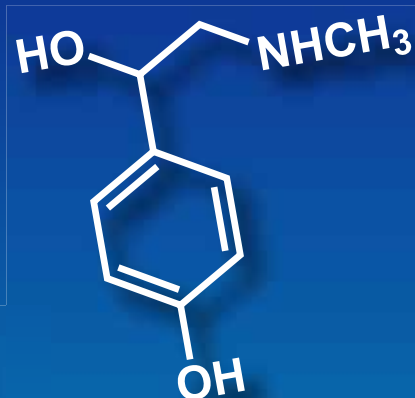
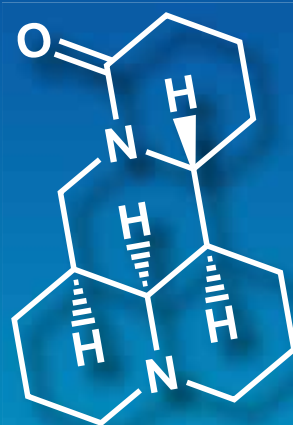
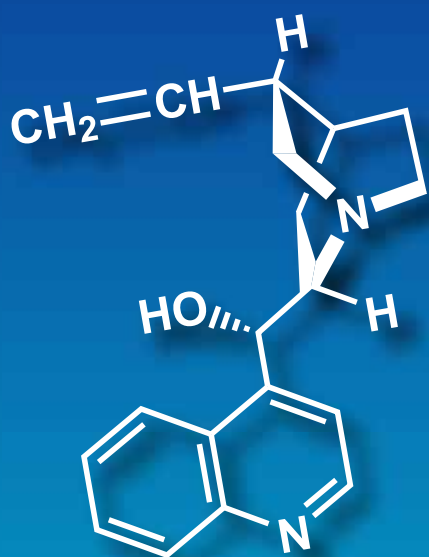


生物碱

Alkaloids



托烷生物碱

哌啶生物碱

苯乙胺生物碱

异喹啉生物碱

喹啉生物碱

吡啶生物碱

吡啶生物碱

咪唑生物碱

嘌呤生物碱

其它生物碱

生物碱

生物碱是含氮的小分子，主要存在于植物中。迄今为止，已经报道了约27,000种生物碱，其中21,000种来自植物。

由于大多数生物碱都具有很强的生物活性，因此它们是一些草药的主要成分。一些生物碱也用作药物。由于氮原子带正电荷，生物碱与蛋白质发生静电相互作用，从而有利于与蛋白质的负电荷结合。尤其是药物生物碱倾向于与神经系统中的受体结合。

● 生物合成

生物碱的合成途径因氮源而异。如图1所示，生物碱是由多种氨基酸生物合成得到。其它复杂生物碱也可以通过将另一生物碱附着到原始骨架上进行生物合成。

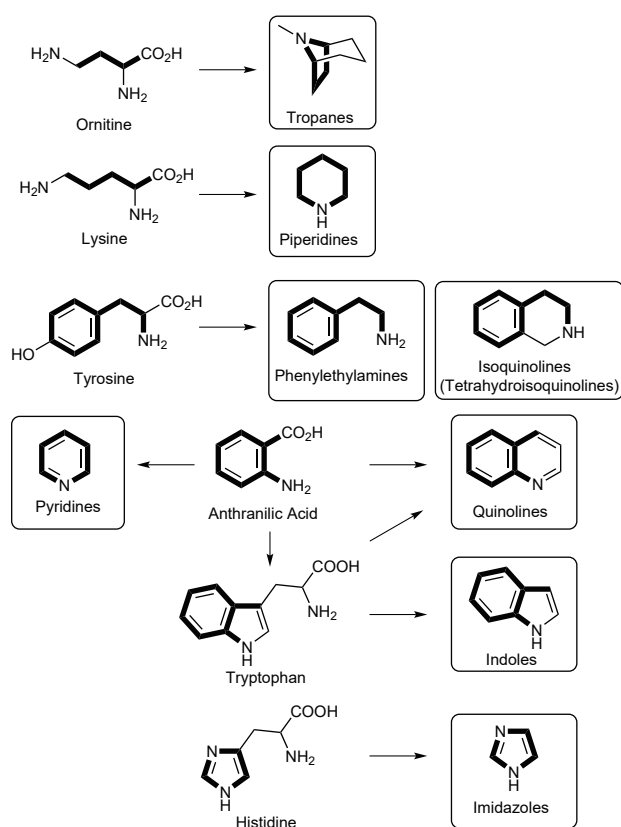


Figure 1. Alkaloid Biosynthesis and Basic Structure

● 结构分类

在IUPAC命名法附录中，显示了67种生物碱母体结构。根据它们的生物合成来源根据基本骨架进行分类，如图1所示。这部分将生物碱分为九种：如上图所示的八种，还有嘌呤生物碱为第九种。

● 储存注意事项

生物碱在室温下相对稳定，但是由于它们与空气中的二氧化碳反应呈碱性从而倾向于形成碳酸盐。另外，它们通常通过与氧气反应而着色。因此，打开的瓶子应存放在冰箱中或用惰性气体（例如氮气或氩气）冷冻。

● 溶解性

通常生物碱溶于酸性水中。它们的盐溶解在中性水中。它们通常不溶于游离形式的中性水，但溶于极性有机溶剂，如氯仿，甲醇或DMSO。

● 分析

HPLC: 在反相模式下使用ODS色谱柱，通过向流动相中添加乙酸或三氟乙酸可抑制峰拖尾。通过同时使用离子交换和反相模式的混合模式色谱柱TCL-Dual可以实现有效的分析。检测通常由紫外线检测器进行。

TLC: 在正相硅胶TLC分析中，氯仿-甲醇-氨水的溶剂体系具有较好的分离效果。NH₂-型硅胶也是有效的。德雷根道尔夫试剂是生物碱的选择性显色试剂。叔胺和季铵盐会产生橙色斑点。

● 警告

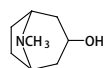
一些生物碱可能会在很短的时间内引起严重的生理作用。在最坏的情况下，它们可能导致麻痹，抽搐和死亡。为避免吸入和与皮肤接触，操作时应佩戴防护眼镜，口罩和眼镜。使用这些化合物时，从打开试剂到处理试剂时应充分注意。

参考文献

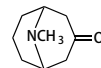
P. M. Dewick, in *Medicinal Natural Products*, 3rd ed., John Wiley & Sons, Chichester, 2009, p. 311.

托烷生物碱 Tropane Alkaloids

T0534 5g 25g

Tropine
CAS RN: 120-29-6

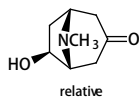
P2648 1g 5g

Pseudopelletierine
CAS RN: 552-70-5

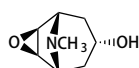
N0844 5g 25g

Nortropinone Hydrochloride
CAS RN: 25602-68-0

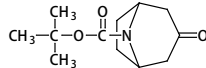
H1289 1g

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

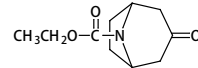
S0912 200mg

Scopine
CAS RN: 498-45-3

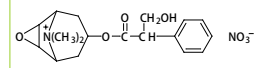
B3401 1g 5g

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

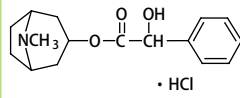
E0834 5g 25g

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

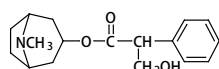
S0230 1g 5g

Scopolamine Methyl Nitrate
CAS RN: 6106-46-3

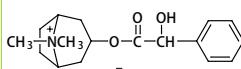
H0156 1g 25g

Homatropine Hydrochloride
CAS RN: 637-21-8

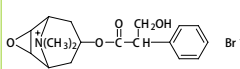
H0450 5g

(-)-Hyoscyamine
CAS RN: 101-31-5

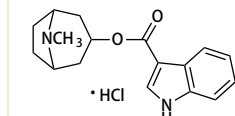
H0448 5g 25g

Homatropine Methyl Bromide
CAS RN: 80-49-9

S0231 1g

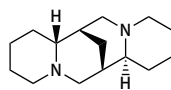
Scopolamine Methyl Bromide
CAS RN: 155-41-9

T2743 1g 5g

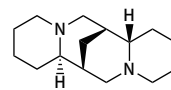
Tropisetron Hydrochloride
CAS RN: 105826-92-4

哌啶生物碱 Piperidine Alkaloids

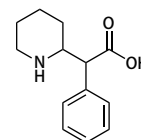
S0461 1g 5g 10g

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

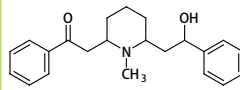
S0884 1g

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

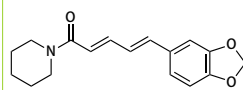
R0111 1g 5g

Ritalinic Acid
CAS RN: 19395-41-6

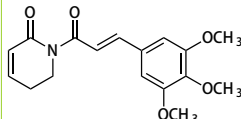
L0096 1g

Lobeline Hydrochloride
CAS RN: 134-63-4

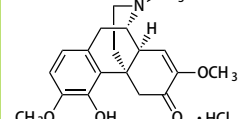
P0460 1g 5g

Piperine
CAS RN: 94-62-2

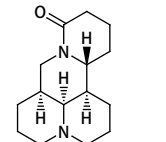
P2361 25mg 100mg

Piperlongumine
CAS RN: 20069-09-4

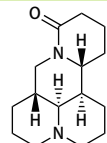
S0926 1g 5g

Sinomenine Hydrochloride
CAS RN: 6080-33-7

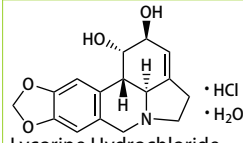
M2120 200mg 1g

Matrine
CAS RN: 519-02-8

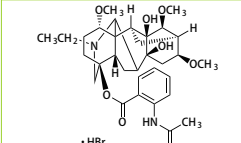
M3093 50mg 250mg

Sophoridine
CAS RN: 6882-68-4

L0319 25mg 100mg

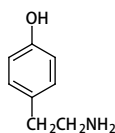
Lycorine Hydrochloride
Monohydrate
CAS RN: 6150-58-9

L0272 200mg 1g

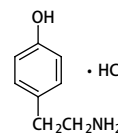
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CAS RN: 97792-45-5

苯乙胺生物碱 Phenylethylamine Alkaloids

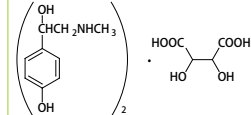
A0302 1g 25g 250g

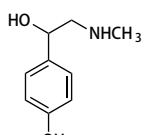
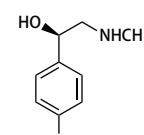
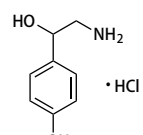
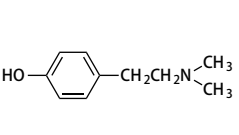
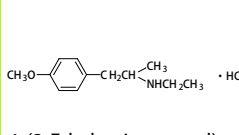
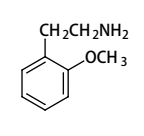
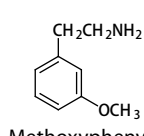
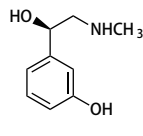
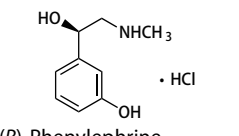
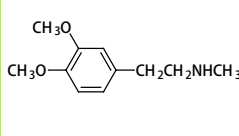
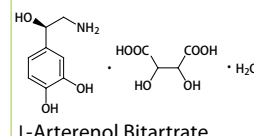
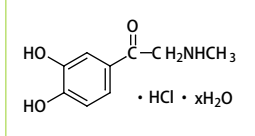
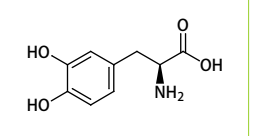
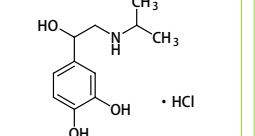
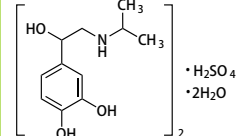
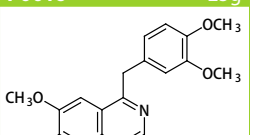
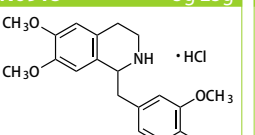
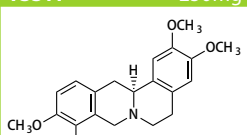
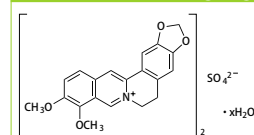
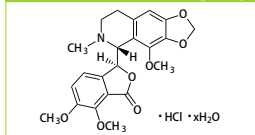
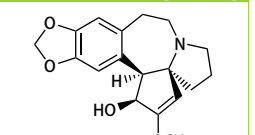
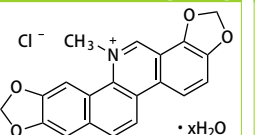
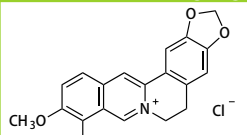
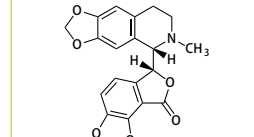
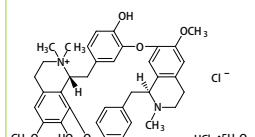
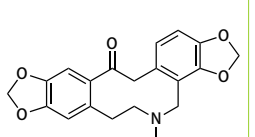
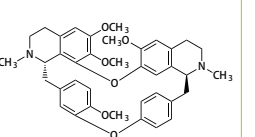
Tyramine
CAS RN: 51-67-2

A0303 1g 25g

Tyramine Hydrochloride
CAS RN: 60-19-5

S0233 25g

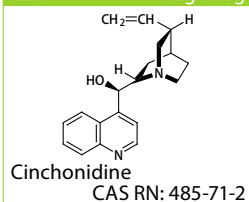
Synephrine Tartrate
CAS RN: 16589-24-5

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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>M0844 5mL 25mL</p>  <p>2-Methoxyphenethylamine CAS RN: 2045-79-6</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>D2104 25g</p>  <p>N-Methylhomoveratrylamine CAS RN: 3490-06-0</p> | | |
| <p>A0906 1g</p>  <p>L-Arterenal 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>异喹啉生物碱 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> | | | |

喹啉生物碱

Quinoline Alkaloids

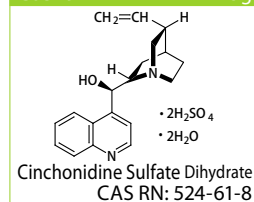
C0347 25g 100g



C0348 25g



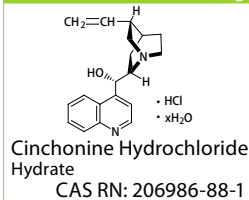
C0349 25g



C0350 25g 200g



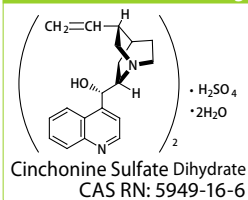
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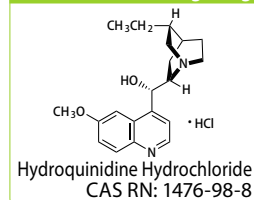
H1701 1g 5g



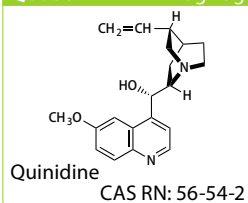
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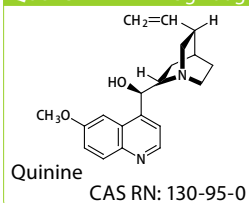
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Q0006 5g 25g



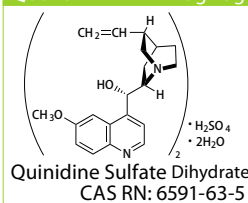
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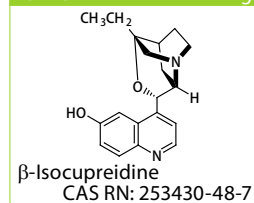
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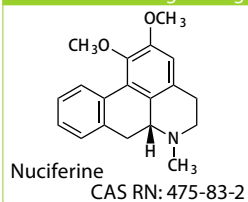
Q0010 5g 25g



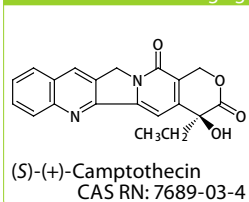
I0728 1g



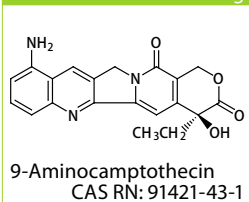
N1170 50mg 250mg



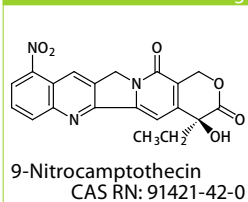
C1495 100mg 1g



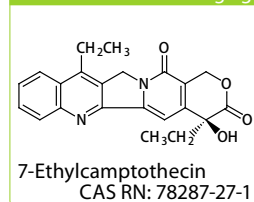
A2063 10mg



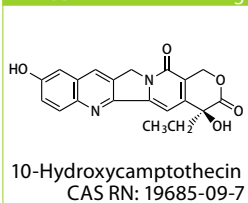
N0822 100mg



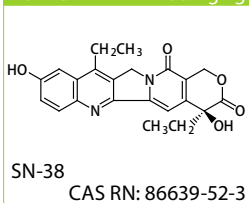
E0781 100mg 1g



H1463 1g



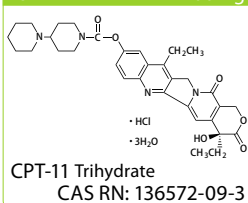
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F1173 20mg 100mg



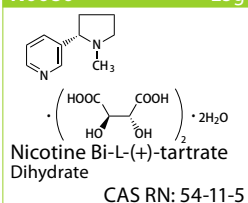
I0714 100mg



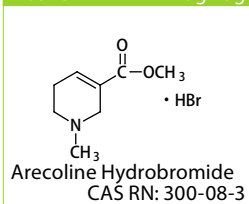
吡啶生物碱

Pyridine Alkaloids

N0080 25g



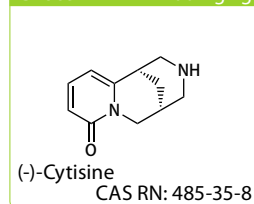
A0523 5g 25g



T1429 5g



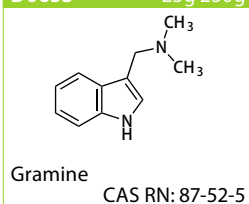
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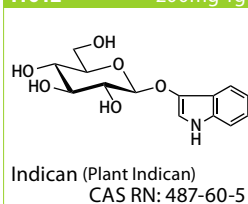
吲哚生物碱

Indole Alkaloids

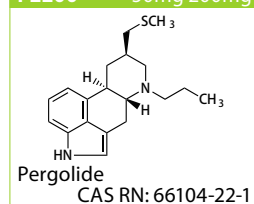
D0653 25g 250g

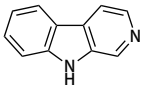
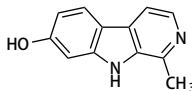
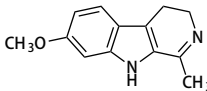
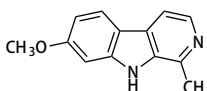
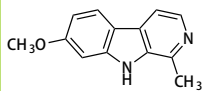
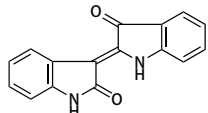
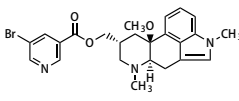
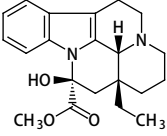
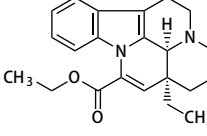
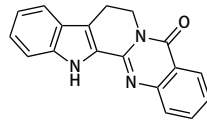
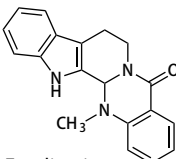
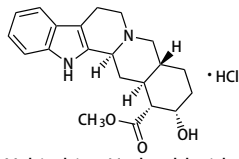
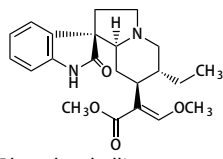
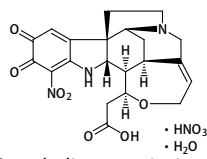
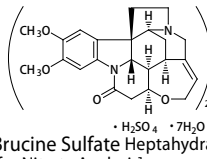
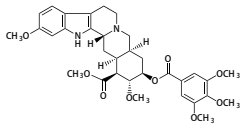
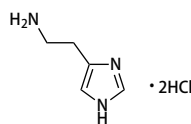
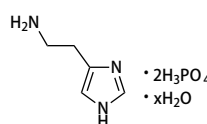
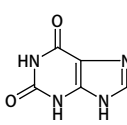
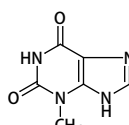
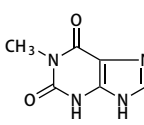


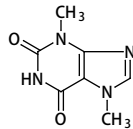
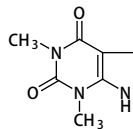
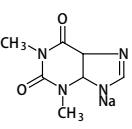
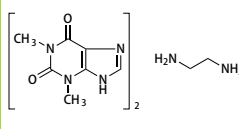
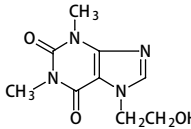
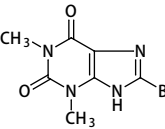
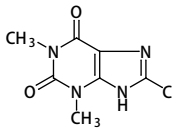
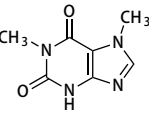
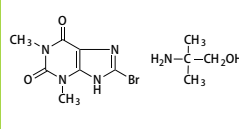
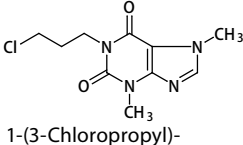
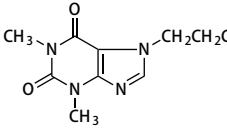
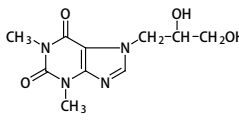
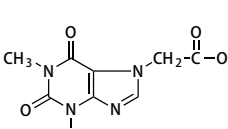
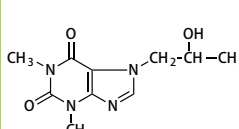
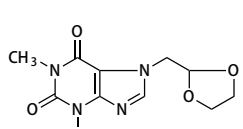
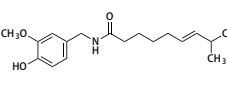
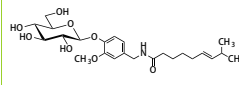
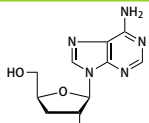
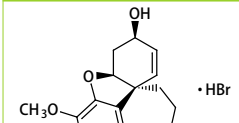
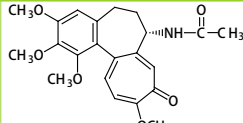
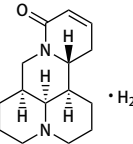
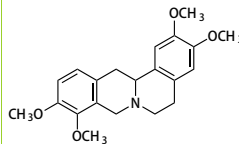
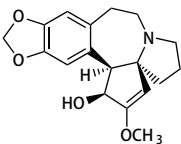
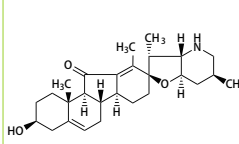
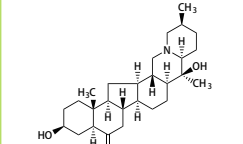
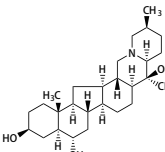
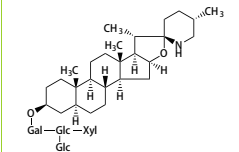
I1012 200mg 1g



P2200 50mg 200mg



| | | | | |
|--|---|--|--|---|
| <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>C0001 1g 5g</p>  <p>Cacotheline Monohydrate CAS RN: 561-20-6</p> | <p>B0672 25g</p>  <p>Brucine Sulfate Heptahydrate [for Nitrate Analysis] CAS RN: 60583-39-3</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> | | | |
| <p>咪唑生物碱 Imidazole Alkaloids</p> | | | | |
| | | | | |
| | | | | |
| <p>嘌呤生物碱 Purine Alkaloids</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>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 | P2359 1g 5g  Pamabrom CAS RN: 606-04-2 | 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 |
| 其它生物碱 Other Alkaloids | | | | |
| 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  Peimine CAS RN: 18059-10-4 |
| P2610 5mg 25mg  Peimine CAS RN: 23496-41-5 | T3636 100mg  Tomatine from Tomato CAS RN: 17406-45-0 | | | |



梯希爱(上海)化成工业发展有限公司

试剂热线：800-988-0390或021-67121386

大包装热线：800-988-1865

传真：021-67121385

邮箱：Sales-CN@TCIchemicals.com

地址：上海化学工业区普工路96号

邮编：201507

www.TCIchemicals.com