Fertility and weight relationship investigated

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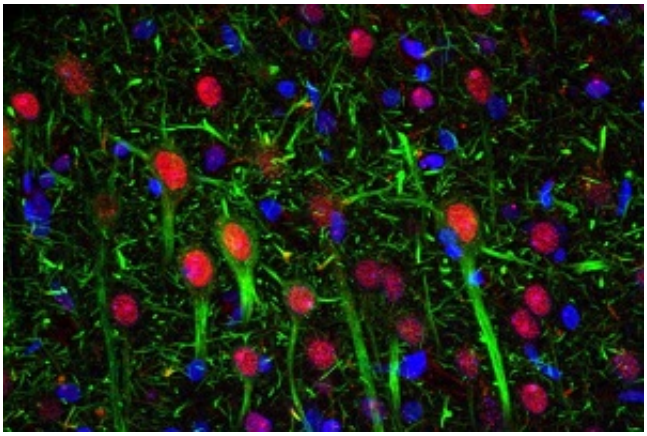

Neuropeptide receptors in the brain. Credit: MRC Toxicology Unit, Wellcome Images

A peptide that controls appetite and metabolism is at the centre of research which aims to give insight into how peptides affect fertility.

Scientists at the University of Western Australia have in their latest research focused on the affect of peptide ghrelin on the body's reproductive system in particular on the neuropeptide kisspeptin.

Ghrelin is responsible for neuronal control of appetite and metabolism and also affects fertility.

This makes the peptide of particular interest in helping people who are overweight or obese to conceive according to Dr Jeremy Smith from

UWA's School of Anatomy, Physiology and Human Biology.

"The premise behind the [study] is… energy balance," Dr Smith says.

"Food intake and energy expenditure has really profound effects on the reproductive system.

"And so, the study is trying to really pinpoint the link in the brain in which energy balance governs reproduction."

The research on mice showed ghrelin regulates the reproductive axis via an indirect mechanism, not by directly stimulating the release of kisspeptin.

"The study pretty much opened up more questions than it solved," he says.

"The aim was to show ghrelin interacts directly with kisspeptin and we basically showed it did not show that.

"So we still don't know the exact neuronal afferences that are important for relaying the effect of ghrelin on fertility."

Kisspeptin is the peptide of interest for Dr Smith and his team's next studies.

"What's interesting now is what we're finding is … people who are overweight or obese also have difficulty with fertility and again this is also related to kisspeptin neurons in the brain," he says.

"The flipside of this could be utilising kisspeptin as a therapeutic for infertility, specifically in infertility possibly related to a person being overweight."

Dr Smith is now focusing on the potential direct effects of NPY and POMC neurons on kisspeptin.

"We're just getting some data now which is looking really promising to show that as well as regulating fertility [NPY and POMC] themselves may also regulate energy balance," he says.

"They could be a real key mediator of both of those pathways [fertility and energy balance] and really form the link in the brain which governs the … relationship between energy balance and reproduction."

More information: www.sciencedirect.com/science/ … ii/S0196978113002295

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