

International Nonproprietary Names for Pharmaceutical Substances

In accordance with article 3 of the Procedure for the Selection of Recommended International Nonproprietary Names for Pharmaceutical Substances,¹ notice is hereby given that the following names are under consideration by the World Health Organization as Proposed International Nonproprietary Names.

Comments on, or formal objections to, the proposed names may be forwarded by any person to the Pharmaceuticals unit of the World Health Organization within four months of the date of their publication in *WHO Drug Information*, e.g., for List 59 Prop. INN not later than 31 December 1988.

The inclusion of a name in the lists of proposed international nonproprietary names does not imply any recommendation for the use of the substance in medicine or pharmacy.

Action and Use

The statements in italics indicating the action and use are based largely on information supplied by the manufacturer. The information is meant to provide an indication of the potential use of new substances at the time they are accorded proposed INNs. WHO is not in a position either to uphold these statements or to comment on the efficacy of the action claimed. Because of their provisional nature these descriptors will not be included in the Cumulative Lists of INNs.

Proposed International Nonproprietary Names (Prop. INN): List 59²

Comprehensive information on the INN programme can be found in: WHO Technical Report Series, No. 581, 1975 (*Nonproprietary Names for Pharmaceutical Substances*. Twentieth Report of the WHO Expert Committee), ISBN 92 4 120581 4 (price: Sw. fr. 6.-); an account of this publication will be found in Annex 2 of the present List. All names from Lists 1-47 of Proposed International Nonproprietary Names, together with a molecular formula index, will be found in: *International Nonproprietary Names (INN) for Pharmaceutical Substances. Cumulative List No. 6, 1982*, World Health Organization, Geneva (ISBN 92 4 056013 0) (price: Sw. fr. 55.-). This publication consists, in the main, of a computer printout which groups together all the proposed and recommended international nonproprietary names (INN)—in Latin, English, French, Russian, and Spanish—published up to April 1982. The printout also indicates in which of the 47 individual lists of proposed names and 21 lists of recommended names each INN was originally published; and gives references to national nonproprietary names, pharmacopoeia monographs, and other sources. In addition, the list contains molecular formulae and Chemical Abstracts Service registry numbers. For easy reference, national nonproprietary names that differ from INN, molecular formulae, and Chemical Abstracts Service registry numbers are indexed in a series of annexes. A final annex describes the procedure for selecting recommended INN and outlines the general principles to be followed in devising these names. All the textual material published in this volume appears in both English and French.

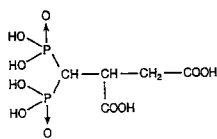
These publications may be obtained, direct or through booksellers, from the sales agents listed on the back cover of *WHO Drug Information*. Orders from countries where sales agents have not yet been appointed may be addressed to: World Health Organization, Distribution and Sales Service, 1211 Geneva 27, Switzerland.

¹ Text adopted by the Executive Board of WHO in resolution EB15.R7 (*Off. Rec. Wld Hlth Org.*, 1955, **60**, 3) and amended by the Board in resolution EB43.R9 (*Off. Rec. Wld Hlth Org.*, 1969, **173**, 10).

² Other lists of proposed and recommended international nonproprietary names can be found in *Cumulative List No. 6, 1982*.

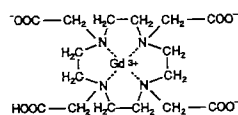
acidum butedronicum
butedronic acid

(diphosphonomethyl)succinic acid
 $C_5H_{10}O_{10}P_2$ 51395-42-7 *bone imaging agent*



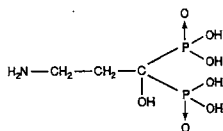
acidum gadotericum
gadoteric acid

hydrogen [1,4,7,10-tetraazacyclododecane-1,4,7,10-tetraacetato(4-)]-
gadolate(1-)
 $C_{16}H_{25}GdN_4O_8$ 72573-82-1 *paramagnetic contrast medium*



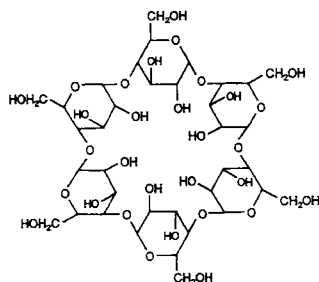
acidum pamidronicum
pamidronic acid

(3-amino-1-hydroxypropylidene)diphosphonic acid
 $C_3H_{11}NO_7P_2$ 40391-99-9 *inhibitor of tumor-induced hypercalcaemia*



alfadexum
alfadex

α -cyclodextrin
 $C_{36}H_{60}O_{30}$ 10016-20-3

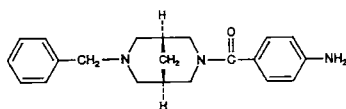


alteplasum
alteplase

plasminogen activator (human tissue-type 2-chain form protein moiety)
 $C_{2736}H_{4174}N_{914}O_{824}S_{45}$ 105857-23-6

ambasilidum
ambasilide

3-(*p*-aminobenzoyl)-7-benzyl-3,7-diazabicyclo[3.3.1]nonane
 $C_{21}H_{25}N_3O$ 83991-25-7 *antidysrhythmic*



aminoacida
amino acids

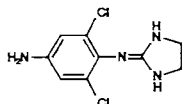
see general statement on nomenclature of amino acids under amendments

anistreplasum
anistreplase

anisoylated (human) lys-plasminogen streptokinase activator complex (1 : 1)
— 81669-57-0

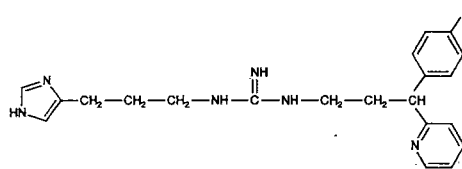
apraclonidinum
apraclonidine

2-[(4-amino-2,6-dichlorophenyl)imino]imidazolidine
C₉H₁₀Cl₂N₄ 66711-21-5 α_2 -adrenoreceptor agonist



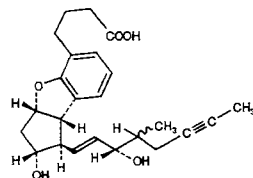
apromidinum
apromidine

(±)-1-[3-(p-fluorophenyl)-3-(2-pyridyl)propyl]-3-(3-imidazol-4-ylpropyl)-
guanidine
C₂₁H₂₅FN₅ 106669-71-0 histamine H₂-agonist



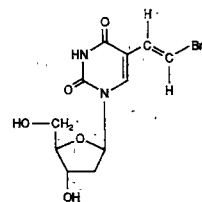
beraprostum
beraprost

(±)-(1R*,2R*,3aS*,8bS*)-2,3,3a,8b-tetrahydro-2-hydroxy-1-[(E)-(3S*)-3-
hydroxy-4-methyl-1-octen-6-ynyl]-1H-cyclopenta[b]benzofuran-5-butyrac acid
C₂₄H₃₀O₅ 88430-50-6 platelet aggregation inhibitor, vasodilator



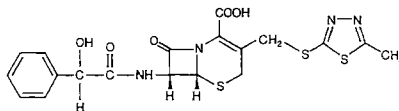
brivudinum
brivudine

(E)-5-(2-bromovinyl)-2'-deoxyuridine
C₁₁H₁₃BrN₂O₅ 69304-47-8 antiviral



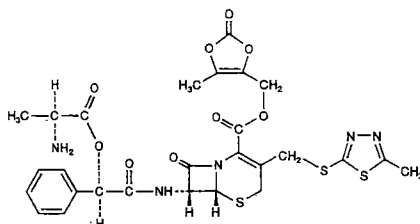
cefcanelum
cefcanel

(6*R*,7*R*)-7-[(*R*)-mandelamido]-3-[[5-methyl-1,3,4-thiadiazol-2-yl]thio]methyl]-
8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid
C₁₉H₁₈N₄O₅S₃ 41952-52-7 antibiotic



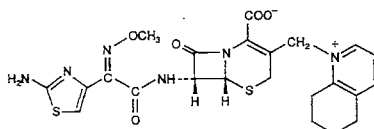
cefcanelum daloxatum
cefcanel daloxate

2,3-dihydroxy-2-butenyl (6*R*,7*R*)-7-[(*R*)-mandelamido]-3-[[5-methyl-1,3,4-
thiadiazol-2-yl]thio]methyl]-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-
carboxylate, cyclic 2,3-carbonate, ester with L-alanine
C₂₇H₂₇N₅O₅S₃ 97275-40-6 antibiotic



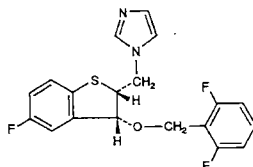
cefquinomum
cefquinome

1-[[6*R*,7*R*)-7-[2-(2-amino-4-thiazolyl)glyoxylamido]-2-carboxy-8-oxo-5-thia-1-
azabicyclo[4.2.0]oct-2-en-3-yl]methyl]-5,6,7,8-tetrahydroquinolinium
hydroxide, inner salt, 7²-(*Z*)-(O-methyloxime)
C₂₃H₂₄N₆O₅S₂ 84957-30-2 antibiotic



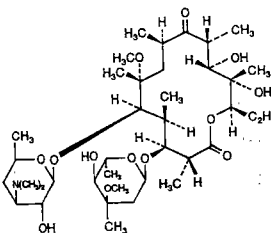
cisconazolium
cisconazole

(±)-*cis*-1-[[3-[(2,6-difluorobenzyl)oxy]-5-fluoro-2,3-dihydrobenzo[*b*]thien-
2-yl]methyl]imidazole
C₁₉H₁₅F₃N₂OS 104456-79-3 antifungal



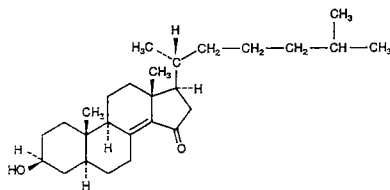
clarithromycinum
clarithromycin

6-*O*-methylerythromycin
C₃₈H₆₉NO₁₃ 81103-11-9 antibiotic



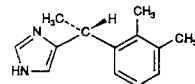
colestololum
colestolone

3 β -hydroxy-5 α -cholest-8(14)-en-15-one
C₂₇H₄₄O₂ 50673-97-7 *hypolipidaemic*



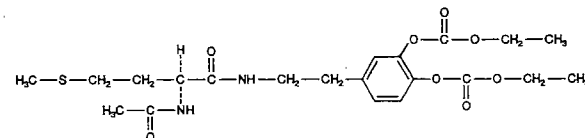
dexmedetomidinum
dexmedetomidine

(+)-4-[(*R*)-*a*,2,3-trimethylbenzyl]imidazole
C₁₃H₁₆N₂ 113775-47-6 α_2 -adrenoreceptor agonist



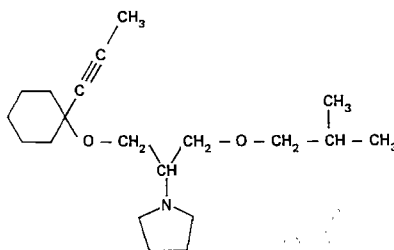
docarpaminum
docarpamine

(-)-(*S*)-2-acetamido-*N*-(3,4-dihydroxyphenethyl)-4-(methylthio)butyramide
bis(ethyl carbonate) (ester)
C₂₁H₃₀N₂O₈S 74639-40-0 *dopamine prodrug*



dopropidilum
dopropidil

1-[1-(isobutoxymethyl)-2-[[1-(1-propynyl)cyclohexyl]oxy]ethyl]pyrrolidine
C₂₀H₃₅NO₂ 79700-61-1 *antianginal, anti-ischaemic*



dumorelinum
dumorelin

27-L-leucine-44a-glycinegrowth hormone-releasing factor (human)
C₂₁₆H₃₆₂N₇₂O₆₈ 105953-59-1

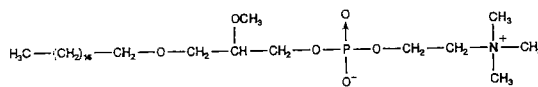
H—Tyr—Ala—Asp—Ala—Ile—Phe—Thr—Asn—Ser—Tyr—Arg—Lys—Val—Leu—Gly—
Gln—Leu—Ser—Ala—Arg—Lys—Leu—Leu—Gln—Asp—Ile—Leu—Ser—Arg—Gln—
Gln—Gly—Glu—Ser—Asn—Gln—Glu—Arg—Gly—Ala—Arg—Ala—Arg—Leu—Gly—OH

Proposed International
Nonproprietary Name (Latin, English)

Chemical Name or Description, Molecular and Graphic Formulae
Chemical Abstracts Service (CAS) registry number
Action and use

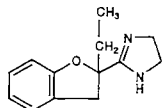
edelfosinum
edelfosine

choline hydroxide, (\pm)-2-methoxy-3-(octadecyloxy)propyl hydrogen
phosphate, inner salt or 2-O-methyl-1-O-octadecyl-*rac*-glycero-3-
phosphocholine
C₂₇H₅₈NO₆P 70641-51-9 *antineoplastic*



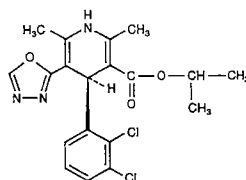
efaroxanum
efaroxan

(\pm)-2-(2-ethyl-2,3-dihydro-2-benzofuranyl)-2-imidazoline
C₁₃H₁₆N₂O 89197-32-0 *α_2 -adrenoreceptor antagonist*



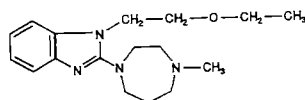
elnadipinum
elnadipine

isopropyl (-)-(*S*)-4-(2,3-dichlorophenyl)-1,4-dihydro-2,6-dimethyl-
5-(1,3,4-oxadiazol-2-yl)nicotinate
C₁₉H₁₉Cl₂N₃O₃ 103946-15-2 *Calcium antagonist*



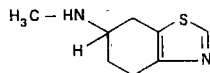
emedastinum
emedastine

1-(2-ethoxyethyl)-2-(hexahydro-4-methyl-1*H*-1,4-diazepin-1-yl)benzimidazole
C₁₇H₂₆N₄O 87233-61-2 *histamine antagonist*



etrabaminum
etrabamine

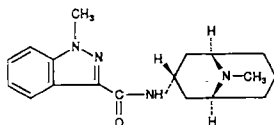
4,5,6,7-tetrahydro-6-(methylamino)benzothiazole
C₈H₁₂N₂S 70590-58-8 *antidepressant*



fiacitabinum fiacitabine	1-(2-deoxy-2-fluoro-β-D-arabinofuranosyl)-5-iodocytosine C ₉ H ₁₁ FIN ₃ O ₄ 69123-90-6 <i>antiviral</i>
flerobuterolum flerobuterol	α-[(<i>tert</i> -butylamino)methyl]- <i>o</i> -fluorobenzyl alcohol C ₁₂ H ₁₈ FNO 82101-10-8 <i>β-adrenoreceptor agonist</i>
fronedipilum fronedipil	1-[1-(isobutoxymethyl)-2-[(1-methyl-1-phenyl-2-propynyl)oxy]ethyl]pyrrolidine C ₂₁ H ₃₁ NO ₂ 79700-63-3 <i>antidysrhythmic, anti-ischaemic</i>
galtifeninum galtifenin	[[[(2,6-diethyl-3-iodophenyl)carbonyl]methyl]imino]diacetic acid C ₁₆ H ₂₁ IN ₂ O ₅ 106719-74-8 <i>diagnostic aid</i>
gapromidinum gapromidine	1-(3-imidazol-4-ylpropyl)-3-[2-(2-pyridylamino)ethyl]guanidine C ₁₄ H ₂₁ N ₇ 106686-40-2 <i>histamine H₂-agonist</i>

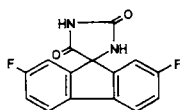
granisetronum
granisetron

1-methyl-N-(endo-9-methyl-9-azabicyclo[3.3.1]non-3-yl)-1H-indazole-3-carboxamide
C₁₈H₂₄N₄O 109889-09-0 serotonin antagonist



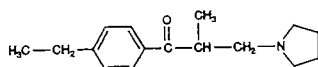
imirestatum
imirestat

2,7-difluorospiro[fluorene-9,4'-imidazolidine]-2',5'-dione
C₁₅H₈F₂N₂O₂ 89391-50-4 aldose reductase inhibitor



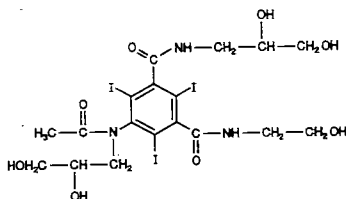
inaperisonum
inaperisone

(±)-4'-ethyl-2-methyl-3-(1-pyrrolidinyl)propiophenone
C₁₈H₂₃NO 99323-21-4 centrally acting muscle relaxant



ioxilanum
ioxilan

N-(2,3-dihydroxypropyl)-5-[N-(2,3-dihydroxypropyl)acetamido]-N'-(2-hydroxyethyl)-2,4,6-triiodoisophthalamide
C₁₈H₂₄I₃N₃O₈ 107793-72-6 contrast medium

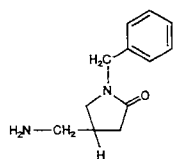


Proposed International
Nonproprietary Name (Latin, English)

Chemical Name or Description, Molecular and Graphic Formulae
Chemical Abstracts Service (CAS) registry number
Action and use

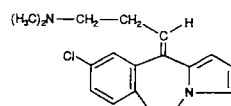
nebracetamum
nebracetam

(±)-4-(aminomethyl)-1-benzyl-2-pyrrolidinone
C₁₂H₁₆N₂O 97205-34-0 *nootropic agent*



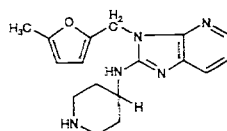
nelezaprinum
nelezaprine

(E)-9-chloro-11-[3-(dimethylamino)propylidene]-6,11-dihydro-5H-pyrrolo[2,1-b][3]benzazepine
C₁₈H₂₁ClN₂ 69624-60-8 *centrally acting muscle relaxant*



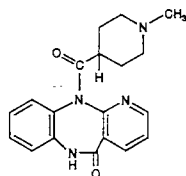
nobrastinum
nobraastine

3-(5-methylfurfuryl)-2-(4-piperidylamino)-3H-imidazo[4,5-b]pyridine
C₁₇H₂₁N₅O 110588-56-2 *histamine H₁-antagonist*



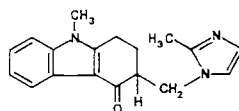
nuvenzepinum
nuvenzepine

6,11-dihydro-11-(1-methylisonipecotoyl)-5H-pyrido[2,3-b][1,5]benzodiazepin-5-one
C₁₉H₂₀N₄O₂ 96487-37-5 *antiulcer, gastric antisecretory*



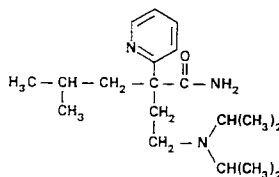
ondansetronum
ondansetron

(±)-2,3-dihydro-9-methyl-3-[(2-methylimidazol-1-yl)methyl]carbazol-4(1H)-one
C₁₈H₁₉N₃O 99614-02-5 *serotonin antagonist*



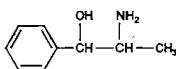
pentisomidum
pentisomide

(±)-α-[2-(diisopropylamino)ethyl]-α-isobutyl-2-pyridineacetamide
C₁₉H₃₃N₃O 96513-83-6 *antidysrhythmic*



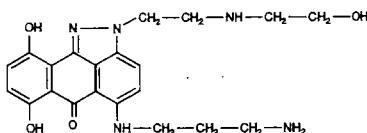
phenylpropanolaminum
phenylpropanolamine

(±)-norephedrine
C₉H₁₃NO 14838-15-4 *sympathomimetic*



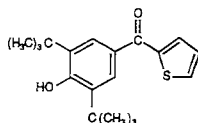
piroxantrone
piroxantrone

5-[(3-aminopropyl)amino]-7,10-dihydroxy-2-[2-[(2-hydroxyethyl)amino]-ethyl]anthra[1,9-*cd*]pyrazol-6(2*H*)-one
C₂₁H₂₅N₅O₄ 91441-23-5 *antineoplastic*



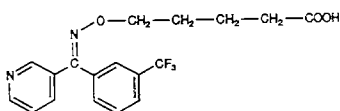
prifelone
prifelone

3,5-di-*tert*-butyl-4-hydroxyphenyl 2-thienyl ketone
C₁₅H₂₄O₂S 69425-13-4 *nonsteroidal anti-inflammatory*



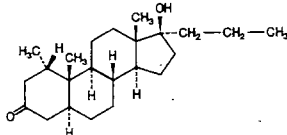
ridogrelum
ridogrel

(*E*)-5-[[[α-3-pyridyl-*m*-(trifluoromethyl)benzylidene]amino]oxy]valeric acid
C₁₈H₁₇F₃N₂O₃ 110140-89-1 *thromboxane synthetase inhibitor*



rosterelonum
rosterelone

17β-hydroxy-1α-methyl-17-propyl-5α-androstan-3-one
C₂₃H₃₈O₂ 79243-67-7 *antiandrogen*

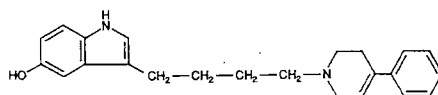


Proposed International
Nonproprietary Name (Latin, English)

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Action and use

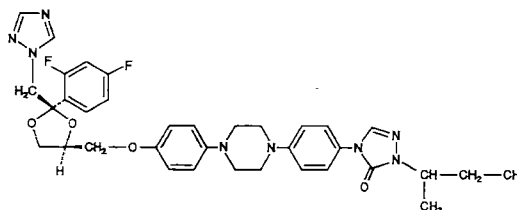
roxindolum
roxindole

3-[4-(3,6-dihydro-4-phenyl-1(2H)-pyridyl)butyl]indol-5-ol
C₂₃H₂₆N₂O 112192-04-8 presynaptic dopamine agonist



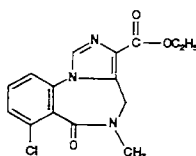
saperconazolum
saperconazole

(±)-1-sec-butyl-4-[p-4-[p-[[[(2R*,4S*)-2-(2,4-difluorophenyl)-2-(1H-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-4-yl]methoxy]phenyl]-1-piperazinyl]phenyl]-4²-1,2,4-triazolin-5-one
C₃₅H₃₈F₂N₈O₄ 110588-57-3 antifungal



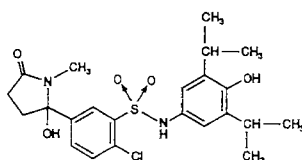
sarmazenilum
sarmazenil

ethyl 7-chloro-5,6-dihydro-5-methyl-6-oxo-4H-imidazo-
[1,5-a][1,4]benzodiazepine-3-carboxylate
C₁₅H₁₄ClN₃O₃ 78771-13-8 benzodiazepine antagonist



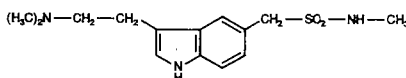
sitalidonum
sitalidone

(±)-2-chloro-4'-hydroxy-5-(2-hydroxy-1-methyl-5-oxo-2-pyrrolidinyl)-3',5'-
diisopropylbenzenesulfonanilide
C₂₅H₂₉ClN₂O₃S 108894-39-9 diuretic, hypolipidaemic



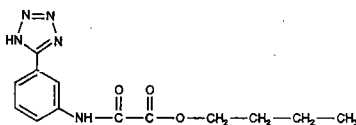
sumatriptanum
sumatriptan

3-[2-(dimethylamino)ethyl]-N-methylindole-5-methanesulfonamide
C₁₄H₂₁N₃O₂S 103628-46-2 serotonin agonist



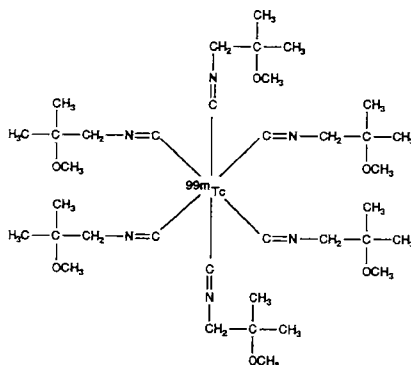
tazanolastum
tazanolast

butyl 3'-(1*H*-tetrazol-5-yl)oxanilate
C₁₃H₁₅N₅O₃ 82989-25-1 *antiallergic*



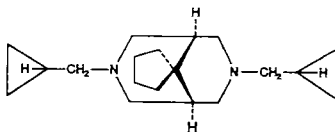
technetium (^{99m}Tc) sestamibi
technetium (^{99m}Tc) sestamibi

hexakis(2-methoxy-2-methylpropyl isocyanide)[^{99m}Tc]technetium(1+)
C₃₆H₆₆N₆O₆^{99m}Tc 109581-73-9 *radioactive diagnostic agent*



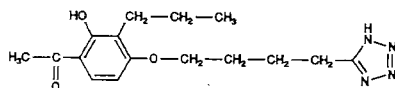
tedisamilum
tedisamil

3',7'-bis(cyclopropylmethyl)spiro[cyclopentane-1,9'-[3,7]diazabicyclo[3.3.1]nonane]
C₁₉H₃₂N₂ 90961-53-8 *anti-ischaeamic*



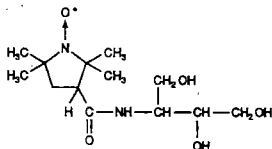
tomelukastum
tomelukast

2'-hydroxy-3'-propyl-4'-[4-(1*H*-tetrazol-5-yl)butoxy]acetophenone
C₁₆H₂₂N₄O₃ 88107-10-2 *antiasthmatic*



troxolamidum
troxolamide

3-[[2,3-dihydroxy-1-(hydroxymethyl)propyl]carbamoyl]-2,2,5,5-tetramethyl-1-pyrrolidinyloxy
C₁₃H₂₅N₂O₅ 97546-74-2 *paramagnetic contrast medium*

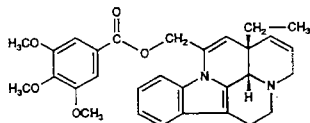


Proposed International
Nonproprietary Name (Latin, English)

Chemical Name or Description, Molecular and Graphic Formulae
Chemical Abstracts Service (CAS) registry number
Action and use

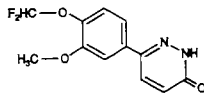
vinmegallatum
vinmegallate

17,18-didehydro-3 α ,16 α -eburnamenine-14-methanol 3,4,5-trimethoxybenzoate
(ester)
 $C_{30}H_{32}N_2O_5$ 83482-77-3 *antipsoriatic*



zardaverinum
zardaverine

6-[4-(difluoromethoxy)-3-methoxyphenyl]-3(2H)-pyridazinone
 $C_{12}H_{10}F_2N_2O_3$ 101975-10-4 *bronchospasmolytic*



Names for Radicals and Groups

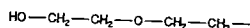
Some substances for which a proposed international non-proprietary name has been established may be used in the form of salts or esters. The radicals or groups involved

may be of complex composition and it is then inconvenient to refer to them in systematic chemical nomenclature. Consequently, shorter nonproprietary names for some radicals

and groups have been devised or selected, and they are suggested for use with the proposed international non-proprietary names.

digolium
digolil

2-(2-hydroxyethoxy)ethyl
 $C_4H_9O_2$



AMENDMENTS TO PREVIOUS LISTS

Nomenclature of aminoacids:

During the Seventeenth Consultation on INNs held in Geneva from 29 April to 1 May 1987 the following was agreed:

Names for the L-form should be the names of the aminoacids without a prefix as is present practice in INNs. When there is a need to name the α - and β -forms the INNs of the respective aminoacids should be prefixed with DL- and D- respectively. This approach is in agreement with established IUPAC practices in structural formulae for aminoacids where in the abbreviations Arg, Lys etc. the configuration is not indicated for the usual L-form but only when the aminoacid is in the β -form and then it is indicated as β -.

Chronicle of the World Health Organization,
Vol. 7, No. 10, 1953

Proposed International Nonproprietary Names (Prop. INN): List 1

p. 299 acidum glutamicum *replace the chemical name by the following:*
glutamic acid L-glutamic acid

Chronicle of the World Health Organization,
Vol. 10, No. 1, 1956

Proposed International Nonproprietary Names (Prop. INN): List 4

p. 32 methioninum *replace the chemical name by the following:*
methionine L-methionine

In Cumulative List No. 6 replace CAS registry number by: 63-68-3

Proposed International Nonproprietary Names (Prop. INN): List 13

- p. 394 levoglutamidum
levoglutamide
- replace the chemical name by the following:*
L-glutamine

Proposed International Nonproprietary Names (Prop. INN): List 14

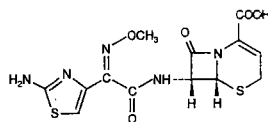
- p. 433 acidum asparticum
aspartic acid
- replace the chemical name by the following:*
L-aspartic acid

International Nonproprietary Names (INN) for Pharmaceutical Substances

- p. 17 aprotininum
aprotinin
- replace the chemical name and the molecular formula by the following:*
Arg-Pro-Asp-Phe-HCys-Leu-Glu-Pro-Pro-Tyr-Thr-Gly-Pro-HCys-Lys-Ala-Arg-Ile-Ile-Arg-Tyr-Phe-Tyr-Asn-Ala-Lys-Ala-Gly-Leu-HCys-Gln-Thr-Phe-Val-Tyr-Gly-Gly-HCys-Arg-Ala-Lys-Arg-Asn-Asn-Phe-Lys-Ser-Ala-Glu-Asn-HCys-Met-Arg-Thr-HCys-Gly-Gly-Ala cyclic (5→55), (14→38), (30→51)-tris(disulfide)
 $C_{284}H_{432}N_{84}O_{79}S_7$
- p. 117 quinbolonum
quinbolone
- replace the chemical name by the following:*
17 β -(1-cyclopenten-1-yloxy)androsta-1,4-dien-3-one

Proposed International Nonproprietary Names (Prop. INN): List 42

- p. 6 ceftizoximum
ceftizoxime
- replace the graphic formula by the following:*

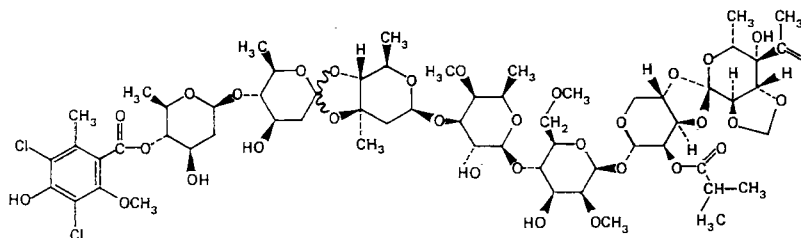


Proposed International Nonproprietary Names (Prop. INN): List 46

p. 3 avilamycinum
avilamycin

replace the chemical name and the graphic formula by the following:

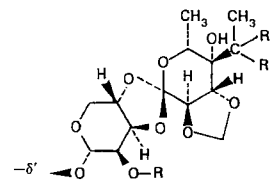
Consists mainly of avilamycin A or *O*-(1*R*)-4-*C*-acetyl-6-deoxy-2,3-*O*-methylene- β -galactopyranosylidene-(1 \rightarrow 3-4)-2-*O*-(2-methyl-1-oxopropyl)- α -*L*-lyxopyranosyl *O*-2,6-dideoxy-4-*O*-(3,5-dichloro-4-hydroxy-2-methoxy-6-methylbenzoyl)- β -*D*-arabino-hexopyranosyl-(1 \rightarrow 4)-*O*-2,6-dideoxy- β -*D*-arabino-hexopyranosylidene-(1 \rightarrow 3-4)-*O*-2,6-dideoxy-3-*C*-methyl- β -*D*-arabino-hexopyranosyl-(1 \rightarrow 3)-*O*-6-deoxy-4-*O*-methyl- β -*D*-galactopyranosyl-(1 \rightarrow 4)-2,6-di-*O*-methyl- β -*D*-mannopyranoside



major component A

minor components

	R	R' + R''
B	-CO-CH ₃	=O
C	-CO-CH(CH ₃) ₂	-H + -OH
D ₁	-H	=O
D ₂	-CO-CH ₃	-H + -OH
E	-H	-H + -OH



Proposed International Nonproprietary Names (Prop. INN): List 53

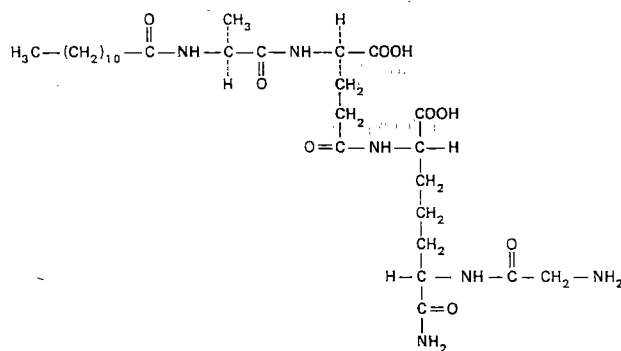
p. 14 delete
midalcipranum
midalcipran

insert
milnacipranum
milnacipran

p. 17 pimelauidum
pimelauidide

replace the chemical name and the graphic formula by the following:

threo-6-carbamoyl-N²-[N-(N-lauroyl-L-alanyl)-D- γ -glutamyl]-N⁶-glycyl-DL-lysine

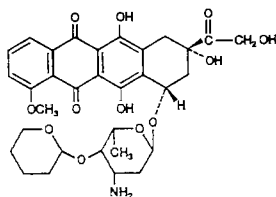


Proposed International Nonproprietary Names (Prop. INN): List 55

p. 11 pirarubicinum
pirarubicin

replace the chemical name and the graphic formula by the following:

(8*S*,10*S*)-10-[[[3-amino-2,3,6-trideoxy-4-*O*-(2*R*-tetrahydro-2*H*-pyran-2-yl)- α -*L*-lyxo-hexopyranosyl]oxy]-8-glycoloyl-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-5,12-naphthacenedione



Proposed International Nonproprietary Names (Prop. INN): List 56

p. 3 delete
bermastinum
bermastine

insert
barmastinum
barmastine

p. 6 ebiratidum
ebiratide

replace the chemical name by:

L-methionyl-L-glutamyl-L-histidyl-L-phenylalanyl-D-lysyl-N-(8-amino-octyl)-L-phenylalaninamide *S,S*-dioxide

p. 15 seganserinum
seganserin

replace the molecular formula by the following:

$C_{29}H_{27}F_2N_3O$

p. 16 somatropinum
somatropin

replace the molecular formula by the following:

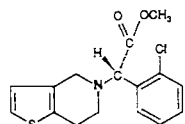
$C_{990}H_{1528}N_{282}O_{300}S_7$

Proposed International Nonproprietary Names (Prop. INN): List 57

p. 96 clopidogrelum
clopidogrel

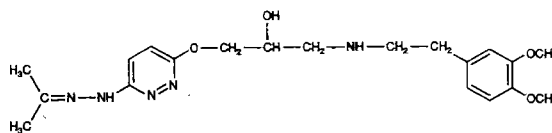
replace the chemical name, CAS registry number and graphic formula by:

methyl (+)-(*S*)-*a*-(*o*-chlorophenyl)-6,7-dihydrothieno[3,2-*c*]pyridine-5(4*H*)-acetate
113665-84-2



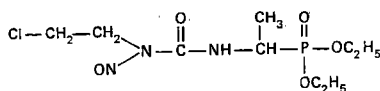
p. 97 dramedilolum
dramedilol

replace the graphical formula by the following:



p. 99 fotemustinum
fotemustine

replace the graphic formula by the following:



WHO Drug Information, Vol. 1, No. 3, 1987

Proposed International Nonproprietary Names (Prop. INN): List 58

p. 177 *delete*
bendacololum
bendacolol

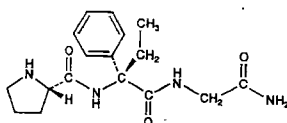
insert
bendacalolum
bendacalol

p. 178 *delete*
clipoxaminum
clipoxamine

insert
cliropaminum
cliropamine

p. 180 doreptidum
doreptide

replace the graphic formula by the following:



Annex 1

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

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

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

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

pharmaceutical substance shall be accepted, unless there are compelling reasons to the contrary.

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

A. Such notice shall be given by publication in the *Chronicle of the World Health Organization*¹ and by letter to Member States and to national pharmacopoeia commissions or other bodies designated by Member States.

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

B. Such notice shall:

(i) set forth the name under consideration;

(ii) identify the person who submitted a proposal for naming

the substance, if so requested by such person;

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

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

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

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

* Text adopted by the Executive Board of WHO in resolution EB15.R7 (*Off. Rec. Wld Hlth Org.*, 1955, 60, 3) and amended by the Board in resolution EB43.R9 (*Off. Rec. Wld Hlth Org.*, 1969, 173, 10).

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*.¹

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*.¹

- A. Such objection shall:
- (i) identify the person objecting;
 - (ii) state his interest in the name;
 - (iii) set forth the reasons for his objection to the name proposed.

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

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

the World Health Organization as a recommended international nonproprietary name.

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

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

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

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

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.¹ Where a stem is shown without any hyphens it may be used anywhere in the name.

<i>Latin</i>	<i>English</i>
-acum	-ac
-actidum	-actide
-adolum	-adol
-adol-	-adol-
-astum	-ast
-astinum	-astine
-azepamum	-azepam
-bactamum	-bactam

anti-inflammatory agents of the ibufenac group
synthetic polypeptides with a corticotrophin-like action

} analgesics

anti-asthmatic, anti-allergic substances not acting primarily as antihistaminics
antihistaminics
substances of the diazepam group
 β -lactamase inhibitors

bol	bol	steroids, anabolic
-buzonium	-buzone	anti-inflammatory analgesics of the phenylbutazone group
-cain-	-cain-	antifibrilliant substances with local anaesthetic activity
-cainum	-caine	local anaesthetics
cef-	cef-	antibiotics, derivatives of cefalosporanic acid
-cillinum	-cillin	antibiotics, derivatives of 6-aminopenicillanic acid
-conazolium	-conazole	systematic antifungal agents of the miconazole group
cort	cort	corticosteroids, except those of the prednisolone group
-dipinum	-dipine	calcium antagonists of the nifedipine group
-fibratum	-fibrate	substances of the clofibrate group
gest	gest	steroids, progestogens
gli-	gli-	sulfonamide hypoglycemics
io-	io-	iodine-containing contrast media
-ium	-ium	quaternary ammonium compounds
-metacinum	-metacin	anti-inflammatory substances of the indometacin group
-mycinum	-mycin	antibiotics, produced by <i>Streptomyces</i> strains
-nidazolium	-nidazole	antiprotozoal substances of the metronidazole group
-ololum	-olol	β -adrenergic blocking agents
-oxacinum	-oxacin	antibacterial agents of the nalidix acid group
-pridum	-pride	sulpiride derivatives
-pril(at)um	pril(at)	angiotensin-converting enzyme inhibitors
-profenum	-profen	anti-inflammatory substances of the ibuprofen group
prost	prost	prostaglandins
-relinum	-relin	hypophyseal hormone release-stimulating peptides
-terolum	-terol	bronchodilators, phenethylamine derivatives
-tidinum	-tidine	H ₂ -receptor antagonists
-trexatum	-trexate	folic acid antagonists
-verinum	-verine	spasmolytics with a papaverine-like action
vin-	vin-	} vinca type alkaloids
-vin-	-vin-	

¹ A more extensive listing of stems is contained in the working document Pharm S/Nom 15 which is regularly updated and can be requested from Pharmaceuticals, WHO, Geneva.

Annex 2 NONPROPRIETARY NAMES FOR PHARMACEUTICAL SUBSTANCES: TWENTIETH REPORT OF THE WHO EXPERT COMMITTEE

In its twentieth report¹ 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 recent 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. Also

reported is the intention to change the practice with regard to the nomenclature of individual members of polymeric series.

Other sections of the report concern instructions to be followed by bodies making application for international nonproprietary names, the availability of computer-printed cumulative lists of international nonproprietary names, information supplied by WHO Member States concerning their official use of national or international names for pharmaceutical products, and proposals relative to the withdrawal of international nonproprietary names allocated to substances that are no longer in use.

The official texts relating to the procedures for selecting, and general

guidance for devising, international nonproprietary names are reproduced in two annexes to the report. Other annexes give examples of international nonproprietary names that incorporate selected stems, the most frequently used initial groups of letters in international nonproprietary names, a historical review of the programme of selecting international nonproprietary names, some useful literature references, and a model of the form to be used in all applications for international nonproprietary names.

¹ WHO Technical Report Series, No. 581, 1975 (*Nonproprietary Names for Pharmaceutical Substances*. Twentieth Report of the WHO Expert Committee), ISBN 92 4 120581 4. Price: Sw. fr. 6.-.