivatives

S.5.5.0 (BAN: antibacterial agents of the cinoxacin group) (USAN: antibacterial agents (nalidixic acid type))

\[
\text{H}_2\text{C-NN-CO}_2\text{H}
\]

(a) alatrofloxacin (75), amifloxacin (51), balofloxacin (71), binafloxacin (60), cadrofloxacin (81),
cetefloxacin (68), cinoxacin (32), ciprofloxacin (50), clinafloxacin (67), danofloxacin (61),
difloxacin (55), droxacin (36), ecenofloxacin (78), enoxacin (49), enrofloxacin (56),
esafloxacin (60), fandofloxacin (78), finafloxacin (85), fleroxacin (56), garenoxacin (87),
gatifloxacin (74), gemifloxacin (81), grefloxacin (68), ibafloxacin (60), irloxacin (53),
levofloxacin (64), lomefloxacin (58), marbofloxacin (65), merafloxacin (69), miloxacin (40),
moxifloxacin (78), nadifloxacin (64), norfloxacin (46), ofloxacin (49), olamufloxacin (79),
orbibloxacin (68), pazufloxacin (71), peflloxacin (45), pradofloxacin (84), premafloxacin (72),
prulifloxacin (72), rosofloxacin (36), rufoxacin (57), sarafloxacin (62), sitafloxacin (75),
sparfloxacin (63), temafloxacin (58), tioxacin (34), tosufloxacin (60), trovafloxacin (73),
vebufloxacin (69)

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

metioxide (34)

-oxan(e) benzodioxane derivatives

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

\[
\text{O-OO}
\]

(a) -adrenoreceptor antagonists
azaloxan (52) (antidepressant), fluparoxan (58) (antidepressant), idazoxan (49) (\(\alpha_2\)), imiloxan (52) (\(\alpha_2\)) (antidepressant), piperoxan (1) (sympatholytic), proroxan (39)

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

tranquilizers:
butamoxane (12), ethomoxane (12), pentamoxane (12)
related:
efaroxan \((\alpha_2)\)

(b) ambenoxan (21), amoproxan (22), nibroxane (35), razoxane (40)/dexrazoxane (62), sobuzoxane (62), tolboxane (12)

-oxanide see -anide

-oxef see cef-

-oxepine see -pine

-oxetine antidepressants, fluoxetine derivatives

\[\text{C.3.0.0} \]

\[
\begin{align*}
\text{(a)} & \quad \text{anoxetine (58), dapoxetine (65), duloxetine (68), femoxetine (36), fluoxetine (34), ifoxetine (54), litoxetine (64), nisoxetine (34), omiloxetine (76), paroxetine (38), reboxetine (54), seproxetine (66), tomoxetine (49)}
\end{align*}
\]

-oxifene see -ifene

-oxicam see -icam

-pafant platelet-activating factor antagonists

\[\text{I.2.1.0} \]

\[
\begin{align*}
\text{(a)} & \quad \text{apafant (60), bepafant (60), dacopafant (63), foropafant (75), israpafant (76), lexipafant (70), minopafant (80), modipafant (65), nupafant (70), rocepafant (71), setipafant (72), tulopafant (64)}
\end{align*}
\]
-pamide  diuretics, sulfamoylbenzoic acid derivatives  
(os could be sulfamoylbenzamide) (19th Report, 1970)

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

- NH2
- CO2H

(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), clore xolone (15), furosemide (14), sulclamide (15), tiamizide (16)

-pamil  coronary vasodilators, verapamil derivatives

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

- CNH3CO

- H3CO

- H3C

- H3CO

- OCH3

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

related: bertosamil (64), bisaramil (60)

-parcin  for glycopeptide antibiotics

S.6.0.0  

(a)  avoparcin (29), orientiparcin (72)
-parin  

heparin derivatives including low molecular mass heparins

I.2.0.0

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

-parinux  

synthetic heparinoids

fondaparinux sodium (83) (replaces fondaparin sodium (79))

-penem  

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

S.6.0.0 (USAN: analogues of penicillanic acid antibiotics modified in the five-membered ring)

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

-perone  

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

C.1.0.0

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

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

-peridol  antipsychotics, haloperidol derivatives

benperidol (14), bromperidol (33), [clofluperol (18)], droperidol (14), [fluanisone (13)], haloperidol (10), trifluperidol (16)

-peridone  antipsychotics, risperidone derivatives

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

c (c) domperidone (36), etoperidone (36) (antiemetic)

-pidem  hypnotics/sedatives, zolpidem derivatives

C.1.0.0

alpidem (53), necopidem (66), saripidem (67), zolpidem (53)

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

-dipine  see -dipine

(a)

-zepine  antidepressant/neuroleptic: C.3.2.0: dibenzepin (14), elanzepine (35), enprazepine (30), mezepine (22), nuvenzepine (59), prazepine (15), propizepine (19), tilozepine (40)

tricyclic antiulcer: J.0.0.0: darenzepine (52), pirenzepine (30), siltenzepine (63), telenzepine (50), zolenzepine (48)

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

hyperthermia: amezepine (42)

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

-cilpine  antiepileptic: A.3.1.0: dizocilpine (60)
-oxepin beloxepin (75), cidoxepin (17), doxepin (15), maroxepin (54), metoxepin (33), pinoxepin (18), savoxepin (56), spiroxepin (32)
-oxopine traboxopine (58)
-sopine adosopine (63)
-tepine citatepine (54), clorotepepine (29), damotepine (27), metitepine (27), tropatepine (28)

dosulepin (15)
(b) atromepine (15), noscapine (7), prozapine (14)
(c) clobenzepam (25), homopipramol (20), opipramol (15)

-piprazole see -prazole

-pirox see -ox

-pirone see -spirone

-plact platelet factor 4 analogues and derivatives

iroplact (74)

-planin antibacterials (*Actinoplanes* strains)

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

-plase see -teplase, -uplase under -ase

-platin antineoplastic agents, platinum derivatives

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

(a) carboplatin (48), cisplatin (39), 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)

- **plon**  
  pyrazolo-[1,5-a]pyrimidine derivatives, used as anxiolytics, sedatives, hypnotics
  
  A.2.2.0  
  C.1.0.0  
  
  ocinaplon (72), indiplon (86), zaleplon (72)

- **poetin**  
  erythropoietin type blood factors
  
  I.0.0.0  
  
  (a) darbepoetin alfa (85), epoetin alfa (62), epoetin beta (62), epoetin delta (85), epoetin gamma (67), epoetin epsilon (72), epoetin omega (73)

- **porfin**  
  benzoporphyrin derivatives
  
  (a) rostaporfin (83), stannsoporfin (79), talaporfin (83), temoporfin (70), verteporfin (71)

- **poride**  
  Na⁺/H⁺ antiport inhibitor
  
  amiloride (18), cariporide (74), eniporide (79), sabiporide (84), zoniporide (85)

- **pramine**  
  substances of the imipramine group
  
  C.3.2.0  
  (USAN: imipramine type compounds)

  ![Chemical structure](image)

  (a) saturated dibenzazepine:
  azipramine (36), carpipramine (16), cianopramine (47), ciclopramine (29), clocapramine (28), clomipramine (17), depramine (31), desipramine (13), imipramine (8), ketimipramine (17), lofepramine (24), lopramine (24) (replaced by lofepramine (34)), metapramine (34), mosapramine (64), pumaprazole (76), quinupramine (32), tampramine (54), tienopramine (38), trimipramine (13), imipraminoxide (36)
(c) unsaturated dibenzazepine:
carbamazepine (15), homopipramol (20), opipramol (15)

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-prazole antiulcer, benzimidazole derivatives

J.0.0.0 (USAN: antiulcerative benzimidazole derivatives)

![Chemical structure of benzimidazole](image)

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

-piprazole psychotropics, phenylpiperazine derivatives

C.0.0.0

![Chemical structure of phenylpiperazine](image)

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

(b) dapiprazole (see above)

pred prednisone and prednisolone derivatives

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

![Chemical structure of prednisone](image)

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

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

-betasol: clobetasol (26), doxibetasol (26), ulobetasol (54)

(USAN: steroids (not prednisolone derivatives))

Q.3.0.0 -olone: clocortolone (16), descinolone (17), diflucortolone (18), flucloprone acetonide (22), fluocinolone acetonide (11), fluocortolone (15), fluorometholone (8), fluperolone (13), ganaxolone (76), halocortolone (31), rimexolone (38), triamcinolone (8), triamcinolone benetonide (36), triamcinolone furetonide (36), triamcinolone hexacetonide (15)

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

-olone steroids other than prednisolone derivatives

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

H.2.0.0 anti-arrhythmic: amafolone (40), edifolone (56)

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

Q.2.3.0 androgens: androstanolone (4), drostanolone (13), mesabolone (29), mesterolone (15), metenolone (12), metribolone (17), nandrolone (22), norethandrolone (6), oxabolone cipionate (14), oxandrolone (12), oxymetholone (11), quinbolone (14), roterolone (59), stenbolone (17), tibolone (22), trenbolone (24)

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

Q.2.3.1 oxendolone (42)

various non-steroidal compounds

citiolone (23) (hepato-bil.troubles), clorexolone (15) (diuretic), fenozolone (14) (psychotonic), tioxolone (16) (keratolytic), vistatolon (25) (antiviral)

TRS 581
-prenaline see -terol

-pressin vasoconstrictors, vasopressin derivatives

Q.1.2.0

H2N

\[
\text{H—Cys—Tyr—Phe—Gln—Asn—Cys—Pro—Arg—Gly—NH}_2
\]

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

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-pride (x) sulpiride derivatives

C.0.0.0

J.1.0.0

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

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

K.0.0.0: cloxacepride (42)

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

(b) glimepride (66)

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

J.1.0.0: metoclopramide (17)
-pril (x)  angiotensin-converting enzyme inhibitors

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

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

-prilat (x)

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

-prim antibacterials, trimethoprim derivatives

S.5.5.0

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

(c)  diaveridine (18)

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

A.4.2.0  (USAN: anti-inflammatory or analgesic substances (ibuprofen type))

(a)  alminoprofen (40), araprofen (65), atliprofen (74), bakeprofen (61), benoxaprofen (34), bermoprofen (57), bifeprofen (57), carprofen (35), ciclopofen (32), cliprofen (32), dexibuprofen (61), dexindoprofen (49), dextroprofen (70), esflurbiprofen (56), fenoprofen (26), flunoxaprofen (44), fluprofen (18), flurbiprofen (28), frabuprofen (51), furaprofen (42), furcloprofen (44), hexaprofen (30), ibuprofen (16), indoprofen (32), isoprofen (40), ketoprofen
INN – The use of common stems

(28), lobuprofen (53), lonaprofen (44), losmiprofen (61), loxoprofen (50), mabuprofen (64), mexopron (33), miropfen (44), odaliprofen (66), pelubiprofen (76), piketoprofen (40), pirprofen (32), pranoprofen (38), suprofen (31), tazeprofen (50), tetripren (29), tilnoprofen arbanel (74), tioxaprofen (39), vedaprofen (72), ximoprofen (37), zaltoprofen (64), zoliprofen (55)

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

(c) brofezil (31), protizinic acid (27), tiaprofenic acid (30)

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BAN, USAN

prost (x) prostaglandins

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

(a) alfaprostol (45), alprostadil (39), ataprost (62), beraprost (59), bimatoprost (85), butaprost (55), carboprost (36), cicaprost (54), ciprostene (51), clinprost (68), cloprostenol (33), delprostenate (42), dimoxaprost (52), dinoprost (26), dinoprostone (26), doxaprost (34), ecraprost (83), eganoprost (84), enisoprost (50), epoprostenol (44), etaloprost (56), etiproston (46), fenprostalene (42), flunoprost (53), fluprostanol (33), froxiprost (55), gemeprost (42), iloprost (48) (originally ciloprost (46)), lanproston (72), latanoprost (67), limaprost (56), lubiprostone (87), luprostiol (44), meteneprost (45), misoprost (47), naxaprost (58), nileprost (45), nocloprost (51), oxoprost (44), penprostene (37), pimilprost (71), piriprost (51), prostalene (34), remiprostil (65), rolaprostol (48), sulprostone (37), taprostene (58), tiaprost (41), tilsuprost (51), tiprostanide (48), travoprost (80), treprostinil (87), unoprostone (66), vapiprost (58), viprostol (53)

-prostil prostaglandins, anti-ulcer

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

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-quine (d) quinoline derivatives (deleted from General Principles in List 28 prop. INN)
antimalarial: amodiaquine (1), amopyroquine (8), bulaquine (82), chloroquine (4),
hydroxychloroquine (8), mefloquine (33), moxipraquine (26), pamaquine (4), pentaquine (4),
primaquine (1), quinocide (34), tafenoquine (80), tebuquine (49)

amebicide: clamoxyquine (16), mebiqueine (29) (gastrointest. antiseptic), benzoxiquine (18)
(antiseptic), cletequine (20) (anti-inflammatory), cloquiqueine (30) (antiseptic), debrisoquine (15)
(hypotensive agent), esproquine (31) (cardiovascular agent), flumequine (34) (antibacterial),
guanisoquine (15) (hypotensive agent), nifuroquine (36), oxamniquine (28) (schistosomacide)

antirheumat., antigout (antimalarial): acequinoline (22), cinchophen (1), neocinchophen (1),
oxycinophen (6)

antibact.: actinoquinol (15), aminoquinuride (45), broquinaldol (17), broxaldine (12),
chlorquinaldol (1), cloquinol (16), dequalinium chloride (8), diiodohydroxyquinoline (1),
laurolinium acetate (12), nitroxoline (15), quindecamine (15), tilbroquinol (45), tiliquinol (45)

antifungal: hedaquinium chloride (8)

anthelmintic: pyrvinium chloride (6)

treatment of leishmaniasis etc: aminoquinol (22), sitamaquine (80)

amebicide: cloquinate (11), dehydroemetine (15), quinfamide (40)

antiproteus: oxolinic acid (15)

coccidiostat: ammoniate (21), buquinolate (16), ciproquinate (22), decoquinate (20), nequinate
(22), proquinolate (17), quindoxin (26) (growth promoter for pigs and poultry)

growth promoter, bactericide: cinoquidox (40), olaquindox (31) (quinoxaline derivative)

antiviral: famotine (23), memotine (22)

antihypertensive: amiquinsin (17), leniquinsin (18), peraqinsin (29) (quinazolinone
derivative), trethiumin tosilate (14), quinuclium bromide (40)

heart failure: buquineran (40)

diuretic: quincarbate (31)

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

curarizing agent: dimethyltubocurarinium chloride (1), laudexametilsulfate (4),
tubocurarine chloride (1)

anti-cholinergic: toquizine (17), tiquizium bromide (47)
antispasm, muscle relaxant: dimoxyline (1), drotaverine (17), ethaverine (4), flucarbril (14), niceverine (15), octaverine (18), quinetalate (16)

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

oxytocic: quipazine (17)

analgesic: glafenine (15), metofoline (12)

local anaesthetic: cinchocaine (1), euprocin (22), quinisocaine (4)

antituss.: iquindamine (34), noscapine (7)

diagnostic aid: quinaldine blue (17)

antihist.: pirquinozol (43), tritoqualine (14)

antihyperlipidemic: climiqualine (33) (isoquin. der.)

anti-ulcer: isotiquimide (49), tiquinamide (35)

-racetam amide type nootrope agents, piracetam derivatives

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

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

related: tenilsetam (51)
-relin (x) **prehormones or hormone-release stimulating peptides**

Q.0.0.0 (BAN: hypophyseal 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), triptorelin (56)

-morelin **growth hormone release-stimulating peptides:** capromorelin (83), dumorelin (59), examorelin (72), ipamorelin (78), pralmorelin (77), rismorelin (74), sermorelin (56), somatorelin (57), tabimorelin (80)

-tirelin **thyrotropin releasing hormone analogues:**

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

(a) other: corticorelin (64)

**TRS 581**

-relix **hormone-release inhibiting peptides**

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

-renone **aldosterone antagonists, spironolactone derivates**

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

(a) canrenoic acid (20) and potassium canrenoate (20), canrenone (20), dicirenone (50), drospirenone (63), eplerenone (77), mespironone (51), spironolactone (11), spiroxasone (14)
**retin**  
**retinol derivatives**

P.1.0.0  
(USAN: -retin-)

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

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

**-ribine**  
**ribofuranyl-derivatives of the "pyrazofurin" type**

L.0.0.0./  
S.5.3.0

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

(c) pirazofurin (31), ribavirin (31), riboprime (20), tiazofurine (48)

related: benaxibine (50)

**rifa-**  
**antibiotics, rifamycin derivatives**

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

USAN

-rinone cardiac stimulants, amrinone derivatives

H.1.0.0 (USAN: cardiotonic agents (amrinone type))

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

(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)

USAN

-rizine see -izine

USAN

-rozole aromatase inhibitors, imidazole-triazole derivatives

L.0.0.0

\[
\begin{align*}
&\text{R'} \\
&\text{N} \\
&\text{N} \\
&\text{R} \\
&\text{or} \\
&\text{Ar}
\end{align*}
\]

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

USAN

-rubicin antineoplastic antibiotics, daunorubicin derivatives

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

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

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

---

**sal**  
**salicylic acid derivatives**

(USAN: -sal-; -sal; or sal-)

\[
\begin{align*}
\text{CO}_2\text{H} \\
\text{OH}
\end{align*}
\]

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

**various**
salantel (29) (anthelmintic), salinazid (8) (antituberc.)

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

**antithrombotic**
flufosal (42)

**various**: antituberc.
fenamisal (15), thiomersal (1) (disinfect.), triflusal (37) (antithrombotic)

**-sal-**  
**analgesic anti-inflammatory A.4.2.0**
acetaminosalol (1), acetylsalicylic acid (IP), carbasalate calcium (27), carsalam (13), etersalate (50), etosalamide (14), parsalmide (32), talosalate (43)

**various**
amotosalen (85), calcium benzamidosalicylate (10), homosalate (28) (sunscreen agent), lasalocid (30) (antibiotic. vet.), mersaly (4) (mercurial diuretic), octisalate (83) (sunscreen), osalmid (15) (choleretic), xenysalate (12) (antiseborrheic)

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

**-salazine/-salazide**
dersalazine (86), mesalazine (52), olsalazine (52), sulfasalazine (55), balsalazide (48), ipsalazide (48)
-salan  brominated salicylamide derivatives disinfect. S.2.1.0
bensalan (18), dibromsalan (14), flusalan (16), fursalan (18), metabromsalan (16), tiosalan (18), tribromsalan (14)

(b)  non-salicylic acid derivatives
macrosalb (99mTc) (33), trioxysalen (16) (pigmenting agent)

bronchodil.
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), hydroxytoluic acid (17), sodium gentisate (1), sodium glucaspaldrate (17)

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

anti hypertensives H.3.0.0
labetalol (35)

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

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

mercurial diuretics N.1.3.0
mercaderamide (1)

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

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

See also Pharm S/Nom 557

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

H.3.0.0
abitesartan (73), candesartan (71), elisartan (72), embusartan (78), eprosartan (71), forasartan (74), irbesartan (71), losartan (66), milfasartan (76), olmesartan (80), pomisartan (73),
pratosartan (85), ripisartan (73), saprisartan (72), tasosartan (72), telmisartan (70), valsartan (68), zolasartan (70)

**-semide**  
**diuretics, furosemide derivatives**

N.1.1.0

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

**-serpine (d)**  
**derivatives of Rauwolfia alkaloids**

E.5.4.0

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

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

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**-setron**  
**serotonin receptor antagonists (5-HT$_3$) not fitting into other established groups of serotonin receptor antagonists**

(BAN: serotonin receptor antagonists (5HT$_3$) used as antihyper-tensives)

(a) alosetron (66), azasetron (68), bemesetron (64), cilansetron (68), dolasetron (65), fabesetron (74), galdansetron (72), granisetron (59), indisetron (76), itasetron (68), lerisetron (69), lurosetron (69), mirisetron (72), ondasnebron (59), palonosetron (74), ramosetron (70), ricasetron (70), tropisetron (62), zatosetron (64)

**som-**  
**growth hormone derivatives**

Q.0.0.0

(a) somagrebove (63), somalapor (62), somatosalm (69), somatrem (54), somatropin (56), somavubove (63), somenopor (62), somfasepor (66), sometribove (54), sometripor (55), somidobove (58)
(b) somatoren (57), somantadine (51), somatostatin (46)

**-spirone**  
*anxiolytics, buspirone derivatives*

C.1.0.0

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

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

**-stat- or -stat**  
*enzyme inhibitors*

(BAN: -stat: enzyme inhibitors)

- castat  
*dopamine -hydroxylase inhibitors*

- nepicastat (78)

- elestat  
*elastase inhibitors*

- sivelestat (78)

- listat  
*pancreatic lipase inhibitors*

- orlistat (66)

- mastat  
*matrix metalloproteinase inhibitors*

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

**-restat or -restat-**  
*aldose reductase inhibitors*

M.5.0.0

- alrestatin (37), epalrestat (55), fidarestat (78), imirestat (59), lidorestat (87), minalrestat (76), ponyalrestat (58), risarestat (82), tanomastat (82), tolrestat (51), zenarestat (64), zopaldrestat (64)
**-vastatin**  antihyperlipidaemic substances, HMG CoA reductase inhibitors

H.4.0.0

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

proteolytic enzyme inhibitors: aloxistatin (57), ulinastatin (56); camostat (46), nafamostat (53), patamostat (69), sepimostat (68)

various: azalanstat (73): lanosterol 14α-demethylase inhibitor
febuxostat (85): xanthine oxidase and xanthine dehydrogenase inhibitor
benurestat (31): urease inhibitor
cilastatin (50): renal dehydropeptidase inhibitor
miglustat (85): glucosyltransferase inhibitor
nystatin (6): antifungal antibiotic
pentostatin (38): vidarabin activity potentiator; inhibitor of enzymatic deaminative metabolism
pepsstatin (28): pepsin inhibitor
somatostatin (43): growth hormone release inhibiting factor
tendamistat (44): amylase inhibitor
vistatolon (25): antiviral antibiotic
zinostatin (40): antineoplastic
zinostatin stimalamer (74)

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**-steine**  mucolytics, other than bromhexine derivatives

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

(a) acetylcysteine (13), bencisteine (30), carbocisteine (34), cartasteine (72), dacisteine (49), danostesteine (53), erdosteine (56), fudosteine (77), guaisteine (57), isalosteine (63), letostesteine (38), mecysteine (13), midesteine (63), moguisteine (61), nesosteine (52), omonasteine (40), prenisteine (42), salmisteine (58), taurosteine (63), telmesteine (63)

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**-ster-**  androgens/anabolic steroids

Q.2.3.1

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

**-sterone**: bolasterone (13), fluoxymesterone (6), oxymesterone (12), prasterone (23), tiomesternone (14)
-**ster**: mesterolone (15), penmesterol (14), rosterolone (59)

(b) progestational steroids

-**gesterone**: dydrogesterone (12), haloprogesterone (11), hydroxyprogesterone (8), medroxyprogesterone (10), norgesterone (14), progesterone (4)

-**sterone**: dimethisterone (8), ethisterone (4), norethisterone (6), norvinisterone (10)

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

-**sterol**: azacosterol (16) (hypocholesterolemic), dihydrotachy-sterol (1) (antihypoparathyroid), iodocholesterol $^{131I}$ (39)

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

-(a)steride  (USAN: testosterone reductase inhibitors) - antineoplastic

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

-**stigmine (d)** acetylcholinesterase inhibitors

E.1.2.0

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

(c) eseridine (53)

-**stim** colony stimulating factors

1.5.0.0

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

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

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

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

(a) filgrastim (64), lenograstim (64), nartograstim (66), pegfilgrastim (85), pegnartograstim (80)
INN – The use of common stems

-gramostim  granulocyte macrophage colony stimulating factor (GM-CSF) types substances
(a)  ecogramostim (62), molgramostim (64), regramostim (64), sargramostim (66)

-mostim  macrophage stimulating factors (M-CSF) type substances
(a)  cilmostim (71), mirimostim (65)

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

sulfa-  anti-infectives, sulfonamides

BAN, USAN

S.5.1.0  (BAN: sulpho-)
(USAN: antimicrobial sulfonamides)

(a)  sulfabenz (17), sulfabenzamide (27), sulfacarbamide (12), sulfacecol (30), sulfacetamide (1),
sulfachlorpyridazine (10), sulfachrysoidine (1), sulfacine (23), sulfacolomide (17),
sulfadiazinazole (25), sulfadicaloline (25), sulfadiasulfone sodium (1), sulfadiazine (4), sulfadiazine
sodium (4), sulfadicarame (4), sulfadimethoxine (10), sulfadimidine (1), sulfadoxine (20),
sulfadifidole (8), sulfafurazol (1), sulfaguanidine (4), sulfasulfoxol (23), sulfalene (12),
sulfaloxide acid (15), sulfamazene (40), sulfamerazine (4), sulfamerazine sodium (4),
sulfamethizol (1), sulfamethoxazole (14), sulfamethoxypyridazin (8), sulfamethomidine (17),
sulfametoxylazine (17), sulfametroxol (31), sulfamonomethoxine (11), sulfamosoxol (12),
sulfanilamide (4), sulfanalntran (15), sulfapenam (14), sulfaphenazol (10), sulfapxyloxyline (4),
sulfapyrazol (18), sulfapyridine (1), sulfquinaoxaline (46), sulfasalazine (55), sulfasomizole
(10), sulfasuccinamide (41), sulfasymazene (12), sulfathiazole (4), sulfathione (1),
sulfatolamide (10), sulfatroxazole (29), sulfatroxol (24)

(b)  sulfarsphenamine (4)

(c)  benzylsulfamide (1), glucosulfamide (1), maleylsulfathiazole (1), mesulfamide (41),
nitrosulfathiazole (1), phthalysulfamethizol (6), phthalysulfathiazole (1), salazodine (22),
nalazosulfida-dimidine (11), salazosulfamide (1), salazosulfathiazole (1), stearyl sulfamide (1),
succinylsulfathiazole (4), sulfisomidine (1), vanyldisulfam (1), mafenide (1) (sulfonamide,
but not sulfanilamide)

TRS 581
-sulfan  antineoplastic, alkylating agents, methanesulfonates

L.2.0.0

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

TRS 581

-tant  neurokinin (tachykinin) receptor antagonists

-pitant  neurokinin NK₁ (substance P) receptor antagonist

(a) aprepitant (84), dapitant (74), ezlopitant (82), figopitant (82), vofopitant (82), lanepitant (77), nolpitantium besilate (75)

-dutant  neurokinin NK₂ receptor antagonist

nepadutant (78), saredutant (75)

-nertant  neurotensin antagonist

reminertant (85)

-netant  neurokinin NK₃ receptor antagonist

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

-tecan  antineoplastics, topoisomerase I inhibitors

L.0.0.0 (USAN: anti-neoplastics (camptothecine derivatives))

afeletecan (85), diflomotecan (84), exatecan (81), gimatecan (86), irinotecan (64), lurtotecan (74), mureletecan (85), rubitecan (82), topotecan (65)
-tepa  antineoplastics, thiotepa derivatives

L.2.0.0  (USAN: antineoplastic thiotepa derivatives)

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

-tepine  see -pine

-teplase  tissue type plasminogen activators, see -ase item VI

-terol (x)  bronchodilators, phenylethylamine derivatives

(previously -prenaline or -terenol unofficial)

(USAN: bronchodilators (phenylethylamine derivatives))

(a)  amiterol (26), bambuterol (49), bitolterol (34), broxaterol (51), carbuterol (29), cimaterol (54), clenbuterol (28), colterol (36), difeterol (36), divabuterol (51), etanterol (53), fenoterol (26), formoterol (44), imoxiterol (52), mabuterol (46), naminterol (53), nardeterol (62), picumeterol (64), pirbuterol (30), procaterol (37), reprotoerol (30), rimeterol (26), salmeterol (55), sulfonterol (31), tobuterol (45), tubuloterol (40), zilpaterol (60), zinterol (38)

cardiac stimulants:
metaterol (43), prenalterol (38), xamoterol (48); clorprenaline (17), hexoprenaline (21), isoprenaline (1), levisoprenaline (10), metiprenaline (24), orciprenaline (14), quiniprenaline (17)

deterenol (25), soterenol (20)

(b)  azacosterol (16), dihydrotachysterol (1), penmesterol (14)
INN – The use of common stems

c) dioxethedrine (6), isoetarine (13), methoxyphenamine (1), pseudoephedrine (11), salbutamol (20), salmefamol (23), terbutaline (22)

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-terone antiandrogens

(Q.2.3.1)

(a) abiraterone (74), benoroterone (15), cyproterone (16), delanterone (42), inocoterone (54), osaterone (68), zanoterone (67)

(b) oxendolone (42)

(c) clometerone (15) (anti-estrogen)

-tiazem calcium channel blockers, diltiazem derivatives

F.2.1.0

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

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

-tide peptides and glycopeptides (for special groups of peptides see -actide, -pressin, -relin, -tocin)

analgesic: leconotide (86), ziconotide (78)

angiogenesis inhibitor: cilengitide (81)

antibiotic: nosiheptide (35)

antidepressant: nemifitide (87)

antidiabetic: amlintide (76), liraglutide (87), seglitide (57), pramlintide (74)

antidiarrhoeal: lagatide (75)
antithrombotic: eptifibatide (78)

angiotensin convers. inhibitor: teprotide (36)

atrial natriuretic factor type substance: anaritide (57), neseritide (80), ularitide (69)

cardiac stimulant: carperitide (65)

diagnostic: betiatide (58), bibapcitide (78), ceruletide (34), depretide (80), mertiatide (60), pendetide (70), technetium (99mTc) apcitide (78), teriparatide (50)

gastro-intestinal bleeding/antineoplastic: edotreotide (84), ilatreotide (66), lanreotide (64), octreotide (52), pentetreotide (66), vapreotide (62)

gut motility increasing: ociltide (52)

immunomodulator: almurtide (74), goralatide (72), murabutide (49), pentigetide (60), pimelautide (53), prezatide copper acetate (67), romurtide (61), tabilautide (60), temurtide (60), tiplimotide (82)

neuromodulator: ebiratide (56)

peptic ulcer: sulglicotide (29), triletide (50)

pulmonary surfactant: lusuultide (80), sinapultide (78)

sedative: emideltide (70)

treatment of Parkinson's disease: doreptide (58), pareptide (38)

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

-tidine (x) histamine-H₂-receptor antagonists, cimetidine derivatives

G.2.0.0 (BAN: H₂-receptor antagonists of the cimetidine group) (USAN: H₂-receptor antagonists (cimetidine type))

-bisfentidine (57), cimetidine (33), dalcotidine (76), donetidine (56), ebrotilidine (57), etintidine (44), famotidine (48), lafuutidine (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) benzethidine (9), furethidine (9), guanethidine (11), hexetidine (6), hydroxypethidine (5), pethidine (4), propinetidine (12)

azacitidine (40) (antineoplastic)

(c) metiamide (30)

-**relin**  see -relin

-**triline**  see -triptyline

**-tizide**  diuretics, chlorothiazide derivatives

N.1.2.1  (USAN: thiazide: diuretics (thiazide derivatives))

(a) altizide (13), bemetizide (27), butizide (13), carmetizide (30), epitizide (13), hydrobentizide (14), mebutizide (15), paraflutizide (16), penflutizide (29), sumetizide (20)

(c) bendroflumethiazide (11), benzthiazide (10), chlorothiazide (8), cyclopenthiazide (12), cyclothiazide (12), disulfamide (11), ethiazide (14), flumethiazide (10), hydrochlorothiazide (10), hydroflumethiazide (10), methyclothiazide (11), polythiazide (12), teclothiazide (12), trichlormethiazide (11)

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**-tocin**  oxytocin derivatives

Q.1.2.0

(a) argiprestocin (13), aspartocin (11), carbetocin (45), cargutocin (35), demoxytocin (22), nacartocin (49), oxytocin (13)
-toin (d) antiepileptics, hydantoin derivatives

A.3.l.l

(a) albutoin (13), doxenitoin (31), ethotoin (6), fosphenytoin (62), mephenytoin (1), metetoin (12), phenytoin (4)
ropitoin (40) (H.2.0.0.)

(b) clodantoin (13) (antifungal), nitrofurantoin (11) (antibact.)

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-trexate (x) folic acid analogues

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

(a) edatrexate (61), ketotrexate (50), methotrexate (10), trimetrexate (46)

-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)
-triptan serotonin (5HT₁) receptor agonists, sumatriptan derivatives

(a) almotriptan (76), avitriptan (76), donitriptan (82), eletriptan (74), frovatriptan (78), naratriptan (69), oxitriptan (39), rizatriptan (75), sumatriptan (59), zolmitriptan (74)

(c) alniditan (72)

-triptylne antidepressants, dibenzo[a,d]cycloheptane or cyclopheptene derivatives

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

(a) amitriptyline (11), butriptyline (16), cotriptyline (26), intriptyline (26), nortriptyline (12), octriptyline (33), protriptyline (14), amitriptylinoxide (36), demexiptiline (43), levoprotiline (56), noxiptiline (20), oxaprotiline (45), setiptiline (56)

(b) oxitriptyline (21) (anticonvuls.)

(c) hepzidine (15)

TRS 58l see also Pharm S/Nom 970

-troban thromboxane A₂-receptor antagonists; antithrombotic agents

I.2.1.0 argatroban (57), daltroban (57), domitroban (73), ifetroban (71), linotroban (69), mipitroban (73), ramatroban (73), sulotroban (55)

trop atropine derivatives

E.2.0.0 (USAN: trop- ; or –trop-)

(a) parasympatholytic/anticholinergic; E.2.2.0:
tertiary amines:
atropine oxyde (12), benzatropine (4), decitropine (18), etybenzatropine (12), eucatropine (1), tropatepine (28), tropicamide (11), tropigline (8), tropodifene (18)

closely related:
esbatropate (65)

quaternary ammonium salts:
atropine methonitrate (4), butropium bromide (30), ciclotropium bromide (50), cimetropium bromide (51), flutropium bromide (50), homatropine methylbromide (1), ipratropium 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) (antiarhythmic), dewtropine (12) (antiasthmatic), revatropate (74) (bronchodilator), tropazbate (41) (tranquilizer), tropanserin (55), tropapride (48) (antipsychotic), tropirine (20) (respiratory disorders), tropisetron (62)

(b) dextropoxyphene (7), somatropin (56)

(c) parasympatholytic/anticholinergic, tertiary amines:
poskine (8), prampine (11), tigloidin (14)

various:
zepastine (26) (antihistaminic)

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-uplase  urokinase type plasminogen activator, see -ase item VII

-ur  see –uridine

-uracil  uracil derivatives used as thyroid antagonists and as antineoplastics

thyrroid antagonists: iodothiouracil (1), methylthiouracil (1), propylthiouracil (1)

L.4.0.0: eniluracil (77), fluorouracil (13)
-uridine uridine derivatives used as antiviral agents and as antineoplastics

S.5.3.0
L.4.0.0

L.4.0.0: broxuridine (30), doxifluridine (44)

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

S.5.3.0: fialuridine (68), floxuridine (16), idoxuridine (17), navuridine (84), trifluridine (37)

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

related: alovudine (68), brivudine (59), clevudine (78), edoxudine (52), epervudine (61), fozivudine tidoxil (73), lamivudine (66), netivudine (72), sorivudine (64), stavudine (65), zidovudine (56)

-vastatin see -stat-

-verine (x) spasmolytics with a papaverine-like action

F.1.0.0 (USAN: spasmolytics having a papaverine-like action)

(a) alverine (16), amifloverine (28), bietamiverine (6), butaverine (13), camiverine (29), caroverine (28), clofeverine (31), demelverine (17), denaverine (25), dextrsecoverine (53), dicycloverine (6), dihexyverine (4), dipiproverine (10), diprotereverine (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), pargeverine (38), pentoxyverine (6), pramiverine (21), prenoverine (41), propiverine (45), rociverine (33), salfluverine (29), salverine (15), secoverine (38), temiverine (76), zardaverine (59)

fenpiverinium bromide (26), pinaverium bromide (32)

(b) cinnamaverine (10) (anticholinergic, tert. amine), diaveridine (18)

(c) spasmolytics chemically related to some of the above INN ending in -verine
butetamate (17), butinoline (14), camylofin (12), cinnamedrine (19), cyclandelate (8),
difemerine (17), diisopromin (11), dimoxylin (1), fenpiprane (17), fenryamide (12),
metindizate (16), oxybutynin (13), papaveroline (29), pentapiperide (10), prozapine (14),
triclazate (10), tropenziline bromide (11)

TRS 581

<table>
<thead>
<tr>
<th>vin- and vin^- (x) vinca alkaloids</th>
<th>USAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>(USAN: vin-; or -vin-)</td>
<td></td>
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<tr>
<td>(a)</td>
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<tr>
<td>B.1.0.0 stim. of cerebrovasc. circul.</td>
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<td>apovincamine (48), brovincamine (42), vinburnine (45), vincamine (22), vincanol (37),</td>
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<tr>
<td>vincantril (51), vincenate (47), vindeburnol (49), vinmegallate (59), vinpocetin (36), vinpoline (35), vintoperol (61)</td>
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<td>L.5.0.0 cytostatic</td>
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<td>vinblastine (12), vincristine (13), vindesine (35), vinepidine (50), vinflumine (76), vinformide (38), vinfosiltine (64), vinglycinate (16), vinleucinol (64), vinleur (13), vinorelbine (57), vinrosidine (13), vintriptol (51), vinzolidine (46)</td>
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<td>(b)</td>
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<td>barbiturates</td>
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<tr>
<td>vinbarbital (1), vinylbital (12)</td>
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<td>others: vincofos (28) (phosphate, anthelmintic), vintiamol (16) (vit. B. deriv., antineuralgic)</td>
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<table>
<thead>
<tr>
<th>vir antivirals (undefined group)</th>
<th>BAN, USAN</th>
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<tr>
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<td>aciclovir (42), adeovir (72), alvircept sudotox (69), amdoxovir (85), amitivir (67), atevirdine (69), buciclovir (52), capravirine (83), cidofovir (72), dapivirine (86), delavirdine (71), denotivir (70), desciclovir (55), detiviciclovir (86), efavirenz (78), emivirine (82), enfuvirtide (85), envidadene (49), enviroxime (44), famciclovir (61), ganciclovir (56), litemeglovir (84), loviride (70), maribavir (80), nevirapine (66), omaciclovir (84), opaviraline (83), penciclovir (61), pirodavir (63), ribavirin (31), rocciclovir (62), talviraline (75), tenofovir (82), tiviciclovir (86), tivirapine (74), tomeglovir (84), trovirdine (73), valaciclovir (69), valganciclovir (78), valomaclovir (84), viroxime (49), zinivroxime (44)</td>
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<tr>
<td>-amivir neuraminidase inhibitors: oseltamivir (80), peramivir (86), zanamivir (72)</td>
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<tr>
<td>-cavir carbocyclic nucleosides: abacavir (76), entecavir (82), lobucavir (72)</td>
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<tr>
<td>-fovir phosphonis acid derivatives: adeovir (72), cidofovir (72), tenofovir (82)</td>
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</tbody>
</table>
-gosivir glucoside inhibitors: celgosivir (77)

-navir HIV protease inhibitors: amprenavir (79), droxinavir (74), fosamprenavir (83), indinavir (74), lasinavir (76), lopinavir (80), mozenavir (84), nelfinavir (76), palinavir (74), ritonavir (74), saquinavir (69), telinavir (73), tipranavir (80)

-virsen antisense oligonucleotides

(a) afovirsen (70), fomivirsen (75), trecovirsen (77)

(b) virginiamycin (18), viridofulvin (16)

(c) avridine (50)

-vudine see -uridine

-xanox see -ox

K.0.0.0

-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

-zone see -buzone
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**ALPHABETICAL LIST OF COMMON STEMS**

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<td>-decakine (see -kin)</td>
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fos
-fovir (see vir)
-fradil
-frine (see -drine)
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-igetide (see –tide)
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-imod
-imus
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-morelin (see –relin)
-mostim (see –relin)
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-nermin (see –ermin)
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-nidine (see –onidine)
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nitro/-nitr/-ni/-/ni-
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-olol
-olone (see pred)
onakin (see –kin)
one
-onide
-onidine
-onium (see –ium)
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orex
-orph- (see -orphan)
orphan
-ox/-alox
-oxacin
-oxan(e)
-oxamide (see -amide)
-oxef (see cef-)
oxepine (see –pine)
oxetine
-oxicam (see –cam)
oxifene (see –ifene)
oxopine (see –pine)

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-pamide
-pamil
-parcin
-parin
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-penem
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-peridone (see –perone)
-perone
-pidem
-pin(e)
piprazole (see –prazole)
-pirone (see -spirone)
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-plact
-planin
-plase (see –ase)
-platin
-plermin (see –ermin)
-plestim (see –stim or –kin)  
-plon  
-poetin  
-porfin  
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-pramine  
-prazole  
pred  
-prenaline (see –terol)  
-pressin  
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-pril/-prilat  
-prim  
-profen  
-prost  
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-teplase (see –ase)  
-termin (see –ermin)  
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-tirelin (see –relin)  
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-toin  
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-tricin  
-triptan  
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-ur (see –uridine)  
-uracil  
-uridine  

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-vastatin (see –stat-)  
-verine  
-vin/-vin-  
vir  
-virsen  
-vudine (see –uridine)  

X  
-xanox (see –ox/-alox)  

Z  
-zafone  
-zepine (see –pine)  
-zone (see –buzone)
ANNEX 1

INNs for monoclonal antibodies

The following stem system was adopted by the members of the Expert Advisory Panel on the International Pharmacopoeia and Pharmaceutical Preparations designated to deal with the selection of nonproprietary names for naming monoclonal antibodies.

I. General stem: -mab

II. Sub-stems for source of product:

<table>
<thead>
<tr>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>u</td>
<td>human</td>
</tr>
<tr>
<td>o</td>
<td>mouse</td>
</tr>
<tr>
<td>a</td>
<td>rat</td>
</tr>
<tr>
<td>e</td>
<td>hamster</td>
</tr>
<tr>
<td>i</td>
<td>primate</td>
</tr>
<tr>
<td>xi</td>
<td>chimeric</td>
</tr>
<tr>
<td>zu</td>
<td>humanized</td>
</tr>
</tbody>
</table>

The distinction between chimeric and humanized antibodies is as follows:

A **chimeric** antibody is one that contains contiguous foreign-derived amino acids comprising the entire variable region of both heavy and light chains linked to heavy and light constant regions of human origin.

A **humanized** antibody has segments of foreign-derived amino acids interspersed among variable region segments of human-derived amino acid residues and the humanized heavy-variable and light-variable regions are linked to heavy and light constant regions of human origin.
III. **Sub-stems for disease or target class:**

<table>
<thead>
<tr>
<th>Sub-stem</th>
<th>Disease/Target Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ba(c)-</td>
<td>bacterial</td>
</tr>
<tr>
<td>-ci(r)-</td>
<td>cardiovascular</td>
</tr>
<tr>
<td>-le(s)-</td>
<td>infectious lesions</td>
</tr>
<tr>
<td>-li(m)-</td>
<td>immunomodulator</td>
</tr>
<tr>
<td>-vi(r)-</td>
<td>viral</td>
</tr>
</tbody>
</table>

**tumours:**

<table>
<thead>
<tr>
<th>Sub-stem</th>
<th>Disease/Target Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>-co(l)-</td>
<td>colon</td>
</tr>
<tr>
<td>-go(t)-</td>
<td>testis</td>
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<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>
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<td>-pr(o)-</td>
<td>prostate</td>
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<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.

IV. **Prefix:**

Should be random e.g. the only requirement is to contribute to a euphonious and distinctive name.

V. **Second word:**

If the product is radiolabelled or conjugated to another chemical, such as toxin, identification of this conjugate is accomplished by use of a separate, second word or acceptable chemical designation. For monoclonals conjugated to a toxin, the -tox stem must be included as part of the name selected for the toxin.

If the monoclonal antibody is used as a carrier for a radioisotope, the latter will be listed first in the INN, e.g. technetium (99mTc) pintumomab.
ANNEX 2

PROCEDURE FOR THE SELECTION OF RECOMMENDED INTERNATIONAL NONPROPRIETARY NAMES FOR PHARMACEUTICAL SUBSTANCES*

The following procedure shall be followed by the World Health Organization in the selection of recommended International Nonproprietary Names for pharmaceutical substances, in accordance with the World Health Assembly resolution WHA3.11:

1. Proposals for recommended international nonproprietary names shall be submitted to the World Health Organization on the form provided therefor.

2. Such proposals shall be submitted by the Director-General of the World Health Organization to the members of the Expert Advisory Panel on the International Pharmacopeia and Pharmaceutical Preparations designated for this purpose, for consideration in accordance with the "General principles for guidance in devising International Nonproprietary Names", appended to this procedure. The name used by the person discovering or first developing and marketing a pharmaceutical substance shall be accepted, unless there are compelling reasons to the contrary.

3. Subsequent to the examination provided for in article 2, the Director-General of the World Health Organization shall give notice that a proposed international nonproprietary name is being considered.

   A. Such notice shall be given by publication in the Chronicle of the World Health Organization1 and by letter to Member States and to national pharmacopoeia commissions or other bodies designated by Member States.

      (i) Notice may also be sent to specific persons known to be concerned with a name under consideration.

   B. Such notice shall:

      (i) set forth the name under consideration;

      (ii) identify the person who submitted a proposal for naming the substance, if so requested by such person;

      (iii) identify the substance for which a name is being considered;

      (iv) set forth the time within which comments and objections will be received and the person and place to whom they should be directed;

      (v) state the authority under which the World Health Organization is acting and refer to these rules of procedure.

   C. In forwarding the notice, the Director-General of the World Health Organization shall request that Member States take such steps as are necessary to prevent the acquisition of proprietary rights in the proposed name during the period it is under consideration by the World Health Organization.

4. Comments on the proposed name may be forwarded by any person to the World Health Organization within four months of the date of publication, under article 3, of the name in the Chronicle of the World Health Organization.
5. A formal objection to a proposed name may be filed by any interested person within four months of the date of publication, under article 3, of the name in the *Chronicle of the World Health Organization*. 

Such objection shall:

(i) identify the person objecting;

(ii) state his interest in the name;

(iii) set forth the reasons for his objection to the name proposed.

6. Where there is a formal objection under article 5, the World Health Organization may either reconsider the proposed name or use its good offices to attempt to obtain withdrawal of the objection. Without prejudice to the consideration by the World Health Organization of a substitute name or names, a name shall not be selected by the World Health Organization as a recommended international nonproprietary name while there exists a formal objection thereto filed under article 5 which has not been withdrawn.

7. Where no objection has been filed under article 5, or all objections previously filed have been withdrawn, the Director-General of the World Health Organization shall give notice in accordance with subsection A of article 3 that the name has been selected by the World Health Organization as a recommended international nonproprietary name.

8. In forwarding a recommended international nonproprietary name to Member States under article 7, the Director-General of the World Health Organization shall:

   A. request that it be recognized as the nonproprietary name for the substance; and

   B. request that Member States take such steps as are necessary to prevent the acquisition of proprietary rights in the name, including prohibiting registration of the name as a trade-mark or trade-name.

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1. The title of this publication was changed to *WHO Chronicle* in January 1959. From 1987 onwards lists of INNs are published in *WHO Drug Information*.
ANNEX 3

GENERAL PRINCIPLES FOR GUIDANCE IN DEVISING INTERNATIONAL NONPROPRIETARY NAMES FOR PHARMACEUTICAL SUBSTANCES*

1. International Nonproprietary Names (INN) should be distinctive in sound and spelling. They should not be inconveniently long and should not be liable to confusion with names in common use.

2. The INN for a substance belonging to a group of pharmacologically related substances should, where appropriate, show this relationship. Names that are likely to convey to a patient an anatomical, physiological, pathological or therapeutic suggestion should be avoided.

*These primary principles are to be implemented by using the following secondary principles:

3. In devising the INN of the first substance in a new pharmacological group, consideration should be given to the possibility of devising suitable INN for related substances, belonging to the new group.

4. In devising INN for acids, one-word names are preferred; their salts should be named without modifying the acid name, e.g. “oxacillin” and “oxacillin sodium”, “ibufenac” and “ibufenac sodium”.

5. INN for substances which are used as salts should in general apply to the active base or the active acid. Names for different salts or esters of the same active substance should differ only in respect of the name of the inactive acid or the inactive base.

For quaternary ammonium substances, the cation and anion should be named appropriately as separate components of a quaternary substance and not in the amine-salt style.

6. The use of an isolated letter or number should be avoided; hyphenated construction is also undesirable.

7. To facilitate the translation and pronunciation of INN, “f” should be used instead of “ph”, “t” instead of “th”, “e” instead of “ae” or “oe”, and “i” instead of “y”; the use of the letters “h” and “k” should be avoided.

8. Provided that the names suggested are in accordance with these principles, names proposed by the person discovering or first developing and marketing a pharmaceutical preparation, or names already officially in use in any country, should receive preferential consideration.

9. Group relationship in INN (see Guiding Principle 2) should if possible be shown by using a common stem. The following list contains examples of stems for groups of substances, particularly for new groups. There are many other stems in active use. Where a stem is shown without any hyphens it may be used anywhere in the name.
<table>
<thead>
<tr>
<th>Latin</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>-acum</td>
<td>anti-inflammatory agents of the ibufenac group</td>
</tr>
<tr>
<td>-actidum</td>
<td>synthetic polypeptides with a corticotropin-like action</td>
</tr>
<tr>
<td>-adolum</td>
<td>analgetics</td>
</tr>
<tr>
<td>-adol-</td>
<td></td>
</tr>
<tr>
<td>-astum</td>
<td>antiahistaminics</td>
</tr>
<tr>
<td>-astinum</td>
<td></td>
</tr>
<tr>
<td>-azepamum</td>
<td>diazepam derivatives</td>
</tr>
<tr>
<td>-bactamum</td>
<td>β-lactamase inhibitors</td>
</tr>
<tr>
<td>bol</td>
<td>steroids, anabolic</td>
</tr>
<tr>
<td>-buzonum</td>
<td>anti-inflammatory analgesics, phenylbutazone derivatives</td>
</tr>
<tr>
<td>-cain-</td>
<td>antifibrillant substances with local anaesthetic activity</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>systemic antifungal agents, miconazole derivatives</td>
</tr>
<tr>
<td>-cort</td>
<td>corticosteroids, except prednisolone derivatives</td>
</tr>
<tr>
<td>-dipinum</td>
<td>calcium channel blockers, nifedipine derivatives</td>
</tr>
<tr>
<td>-fibratum</td>
<td>clofibrate derivatives</td>
</tr>
<tr>
<td>gest</td>
<td>steroids, progestogens</td>
</tr>
<tr>
<td>gli-</td>
<td>sulfonamide hypoglycaemics</td>
</tr>
<tr>
<td>io-</td>
<td>iodine-containing contrast media</td>
</tr>
<tr>
<td>-ium</td>
<td>quaternary ammonium compounds</td>
</tr>
<tr>
<td>-metacinum</td>
<td>anti-inflammatory substances, indometacin derivatives</td>
</tr>
<tr>
<td>-mycinum</td>
<td>antibiotics, produced by <em>Streptomyces</em> strains</td>
</tr>
<tr>
<td>-nidadolum</td>
<td>antiprotozoal substances, metronidazole derivatives</td>
</tr>
<tr>
<td>-ololum</td>
<td>β-adrenoreceptor antagonents</td>
</tr>
<tr>
<td>-oxacinum</td>
<td>antibacterial agents, nalidixic acid derivatives</td>
</tr>
<tr>
<td>-pridum</td>
<td>sulpiride derivatives</td>
</tr>
<tr>
<td>-pril(at)</td>
<td>angiotensin-converting enzyme inhibitors</td>
</tr>
<tr>
<td>-profenum</td>
<td>anti-inflammatory substances, ibuprofen derivatives</td>
</tr>
<tr>
<td>prost</td>
<td>prostaglandins</td>
</tr>
<tr>
<td>-relinum</td>
<td>hypophyseal hormone release-stimulating peptides</td>
</tr>
<tr>
<td>-terolum</td>
<td>bronchodilators, phenethylamine derivatives</td>
</tr>
<tr>
<td>-tidinum</td>
<td>histamine H2-receptor antagonents</td>
</tr>
<tr>
<td>-tredatate</td>
<td>folic acid antagonists</td>
</tr>
<tr>
<td>-verinum</td>
<td>spasmyotics with a papaverine-like action</td>
</tr>
<tr>
<td>vin-</td>
<td>vinca alkaloids</td>
</tr>
<tr>
<td>-vin-</td>
<td></td>
</tr>
</tbody>
</table>

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

Since the number of drug substances being registered during the last decades is constantly increasing, there is a strong need to ensure the identification of each pharmaceutical compound by a unique, universally available and accepted name. The existence of an international nomenclature system for pharmaceutical products is crucial for the clear identification, safe prescription and dispensing of medicines to patients, and for communication and exchange of information among health professionals and scientists worldwide.

An International Nonproprietary Name (INN) identifies a pharmaceutical substance by a unique name that is globally recognized and is public property. A nonproprietary name is also known as a generic name. Generic names are intended to be used in pharmacopoeias, labeling, advertising, drug regulation and scientific literature.

WHO has a constitutional mandate to offer recommendations to its Member States on any matter that falls within its competence. This includes setting norms and standards for pharmaceutical products moving in international commerce.

The INN system as it exists today was initiated in 1950 by the World Health Assembly resolution WHA3.11 and began operating in 1953, when the first list of International Nonproprietary Names for pharmaceutical substances was published.

So far, some 8000 names have been designated as INNs, and this number is growing every year by some 120 – 150 new INNs.

INNs are selected in close collaboration with national nomenclature commissions (e.g. BAN British Approved name, JAN Japanese Accepted Name, USAN United States Adopted Name etc.). Today, the INN Committee assumes the leading role in assigning generic names to drug substances. Instances where a national generic name for a new pharmaceutical substance is different from the INN are rare exceptions.

As unique names, INNs have to be distinctive in sound and spelling, and should not be liable to confusion with other names in common use (e.g. trade marks). To make INNs universally available they are formally placed by WHO in the public domain, hence their designation as “nonproprietary”. They can be used without any restriction whatsoever to identify pharmaceutical substances. The clear depiction of INNs on labels assures that prescribers and users alike can easily identify the nature of the pharmacologically active substance in a brand product. The use of INNs is already common in research and clinical documentation, while the importance of the programme is growing further due to the expanding use of generic names for pharmaceutical products.