GnRH neuron

GnRH neurons, or Gonadotropin-releasing hormone expressing neurons, are the cells in the brain that control the release of reproductive hormones from the pituitary. These brain cells control reproduction by secreting GnRH into the hypophyseal portal capillary bloodstream, so are sometimes referred to as “sex neurons”. This small capillary network carries GnRH to the anterior pituitary, causing release of luteinizing hormone (LH) and follicle stimulating hormone (FSH) into the wider bloodstream. When GnRH neurons change their pattern of release from the juvenile to the adult pattern of GnRH secretion, puberty is initiated. Failure of GnRH neurons to form the proper connections, or failure to successfully stimulate the pituitary with GnRH, means that puberty is not initiated. These disruptions to the GnRH system cause reproductive disorders like hypogonadotropic hypogonadism or Kallmann Syndrome.

Spergel from the Department of Neurosurgery, Yale University School of Medicine, New Haven, CT, USA. reviewed the neuropeptides that have been shown to act directly and that may also act indirectly, on GnRH neurons, the reproduction-related processes with which the neuropeptides may be associated or the physiological information they may convey, as well as their cognate receptors, signaling pathways and roles in the modulation of GnRH neuronal firing, [Ca2+]i, GnRH secretion and reproduction. The review focuses on recent research in mice, which offer the most tractable experimental system for studying mammalian GnRH neurons [1].

1)
Spergel DJ. Neuropeptidergic modulation of GnRH neuronal activity and GnRH secretion controlling reproduction: insights from recent mouse studies. Cell Tissue Res. 2018 Aug 4. doi: 10.1007/s00441-018-2893-z. [Epub ahead of print] Review. PubMed PMID: 30078104.

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