

Student 13

EUGENIN: AN IMMUNOMODULATOR USED TO PROTECT YOUNG IN THE POUCH OF THE TAMMAR WALLABY *MACROPUS EUGENII*.

Vita M. Maselli,¹ Russell V. Baudinette,² Pinmanee Boonthung,¹ Ian F. Musgrave,³ Paul A. Wabnitz,¹ Jayne Skinner,² Paul F. Alewood,⁴ Craig S. Brinkworth,¹ and John H. Bowie.¹

1. Department of Chemistry, The University of Adelaide, South Australia, 5005
2. Department of Environmental Biology, The University of Adelaide, South Australia, 5005.
3. Department of Clinical and Experimental Pharmacology, The University of Adelaide, South Australia, 5005.
4. Institute for Molecular Bioscience, The University of Queensland, Brisbane, Queensland, 4072, Australia.

Eugenin [pGlu Gln Asp Tyr (SO₃) Val Phe Met His Pro Phe-NH₂] has been isolated from the pouches of female Tamar wallabies (*Macropus eugenii*) carrying young in the early lactation period. The sequence of eugenin has been determined using a combination of positive and negative ion electrospray mass spectrometry. This compound bears some structural resemblance to the mammalian neuropeptide cholecystokinin 8 [Asp Tyr (SO₃) Thr Gly Trp Met Asp Phe-NH₂] and to the amphibian caerulein peptides [caerulein: pGlu Gln Asp Tyr (SO₃) Thr Gly Trp Met Asp Phe-NH₂]. Eugenin has been synthesised by a route which causes only minor hydrolysis of the sulfate group when the peptide is removed from the resin support. Biological activity tests with eugenin indicate that it contracts smooth muscle at a concentration of 10⁻⁹ M, and enhances the proliferation of splenocytes at 10⁻⁷ M, probably via activation of CCK₂ receptors. The activity of eugenin on splenocytes suggests that it is an immunomodulator peptide which plays a role in the protection of pouch young.