

Media Release

Chiefs of Staff, News Directors

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Breeding in captivity: Helping mammals to produce both male and female offspring

The success of captive breeding programs around the world could be boosted by the work of University of Tasmania post-doctoral researcher Dr Amy Edwards.

Dr Edwards has discovered physiological changes caused by maternal stress can influence whether female offspring give birth to more males or females, thus enabling breeding programs to alter the sex allocation of mammal babies.

Dr Edwards – from the School of Biological Sciences – found exposing pregnant mice to a stress blocker made the female offspring more likely to produce female babies of their own, showing gestational experience alters sex allocation in the subsequent generation.

“We gave the drug at the time the stress pathway was being developed, and so we expect it may have physiologically altered the stress pathway in the babies,” Dr Edwards said.

“Once the babies are fully grown, we took one female and one male from each litter and tested their sex allocation to see if this physiological change influenced it or not.

“To test sex allocation in the females, we bred them and found those females who experienced the treatment gave birth to more daughters than those who weren’t treated.

“We believe the physiological changes we caused in these females is controlling whether they give birth to daughters or sons.

“To test sex allocation in the males, we extracted their sperm and looked at the sperm sex ratio. Because sperm production is not linked to stress like pregnancy is, we didn’t find any differences.

“We show the gestational environment results in female offspring whose physiology is altered to the extent that it affects her reproductive functioning as an adult.

“This could be quite important for management and breeding programs - as well as the livestock industry – which often have trouble with vastly differing ratios of male and female offspring.”

Dr Edwards’ paper *Gestational experience alters sex allocation in the subsequent generation* was published in the Royal Society journal *Open Science* yesterday and is now available online: <http://rsos.royalsocietypublishing.org/content/3/7/160210>

MEDIA OPPORTUNITY

Dr Amy Edwards is available for interview by phoning 0418 880 975. Pictures of Dr Edwards are available on request.

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