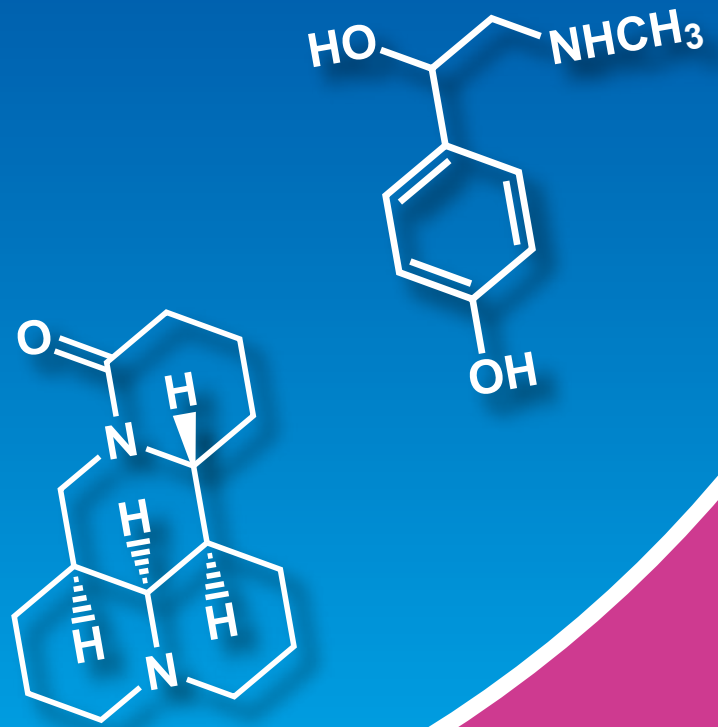
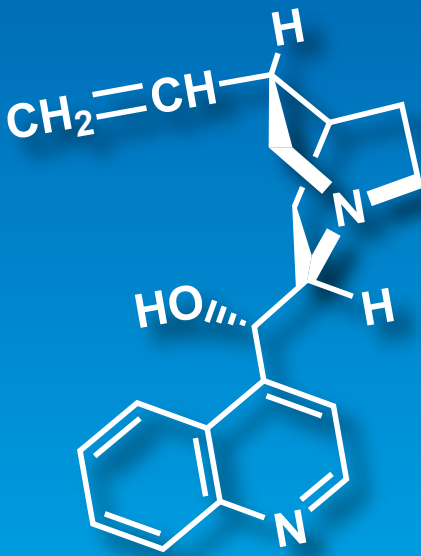


Alkaloids



- 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.

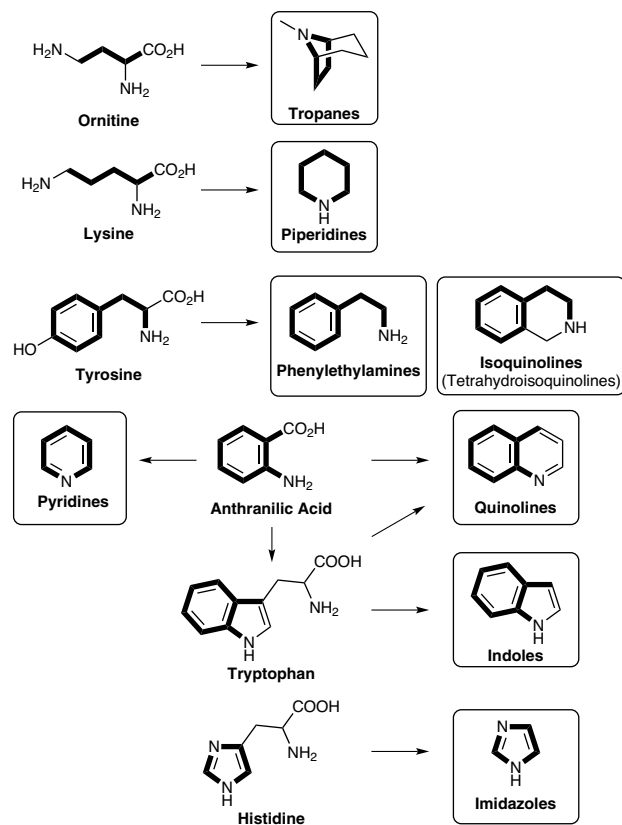


Figure 1. Alkaloid Biosynthesis and Basic Structure

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

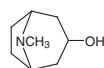
Some of the alkaloids may cause serious physiological actions in very minute amounts. They may cause paralysis, convulsions, and death in the worst case. To avoid inhalation and contacting with skin, wear protective goggles, mask and eyeglasses when handling. Sufficient caution should be taken, when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



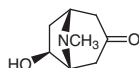
Pseudopelletierine
CAS RN: 552-70-5

N0844 5g 25g



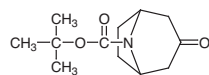
Nortropinone Hydrochloride
CAS RN: 25602-68-0

H1289 1g



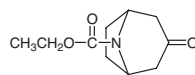
relative
(±)-exo-6-Hydroxytropinone
CAS RN: 5932-53-6

B3401 1g 5g



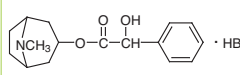
N-Boc-nortropinone
CAS RN: 185099-67-6

E0834 5g 25g



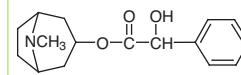
N-(Ethoxycarbonyl)-nortropinone
CAS RN: 32499-64-2

H0155 1g



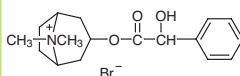
Homatropine Hydrobromide
CAS RN: 51-56-9

H0156 1g 25g



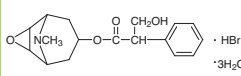
Homatropine Hydrochloride
CAS RN: 637-21-8

H0448 5g 25g



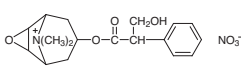
Homatropine Methyl Bromide
CAS RN: 80-49-9

S0021 1g 10g



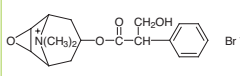
Scopolamine Hydrobromide Trihydrate
CAS RN: 6533-68-2

S0230 1g 5g



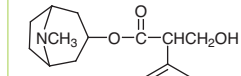
Scopolamine Methyl Nitrate
CAS RN: 6106-46-3

S0231 1g



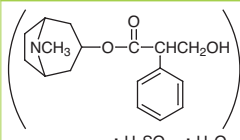
Scopolamine Methyl Bromide
CAS RN: 155-41-9

A0754 5g 25g



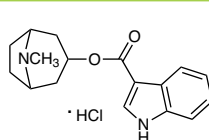
Atropine
CAS RN: 51-55-8

A0550 5g 25g



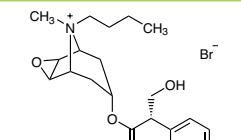
Atropine Sulfate Monohydrate
CAS RN: 5908-99-6

T2743 1g 5g



Tropisetron Hydrochloride
CAS RN: 105826-92-4

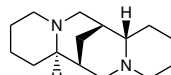
B6485 1g 5g



Buscopan
CAS RN: 149-64-4

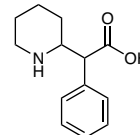
Piperidine Alkaloids

S0884 1g



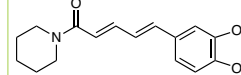
(+)-Sparteine
CAS RN: 492-08-0

R0111 1g 5g



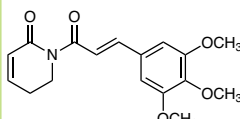
Ritalinic Acid
CAS RN: 19395-41-6

P0460 1g 5g



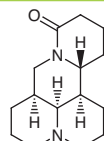
Piperine
CAS RN: 94-62-2

P2361 25mg



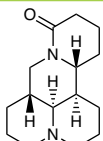
Piperlongumine
CAS RN: 20069-09-4

M2120 200mg 1g



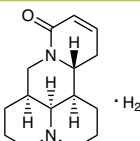
Matrine
CAS RN: 519-02-8

M3093 50mg 250mg



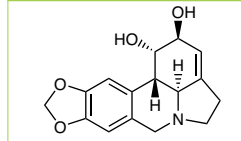
Sophoridine
CAS RN: 6882-68-4

O0505 25mg 100mg



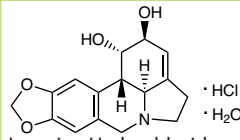
Sophocarpine Monohydrate
CAS RN: 145572-44-7

L0445 250mg



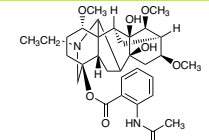
Lycorine
CAS RN: 476-28-8

L0319 25mg 100mg



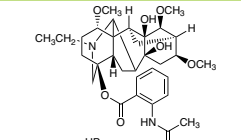
Lycorine Hydrochloride Monohydrate
CAS RN: 6150-58-9

L0442 250mg



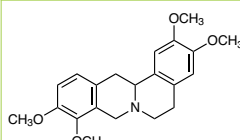
Lappaconitine
CAS RN: 32854-75-4

L0272 200mg 1g



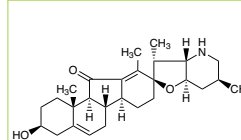
Lappaconitine Hydrobromide
CAS RN: 97792-45-5

T3650 1g 5g



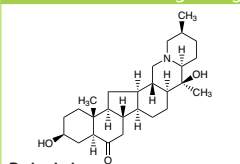
Tetrahydropalmatine
CAS RN: 2934-97-6

J0009 10mg



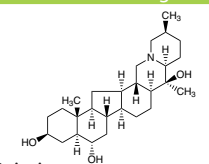
Jervine
CAS RN: 469-59-0

P2609 10mg 50mg



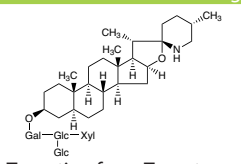
Peiminine
CAS RN: 18059-10-4

P2610 5mg 25mg



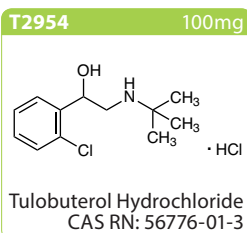
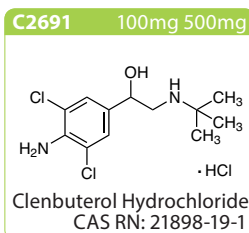
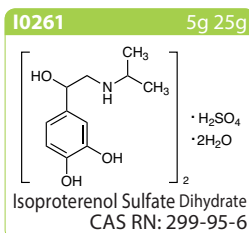
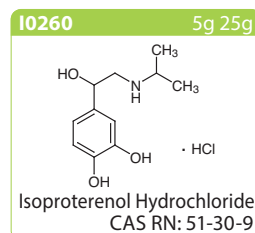
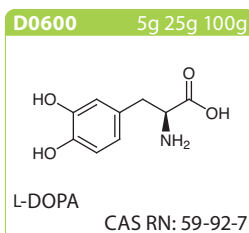
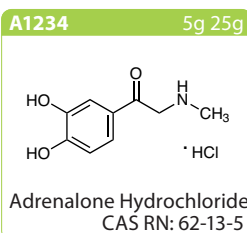
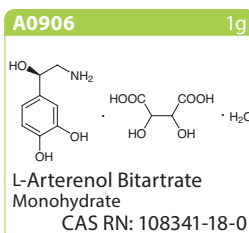
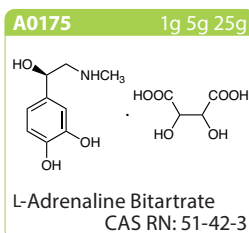
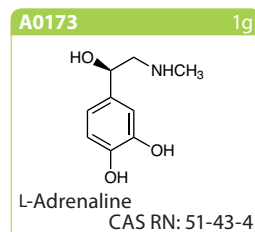
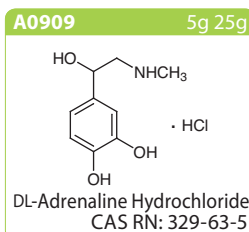
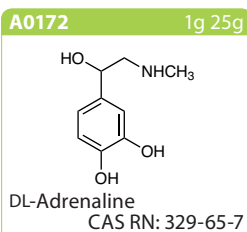
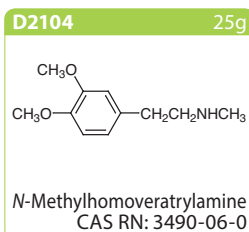
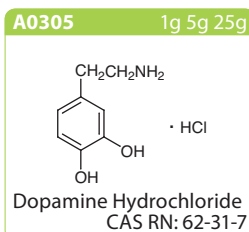
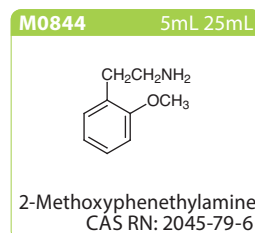
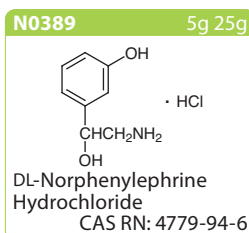
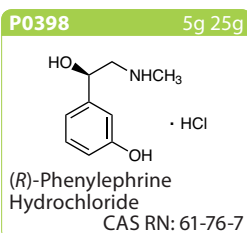
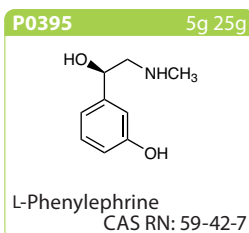
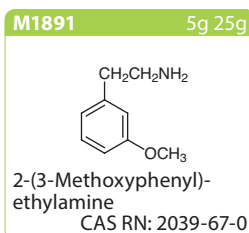
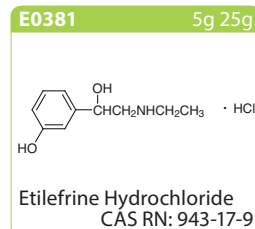
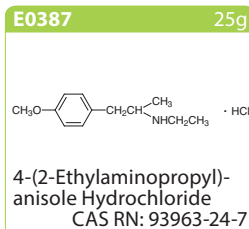
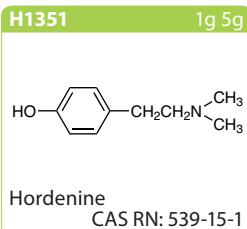
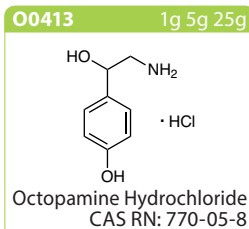
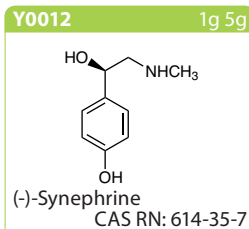
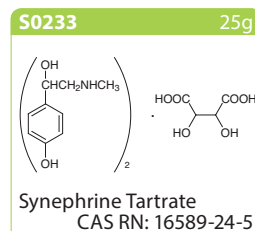
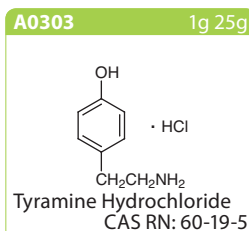
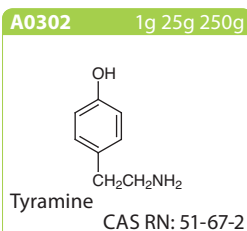
Peimine
CAS RN: 23496-41-5

T3636 100mg

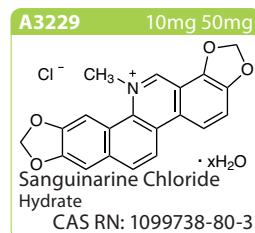
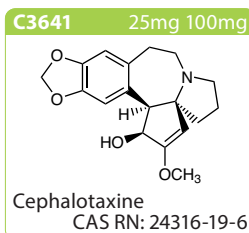
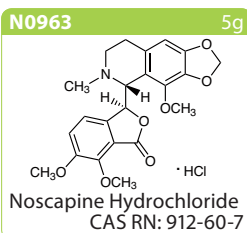
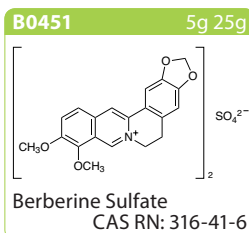
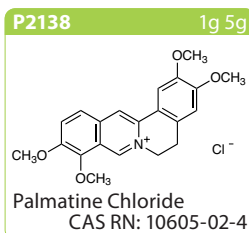
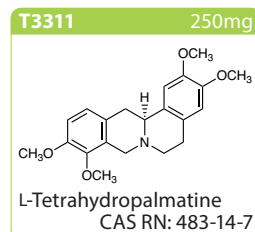
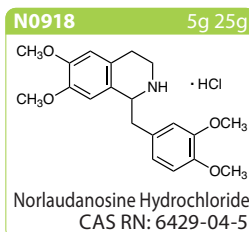
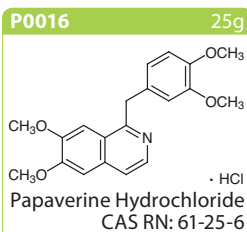


Tomatine from Tomato
CAS RN: 17406-45-0

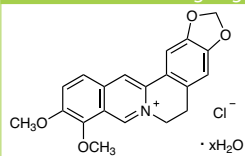
Phenylethylamine Alkaloids



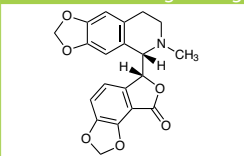
Isoquinoline Alkaloids



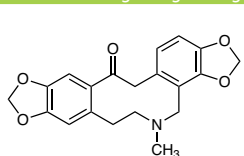
B0450 5g 25g



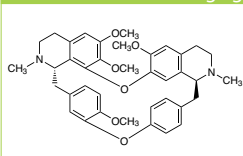
B1890 25mg 100mg



P2611 5mg 25mg 100mg

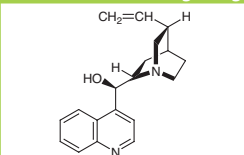


T3321 200mg 1g

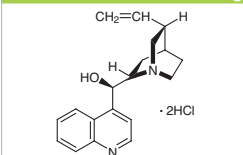


Quinoline Alkaloids

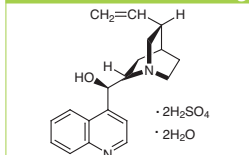
C0347 25g 100g



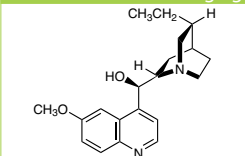
C0348 25g



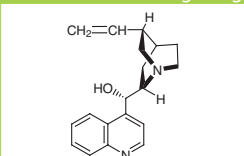
C0349 25g



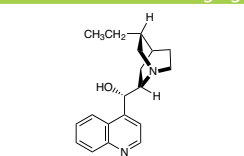
D6112 1g 5g



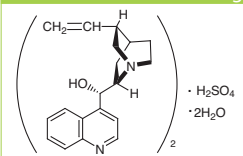
C0350 25g 200g



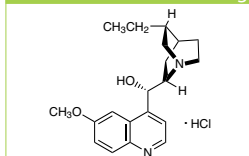
H1701 1g 5g



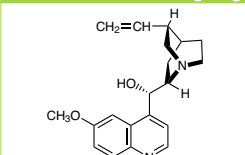
C0791 25g



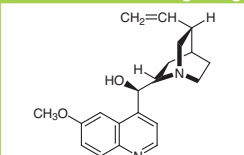
H0752 25g



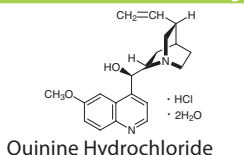
Q0006 5g 25g



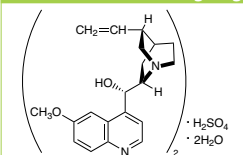
Q0028 25g 100g



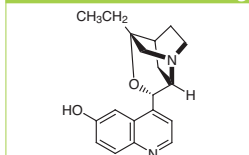
Q0030 25g



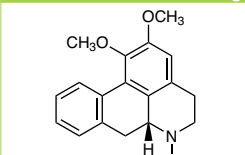
Q0010 5g 25g



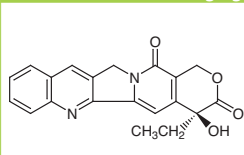
I0728 1g



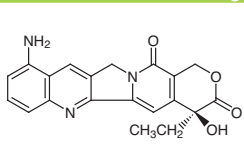
N1170 250mg



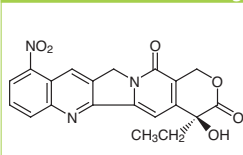
C1495 100mg 1g



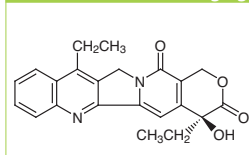
A2063 10mg



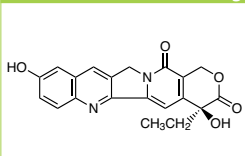
N0822 100mg



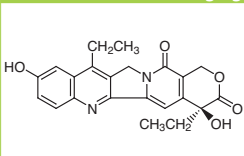
E0781 100mg 1g



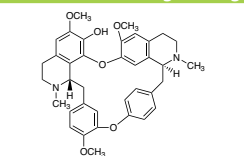
H1463 1g



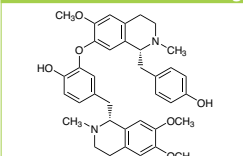
E0748 100mg 1g



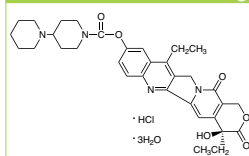
F1173 20mg 100mg



L0432 10mg

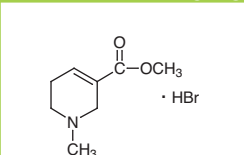


I0714 100mg

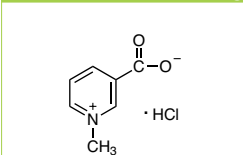


Pyridine Alkaloids

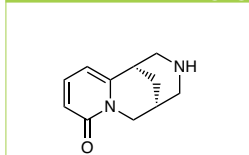
A0523 5g 25g



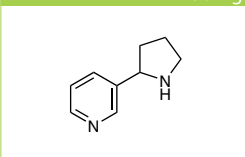
T1429 5g



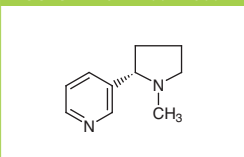
C2609 100mg 1g



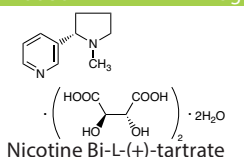
N1222 250mg



N0079 25mL 100mL 500mL

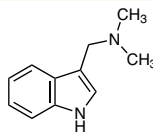


N0080 25g

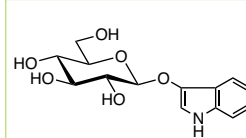


Indole Alkaloids

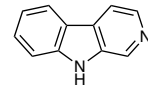
D0653 25g 250g

Gramine
CAS RN: 87-52-5

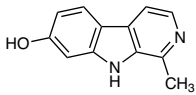
I1012 200mg

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

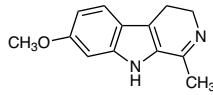
P1121 100mg

9H-Pyrido[3,4-b]indole
CAS RN: 244-63-3

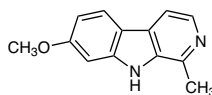
H1360 200mg 1g

Harmol
CAS RN: 487-03-6

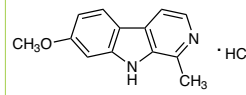
H1237 1g 5g

Harmaline
CAS RN: 304-21-2

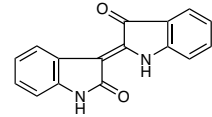
H0001 1g

Harmine
CAS RN: 442-51-3

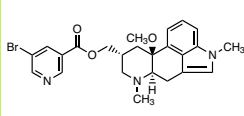
H0002 100mg 1g

Harmine Hydrochloride
CAS RN: 343-27-1

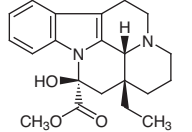
I0868 25mg

Indirubin
CAS RN: 479-41-4

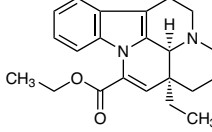
N0904 100mg 1g

Nicergoline
CAS RN: 27848-84-6

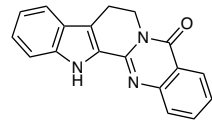
V0061 1g 5g

Vincamine
CAS RN: 1617-90-9

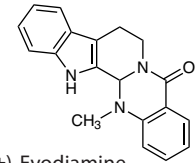
V0115 100mg 1g

Vinpocetine
CAS RN: 42971-09-5

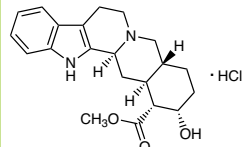
R0102 200mg

Rutaecarpine
CAS RN: 84-26-4

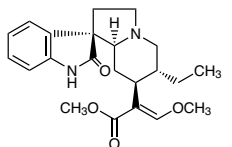
E1012 1g

(±)-Evodiamine
CAS RN: 518-18-3

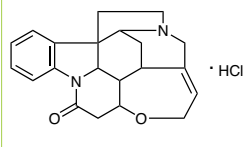
Y0002 5g 25g

Yohimbine Hydrochloride
CAS RN: 65-19-0

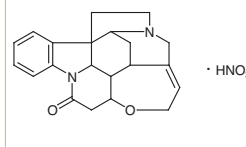
R0105 25mg

Rhynchophylline
CAS RN: 76-66-4

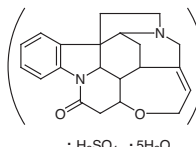
S0257 25g

Strychnine Hydrochloride
CAS RN: 1421-86-9

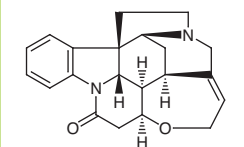
S0093 25g

Strychnine Nitrate
CAS RN: 66-32-0

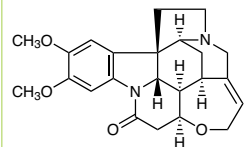
S0094 25g

Strychnine Sulfate Pentahydrate
CAS RN: 60491-10-3

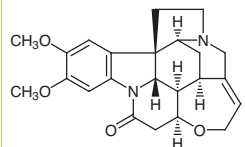
S0249 25g

Strychnine
CAS RN: 57-24-9

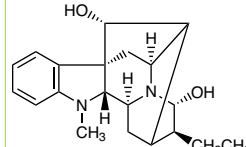
B0670 25g

Brucine Hydrate
CAS RN: 57-24-9

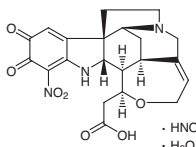
B0946 25g

Brucine Anhydrous
CAS RN: 357-57-3

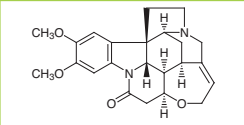
A3236 1g

Ajmaline
CAS RN: 4360-12-7

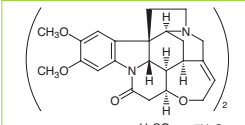
C0001 1g 5g

Cathoeline Monohydrate
CAS RN: 561-20-6

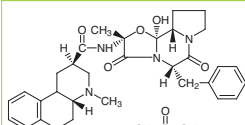
B0671 5g

Brucine Hydrochloride Monohydrate
CAS RN: 5786-96-9

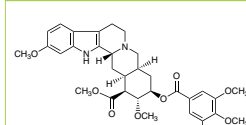
B0672 25g

Brucine Sulfate Heptahydrate
[for Nitrate Analysis]
CAS RN: 60583-39-3

D2633 100mg 1g

Dihydroergotamine Mesylate
CAS RN: 6190-39-2

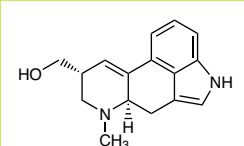
R0007 1g 5g

Reserpine
CAS RN: 50-55-5

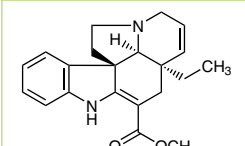
B0397 25g 100g

Betanin (Red Beet extract diluted with Dextrin)
CAS RN: 7659-95-2

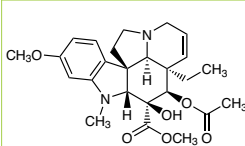
L0413 5g

Lysergol
CAS RN: 602-85-7

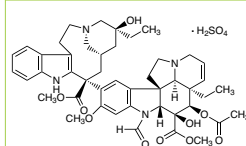
T3500 250mg

Tabersonine
CAS RN: 4429-63-4

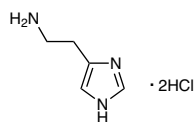
V0193 100mg

Vindoline
CAS RN: 2182-14-1

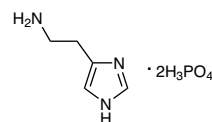
V0129 25mg 100mg

Vincristine Sulfate
CAS RN: 2068-78-2

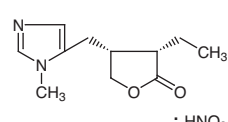
H0146 1g 5g 25g

Histamine Dihydrochloride
CAS RN: 56-92-8

H0147 1g 5g 25g

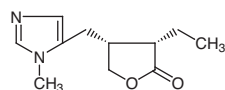
Histamine Diphosphate
CAS RN: 51-74-1

P0399 5g

Pilocarpine Nitrate
CAS RN: 148-72-1

Imidazole Alkaloids

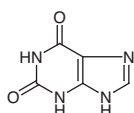
P0434 1g 5g



· HCl
Pilocarpine Hydrochloride
CAS RN: 54-71-7

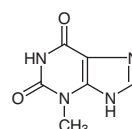
Purine Alkaloids

X0004 25g



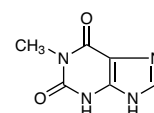
Xanthine
CAS RN: 69-89-6

M2073 5g 25g



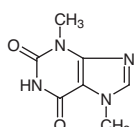
3-Methylxanthine
CAS RN: 1076-22-8

M2432 50mg 200mg



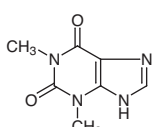
1-Methylxanthine
CAS RN: 6136-37-4

T0178 25g 100g 500g



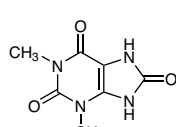
Theobromine
CAS RN: 83-67-0

T0179 25g 100g 500g



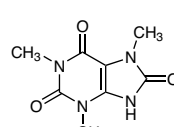
Theophylline
CAS RN: 58-55-9

D6169 250mg



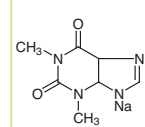
1,3-Dimethyluric Acid
CAS RN: 944-73-0

T3646 100mg



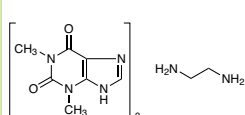
1,3,7-Trimethyluric Acid
CAS RN: 5415-44-1

T0180 25g



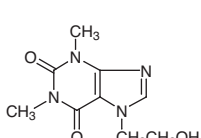
Theophyllol
CAS RN: 8002-89-9

A2805 25g 100g



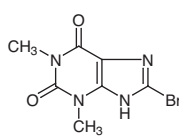
Aminophylline
CAS RN: 317-34-0

H0402 25g 500g



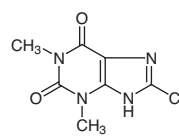
Etofilline
CAS RN: 519-37-9

B3456 1g 5g



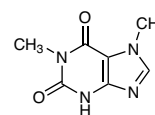
8-Bromotheophylline
CAS RN: 10381-75-6

C0293 25g 250g



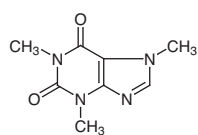
8-Chlorotheophylline
CAS RN: 85-18-7

D5696 25mg 100mg



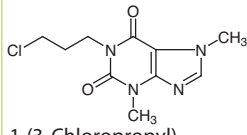
Paraxanthine
CAS RN: 611-59-6

C2042 25g 500g



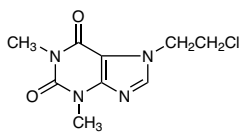
Caffeine
CAS RN: 58-08-2

C1103 25g



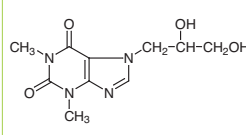
1-(3-Chloropropyl)-
theobromine
CAS RN: 74409-52-2

C2748 5g 25g



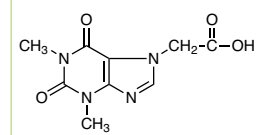
7-(2-Chloroethyl)theophylline
CAS RN: 5878-61-5

D3600 25g



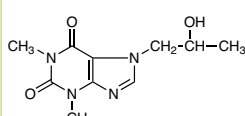
Dyphylline
CAS RN: 479-18-5

T2941 25g



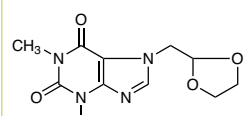
Acefylline
CAS RN: 652-37-9

H1430 5g 25g



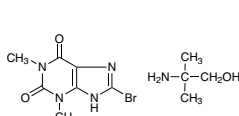
Proxiphylline
CAS RN: 603-00-9

D4302 1g 25g



Doxofylline
CAS RN: 69975-86-6

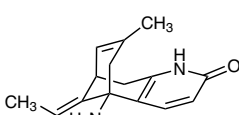
P2359 1g 5g



Pamabrom
CAS RN: 606-04-2

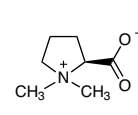
Other Alkaloids

H1700 10mg 100mg



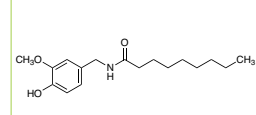
(-)-Huperzine A
CAS RN: 102518-79-6

S0358 10mg



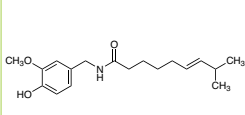
Stachydrine Hydrochloride
CAS RN: 4136-37-2

M0900 10g



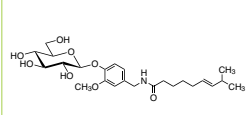
Capsaicin (Synthetic)
CAS RN: 2444-46-4

M1149 1g



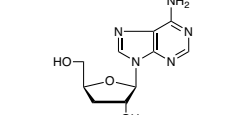
Capsaicin (Natural)
CAS RN: 404-86-4

C2548 200mg



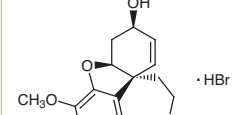
Capsaicin beta-D-Glucopyranoside
CAS RN: 153409-16-6

C2689 25mg



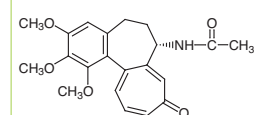
Cordycepin
from *Cordyceps militaris*
CAS RN: 73-03-0

G0293 100mg 1g



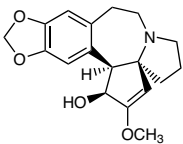
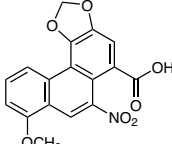
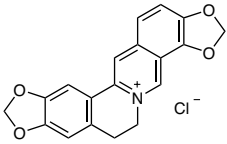
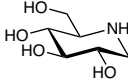
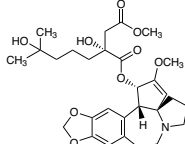
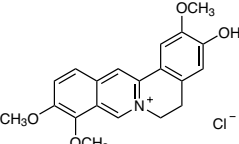
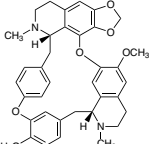
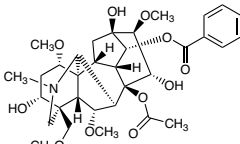
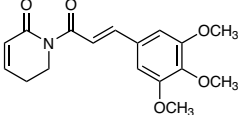
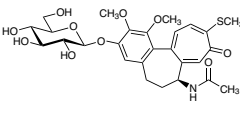
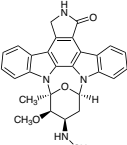
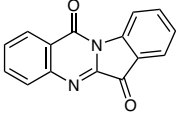
Galantamine Hydrobromide
CAS RN: 1953-04-4

C0380 500mg 5g



Colchicine
CAS RN: 64-86-8

Alkaloids

<p>C3641 25mg 100mg</p>  <p>Cephalotaxine CAS RN: 24316-19-6</p>	<p>A3599 100mg</p>  <p>Aristolochic Acid CAS RN: 313-67-7</p>	<p>C3719 25mg</p>  <p>Coptisine Chloride CAS RN: 6020-18-4</p>	<p>D5612 50mg 250mg</p>  <p>1-Deoxynojirimycin CAS RN: 19130-96-2</p>	<p>H1775 10mg 50mg</p>  <p>Homoharringtonine CAS RN: 26833-87-4</p>
<p>J0037 50mg</p>  <p>Jatrorrhizine Chloride CAS RN: 6681-15-8</p>	<p>M2968 250mg 1g</p>  <p>Cepharanthine CAS RN: 481-49-2</p>	<p>M3404 20mg</p>  <p>Mesaconitine CAS RN: 2752-64-9</p>	<p>P2361 25mg</p>  <p>Piperlongumine CAS RN: 20069-09-4</p>	<p>T2919 20mg</p>  <p>Thiocolchicoside CAS RN: 602-41-5</p>
<p>T4000 10mg</p>  <p>Staurosporine CAS RN: 62996-74-1</p>	<p>T4129 250mg 1g</p>  <p>Tryptanthrin CAS RN: 13220-57-0</p>			

Ordering and Customer Service

TCI AMERICA

Tel : 800-423-8616 / 503-283-1681
Fax : 888-520-1075 / 503-283-1987
E-mail : Sales-US@TCIchemicals.com

TCI EUROPE N.V.

Tel : +32 (0)3 735 07 00
Fax : +32 (0)3 735 07 01
E-mail : Sales-EU@TCIchemicals.com

TCI Deutschland GmbH

Tel : +49 (0)6196 64053-00
Fax : +49 (0)6196 64053-01
E-mail : Sales-DE@TCIchemicals.com

Tokyo Chemical Industry UK Ltd.

Tel : +44 (0)1865 78 45 60
E-mail : Sales-UK@TCIchemicals.com

梯希爱(上海)化成工业发展有限公司

Tel : 800-988-0390 / 021-67121386
Fax : 021-6712-1385
E-mail : Sales-CN@TCIchemicals.com

Tokyo Chemical Industry (India) Pvt. Ltd.

Tel : 1800 425 7889 / 044-2262 0909
E-mail : Sales-IN@TCIchemicals.com

TOKYO CHEMICAL INDUSTRY CO., LTD.

Tel : +81 (0)3-5640-8878
E-mail : globalbusiness@TCIchemicals.com

• Chemicals itemized in this brochure are for research and testing use only. Please avoid use other than by chemically knowledgeable professionals. • Information such as listed products and its specifications and so on are subject to change without prior notice. • The contents may not be reproduced or duplicated in whole or in part without permission of Tokyo Chemical Industry Co., Ltd.