

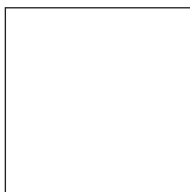
WHAT DOES A FROG KEEP UNDER ITS SKIN?

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Many organisms possess powerful chemical arsenals to help protect them from both large predators and pathogenic micro-organisms. Among the many chemicals utilised are a series of membrane disrupting peptides produced by a variety of organisms including bacteria, fungi, plants, insects, fish amphibians and mammals. Amphibians produce a wide selection of host defense peptides in the glands under their skin. These peptides are secreted whenever the animal is stressed when attacked by some predator. Such peptides have been shown to possess high cytotoxic and anti-bacterial properties. In some cases they have also been shown to inhibit neuronal nitric oxide synthase. ESMS is a valuable tool in the sequencing of such peptides particularly in species that produce very little peptide material.

Over the last decade our group has been interested in the isolation and identification of bio-active peptides from Australian auras. As an example, the major antibiotic peptide from the frog *Litoria genimaculata* is a 21 residue peptide called maculatin 1.1 with the 3D-structure shown below.^{1,2}



This talk discusses the biologically active peptides isolated from the related tree frog *Litoria eucnemis*. ESMS and Edman sequencing were used to determine the amino acid sequences of these peptides.

1. T. Rosek, R.J. Waugh, S.T. Steinborner, J.H. Bowie, M.J. Tyler and J.C. Wallace, *J. Peptide Sci*, 1998, 4, 111.
 2. B.C.S. Chia, J.A. Carver, T.D. Mulhern and J.H. Bowie, *Eur. J. Biochem*, 2000, **267**, 1894.
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