

New research a step closer to male contraceptive pill

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(Medical Xpress)—New insights into sperms' swimming skills shed light on male infertility, which affects one in 20 men, and could provide a new avenue to the development of a male contraceptive pill.

In a study published in the journal [PLoS Genetics](#), researchers from Monash University, the University of Newcastle, John Curtin School of Medical Research and Garvan Institute of Medical Research, in Australia; and the University of Cambridge, in the UK, have shown how a protein called RABL2 affects the length of [sperm](#) tails, crippling their motility (or swimming ability), and decreases sperm production.

Professor Moira O'Bryan from Monash University's School of Biomedical Sciences (SOBS) led the research. In [laboratory tests](#), the team found that a mutation in RABL2 resulted in sperm tails that were 17 per cent shorter than normal. Dysfunctioning RABL2 also negatively affected sperm production, resulting in a 50 per cent decrease.

Professor O'Bryan said the research fitted another piece in the jigsaw puzzle of sperm development.

"The mutations in the RABL2 gene are very likely to cause infertility," Professor O'Bryan said.

"Further, as motility is absolutely essential for fertility, insights into tail function may reveal options for urgently needed male-based contraception."

Lead author and PhD student Jennifer Lo, also from the School of [Biomedical Sciences](#), said RABL2 worked with other molecules known as intraflagellar transport proteins that carry genetic cargo along the sperm tail.

"Intraflagellar [transport proteins](#) are like a train. Our data suggests that the reloading of the train is defective if RABL2 dysfunctions," Ms Lo said.

"The train is still running in sperm tails with dysfunctional RABL2, but it contains fewer passengers. The end result is that sperm formation and motility are abnormal."

Ms Lo said that as mutations in RABL2 decrease sperm count and sperm swimming ability, it may be possible to inhibit this protein in a future male pill.

However, as RABL2 is also found, albeit in lower concentrations, in other tissues, such as the brain, kidney and liver, an inhibitor specific to the testes would need to be developed.

Professor O'Bryan said that [male infertility](#) was often the canary in the coal mine of general health.

"Many of the basic processes of sperm development occur at lower levels in other organs of the body. As such, the presentation of a man for infertility treatment offers the opportunity not only to give him the children he desires but also to mitigate future disease," Professor O'Bryan said.

More information: www.plosgenetics.org/article/info%3Adoi%2F10.1371%2Fjournal.pgen.1002969

Provided by Monash University

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