

New insights into Australia's unique platypus

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Image courtesy of CSIRO

(PhysOrg.com) -- New insights into the biology of the platypus and echidna have been published, providing a collection of unique research data about the world's only monotremes.

University of Adelaide geneticist Dr Frank Grützner and his team have authored five of 28 papers which appear in two special issues of the [Australian Journal of Zoology](#) and [Reproduction Fertility and Development](#).

The articles shed new light on the extraordinary complex [platypus sex chromosome](#) system.

"For the first time we have looked at how the 10 sex chromosomes find each other during sperm development in platypus," Dr Grützner says.

"We discovered that a remarkably organised mechanism must exist in platypus, where sex chromosomes from one end pair first and then they go down the sex chromosome chain, just like a zipper. There is nothing random about it."

Dr Grützner and his colleagues also isolated and analysed for the first time the sequence of the male-specific Y chromosomes.

"Previously we knew nothing about the Y chromosomes because only the female platypus genome was sequenced. The data we found has given us valuable clues about the evolution of Y [chromosomes](#) in all [mammals](#), including humans," Dr Grützner says.

All 28 published articles in the CSIRO journals have arisen from the Boden Research Conference, "Beyond the Platypus Genome", hosted by the University of Adelaide in November 2008, which attracted researchers from around the world.

The published papers represent a wide range of monotreme research, from [genome](#) to field biology, population genetics and captive breeding, evolution to immunology, venom, sperm and milk in both the platypus and echidna.

"I expect these results to make a major impact in the field of monotreme research and mammal evolution," Dr Grützner says.

"We have entered a new era in monotreme research, where we are seeing a more integrated approach using genomics, biochemistry and field biology to tackle important questions in monotreme biology. This knowledge will also help us conserve these iconic Australian mammals," he says.

Provided by University of Adelaide ([news](#) : [web](#))

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