

# International Nonproprietary Names for Pharmaceutical Substances

Notice is hereby given that, in accordance with paragraph 7 of the Procedure for the Selection of Recommended International Nonproprietary Names for Pharmaceutical Substances\*, the following names are selected as Recommended International Nonproprietary Names. The inclusion of a name in the lists of Recommended International Nonproprietary Names does not imply any recommendation of the use of the substance in medicine or pharmacy.

## Recommended International Nonproprietary Names (Rec. INN): List 32

*Lists of proposed (1–65) and recommended (1–31) international nonproprietary names can be found in Cumulative-List No. 8, 1992.*

<i>Recommended International Nonproprietary Name (Latin, English)</i>	<i>Chemical Name or Description and Molecular Formula</i>
acidum aceneuramicum aceneuramic acid	(–)-5-acetamido-3,5-dideoxy- $\beta$ -glycero- $\alpha$ -galacto-nonulosonic acid $C_{11}H_{19}NO_9$
adapalenum adapalene	6-[3-(1-adamantyl)-4-methoxyphenyl]-2-naphthoic acid $C_{28}H_{28}O_3$
albifyllinum albifylline	1-(5-hydroxy-5-methylhexyl)-3-methylxanthine $C_{13}H_{20}N_4O_3$
alosetronum alosetron	2,3,4,5-tetrahydro-5-methyl-2-[(5-methylimidazol-4-yl)methyl]-1H-pyrido[4,3-b]indol-1-one $C_{17}H_{18}N_4O$
amrubicinum amrubicin	(+)-(7 <i>S</i> ,9 <i>S</i> )-9-acetyl-9-amino-7-[(2-deoxy- $\beta$ - $\alpha$ -erythro-pentopyranosyl)oxy]-7,8,9,10-tetrahydro-6,11-dihydroxy-5,12-naphthacenedione $C_{25}H_{25}NO_9$
amtolmetinum guacilum amtolmetin guacil	<i>N</i> -[(1-methyl-5- <i>p</i> -toluoylpyrrol-2-yl)acetyl]glycine <i>o</i> -methoxyphenyl ester $C_{24}H_{24}N_2O_5$
araprofenum araprofen	( $\pm$ )- <i>p</i> -( <i>o</i> -carboxyanilino)hydratropic acid $C_{16}H_{15}NO_4$
atenololum atenolol	2-[ <i>p</i> ]-[2-hydroxy-3-(isopropylamino)propoxy]phenyl]acetamide $C_{14}H_{22}N_2O_3$

\* *Official Records of the World Health Organization*. 1955, **60**, 3 (Resolution EB15.R7); 1969, **173**, 10 (Resolution EB43.R9).

<i>Recommended International Nonproprietary Name (Latin, English)</i>	<i>Chemical Name or Description and Molecular Formula</i>
atovaquonum atovaquone	2-[ <i>trans</i> -4-( <i>p</i> -chlorophenyl)cyclohexyl]-3-hydroxy-1,4-naphthoquinone C <sub>22</sub> H <sub>19</sub> ClO <sub>3</sub>
batebulastum batebulast	<i>p</i> - <i>tert</i> -butylphenyl <i>trans</i> -4-(guanidinomethyl)cyclohexanecarboxylate C <sub>19</sub> H <sub>29</sub> N <sub>3</sub> O <sub>2</sub>
becliconazolum becliconazole	(±)-1-[ <i>o</i> -chloro- <i>a</i> -(5-chloro-2-benzofuranyl)benzyl]imidazole C <sub>18</sub> H <sub>12</sub> Cl <sub>2</sub> N <sub>2</sub> O
befloxatonum befloxatone	( <i>R</i> )-5-(methoxymethyl)-3-[ <i>p</i> -[( <i>R</i> )-4,4,4-trifluoro-3-hydroxybutoxy]phenyl]-2-oxazolidinone C <sub>15</sub> H <sub>18</sub> F <sub>3</sub> NO <sub>5</sub>
biciromabum biciromab	mouse T2G1s cell anti-human fibrin II β-chain monoclonal immunoglobulin G Fab' fragment
binospironum binospirone	(±)- <i>N</i> -[2-[(1,4-benzodioxan-2-ylmethyl)amino]ethyl]-1,1-cyclopentane-diacetamide C <sub>20</sub> H <sub>26</sub> N <sub>2</sub> O <sub>4</sub>
brimonidinum brimonidine	5-bromo-6-(2-imidazolidinylidenamino)quinoxaline C <sub>11</sub> H <sub>10</sub> BrN <sub>5</sub>
calcii levofolinas calcium levofolinate	calcium <i>N</i> -[ <i>p</i> -[[[(6 <i>S</i> )-2-amino-5-formyl-1,4,5,6,7,8-hexahydro-4-oxo-6-pteridiny]methyl]amino]benzoyl]- <i>L</i> -glutamate (1:1) C <sub>20</sub> H <sub>21</sub> CaN <sub>7</sub> O <sub>7</sub>
calteridolum calteridol	hydrogen [(±)-10-(2-hydroxypropyl)-1,4,7,10-tetraazacyclododecane-1,4,7-triacetato(3-)]calcite(1-) C <sub>17</sub> H <sub>30</sub> CaN <sub>4</sub> O <sub>7</sub>
casokefamidum casokefamide	<i>L</i> -tyrosyl- <i>D</i> -alanyl- <i>L</i> -phenylalanyl- <i>D</i> -alanyl- <i>L</i> -tyrosinamide C <sub>33</sub> H <sub>40</sub> N <sub>6</sub> O <sub>7</sub>
cebaracetamum cebaracetam	(±)-4-[4-( <i>p</i> -chlorophenyl)-2-oxo-1-pyrrolidiny]acetyl]-2-piperazinone C <sub>16</sub> H <sub>18</sub> ClN <sub>3</sub> O <sub>3</sub>
cefditorenium cefditoren	(+)-(6 <i>R</i> ,7 <i>R</i> )-7-[2-(2-amino-4-thiazolyl)glyoxylamido]-3-[( <i>Z</i> )-2-(4-methyl-5-thiazolyl)vinyl]-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid, 7 <sup>2</sup> -( <i>Z</i> )-(O-methyloxime) C <sub>19</sub> H <sub>18</sub> N <sub>6</sub> O <sub>5</sub> S <sub>3</sub>
cefzopranum cefzopran	(-)-1-[[[(6 <i>R</i> ,7 <i>R</i> )-7-[2-(5-amino-1,2,4-thiadiazol-3-yl)glyoxylamido]-2-carboxy-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-en-3-yl]methyl]-1 <i>H</i> -imidazo[1,2- <i>b</i> ]pyridazin-4-ium hydroxide inner salt, 7 <sup>2</sup> -( <i>Z</i> )-(O-methyloxime) C <sub>19</sub> H <sub>17</sub> N <sub>9</sub> O <sub>5</sub> S <sub>2</sub>

<i>Recommended International Nonproprietary Name (Latin, English)</i>	<i>Chemical Name or Description and Molecular Formula</i>
celmoleukinum celmoleukin	interleukin 2 (human clone pTIL2-21a, protein moiety) C <sub>693</sub> H <sub>1118</sub> N <sub>178</sub> O <sub>203</sub> S <sub>7</sub>
cilnidipinum cilnidipine	(±)-(E)-cinnamyl 2-methoxyethyl 1,4-dihydro-2,6-dimethyl-4-( <i>m</i> -nitrophenyl)- 3,5-pyridinedicarboxylate C <sub>27</sub> H <sub>28</sub> N <sub>2</sub> O <sub>7</sub>
cioteronelum cioteronel	(±)-hexahydro-4-(5-methoxyheptyl)-2(1 <i>H</i> )-pentalenone C <sub>16</sub> H <sub>28</sub> O <sub>2</sub>
dapoxetine dapoxetine	(+)-(S)- <i>N,N</i> -dimethyl-α-[2-(1-naphthoxy)ethyl]benzylamine C <sub>21</sub> H <sub>23</sub> NO
deramciclanum deramciclane	<i>N,N</i> -dimethyl-2-[[1( <i>R</i> ,2 <i>S</i> ,4 <i>R</i> )-2-phenyl-2-bornyl]oxy]ethylamine C <sub>20</sub> H <sub>31</sub> NO
deriglidolum deriglidole	(+)-1,2,4,5-tetrahydro-2-(2-imidazolin-2-yl)-2-propylpyrrolo[3,2,1- <i>h</i> ]indole C <sub>16</sub> H <sub>21</sub> N <sub>3</sub>
dexfosferinum dexfosferine	L-serine dihydrogen phosphate (ester) C <sub>3</sub> H <sub>8</sub> NO <sub>6</sub> P
dexloiglumidum dexloiglumide	( <i>R</i> )-4-(3,4-dichlorobenzamido)- <i>N</i> -(3-methoxypropyl)- <i>N</i> -pentylglutamic acid C <sub>21</sub> H <sub>30</sub> Cl <sub>2</sub> N <sub>2</sub> O <sub>5</sub>
dexnafenodonum dexnafenodone	(+)-(S)-2-[2-(dimethylamino)ethyl]-3,4-dihydro-2-phenyl-1(2 <i>H</i> )-naphthalenone C <sub>20</sub> H <sub>23</sub> NO
dexverapamilum dexverapamil	(+)-(R)-5-[(3,4-dimethoxyphenethyl)methylamino]-2-(3,4-dimethoxyphenyl)-2- isopropylvaleronitrile C <sub>27</sub> H <sub>38</sub> N <sub>2</sub> O <sub>4</sub>
dolasetronum dolasetron	indole-3-carboxylic acid, ester with (8 <i>r</i> )-hexahydro-8-hydroxy-2,6-methano- 2 <i>H</i> -quinolizin-3(4 <i>H</i> )-one C <sub>19</sub> H <sub>20</sub> N <sub>2</sub> O <sub>3</sub>
dorlimomab aritoxum dorlimomab aritox	ricin A chain-antibody ST 1 F(ab') <sub>2</sub> fragment immunotoxin
efonidipinum efonidipine	2-( <i>N</i> -benzylanilino)ethyl (±)-1,4-dihydro-2,6-dimethyl-4-( <i>m</i> -nitrophenyl)-5- phosphononcontinate, cyclic 2,2-dimethyltrimethylene ester C <sub>34</sub> H <sub>38</sub> N <sub>3</sub> O <sub>7</sub> P
egualenum egualen	3-ethyl-7-isopropyl-1-azulenesulfonic acid C <sub>15</sub> H <sub>18</sub> O <sub>3</sub> S

eliprofilum eliprofil	(±)- <i>a</i> -( <i>p</i> -chlorophenyl)-4-( <i>p</i> -fluorobenzyl)-1-piperidineethanol C <sub>20</sub> H <sub>23</sub> ClFNO
eltanolonum eltanolone	3 $\alpha$ -hydroxy-5 $\beta$ -pregnan-20-one C <sub>21</sub> H <sub>34</sub> O <sub>2</sub>
emakalimum emakalim	(-)-(3 <i>S</i> ,4 <i>R</i> )-3-hydroxy-2,2-dimethyl-4-(2-oxo-1(2 <i>H</i> )-pyridyl)-6-chromancarbonitrile C <sub>17</sub> H <sub>16</sub> N <sub>2</sub> O <sub>3</sub>
emitefurum emitefur	<i>m</i> -[[3-(ethoxymethyl)-5-fluoro-3,6-dihydro-2,6-dioxo-1(2 <i>H</i> )-pyrimidinyl]-carbonyl]benzoic acid, 2-ester with 2,6-dihydroxynicotinonitrile, benzoate (ester) C <sub>28</sub> H <sub>19</sub> FN <sub>4</sub> O <sub>8</sub>
entacaponum entacapone	( <i>E</i> )- <i>a</i> -cyano- <i>N,N</i> -diethyl-3,4-dihydroxy-5-nitrocinnamamide C <sub>14</sub> H <sub>15</sub> N <sub>3</sub> O <sub>5</sub>
ersoferminum ersofermin	<i>N</i> -( <i>N</i> -glycyl-L-threonyl)basic fibroblast growth factor (human clone $\lambda$ KB7/ $\lambda$ HFL1 precursor reduced) C <sub>775</sub> H <sub>1220</sub> N <sub>220</sub> O <sub>223</sub> S <sub>7</sub>
espatropatum espatropate	( <i>R</i> )-3-quinuclidinyl ( <i>R</i> )- <i>a</i> -(hydroxymethyl)- <i>a</i> -phenylimidazole-1-acetate C <sub>19</sub> H <sub>23</sub> N <sub>3</sub> O <sub>3</sub>
etonogestrelum etonogestrel	13-ethyl-17-hydroxy-11-methylene-18,19-dinor-17 $\alpha$ -pregn-4-en-20-yn-3-one C <sub>22</sub> H <sub>28</sub> O <sub>2</sub>
exemestatum exemestane	6-methyleneandrost-1,4-diene-3,17-dione C <sub>20</sub> H <sub>24</sub> O <sub>2</sub>
fluazuronum fluazuron	1-[4-chloro-3-[[3-chloro-5-(trifluoromethyl)-2-pyridyl]oxy]phenyl]-3-(2,6-difluorobenzoyl)urea C <sub>20</sub> H <sub>10</sub> Cl <sub>2</sub> F <sub>5</sub> N <sub>3</sub> O <sub>3</sub>
formestatum formestane	4-hydroxyandrost-4-ene-3,17-dione C <sub>19</sub> H <sub>26</sub> O <sub>3</sub>
gadobutrolum gadobutrol	[10-[(1 <i>RS</i> ,2 <i>SR</i> )-2,3-dihydroxy-1-(hydroxymethyl)propyl]-1,4,7,10-tetra-azacyclododecane-1,4,7-triacetato(3-)]gadolinium C <sub>18</sub> H <sub>31</sub> GdN <sub>4</sub> O <sub>9</sub>
galocitabinum galocitabine	<i>N</i> -[1-(5-deoxy- $\beta$ -D-ribofuranosyl)-5-fluoro-1,2-dihydro-2-oxo-4-pyrimidinyl]-3,4,5-trimethoxybenzamide C <sub>19</sub> H <sub>22</sub> FN <sub>3</sub> O <sub>8</sub>
ganirelixum ganirelix	<i>N</i> -acetyl-3-(2-naphthyl)-D-alanyl- <i>p</i> -chloro-D-phenylalanyl-3-(3-pyridyl)-D-alanyl-L-seryl-L-tyrosyl- <i>N</i> <sup>6</sup> -( <i>N,N'</i> -diethylamidino)-D-lysyl-L-leucyl- <i>N</i> <sup>6</sup> -( <i>N,N'</i> -diethylamidino)-L-lysyl-L-prolyl-D-alaninamide C <sub>80</sub> H <sub>113</sub> ClN <sub>16</sub> O <sub>13</sub>

idraprilum idrapril	(1 <i>S</i> ,2 <i>R</i> )-2-[[[(hydroxycarbamoyl)methyl]methylcarbamoyl]cyclohexane = carboxylic acid C <sub>11</sub> H <sub>18</sub> N <sub>2</sub> O <sub>5</sub>
ilatretotidum ilatretotide	<i>N</i> -(1-deoxy-4- <i>O</i> - $\alpha$ - <i>D</i> -glucopyranosyl- <i>D</i> -fructopyranos-1-yl)- <i>D</i> -phenylalanyl- L-cysteinyl-L-phenylalanyl- <i>D</i> -tryptophyl-L-lysyl-L-threonyl- <i>N</i> -[(1 <i>R</i> ,2 <i>R</i> )- 2-hydroxy-1-(hydroxymethyl)propyl]-L-cysteinamide cyclic (2 $\rightarrow$ 7)-disulfide C <sub>61</sub> H <sub>86</sub> N <sub>10</sub> O <sub>20</sub> S <sub>2</sub>
imciromabum imciromab	mouse R11D10 cell monoclonal $\kappa$ -chain containing immunoglobulin G2a, anti-human cardiac myosin heavy chain
imiquimodum imiquimod	4-amino-1-isobutyl-1 <i>H</i> -imidazo[4,5- <i>c</i> ]quinoline C <sub>14</sub> H <sub>16</sub> N <sub>4</sub>
iomazenilum ( <sup>123</sup> I) iomazenil ( <sup>123</sup> I)	ethyl 5,6-dihydro-7-iodo- <sup>123</sup> I-5-methyl-6-oxo-4 <i>H</i> -imidazo[1,5- <i>a</i> ][1,4]benzo = diazepine-3-carboxylate C <sub>15</sub> H <sub>14</sub> <sup>123</sup> IN <sub>3</sub> O <sub>3</sub>
isomolpanum isomolpan	( $\pm$ )- <i>trans</i> -1,3,4,4a,5,10b-hexahydro-4-propyl-2 <i>H</i> -[1]benzopyrano = [3,4- <i>b</i> ]pyridin-9-ol C <sub>15</sub> H <sub>21</sub> NO <sub>2</sub>
itopridum itopride	<i>N</i> -[ <i>p</i> -[2-(dimethylamino)ethoxy]benzyl]veratramide C <sub>20</sub> H <sub>26</sub> N <sub>2</sub> O <sub>4</sub>
ketaminum ketamine	2-( <i>o</i> -chlorophenyl)-2-(methylamino)cyclohexanone C <sub>13</sub> H <sub>16</sub> ClNO
lamivudinum lamivudine	(-)-1-[(2 <i>R</i> ,5 <i>S</i> )-2-(hydroxymethyl)-1,3-oxathiolan-5-yl]cytosine C <sub>8</sub> H <sub>11</sub> N <sub>3</sub> O <sub>3</sub> S
lanoconazolium lanoconazole	( $\pm$ )- $\alpha$ -[( <i>E</i> )-4-( <i>o</i> -chlorophenyl)-1,3-dithiolan-2-ylidene]imidazole-1-acetonitrile C <sub>14</sub> H <sub>10</sub> ClN <sub>3</sub> S <sub>2</sub>
lazabemidum lazabemide	<i>N</i> -(2-aminoethyl)-5-chloropicolinamide C <sub>8</sub> H <sub>10</sub> ClN <sub>3</sub> O
lesopitronum lesopitron	2-[4-[4-(4-chloropyrazol-1-yl)butyl]-1-piperazinyl]pyrimidine C <sub>15</sub> H <sub>21</sub> ClN <sub>6</sub>
levcromakalimum levcromakalim	(3 <i>S</i> ,4 <i>R</i> )-3-hydroxy-2,2-dimethyl-4-(2-oxo-1-pyrrolidinyl)-6-chromancarbonitrile C <sub>16</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub>
levcycloserinum levcycloserine	( <i>S</i> )-4-amino-3-isoxazolidinone C <sub>3</sub> H <sub>6</sub> N <sub>2</sub> O <sub>2</sub>
levdobutaminum levdobutamine	4-[2-[[( <i>S</i> )-3-( <i>p</i> -hydroxyphenyl)-1-methylpropyl]amino]ethyl]pyrocatechol C <sub>18</sub> H <sub>23</sub> NO <sub>3</sub>

lexithromycinum lexithromycin	erythromycin 9-( <i>O</i> -methyloxime) C <sub>38</sub> H <sub>70</sub> N <sub>2</sub> O <sub>13</sub>
lifarizinum lifarizine	1-(diphenylmethyl)-4-[(5-methyl-2- <i>p</i> -tolylimidazol-4-yl)methyl]piperazine C <sub>29</sub> H <sub>32</sub> N <sub>4</sub>
linarotenum linarotene	5',6',7',8'-tetrahydro-5',5',8',8'-tetramethyl-2'-acetonaphthone ( <i>E</i> )-[ <i>p</i> -(methylsulfonyl)phenyl]hydrazone C <sub>23</sub> H <sub>30</sub> N <sub>2</sub> O <sub>2</sub> S
lintopridum lintopride	4-amino-5-chloro- <i>N</i> -[(1-ethyl-2-imidazolin-2-yl)methyl]- <i>o</i> -anisamide C <sub>14</sub> H <sub>19</sub> ClN <sub>4</sub> O <sub>2</sub>
lobaplatinum lobaplatin	<i>cis</i> -[ <i>trans</i> -1,2-cyclobutanebis(methylamine)][( <i>S</i> )-lactato- <i>O</i> ', <i>O</i> ']platinum C <sub>9</sub> H <sub>16</sub> N <sub>2</sub> O <sub>3</sub> Pt
losartanum losartan	2-butyl-4-chloro-1-[ <i>p</i> -( <i>o</i> -1 <i>H</i> -tetrazol-5-yl)phenyl]benzyl]imidazole-5-methanol C <sub>22</sub> H <sub>23</sub> ClN <sub>6</sub> O
lufenuronum lufenuron	1-[2,5-dichloro-4-(1,1,2,3,3,3-hexafluoropropoxy)phenyl]-3-(2,6-difluorobenzoyl)urea C <sub>17</sub> H <sub>8</sub> Cl <sub>2</sub> F <sub>6</sub> N <sub>2</sub> O <sub>3</sub>
marbofloxacinum marbofloxacin	9-fluoro-2,3-dihydro-3-methyl-10-(4-methyl-1-piperazinyl)-7-oxo-7 <i>H</i> -pyrido[3,2,1- <i>ij</i> ][4,1,2]benzoxadiazine-6-carboxylic acid C <sub>17</sub> H <sub>19</sub> FN <sub>4</sub> O <sub>4</sub>
maslimomabum maslimomab	mouse monoclonal immunoglobulin G2b, anti-human T-cell receptor $\alpha/\beta$ chain
mecaserminum mecasermin	insulin-like growth factor I (human) C <sub>331</sub> H <sub>512</sub> N <sub>94</sub> O <sub>101</sub> S <sub>7</sub>
miboplatinum miboplatin	(-)- <i>cis</i> -[( <i>R</i> )-2-(aminomethyl)pyrrolidine](1,1-cyclobutanedicarboxylato) = platinum C <sub>11</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub> Pt
mirimostimum mirimostim	1-214-colony-stimulating factor 1 (human clone p3ACSF-69 protein moiety reduced), homodimer C <sub>1058</sub> H <sub>1651</sub> N <sub>277</sub> O <sub>341</sub> S <sub>14</sub> (for non-glycosylated protein)
modipafantum modipafant	ethyl (+)-( <i>R</i> )-4-( <i>o</i> -chlorophenyl)-1,4-dihydro-6-methyl-2-[ <i>p</i> -(2-methyl-1 <i>H</i> -imidazo[4,5- <i>c</i> ]pyridin-1-yl)phenyl]-5-(2-pyridylcarbomoyl)nicotinate C <sub>34</sub> H <sub>29</sub> ClN <sub>6</sub> O <sub>3</sub>
mosapridum mosapride	(±)-4-amino-5-chloro-2-ethoxy- <i>N</i> -[[4-( <i>p</i> -fluorobenzyl)-2-morpholinyl] = methyl]benzamide C <sub>21</sub> H <sub>25</sub> ClFN <sub>3</sub> O <sub>3</sub>

nafamostatium nafamostat	6-amidino-2-naphthyl <i>p</i> -guanidinobenzoate or <i>p</i> -guanidinobenzoic acid, ester with 6-hydroxy-2-naphthamide C <sub>19</sub> H <sub>17</sub> N <sub>5</sub> O <sub>2</sub>
naglivanium naglivan	bis[2-amino-3-mercapto- <i>N</i> -octylpropionamidato(1-)- <i>S</i> ]oxovanadium C <sub>22</sub> H <sub>46</sub> N <sub>4</sub> O <sub>3</sub> S <sub>2</sub> V
nartograstimum nartograstim	<i>N</i> -L-methionyl-1-L-alanine-3-L-threonine-4-L-tyrosine-5-L-arginine-17-L-serine = colony-stimulating factor (human clone 1034) C <sub>850</sub> H <sub>1344</sub> N <sub>226</sub> O <sub>245</sub> S <sub>8</sub> (for non-glycosylated protein)
nebacumabum nebacumab	immunoglobulin M (human monoclonal HA-1A anti-endotoxin), disulfide with human monoclonal HA-1A $\alpha$ -chain, pentameric dimer
necopidemum necopidem	<i>N</i> -[[2-( <i>p</i> -ethylphenyl)-6-methylimidazo[1,2- <i>a</i> ]pyridin-3-yl]methyl]- <i>N</i> ,3-dimethylbutyramide C <sub>23</sub> H <sub>29</sub> N <sub>3</sub> O
nefiracetamum nefiracetam	2-oxo-1-pyrroliidineaceto-2',6'-xylidide C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>2</sub>
nevirapinum nevirapine	11-cyclopropyl-5,11-dihydro-4-methyl-6 <i>H</i> -dipyrido[3,2- <i>b</i> :2',3'- <i>e</i> ][1,4]diazepin-6-one C <sub>15</sub> H <sub>14</sub> N <sub>4</sub> O
orlistatum orlistat	<i>N</i> -formyl-L-leucine, ester with (3 <i>S</i> ,4 <i>S</i> )-3-hexyl-4-[(2 <i>S</i> )-2-hydroxytridecyl]-2-oxetanone C <sub>29</sub> H <sub>53</sub> NO <sub>5</sub>
panadiplonium panadiplon	3-(5-cyclopropyl-1,2,4-oxadiazol-3-yl)-5-isopropylimidazo[1,5- <i>a</i> ]quinoxalin-4(5 <i>H</i> )-one C <sub>18</sub> H <sub>17</sub> N <sub>5</sub> O <sub>2</sub>
parcetasalum parcetasal	(±)-4'-[(2-methyl-4-oxo-1,3-benzodioxan-2-yl)oxy]acetanilide C <sub>17</sub> H <sub>15</sub> NO <sub>5</sub>
pentetreotidium pentetreotide	<i>N</i> -[2-[[2-[bis(carboxymethyl)amino]ethyl](carboxymethyl)amino]ethyl]- <i>N</i> -(carboxymethyl)glycyl-D-phenylalanyl-L-cysteinyl-L-phenylalanyl-D-tryptophyl-L-lysyl-L-threonyl- <i>N</i> -[(1 <i>R</i> ,2 <i>R</i> )-2-hydroxy-1-(hydroxymethyl)propyl]-L-cysteinamide cyclic (3→8)-disulfide C <sub>63</sub> H <sub>67</sub> N <sub>13</sub> O <sub>19</sub> S <sub>2</sub>
perflubronum perflubron	1-bromoheptadecafluorooctane C <sub>8</sub> BrF <sub>17</sub>
perfosfamidum perfosfamide	(±)- <i>cis</i> -2-[bis(2-chloroethyl)amino]tetrahydro-2 <i>H</i> -1,3,2-oxazaphosphorin-4-yl hydroperoxide, <i>P</i> -oxide C <sub>7</sub> H <sub>15</sub> Cl <sub>2</sub> N <sub>2</sub> O <sub>4</sub> P

pirsidominum pirsidomine	<i>N</i> - <i>p</i> -anisoyl-3-( <i>cis</i> -2,6-dimethylpiperidino)sydnone imine C <sub>17</sub> H <sub>22</sub> N <sub>4</sub> O <sub>3</sub>
pivagabinum pivagabine	4-pivalamidobutyric acid C <sub>9</sub> H <sub>17</sub> NO <sub>3</sub>
plomestanium plomestane	10-(2-propynyl)estr-4-ene-3,17-dione C <sub>21</sub> H <sub>26</sub> O <sub>2</sub>
polaprezincum polaprezinc	<i>catena</i> -poly[zinc- $\mu$ -[ $\beta$ -alanyl-L-histidinato(2-)- <i>N,N</i> <sup>n</sup> , <i>O</i> : <i>N</i> <sup>r</sup> ]] (C <sub>9</sub> H <sub>12</sub> N <sub>4</sub> O <sub>3</sub> Zn) <sub>n</sub>
polifeprosanum polifeprosan	4,4'-(trimethylenedioxy)dibenzoic acid, polymer with sebacic acid "m" and "n" are the numerical values representing the mass percentages of the monomers. The value of "m" should be given as a figure after the INN, e.g. "polifeprosan 20", which means "m = 20" and "n = 80". (C <sub>17</sub> H <sub>16</sub> O <sub>6</sub> ) <sub>m</sub> ·(C <sub>10</sub> H <sub>18</sub> O <sub>4</sub> ) <sub>n</sub>
poliglecapronum poliglecaprone	2-oxepanone polymer with <i>p</i> -dioxane-2,5-dione "m" and "n" are the numerical values representing the mol percentages of the monomers. The value of "m" should be given as a figure after the INN, e.g. "poliglecaprone 90", which means "m = 90" and "n = 10". (C <sub>8</sub> H <sub>10</sub> O <sub>2</sub> ) <sub>m</sub> (C <sub>4</sub> H <sub>4</sub> O <sub>4</sub> ) <sub>n</sub>
poliglusamum poliglusam	chitosan
pranidipinum pranidipine	( <i>E</i> )-cinnamyl methyl ( $\pm$ )-1,4-dihydro-2,6-dimethyl-4-( <i>m</i> -nitrophenyl)-3,5-pyridinedicarboxylate C <sub>25</sub> H <sub>24</sub> N <sub>2</sub> O <sub>6</sub>
racephedrinum racephedrine	( $\pm$ )-ephedrine C <sub>10</sub> H <sub>15</sub> NO
remikirenum remikiren	( $\alpha$ S)- $\alpha$ -[( $\alpha$ S)- $\alpha$ -[( <i>tert</i> -butylsulfonyl)methyl]hydrocinnamamido]- <i>N</i> -[(1 <i>S</i> ,2 <i>R</i> ,3 <i>S</i> )-1-(cyclohexylmethyl)-3-cyclopropyl-2,3-dihydroxypropyl]imidazole-4-propionamide C <sub>33</sub> H <sub>50</sub> N <sub>4</sub> O <sub>6</sub> S
remiprostolum remiprostol	( $\pm$ )-methyl ( <i>Z</i> )-7-[(1 <i>R</i> ,2 <i>R</i> ,3 <i>R</i> )-2-[(1 <i>E</i> ,5 <i>E</i> )-(4 <i>RS</i> )-6-(1-cyclopenten-1-yl)-4-hydroxy-4-methyl-1,5-hexadienyl]-3-hydroxy-5-oxocyclopentyl]-4-heptenoate C <sub>25</sub> H <sub>36</sub> O <sub>5</sub>
repaglinidum repaglinide	(+)-2-ethoxy- $\alpha$ -[[( <i>S</i> )- $\alpha$ -isobutyl- <i>o</i> -piperidinobenzyl]carbamoyl]- <i>p</i> -toluic acid C <sub>27</sub> H <sub>36</sub> N <sub>2</sub> O <sub>4</sub>
rilmakalimum rilmakalim	(+)-1-[(3 <i>S</i> ,4 <i>R</i> )-3-hydroxy-2,2-dimethyl-6-(phenylsulfonyl)-4-chromanyl]-2-pyrrolidinone C <sub>21</sub> H <sub>23</sub> NO <sub>3</sub> S

<i>Recommended International Nonproprietary Name (Latin, English)</i>	<i>Chemical Name or Description and Molecular Formula</i>
rocuronii bromidum rocuronium bromide	1-allyl-1-(3 $\alpha$ ,17 $\beta$ -dihydroxy-2 $\beta$ -morpholino-5 $\alpha$ -androstan-16 $\beta$ -yl)pyrrolidinium bromide, 17-acetate C <sub>32</sub> H <sub>53</sub> BrN <sub>2</sub> O <sub>4</sub>
rogletimidum rogletimide	( $\pm$ )-2-ethyl-2-(4-pyridyl)glutarimide C <sub>12</sub> H <sub>14</sub> N <sub>2</sub> O <sub>2</sub>
rolafagrelum rolafagrel	5,6-dihydro-7-imidazol-1-yl-2-naphthoic acid C <sub>14</sub> H <sub>12</sub> N <sub>2</sub> O <sub>2</sub>
romergolinum romergoline	4-[(9,10-didehydro-6-methylergolin-8 $\beta$ -yl)methyl]-2,6-piperazinedione C <sub>20</sub> H <sub>22</sub> N <sub>4</sub> O <sub>2</sub>
sargramostimum sargramostim	23-L-leucinecolony-stimulating factor 2 (human clone pHG25 protein moiety) C <sub>639</sub> H <sub>1002</sub> N <sub>166</sub> O <sub>196</sub> S <sub>8</sub> (for non-glycosylated protein)
seproxetinum seproxetine	(S)-3-phenyl-3-[( <i>a,a,a</i> -trifluoro- <i>p</i> -tolyl)oxy]propylamine C <sub>16</sub> H <sub>16</sub> F <sub>3</sub> NO
sevirumabum sevirumab	human monoclonal immunoglobulin G1, $\kappa$ -chain, anti-cytomegavirus
sifaprazinum sifaprazine	1-methyl-4-( <i>a</i> -phenyl- <i>o</i> -tolyl)piperazine C <sub>18</sub> H <sub>22</sub> N <sub>2</sub>
silteplasmum silteplase	<i>N</i> -[ <i>N</i> <sup>2</sup> -( <i>N</i> -glycyl-L-alanyl)-L-arginyl]plasminogen activator (human tissue-type protein moiety reduced), glycoform C <sub>2580</sub> H <sub>3948</sub> N <sub>752</sub> O <sub>784</sub> S <sub>40</sub> (for non-glycosylated protein)
simendanum simendan	mesoxalonitrile ( $\pm$ )-[ <i>p</i> -(1,4,5,6-tetrahydro-4-methyl-6-oxo-3- pyridazinyl)phenyl]hydrazone C <sub>14</sub> H <sub>12</sub> N <sub>6</sub> O
somfaseporum somfasepor	8-190 growth hormone (pig) C <sub>938</sub> H <sub>1465</sub> N <sub>257</sub> O <sub>278</sub> S <sub>6</sub>
tacalcitolum tacalcitol	(+)-(5Z,7E,24R)-9,10-secocholesta-5,7,10(19)-triene-1 $\alpha$ ,3 $\beta$ ,24-triol C <sub>27</sub> H <sub>44</sub> O <sub>3</sub>
tacrolimusum tacrolimus	(-)-(3S,4R,5S,8R,9E,12S,14S,15R,16S,18R,19R,26aS)-8-allyl- 5,6,8,11,12,13,14,15,16,17,18,19,24,25,26,26a-hexadecahydro-5,19-dihydroxy-3- [(E)-2-[(1R,3R,4R)-4-hydroxy-3-methoxycyclohexyl]-1-methylvinyl]-14,16- dimethoxy-4,10,12,18-tetramethyl-15,19-epoxy-3H-pyrido[2,1-c][1,4]oxa = azacyclotricosine-1,7,20,21(4H,23H)-tetrone C <sub>44</sub> H <sub>69</sub> NO <sub>12</sub>
tamolarizinum tamolarizine	( $\pm$ )- <i>a</i> -(3,4-dimethoxyphenyl)-4-(diphenylmethyl)-1-piperazineethanol C <sub>27</sub> H <sub>32</sub> N <sub>2</sub> O <sub>3</sub>

telimomabum aritoxum telimomab aritox	ricin A chain-antibody T 101 Fab fragment immunotoxin
terdecamycinum terdecamycin	4-methyl-1-piperazinecarboxylic acid, 7-ester with (-)-N-[1S,2R,3E,5E,7S,9E,11E,13S,15R,19R]-7,13-dihydroxy-1,4,10,19-tetramethyl-17,18-dioxo-16-oxabicyclo[13.2.2]nonadeca-3,5,9,11-tetraen-2-yl]pyruvamide or (-)-N-[(1S,2R,3E,5E,7S,9E,11E,13S,15R,19R)-7,13-dihydroxy-1,4,10,19-tetramethyl-17,18-dioxo-16-oxabicyclo[13.2.2]nonadeca-3,5,9,11-tetraen-2-yl]pyruvamide 7-(4-methyl-1-piperazinecarboxylate) C <sub>31</sub> H <sub>43</sub> N <sub>3</sub> O <sub>8</sub>
terlakirenum terlakiren	isopropyl (αR,βS)-α-hydroxy-β-[(R)-3-(methylthio)-2-[(S)-α-4-morpholinocarboxamidohydrocinnamamido]propionamido]=cyclohexanebutyrate C <sub>31</sub> H <sub>48</sub> N <sub>4</sub> O <sub>7</sub> S
tetrafosminum tetrafosmin	ethylenebis[bis(2-ethoxyethyl)phosphine] C <sub>18</sub> H <sub>40</sub> O <sub>4</sub> P <sub>2</sub>
tinzaparinum natricum tinzaparin sodium	Sodium salt of depolymerized heparin obtained by heparinase from <i>Flavobacterium heparinum</i> (heparin lyase: EC 4.2.2.7) degradation of heparin from pork intestinal mucosa; the majority of the components have a 2-O-sulfo-4-enepyranosuronic acid structure at the non-reducing end and a 2-N,6-O-disulfo-D-glucosamine structure at the reducing end of their chain; the relative molecular mass is 4500 ± 1500, 70 per cent of which ranging between 1500 and 10 000; the degree of sulfatation is 2 to 2,5 per disaccharidic unit.
tolcaponum tolcapone	3,4-dihydroxy-4'-methyl-5-nitrobenzophenone C <sub>14</sub> H <sub>11</sub> NO <sub>5</sub>
tolterodinum tolterodine	(+)-(R)-2-[α-[2-(diisopropylamino)ethyl]benzyl]-p-cresol C <sub>22</sub> H <sub>31</sub> NO
tretinoinum tocoferilum tretinoin tocoferil	(±)-(2R*)-2,5,7,8-tetramethyl-2-[(4R*,8R*)-4,8,12-trimethyltridecyl]-6-chromanyl retinoate C <sub>49</sub> H <sub>76</sub> O <sub>3</sub>
trimegestonum trimegestone	17β-(S)-lactoyl-17-methylestra-4,9-dien-3-one C <sub>22</sub> H <sub>30</sub> O <sub>3</sub>
tucaresolum tucaresol	α-(2-formyl-3-hydroxyphenoxy)-p-toluic acid C <sub>15</sub> H <sub>12</sub> O <sub>5</sub>
tuvirumabum tuvirumab	human monoclonal immunoglobulin G1, λ-chain, anti-hepatitis B virus surface antigen
unoprostonum unoprostone	(+)-(Z)-7-[(1R,2R,3R,5S)-3,5-dihydroxy-2-(3-oxodecyl)cyclopentyl]-5-heptenoic acid C <sub>22</sub> H <sub>38</sub> O <sub>5</sub>
utibaprilatum utibaprilat	(S)-2-tert-butyl-4-[(S)-N-[(S)-1-carboxy-3-phenylpropyl]alanyl]-2 <sup>2</sup> -1,3,4-thiadiazoline-5-carboxylic acid C <sub>20</sub> H <sub>27</sub> N <sub>3</sub> O <sub>5</sub> S

velaresolum velaresol	5-(2-formyl-3-hydroxyphenoxy)valeric acid C <sub>12</sub> H <sub>14</sub> O <sub>5</sub>
verlukastum verlukast	3-[[[( <i>αR</i> )- <i>m</i> -[( <i>E</i> )-2-(7-chloro-2-quinolyl)viny]]- <i>α</i> -[[2-(dimethylcarbamoyl)ethyl]thio]benzyl]thio]propionic acid C <sub>26</sub> H <sub>27</sub> ClN <sub>2</sub> O <sub>3</sub> S <sub>2</sub>
voglibosum voglibose	3,4-dideoxy-4-[[2-hydroxy-1-(hydroxymethyl)ethyl]amino]-2- <i>C</i> -(hydroxymethyl)- <i>D</i> -epi-inositol C <sub>10</sub> H <sub>21</sub> NO <sub>7</sub>
zalcitabinum zalcitabine	2',3'-dideoxycytidine C <sub>9</sub> H <sub>13</sub> N <sub>3</sub> O <sub>3</sub>
zaldaridum zaldaride	(±)-1-[1-[(4-methyl-4 <i>H</i> ,6 <i>H</i> -pyrrolo[1,2- <i>a</i> ][4,1]benzoxazepin-4-yl)methyl]-4-piperidyl]-2-benzimidazolinone C <sub>26</sub> H <sub>28</sub> N <sub>4</sub> O <sub>2</sub>
zoniclezolum zoniclezole	5-chloro-3-(1-imidazol-1-ylethyl)-1,2-benzisoxazole C <sub>12</sub> H <sub>10</sub> ClN <sub>3</sub> O

## AMENDMENTS TO PREVIOUS LISTS

*Supplement to WHO Chronicle Vol. 35, No. 5, 1981*

### Recommended International Nonproprietary Names (Rec. INN): List 21

p. 5	felodipinum felodipine	replace the chemical name by the following: (±)-ethyl methyl 4-(2,3-dichlorophenyl)-1,4-dihydro-2,6-dimethyl-3,5-pyridinedicarboxylate
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*Supplement to WHO Chronicle, Vol. 39, No. 5, 1985*

### Recommended International Nonproprietary Names (Rec. INN): List 25

p. 7	glimepiridum glimepiride	replace the chemical name by the following: 1-[[ <i>p</i> -[2-(3-ethyl-4-methyl-2-oxo-3-pyrroline-1-carboxamido) = ethyl]phenyl]sulfonyl]-3-( <i>trans</i> -4-methylcyclohexyl)urea
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**Recommended International Nonproprietary Names (Rec. INN): List 26**

- p. 10 teceleukinum  
teceleukin
- replace the chemical name and the molecular formula by the following:*  
*N*-L-methionylinterleukin 2 (human)  
 $C_{698}H_{1127}N_{179}O_{204}S_8$

*WHO Drug Information, Vol. 1, No. 4, 1987*

**Recommended International Nonproprietary Names (Rec. INN): List 27**

- p. 6 limaprostum  
limaprost
- replace the chemical name by the following:*  
(*E*)-7-[(1*R*,2*R*,3*R*)-3-hydroxy-2-[(*E*)-(3*S*,5*S*)-3-hydroxy-5-methyl-1-nonyl]-5-oxocyclopentyl]-2-heptenic acid
- p. 8 ramoplaninum  
ramoplanin
- replace the description and the molecular formula by the following:*  
glycopeptide antibiotic produced by *actinoplanes* species ATCC33076  
Ramoplanin is a complex antibiotic consisting of a main component designated as ramoplanin A<sub>2</sub> and a small amount of related substances, ramoplanin A<sub>1</sub> and A<sub>3</sub>.  
 $C_{112-120}H_{142-156}ClN_{21}O_{35-40}$

*WHO Drug Information, Vol. 3, No. 3, 1989*

**Recommended International Nonproprietary Names (Rec. INN): List 29**

- p. 14 niguldipinum  
niguldipine
- replace the chemical name by the following:*  
(-)-(*S*)-3-(4,4-diphenylpiperidino)propyl methyl 1,4-dihydro-2,6-dimethyl-4-(*m*-nitrophenyl)-3,5-pyridinedicarboxylate

*WHO Drug Information, Vol. 5, No. 3, 1991*

**Recommended International Nonproprietary Names (Rec. INN): List 31**

- p. 4 cilobradinum  
cilobradine
- replace the chemical name by the following:*  
(+)-(*S*)-3-[[1-(3,4-dimethoxyphenethyl)-3-piperidyl]methyl]-1,3,4,5-tetrahydro-7,8-dimethoxy-2*H*-3-benzazepin-2-one
- p. 4 dalfopristinum  
dalfopristin
- replace the chemical name by the following:*  
(3*R*,4*R*,5*E*,10*E*,12*E*,14*S*,26*R*,26*aS*)-26-[[2-(diethylamino)ethyl]sulfonyl]-8,9,14,15,24,25,26,26*a*-octahydro-14-hydroxy-3-isopropyl-4,12-dimethyl-3*H*-21,18-nitrilo-1*H*,22*H*-pyrrolo[2.1*c*][1,8,4,19]dioxadiazacyclotetracosine-1,7,16,22(4*H*,17*H*)-tetrone
- p. 6 fantofaronum  
fantofarone
- replace the molecular formula by the following:*  
 $C_{31}H_{38}N_2O_5S$
- p. 14 terikalantum  
terikalant
- replace the chemical name by the following:*  
(-)-(*S*)-1-[2-(4-chromanyl)ethyl]-4-(3,4-dimethoxyphenyl)piperidine