



RSB Director's seminar series:

Sex and speciation: did sex chromosome change trigger mammalian divergence?

Friday 2 October 12.30–1.30pm
with light lunch commencing 12pm

Speaker

Jenny Graves

Professor,
School of Life Science,
La Trobe University

Location

Slatyer Seminar Room

R.N. Robertson Building
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This lecture is free and open to the public

RSB event information:

biology.anu.edu.au/news-events



Turnover of sex determining genes and chromosomes may be a cataclysmic speciating event in many animals, in contradiction of the accepted wisdom that speciation requires the accumulation of many small changes in isolated populations. There are many groups of invertebrates, fish and reptiles in which closely related species have different sex determination mechanisms, and interspecies hybridisation results in infertility.

Here I propose that the evolution of the male-determining SRY gene, defining a novel XY sex chromosome pair, was the event that interposed a reproductive barrier with the ancestral population of mammal-like reptiles, and triggered the speciation event that was to lead to the evolution of therian mammals

190 million years ago. A sex chromosome-autosome fusion may, similarly, have separated eutherians (placental mammals) from marsupials 160 million years ago. A new burst of sex chromosome change and speciation seems to be occurring in many mammal groups, precipitated by the degradation and disappearance of the mammalian Y chromosome. Although the primate Y seems to be unusually stable, sex chromosome turnover may ultimately promote hominid speciation.

Jenny Graves is a molecular and evolutionary geneticist who works on Australian animals, including kangaroos and platypus, devils (Tasmanian) and dragons (lizards). She uses their distant relationship to humans to discover how genes, chromosomes and regulatory systems evolved, and how they work in all animals including humans. She uses this unique perspective to explore the origin, function and fate of human sex genes and chromosomes, (in)famously predicting the disappearance of the human Y chromosome.

Jenny has produced three books and more than 420 research articles. She has received many honours and awards, including the Michael White Award for Genetics, the Academy's Macfarlane Burnet medal and an Order of Australia. She is a 2006 L'Oreal-UNESCO Laureate for Women in Science. Jenny is a Fellow of the Australian Academy of Science, and served on the Executive for 8 years, first as Foreign Secretary, then as Education Secretary; she serves on several inter-Academy committees on science education and women in science.

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