

Pulsatile secretion of reproductive hormone

Infertility caused by suppression of hormone pulses by elevated prolactin

2017 Real-time visualisation of activity of kisspeptin neurons in conscious animals shows bursts of activity associated with hormone pulses – the “pulse generator” is identified

2015 Stimulation of kisspeptin neurons can induce pulses of reproductive hormone secretion

2013 Demonstration that kisspeptin acts directly on the GnRH neurons

2005 Kisspeptin neurons mediate the feedback action of ovarian hormones on GnRH neurons

2003 Discovery of a new neuropeptide, kisspeptin, as critical to fertility

1990s Generation of GnRH pulses not provided by intrinsic properties of GnRH neurons, but by inputs from another factor(s)

1982 Reproductive hormone pulses are driven by pulses of secretion from GnRH neurons in brain

1978 Demonstration that pulsatile pattern of reproductive hormones was critical to fertility

1970 Identification of pulsatile pattern of reproductive hormone secretion
Theory of a “pulse generator” proposed

2018 Deletion of prolactin receptors in kisspeptin neurons prevents prolactin-induced suppression of hormone pulses, suggesting prolactin acts by suppressing activity of the “pulse generator”

2017 Prolactin-induced infertility in women reversed by kisspeptin therapy

2014 Lactation results in suppression of kisspeptin production

2012 Prolactin-induced infertility in mice is reversed by kisspeptin treatment

2011 Kisspeptin neurons express the prolactin receptor

2007 Identification that GnRH neurons do not express the prolactin receptor, suggesting that prolactin action on fertility is mediated indirectly

1986 Elevated levels of prolactin suppress the normal pulsatile secretion of reproductive hormones

1975 Identification that elevated levels of the lactation hormone, prolactin, cause infertility

Pre 1970 Lactation associated with temporary infertility

Timeline

Timeline information provided by Professor David Grattan and Professor Allan Herbison. Discoveries highlighted in red were supported by the Health Research Council.