



>>Entry Name: Gramicidins A-D

Synonym(s): Gramicidin, BAN, INN

CAS Registry Number: 1405-97-6

HCO-Val-Gly-Ala-D-Leu-Ala-D-Val-Val-D-Val-Trp-D-Leu-Trp-D-Leu-Trp-D-Leu-Trp-NHCH₂CH₂OH

Use/Importance: Strongly active against gram-positive bacteria. Toxic, causing haemolysis of red blood cells. Transports cations across membranes. Usually used topically in combination with other antimicrobial agents

Hazard & Toxicity: LD₅₀ (mus, ivn) 1.5 mg/kg

>>Variant: 1-L-Isoleucinegramicidin A

Biological Source: Minor constit. (18%) of Gramicidin A

Optical Rotation: $[\alpha]_D^{20} +26.5$ (c, 0.45 in MeOH)

>>Variant: 1-L-Valinegramicidin A

CAS Registry Number: 4419-81-2

Molecular Formula: C₉₉H₁₃₉N₁₉O₁₈

Molecular Weight: 1883.304

Accurate Mass: 1882.054551

Percentage Composition: C 63.14%; H 7.44%; N 14.13%; O 15.29%

Biological Source: Major constit. (82%) of Gramicidin A

Optical Rotation: $[\alpha]_D^{20} +27.3$ (c, 1.3 in MeOH)

Solubility: BERDY SOL: Sol. MeOH, Py, DMF, AcOH, dioxan, CHCl₃; poorly sol. C₆H₆, H₂O, hexane, toluene

UV: [neutral] $\lambda_{\max}$ 271 (); 281 (); 290 () (MeOH) (Berdy) [neutral] $\lambda_{\max}$ 272 (); 280 (); 292 () (EtOH) (Berdy)

Hazard & Toxicity: BERDY HAZD : LD₅₀ (mus, ivn) 5 mg/kg , LD₅₀ (mus, ipr) 60 mg/kg , LD₅₀ (mus, orl) 1000 mg/kg

>>Variant: Gramicidin B

Synonym(s): 11-L-Phenylalaninegramicidin A, 9Cl

CAS Registry Number: 9062-60-6

Melting Point: Mp 258-259°

Optical Rotation: $[\alpha]_D^{25} +6$ (c, 0.72 in DMF)

Solubility: BERDY SOL: Sol. MeOH, DMF, CHCl₃; poorly sol. C₆H₆, hexane, H₂O

UV: [neutral] $\lambda_{\max}$ 280 (); 292 () (EtOH) (Berdy)

Other Data: Major component is 1-Isoleucinegramicidin B (89%), minor component is 1-Valinegramicidin B (11%)

>>Variant: Gramicidin C

Synonym(s): 11-L-Tyrosinegramicidin A, 9Cl

CAS Registry Number: 9062-61-7

Source/Synthesis: Countercurrent distribution coefficient K 1.32 (MeOH/H₂O/C₆H₆/CHCl₃ 23:7:15:15)

Melting Point: Mp 280-283 dec.°

Optical Rotation: $[\alpha]_D^{25} +11.4$ (c, 0.29 in DMF)

Solubility: BERDY SOL: Sol. MeOH, CHCl₃; poorly sol. H₂O, C₆H₆, hexane

UV: [neutral] $\lambda_{\max}$ 280 (); 290 () (EtOH) (Berdy)

Fluka: 50847

>>Variant: Gramicidin D

CAS Registry Number: 1393-88-0

Other Data: Distinguished from other Gramicidins by presence of Thr, Lys, Asp, Glu, Met and Pro-structure not fully elucidated

Sigma: G5002

References: