Australian National University

Unlocking the secrets of marsupial genomes

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Dr Janine Deakin, EEG, Research School of Biology

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

Marsupials have been viewed with curiosity since they were first observed by European explorers. For many years, they were viewed as 'inferior' or 'halfway' mammals, with the complexity of their unique biological features often not recognised when compared to their eutherian mammal counterparts. The sequencing of the genomes of three marsupial species (grey short-tailed opossum, tammar wallaby and Tasmanian devil) is enabling the secrets behind their unique features to be uncovered. For instance, one of the amazing features of marsupials is the survival of their highly altricial young, born without an immune system yet exposed to potentially pathogenic bacteria present within the pouch. For many years it was thought that the immune response of marsupials was inferior to that of eutherians. Characterisation of the marsupial immunome has challenged this idea and revealed some interesting surprises which I will present.

The emergence of devil facial tumour disease, a transmissible cancer which is obliterating the Tasmanian devil population, has increased the importance of analysing marsupial genomes. I will discuss some of the advances we have made in uncovering the genome rearrangements that have occurred in the DFTD tumour and how these rearrangements appear to be in regions prone to rearrangement during marsupial evolution.

Presented by

Research School of Biology

ANU College of Medicine, Biology & Environment

Contact details

E lisa.schwanz@anu.edu.au T 02 6125 2040
This lecture is free and open to the public

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