

Uni leads study on echidna sex life

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Dr Frank Grützner

A University of Adelaide-led project will study the genetic makeup of one of Australia's most iconic animals, the echidna, to give an unprecedented insight into their sex life and behaviour.

World echidna expert Dr Peggy Rismiller and geneticist Dr Frank Grützner will collaborate with the Monarto and Adelaide Zoos and South Australian Museum to learn more about these unique egg-laying mammals known as monotremes.

Dr Grützner says the project will look at the basic ecology of echidnas as well as their genetic and reproductive makeup, drawing new information from a unique concentration of world class monotreme experts.

"We want to integrate state-of-the-art animal tracking and molecular genetic techniques that we have established in the platypus to give us an in-depth insight into the behaviour and ecology of the echidna. We plan to grow cell lines from individual echidnas so we can develop genetic fingerprints," Dr Grützner says.

"This will, for the first time, give us definitive proof of which males are reproductively successful."

Scientists believe the echidna and its cousin, the platypus, may give us invaluable insights into the functions of human genes.

One has to go back 160 million years to find the last common ancestor between humans and the platypus, the earliest known branch in the mammalian lineage. It is thought the echidna diverged from the platypus after 25 million years.

"Evolution filters out important genes," Dr Grützner says. "By studying these monotremes we can probably find the genes that play a crucial role in our own development.

"We have such unique mammals in the echidna and platypus. They are exclusive to Australia, which allows us to lead monotreme research around the world. We have already developed very high-profile collaborations with the United States and Europe."

The genetics of the platypus have been studied extensively in recent years and scientists are now looking to the echidna, a more accessible species, for evolutionary answers.

"Keeping and breeding the platypus has been a huge problem. In this respect the echidna is a much better choice. Echidnas are also found throughout Australia, whereas platypuses are found only in eastern Australia."

Working together on the echidna project are Dr Grützner from the University's School of Molecular and Biomedical Science, Dr Peggy Rismiller from Anatomical Science, Dr Greg Johnston from the Royal Zoological Society of South Australia and Professor Steve Donnellan from the South Australian Museum.

Source: University of Adelaide

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