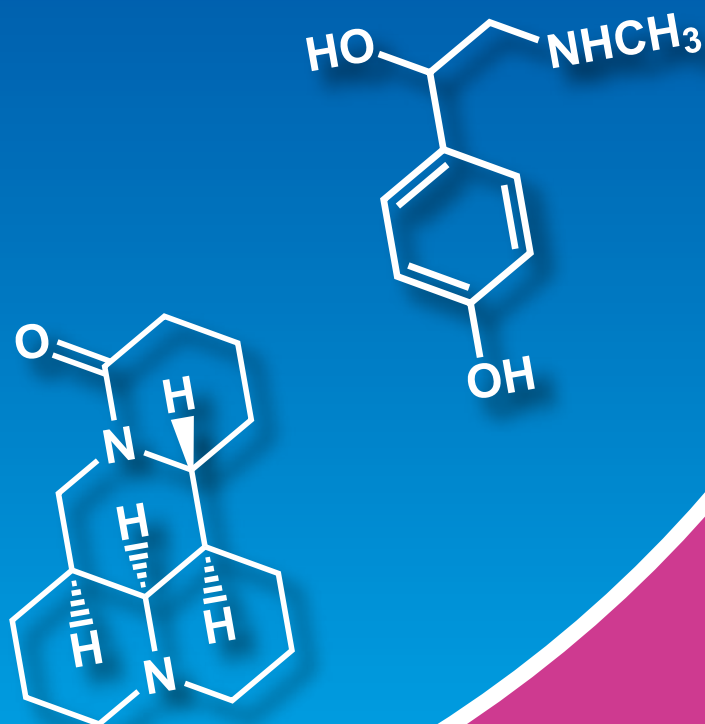
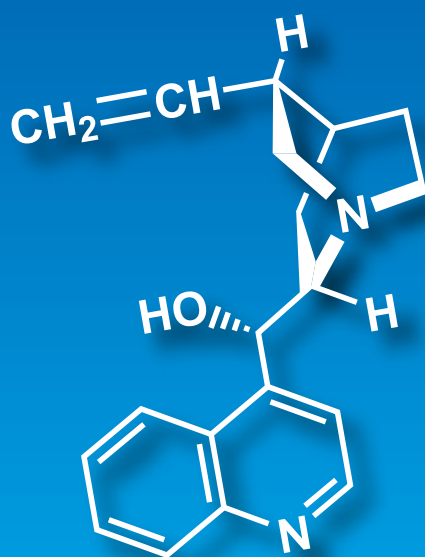


Alkaloids



- Tropane Alkaloids
- Piperidine Alkaloids
- Phenylethylamine Alkaloids
- Isoquinoline Alkaloids
- Quinoline Alkaloids
- Pyridine Alkaloids
- Indole Alkaloids
- Imidazole Alkaloids
- Purine Alkaloids
- Other Alkaloids

Alkaloids

Alkaloids are nitrogen-containing small molecules which are mainly found in plants. To date, approximately 27 thousand alkaloids have been reported in which 21 thousand were of plant origin.

Since most of the alkaloids exhibit potent bioactivity, they are the main component of many herbal medicines. Some alkaloids are also used as pharmaceuticals. Alkaloids interact with proteins electrostatically due to the positive charge of the nitrogen atoms which facilitates binding to the negative charge of the proteins. Especially, pharmaceutical alkaloids tend to bind to the receptors in neural systems.

Biosynthesis

Biosynthetic pathways to alkaloids vary greatly depending on the nitrogen source. Alkaloids are biosynthesized from various kinds of amino acids as depicted in Figure 1. Further complex alkaloids are also biosynthesized by attaching another alkaloid to the original skeletons.

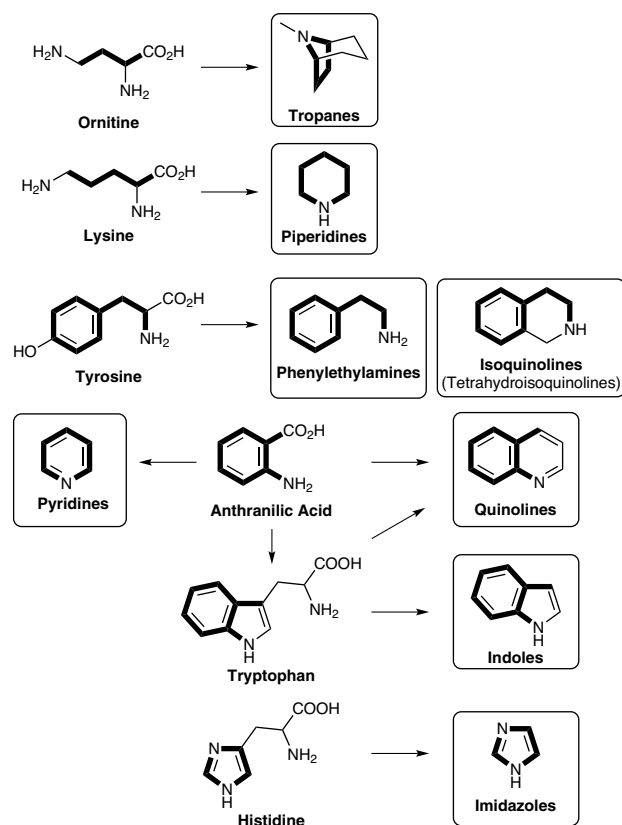


Figure 1. Alkaloid Biosynthesis and Basic Structure

Structure Classification

In the IUPAC Nomenclature Appendix, 67 alkaloid parent structures are shown. They can be classified into their basic skeletons based on their biosynthetic origins as shown in Figure 1. In this section, alkaloids are categorized into nine: eight as shown above and purine alkaloids as the ninth.

Storage Precautions

Alkaloids are relatively stable at room temperature, however, they tend to form carbonate salts due to their basicity by reaction with carbon dioxide in the air. In addition, they are usually colorized by reaction with oxygen. Therefore, opened bottles should be stored in the refrigerator or frozen with inert gas such as nitrogen or argon.

Solubility

In general, alkaloids dissolve in acidic water. Their salts dissolve in neutral water. They are usually insoluble in neutral water as free forms, but soluble in polar organic solvents such as chloroform, methanol or DMSO.

Analysis

HPLC : In the reversed phase mode using an ODS column, peak tailing is suppressed by addition of acetic acid or trifluoroacetic acid to the mobile phase. Effective analysis would be achieved by a mixed mode column, TCI-Dual, with ion-exchange and reversed phase modes simultaneously. Detection is generally conducted by a UV detector.

TLC : In a normal phase silica gel TLC analysis, a solvent system of chloroform-methanol-aqueous ammonia gives a relatively a good separation. NH₂-type silica gel is also effective. Dragendorff's reagent is a selective visualizing reagent for alkaloids. Tertiary amines and quaternary ammonium salts give orange spots.

WARNING

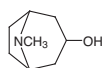
Some of the alkaloids may cause serious physiological actions in very minute amounts. They may cause paralysis, convulsions, and death in the worst case. To avoid inhalation and contacting with skin, wear protective goggles, mask and eyeglasses when handling. Sufficient caution should be taken, when using these compounds, from the opening to the disposal of the reagents.

Reference

P. M. Dewick, in *Medicinal Natural Products*, 3rd ed., John Wiley & Sons, Chichester, 2009, p. 311.

Tropane Alkaloids

T0534 5g 25g



Tropine
CAS RN: 120-29-6

P2648 1g 5g



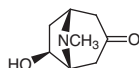
Pseudopelletierine
CAS RN: 552-70-5

N0844 5g 25g



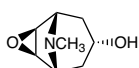
Nortropinone Hydrochloride
CAS RN: 25602-68-0

H1289 1g



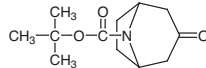
relative
(±)-exo-6-Hydroxytropinone
CAS RN: 5932-53-6

S0912 200mg



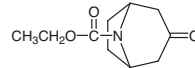
Scopine
CAS RN: 498-45-3

B3401 1g 5g



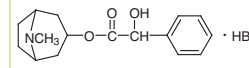
N-Boc-nortropinone
CAS RN: 185099-67-6

E0834 5g 25g



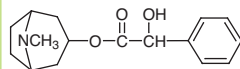
N-(Ethoxycarbonyl)-nortropinone
CAS RN: 32499-64-2

H0155 1g 25g



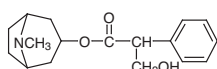
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H0156 1g 25g



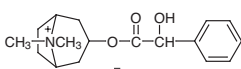
Homatropine Hydrochloride
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H0450 5g



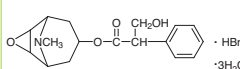
(-)-Hyoscyamine
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H0448 5g 25g



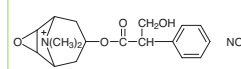
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S0021 1g 10g



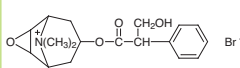
Scopolamine Hydrobromide Trihydrate
CAS RN: 6533-68-2

S0230 1g 5g



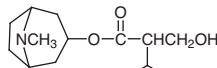
Scopolamine Methyl Nitrate
CAS RN: 6106-46-3

S0231 1g



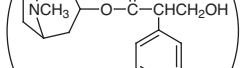
Scopolamine Methyl Bromide
CAS RN: 155-41-9

A0754 5g 25g



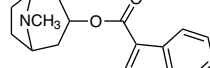
Atropine
CAS RN: 51-55-8

A0550 5g 25g



Atropine Sulfate Monohydrate
CAS RN: 5908-99-6

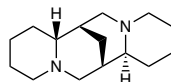
T2743 1g 5g



Tropisetron Hydrochloride
CAS RN: 105826-92-4

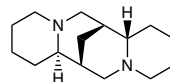
Piperidine Alkaloids

S0461 1g 5g 10g



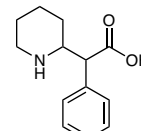
(-)-Sparteine
CAS RN: 90-39-1

S0884 1g



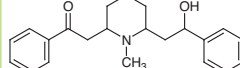
(+)-Sparteine
CAS RN: 492-08-0

R0111 1g 5g



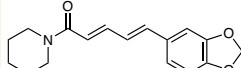
Ritalinic Acid
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L0096 1g



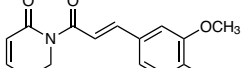
Lobeline Hydrochloride
CAS RN: 134-63-4

P0460 1g 5g



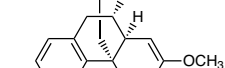
Piperine
CAS RN: 94-62-2

P2361 25mg 100mg



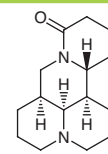
Piperlongumine
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S0926 1g 5g



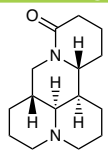
Sinomenine Hydrochloride
CAS RN: 6080-33-7

M2120 200mg 1g



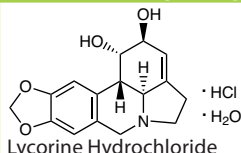
Matrine
CAS RN: 519-02-8

M3093 50mg 250mg



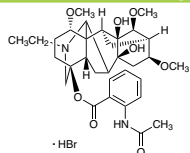
Sophoridine
CAS RN: 6882-68-4

L0319 25mg 100mg



Lycorine Hydrochloride Monohydrate
CAS RN: 6150-58-9

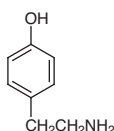
L0272 200mg 1g



Lappaconitine Hydrobromide
CAS RN: 97792-45-5

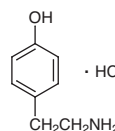
Phenylethylamine Alkaloids

A0302 1g 25g 250g



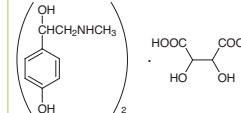
Tyramine
CAS RN: 51-67-2

A0303 1g 25g



Tyramine Hydrochloride
CAS RN: 60-19-5

S0233 25g

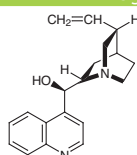


Synephrine Tartrate
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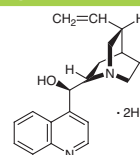
<p>S0232 5g 25g</p> <p>Synephrine CAS RN: 94-07-5</p>	<p>Y0012 1g 5g</p> <p>(-)-Synephrine CAS RN: 614-35-7</p>	<p>O0413 1g 5g 25g</p> <p>Octopamine Hydrochloride CAS RN: 770-05-8</p>	<p>H1351 1g 5g</p> <p>Hordenine CAS RN: 539-15-1</p>	<p>E0387 25g</p> <p>4-(2-Ethylaminopropyl)- anisole Hydrochloride CAS RN: 93963-24-7</p>
<p>E0381 5g 25g</p> <p>Etilerfrine Hydrochloride CAS RN: 943-17-9</p>	<p>M1891 5g 25g</p> <p>2-(3-Methoxyphenyl)- ethylamine CAS RN: 2039-67-0</p>	<p>P0395 5g 25g</p> <p>L-Phenylephrine CAS RN: 59-42-7</p>	<p>P0398 5g 25g</p> <p>(R)-Phenylephrine Hydrochloride CAS RN: 61-76-7</p>	<p>N0389 5g 25g</p> <p>DL-Norphenylephrine Hydrochloride CAS RN: 4779-94-6</p>
<p>M0844 5mL 25mL</p> <p>2-Methoxyphenethylamine CAS RN: 2045-79-6</p>	<p>A0305 1g 5g 25g</p> <p>Dopamine Hydrochloride CAS RN: 62-31-7</p>	<p>D2104 25g</p> <p>N-Methylhomoveratrylamine CAS RN: 3490-06-0</p>	<p>A0172 1g 25g</p> <p>DL-Adrenaline CAS RN: 329-65-7</p>	<p>A0909 5g 25g</p> <p>DL-Adrenaline Hydrochloride CAS RN: 329-63-5</p>
<p>A0173 1g 5g</p> <p>L-Adrenaline CAS RN: 51-43-4</p>	<p>A0175 1g 5g 25g</p> <p>L-Adrenaline Bitartrate CAS RN: 51-42-3</p>	<p>A0906 1g</p> <p>L-Arterenol Bitartrate Monohydrate CAS RN: 108341-18-0</p>	<p>A1234 5g 25g</p> <p>Adrenalone Hydrochloride Hydrate CAS RN: 62-13-5</p>	<p>D0600 5g 25g 100g</p> <p>L-DOPA CAS RN: 59-92-7</p>
<p>I0260 5g 25g</p> <p>Isoproterenol Hydrochloride CAS RN: 51-30-9</p>	<p>I0261 5g 25g</p> <p>Isoproterenol Sulfate Dihydrate CAS RN: 299-95-6</p>	<p>C2691 100mg</p> <p>Clenbuterol Hydrochloride CAS RN: 21898-19-1</p>	<p>Isoquinoline Alkaloids</p>	
<p>P0016 25g</p> <p>Papaverine Hydrochloride CAS RN: 61-25-6</p>	<p>N0918 5g 25g</p> <p>Norlaudanosine Hydrochloride CAS RN: 6429-04-5</p>	<p>T3311 250mg</p> <p>L-Tetrahydropalmatine CAS RN: 483-14-7</p>		
<p>B0451 5g 25g</p> <p>Berberine Sulfate Hydrate CAS RN: 316-41-6</p>	<p>N0963 5g 25g</p> <p>Noscapine Hydrochloride Hydrate CAS RN: 912-60-7</p>	<p>C3641 25mg 100mg</p> <p>Cephalotaxine CAS RN: 24316-19-6</p>	<p>A3229 10mg 50mg</p> <p>Sanguinarine Chloride Hydrate CAS RN: 1099738-80-3</p>	<p>B0450 5g 25g</p> <p>Berberine Chloride Hydrate CAS RN: 141433-60-5</p>
<p>B1890 25mg 100mg</p> <p>(+)-Bicuculline CAS RN: 485-49-4</p>	<p>C0433 100mg 1g</p> <p>Curare Pentahydrate CAS RN: 6989-98-6</p>	<p>P2611 5mg 25mg 100mg</p> <p>Protopine CAS RN: 130-86-9</p>	<p>T3321 200mg 1g</p> <p>Tetrandrine CAS RN: 518-34-3</p>	

Quinoline Alkaloids

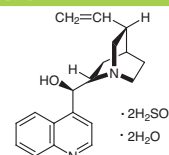
C0347 25g 100g

Cinchonidine
CAS RN: 485-71-2

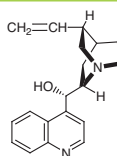
C0348 25g

Cinchonidine Dihydrochloride
CAS RN: 24302-67-8

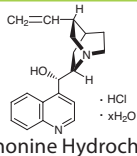
C0349 25g

Cinchonidine Sulfate Dihydrate
CAS RN: 524-61-8

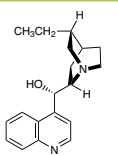
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Cinchonine
CAS RN: 118-10-5

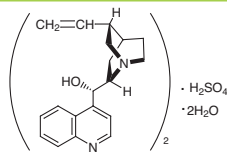
C0351 25g

Cinchonine Hydrochloride
Hydrate
CAS RN: 206986-88-1

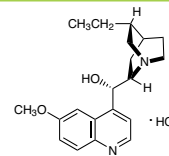
H1701 1g 5g

Hydrocinchonine
CAS RN: 485-65-4

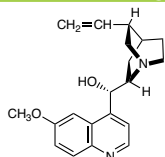
C0791 25g

Cinchonine Sulfate Dihydrate
CAS RN: 5949-16-6

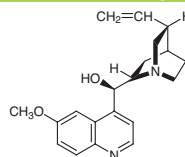
H0752 25g 250g

Hydroquinidine Hydrochloride
CAS RN: 1476-98-8

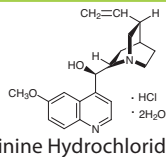
Q0006 5g 25g

Quinidine
CAS RN: 56-54-2

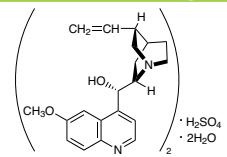
Q0028 25g 100g

Quinine
CAS RN: 130-95-0

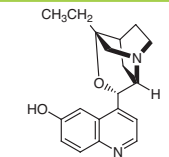
Q0030 25g

Quinine Hydrochloride
Dihydrate
CAS RN: 6119-47-7

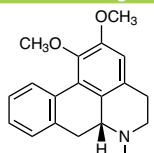
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Quinidine Sulfate Dihydrate
CAS RN: 6591-63-5

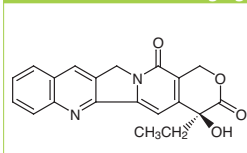
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β-Isocupreidine
CAS RN: 253430-48-7

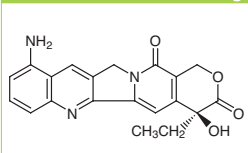
N1170 50mg 250mg

Nuciferine
CAS RN: 475-83-2

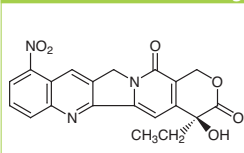
C1495 100mg 1g

(5)-(-)-Camptothecin
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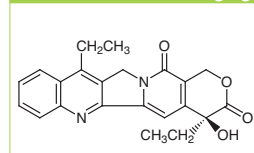
A2063 10mg

9-Aminocamptothecin
CAS RN: 91421-43-1

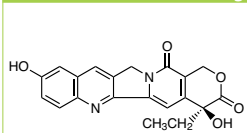
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9-Nitrocamptothecin
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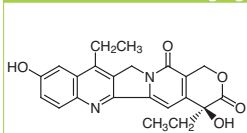
E0781 100mg 1g

7-Ethylcamptothecin
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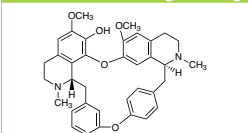
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10-Hydroxycamptothecin
CAS RN: 19685-09-7

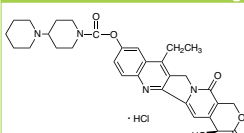
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SN-38
CAS RN: 86639-52-3

F1173 20mg 100mg

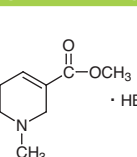
Fangchinoline
CAS RN: 436-77-1

I0714 100mg

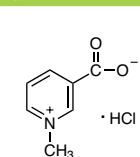
CPT-11 Trihydrate
CAS RN: 136572-09-3

Pyridine Alkaloids

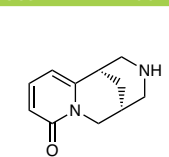
A0523 5g 25g

Arecoline Hydrobromide
CAS RN: 300-08-3

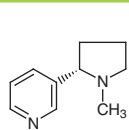
T1429 5g

Trigonelline Hydrochloride
CAS RN: 6138-41-6

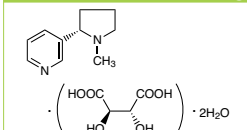
C2609 100mg 1g

(-)-Cytisine
CAS RN: 485-35-8

N0079 25mL 100mL 500mL

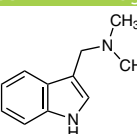
Nicotine
CAS RN: 54-11-5

N0080 25g

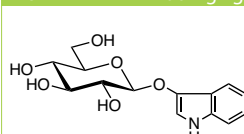
Nicotine Bi-L-(+)-tartrate
Dihydrate
CAS RN: 54-11-5

Indole Alkaloids

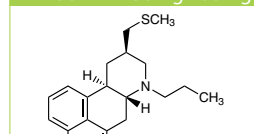
D0653 25g 250g

Gramine
CAS RN: 87-52-5

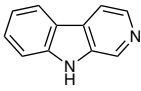
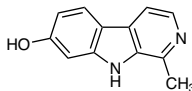
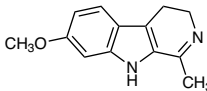
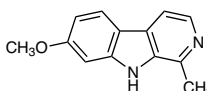
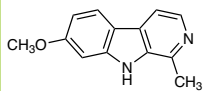
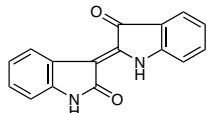
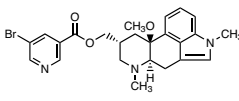
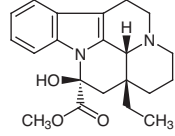
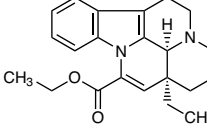
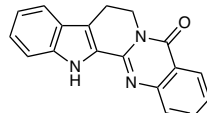
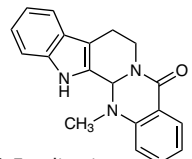
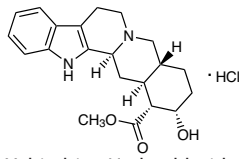
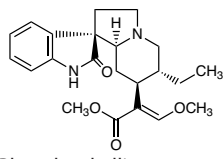
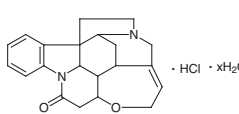
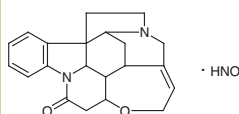
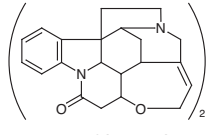
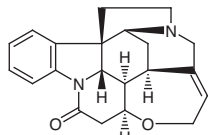
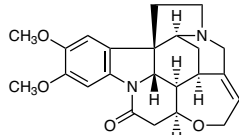
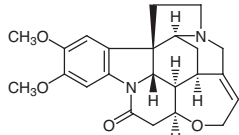
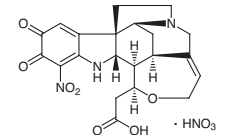
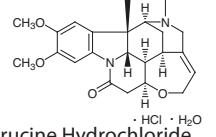
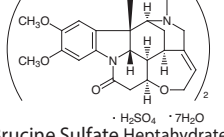
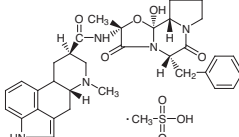
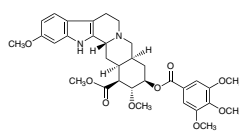
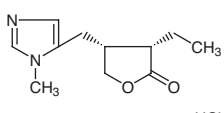
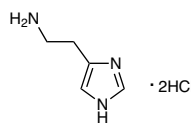
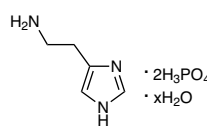
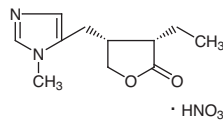
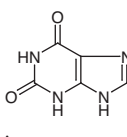
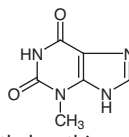
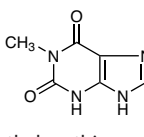
I1012 200mg 1g

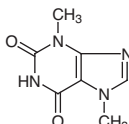
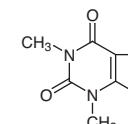
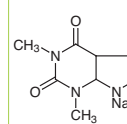
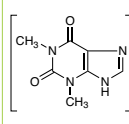
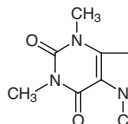
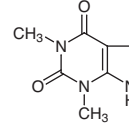
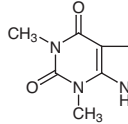
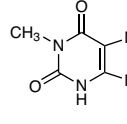
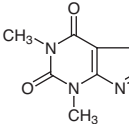
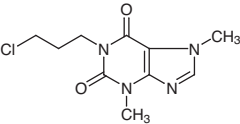
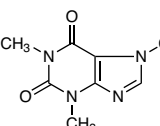
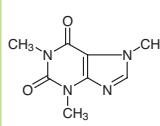
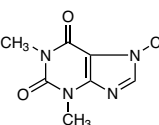
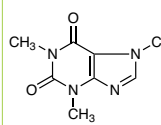
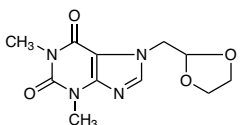
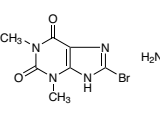
Indican (Plant Indican)
CAS RN: 487-60-5

P2200 50mg 200mg

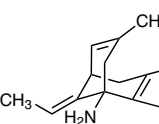
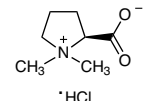
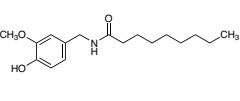
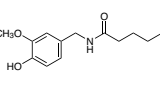
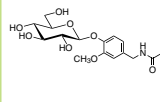
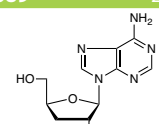
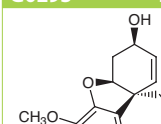
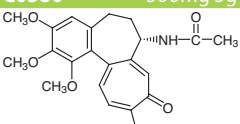
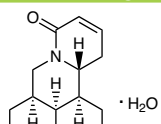
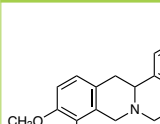
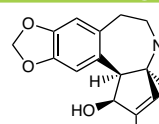
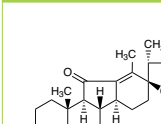
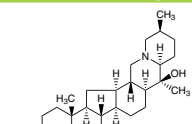
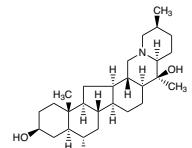
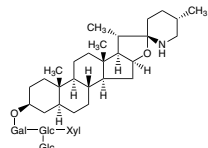
Pergolide
CAS RN: 66104-22-1

Alkaloids

<p>P1121 100mg</p>  <p>9H-Pyrido[3,4-b]indole CAS RN: 244-63-3</p>	<p>H1360 200mg 1g</p>  <p>Harmol CAS RN: 487-03-6</p>	<p>H1237 1g 5g</p>  <p>Harmaline CAS RN: 304-21-2</p>	<p>H0001 1g</p>  <p>Harmine CAS RN: 442-51-3</p>	<p>H0002 100mg 1g</p>  <p>Harmine Hydrochloride CAS RN: 343-27-1</p>
<p>I0868 25mg</p>  <p>Indirubin CAS RN: 479-41-4</p>	<p>N0904 100mg 1g</p>  <p>Nicergoline CAS RN: 27848-84-6</p>	<p>V0061 1g 5g</p>  <p>Vincamine CAS RN: 1617-90-9</p>	<p>V0115 100mg 1g</p>  <p>Vinpocetine CAS RN: 42971-09-5</p>	<p>R0102 200mg 1g</p>  <p>Rutaecarpine CAS RN: 84-26-4</p>
<p>E1012 1g</p>  <p>(±)-Evodiamine CAS RN: 518-18-3</p>	<p>Y0002 5g 25g</p>  <p>Yohimbine Hydrochloride CAS RN: 65-19-0</p>	<p>R0105 25mg</p>  <p>Rhynchophylline CAS RN: 76-66-4</p>	<p>S0257 25g</p>  <p>Strychnine Hydrochloride Hydrate CAS RN: 1421-86-9</p>	<p>S0093 25g</p>  <p>Strychnine Nitrate CAS RN: 66-32-0</p>
<p>S0094 25g</p>  <p>Strychnine Sulfate Pentahydrate CAS RN: 60491-10-3</p>	<p>S0249 25g</p>  <p>Strychnine CAS RN: 57-24-9</p>	<p>B0670 25g</p>  <p>Brucine Hydrate CAS RN: 57-24-9</p>	<p>B0946 25g</p>  <p>Brucine Anhydrous CAS RN: 357-57-3</p>	<p>C0001 1g 5g</p>  <p>Cathoseline Monohydrate CAS RN: 561-20-6</p>
<p>B0671 5g</p>  <p>Brucine Hydrochloride Monohydrate CAS RN: 5786-96-9</p>	<p>B0672 25g</p>  <p>Brucine Sulfate Heptahydrate [for Nitrate Analysis] CAS RN: 60583-39-3</p>	<p>D2633 100mg 1g</p>  <p>Dihydroergotamine Mesylate CAS RN: 6190-39-2</p>	<p>R0007 1g 5g</p>  <p>Reserpine CAS RN: 50-55-5</p>	<p>B0397 25g 100g</p> <p>Betanin (Red Beet extract diluted with Dextrin) CAS RN: 7659-95-2</p>
<h2>Imidazole Alkaloids</h2>				
<p>P0434 1g 5g</p>  <p>Pilocarpine Hydrochloride CAS RN: 54-71-7</p>	<p>H0146 1g 5g 25g</p>  <p>Histamine Dihydrochloride CAS RN: 56-92-8</p>	<p>H0147 1g 5g</p>  <p>Histamine Diphosphate Hydrate CAS RN: 51-74-1</p>	<p>P0399 5g</p>  <p>Pilocarpine Nitrate CAS RN: 148-72-1</p>	
<h2>Purine Alkaloids</h2>				
<p>X0004 25g</p>  <p>Xanthine CAS RN: 69-89-6</p>	<p>M2073 5g 25g</p>  <p>3-Methylxanthine CAS RN: 1076-22-8</p>	<p>M2432 50mg 200mg</p>  <p>1-Methylxanthine CAS RN: 6136-37-4</p>		

T0178 25g 100g 500g  Theobromine CAS RN: 83-67-0	T0179 25g 100g 500g  Theophylline CAS RN: 58-55-9	T0180 25g  Theophyllol CAS RN: 8002-89-9	A2805 25g 100g  Aminophylline CAS RN: 317-34-0	H0402 25g 500g  Etofilline CAS RN: 519-37-9
B3456 1g 5g  8-Bromotheophylline CAS RN: 10381-75-6	C0293 25g 250g  8-Chlorotheophylline CAS RN: 85-18-7	D5696 25mg 100mg  Paraxanthine CAS RN: 611-59-6	C2042 25g 500g  Caffeine CAS RN: 58-08-2	C1103 25g  1-(3-Chloropropyl)- theobromine CAS RN: 74409-52-2
C2748 5g 25g  7-(2-Chloroethyl)theophylline CAS RN: 5878-61-5	D3600 25g 500g  Dyphylline CAS RN: 479-18-5	T2941 25g  Acefylline CAS RN: 652-37-9	H1430 5g 25g  Proxiphylline CAS RN: 603-00-9	D4302 1g 25g  Doxofylline CAS RN: 69975-86-6
P2359 1g 5g  Pamabrom CAS RN: 606-04-2				

Other Alkaloids

		H1700 10mg 100mg  (-)-Huperzine A CAS RN: 102518-79-6	S0358 10mg  Stachydrine Hydrochloride CAS RN: 4136-37-2	M0900 10g  Capsaicin (Synthetic) CAS RN: 2444-46-4
M1149 1g  Capsaicin (Natural) CAS RN: 404-86-4	C2548 200mg  Capsaicin β -D-Glucopyranoside CAS RN: 153409-16-6	C2689 25mg  Cordycepin from <i>Cordyceps militaris</i> CAS RN: 73-03-0	G0293 100mg 1g  Galantamine Hydrobromide CAS RN: 1953-04-4	C0380 500mg 5g  Colchicine (contains 5% Ethyl Acetate at maximum) CAS RN: 64-86-8
O0505 25mg 100mg  Sophocarpine Monohydrate CAS RN: 145572-44-7	T3650 1g 5g  Tetrahydropalmatine CAS RN: 2934-97-6	C3641 25mg 100mg  Cephalotaxine CAS RN: 24316-19-6	J0009 10mg  Jervine CAS RN: 469-59-0	P2609 10mg 50mg  Peiminine CAS RN: 18059-10-4
P2610 5mg 25mg  Peimine CAS RN: 23496-41-5	T3636 100mg  Tomatine from Tomato CAS RN: 17406-45-0			

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