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PhD exit seminar: Protection of marsupial young: Immune mechanisms which protect the developing tammar wallaby

Monday 3 June 2013, 1pm

Melanie Edwards, Deakin lab, EEG

Gould Seminar Room, (Rm 235) Gould Building (Bldg. 116), Linnaeus Way, ANU



Developmental immunologists have been intrigued by the marsupial immune system for over 30 years. Interest in the development of marsupial immunology stemmed from research examining the timing of the development of immunocompetence, which occurs up to weeks after the young are born—long after the young are exposed to the external environment. What followed, included research examining the potential threat of microorganisms to the developing marsupial, along with potential alternative mechanisms to protection including those afforded by the mother (e.g. milk and pouch secretions) and the innate immune system of the young.

The main objective of my thesis was to further examine the protection of marsupial young; first, to identify major gaps in our knowledge of the development of the immune system of the marsupial and modes of protection, and second to begin to fill these gaps through experimental research. In this seminar I will include an

introductory segment which discusses the exposure of marsupial young to microorganisms and complementary protective mechanisms, followed by the role of the marsupial pouch in immune protection and its implications for marsupial reproduction and mammalian evolution. I will also discuss the results of the experimental research which included the identification of specific immune genes, mucins and lysozymes in the model species tammar wallaby (*Macropus eugenii*), followed by an analysis of the expression of immune genes in tissues of developing tammar wallabies that are readily exposed to microorganisms.

Presented by

Research School of
Biology

ANU College of
Medicine, Biology
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Contact details

E lisa.schwanz@anu.edu.au T 02 612 52040
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