

## A 前体蛋白

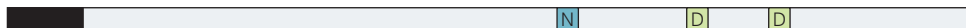
前脑啡肽



前阿黑皮素



强啡肽原



前孤啡肽



## B 蛋白水解加工的阿片肽

氨基酸序列

**M** 甲硫氨酸脑啡肽  
Tyr Gly Gly Phe Met OH

**L** 亮氨酸脑啡肽  
Tyr Gly Gly Phe Leu OH

**β-END** β-内啡肽  
Tyr Gly Gly Phe Met Thr Ser Glu Lys Ser Gln Thr Pro  
Leu Val Thr Leu Phe Lys Asn Ala Ile Val Lys Asn Ala  
His Lys Gly Gln OH

**D** 强啡肽  
Tyr Gly Gly Phe Leu Arg Arg Ile Arg Pro Lys Leu Lys  
Trp Asp Asn Gln OH

**N** α-新内啡肽  
Tyr Gly Gly Phe Leu Arg Lys Tyr Pro Lys

**O** 孤啡肽  
Tyr Gly Gly Phe Thr Gly Ala Arg Lys Ser Ala Arg Lys  
Leu Ala Asn Gln