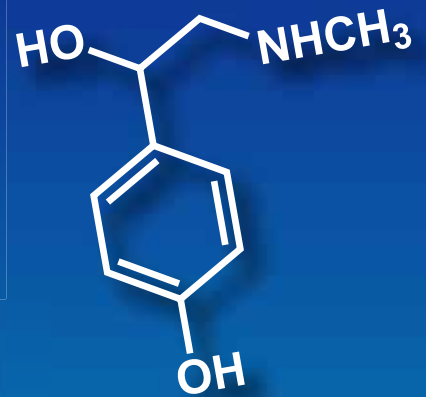
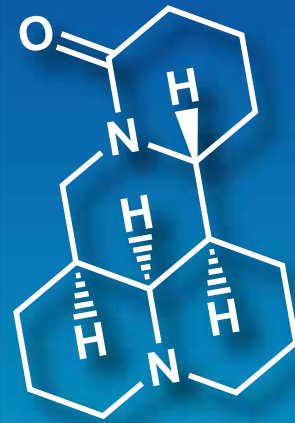
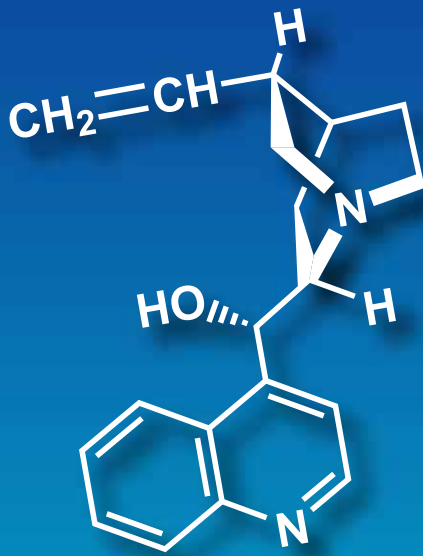


生物碱

Alkaloids



托品烷生物碱

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，因此它们在许多草药的主要成分。由于氮原子的正电荷促进了与蛋白质的负电荷的结合，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。

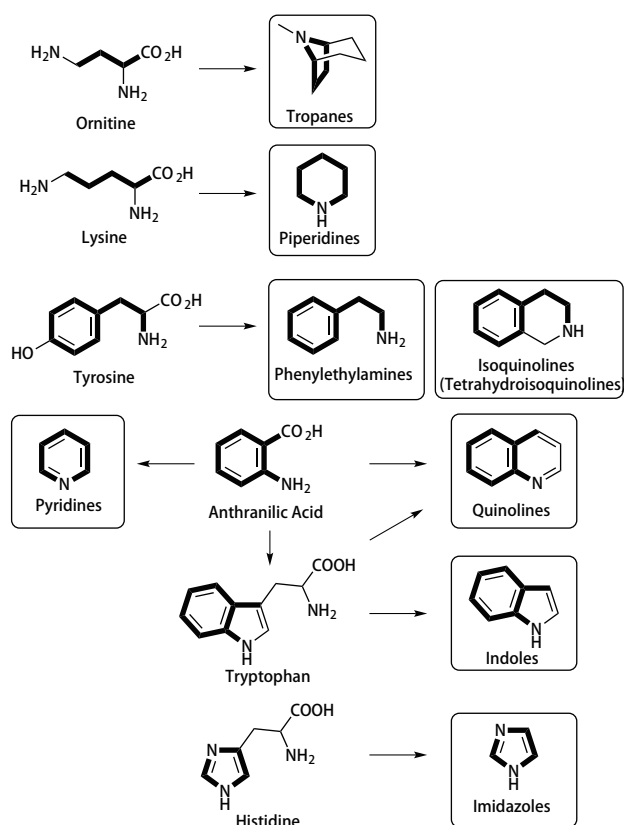


图1.生物碱的生物合成和基本结构

● 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，可分类为如图1所示的基本骨架。本文将生物碱分为九种：上图所示八种，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，但是由于它们呈碱性，易与空气中的二氧化碳反应形成碳酸盐。另外，与氧气反应也容易着色。因此，开封后应填充惰性气体如氮气或氩气，并冷藏或冷冻保存。

● 溶解度

通常，生物碱溶于酸性水，形成盐后溶于中性水。游离碱通常不溶于中性水，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，操作时应穿戴防护服，面罩和防护眼镜等。使用这些化合物时，从打开试剂到处理试剂时应充分注意。

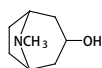
参考文献

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

托品烷生物碱

Tropane Alkaloids

T0534 5g 25g

Tropine
CAS RN: 120-29-6

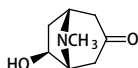
P2648 1g 5g

Pseudopelletierine
CAS RN: 552-70-5

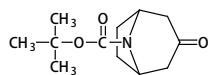
N0844 5g 25g

Nortropinone Hydrochloride
CAS RN: 25602-68-0

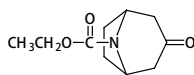
H1289 1g

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

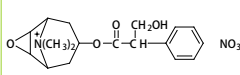
B3401 1g 5g

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

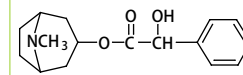
E0834 5g 25g

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

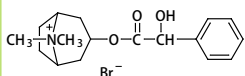
S0230 1g 5g

Scopolamine Methyl Nitrate
CAS RN: 6106-46-3

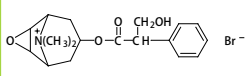
H0156 1g 25g

Homatropine Hydrochloride
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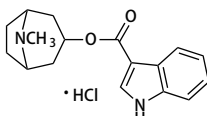
H0448 5g 25g

Homatropine Methyl Bromide
CAS RN: 80-49-9

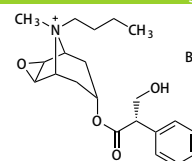
S0231 1g

Scopolamine Methyl Bromide
CAS RN: 155-41-9

T2743 1g 5g

Tropisetron Hydrochloride
CAS RN: 105826-92-4

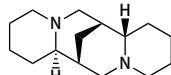
B6485 1g 5g

Buscopan
CAS RN: 149-64-4

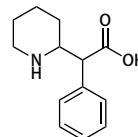
哌啶生物碱

Piperidine Alkaloids

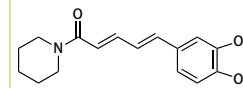
S0884 1g

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

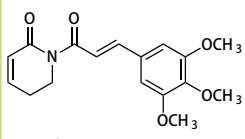
R0111 1g 5g

Ritalinic Acid
CAS RN: 19395-41-6

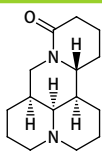
P0460 1g 5g

Piperine
CAS RN: 94-62-2

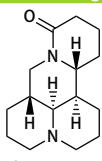
P2361 25mg

Piperlongumine
CAS RN: 20069-09-4

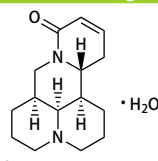
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Matrine
CAS RN: 519-02-8

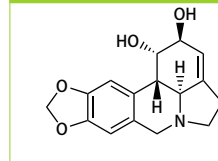
M3093 50mg 250mg

Sophoridine
CAS RN: 6882-68-4

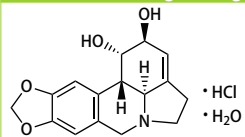
O0505 25mg 100mg

Sophocarpine Monohydrate
CAS RN: 145572-44-7

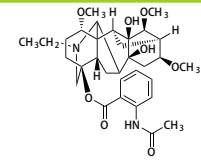
L0445 250mg

Lycorine
CAS RN: 476-28-8

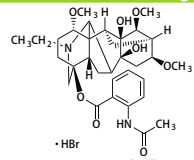
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Lycorine Hydrochloride Monohydrate
CAS RN: 6150-58-9

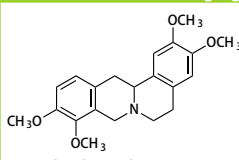
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Lappaconitine
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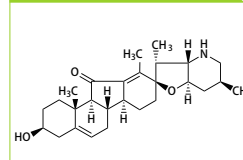
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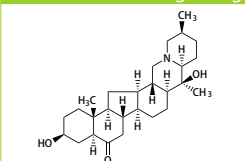
T3650 1g 5g

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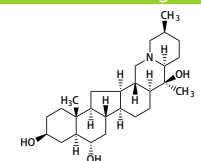
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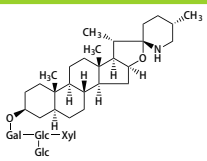
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Peiminine
CAS RN: 18059-10-4

P2610 5mg 25mg

Peimine
CAS RN: 23496-41-5

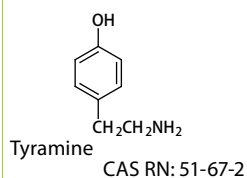
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Tomatine from Tomato
CAS RN: 17406-45-0

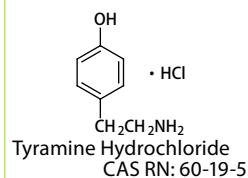
苯乙胺生物碱

Phenylethylamine Alkaloids

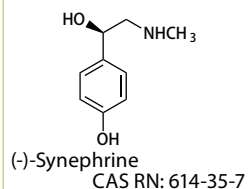
A0302 1g 25g 250g



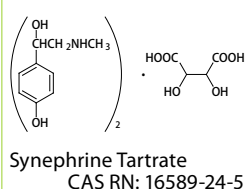
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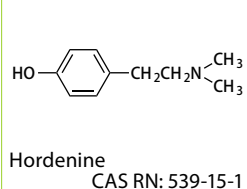
Y0012 1g 5g



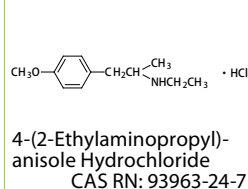
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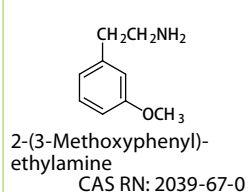
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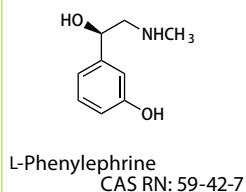
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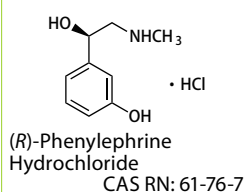
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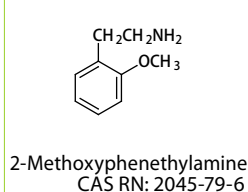
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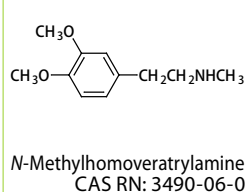
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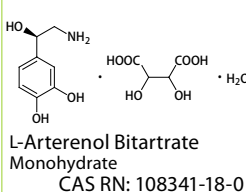
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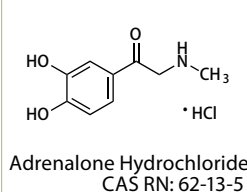
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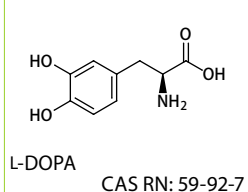
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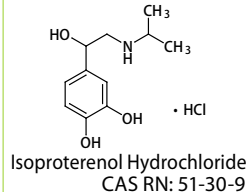
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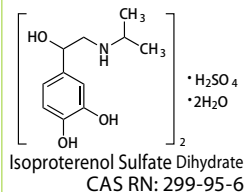
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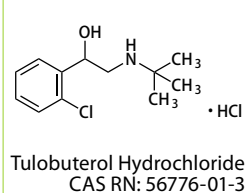
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I0261 5g 25g



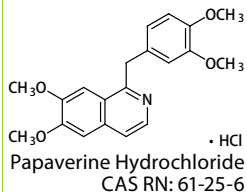
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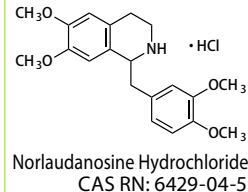
异喹啉生物碱

Isoquinoline Alkaloids

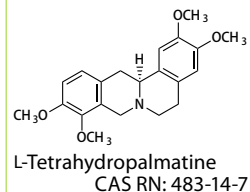
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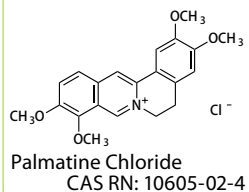
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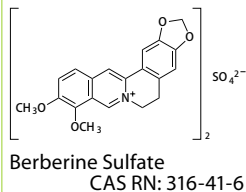
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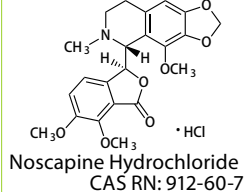
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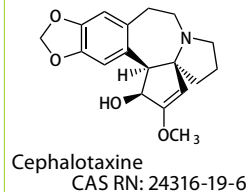
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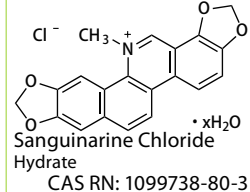
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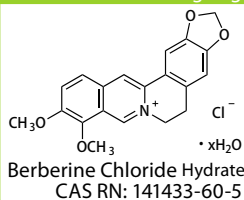
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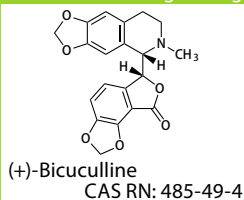
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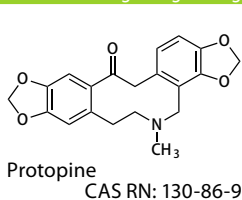
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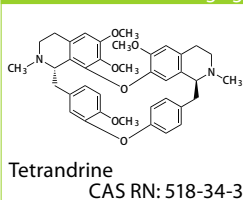
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P2611 5mg 25mg 100mg

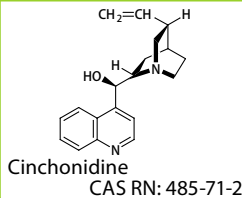


T3321 200mg 1g



喹啉生物碱 Quinoline Alkaloids

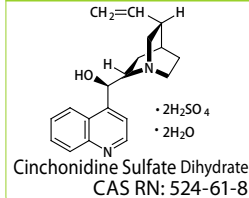
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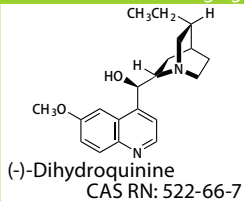
C0348 25g



C0349 25g



D6112 1g 5g



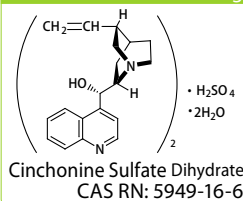
C0350 25g 200g



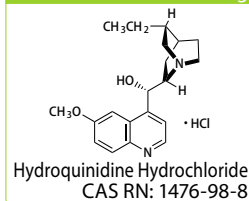
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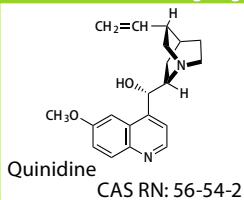
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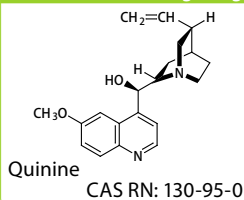
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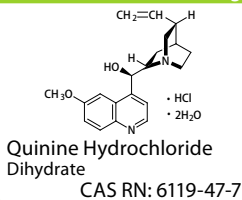
Q0006 5g 25g



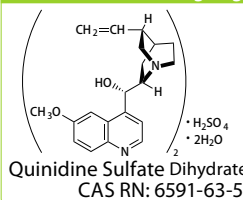
Q0028 25g 100g



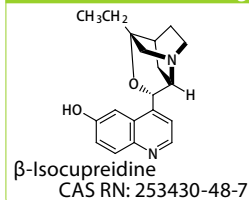
Q0030 25g



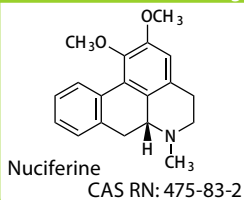
Q0010 5g 25g



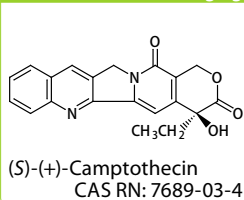
I0728 1g



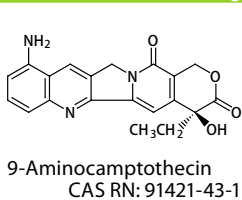
N1170 250mg



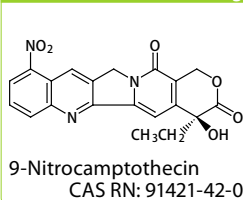
C1495 100mg 1g



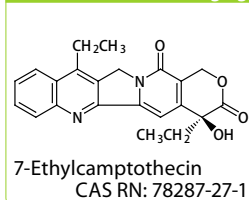
A2063 10mg



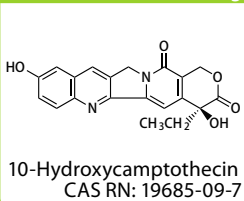
N0822 100mg



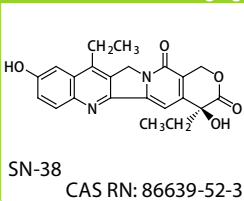
E0781 100mg 1g



H1463 1g



E0748 100mg 1g



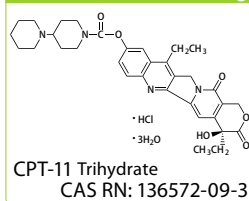
F1173 20mg 100mg



L0432 10mg

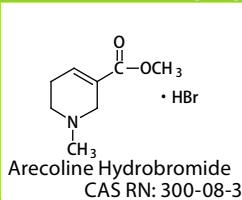


I0714 100mg

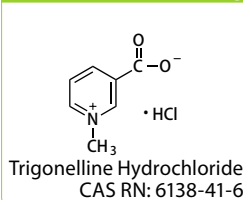


吡啶生物碱 Pyridine Alkaloids

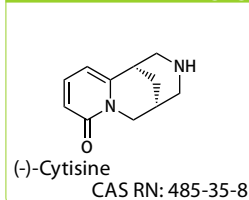
A0523 5g 25g



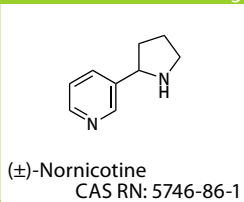
T1429 5g



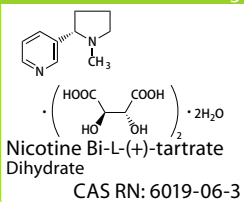
C2609 100mg 1g



N1222 250mg

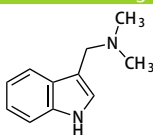


N0080 25g



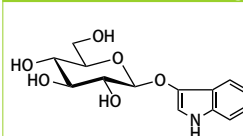
吲哚生物碱 Indole Alkaloids

D0653 25g 250g



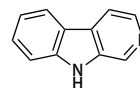
Gramine
CAS RN: 87-52-5

I1012 200mg



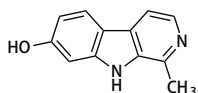
Indican (Plant Indican)
CAS RN: 487-60-5

P1121 100mg



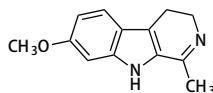
9H-Pyrido[3,4-b]indole
CAS RN: 244-63-3

H1360 200mg 1g



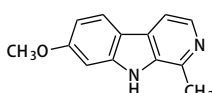
Harmol
CAS RN: 487-03-6

H1237 1g 5g



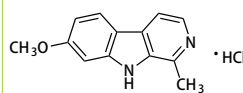
Harmaline
CAS RN: 304-21-2

H0001 1g



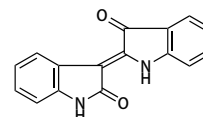
Harmine
CAS RN: 442-51-3

H0002 100mg 1g



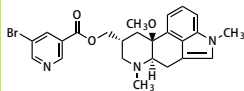
Harmine Hydrochloride
CAS RN: 343-27-1

I0868 25mg



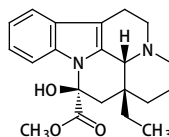
Indirubin
CAS RN: 479-41-4

N0904 100mg 1g



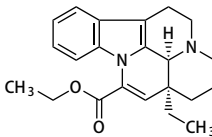
Nicergoline
CAS RN: 27848-84-6

V0061 1g 5g



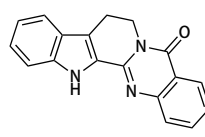
Vincamine
CAS RN: 1617-90-9

V0115 100mg 1g



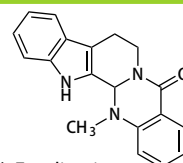
Vinpocetine
CAS RN: 42971-09-5

R0102 200mg



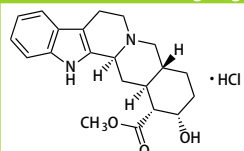
Rutaecarpine
CAS RN: 84-26-4

E1012 1g



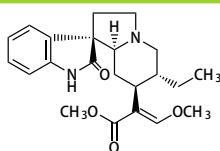
(±)-Evodiamine
CAS RN: 518-18-3

Y0002 5g 25g



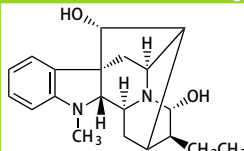
Yohimbine Hydrochloride
CAS RN: 65-19-0

R0105 25mg



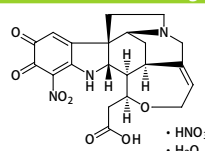
Rhynchophylline
CAS RN: 76-66-4

A3236 1g



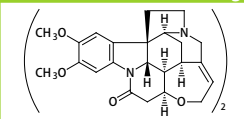
Ajmaline
CAS RN: 4360-12-7

C0001 1g 5g



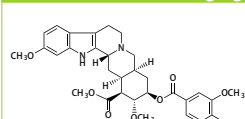
Cacotheline Monohydrate
CAS RN: 561-20-6

B0672 25g



Brucine Sulfate Heptahydrate
(for Nitrate Analysis)
CAS RN: 60583-39-3

R0007 1g 5g



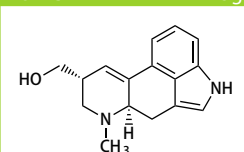
Reserpine
CAS RN: 50-55-5

B0397 25g 100g



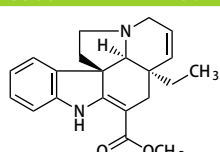
Betanin (Red Beet extract
diluted with Dextrin)
CAS RN: 7659-95-2

L0413 5g



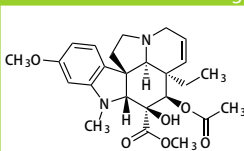
Lysergol
CAS RN: 602-85-7

T3500 250mg



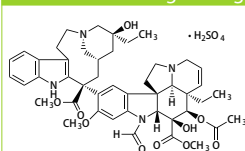
Tabersonine
CAS RN: 4429-63-4

V0193 100mg



Vindoline
CAS RN: 2182-14-1

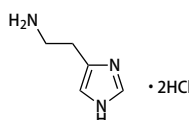
V0129 25mg 100mg



Vincristine Sulfate
CAS RN: 2068-78-2

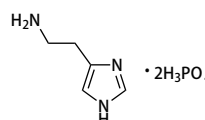
咪唑生物碱 Imidazole Alkaloids

H0146 1g 5g 25g



Histamine Dihydrochloride
CAS RN: 56-92-8

H0147 1g 5g 25g

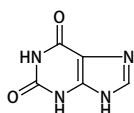


Histamine Diphosphate
CAS RN: 51-74-1

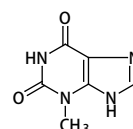
嘌呤生物碱

Purine Alkaloids

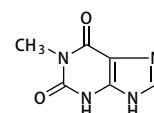
X0004 25g

Xanthine
CAS RN: 69-89-6

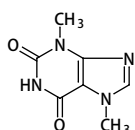
M2073 5g 25g

3-Methylxanthine
CAS RN: 1076-22-8

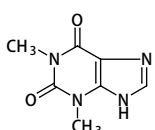
M2432 50mg 200mg

1-Methylxanthine
CAS RN: 6136-37-4

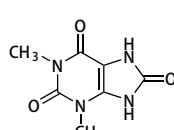
T0178 25g 100g 500g

Theobromine
CAS RN: 83-67-0

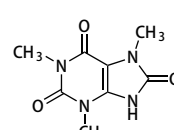
T0179 25g 100g 500g

Theophylline
CAS RN: 58-55-9

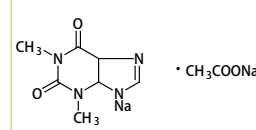
D6169 250mg

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

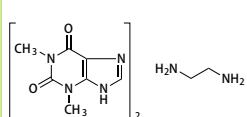
T3646 100mg

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

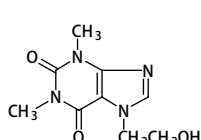
T0180 25g

Theophyllol
CAS RN: 8002-89-9

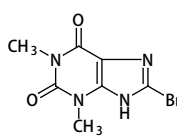
A2805 25g 100g

Aminophylline
CAS RN: 317-34-0

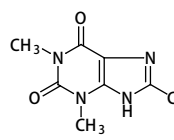
H0402 25g 500g

Etofilline
CAS RN: 519-37-9

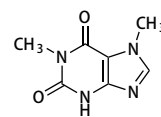
B3456 1g 5g

8-Bromotheophylline
CAS RN: 10381-75-6

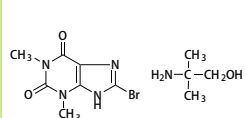
C0293 25g 250g

8-Chlorotheophylline
CAS RN: 85-18-7

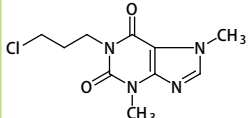
D5696 25mg 100mg

Paraxanthine
CAS RN: 611-59-6

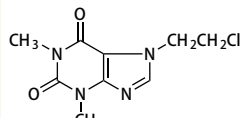
P2359 1g 5g

Pamabrom
CAS RN: 606-04-2

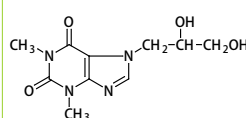
C1103 25g

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

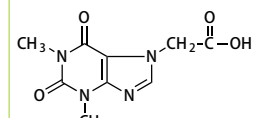
C2748 5g 25g

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

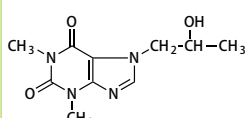
D3600 25g

Dyphylline
CAS RN: 479-18-5

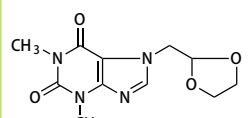
T2941 25g

Acefylline
CAS RN: 652-37-9

H1430 5g 25g

Proxyphylline
CAS RN: 603-00-9

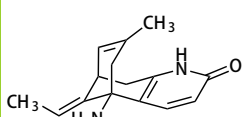
D4302 1g 25g

Doxofylline
CAS RN: 69975-86-6

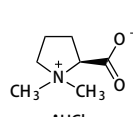
其它生物碱

Other Alkaloids

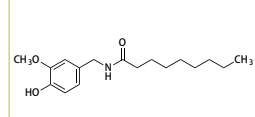
H1700 10mg 100mg

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

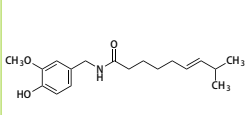
S0358 10mg

Stachydrine Hydrochloride
CAS RN: 4136-37-2

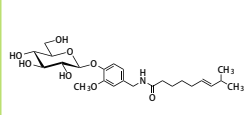
M0900 10g

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

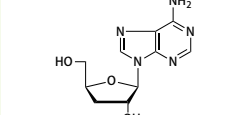
M1149 1g

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

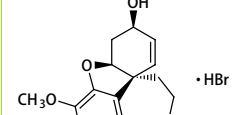
C2548 200mg

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

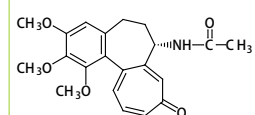
C2689 25mg

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



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