

ERIK HRABOVSKY



Institute of Experimental Medicine
Reproductive Neurobiology Research Group

Address: Szigony u. 43., H-1083 Budapest, Hungary

RESEARCH AREA

Molecular, cellular and system biology research at the Laboratory of Reproductive Neurobiology aims to provide a deeper understanding of the central regulatory mechanisms of human reproduction. Hypothalamic secretion of gonadotropin-releasing hormone (GnRH) builds up during pubertal development. Secretory pulses of GnRH at every 30-90 minutes stimulate luteinizing and follicle stimulating hormone (LH and FSH) production in the anterior pituitary gland. These trophic hormones, in turn, initiate and later maintain functions of the gonads (testes and ovaries). This laboratory combines anatomical, electrophysiological and molecular approaches to study i) the neuronal and hormonal control of pulsatile GnRH/LH secretion, ii) the mechanisms of the mid-cycle GnRH/LH surge which triggers ovulation in females, iii) the central effects of gonadal steroid hormones on neuroendocrine systems and on wider aspects of general neuronal functioning and iv) the molecular and cellular processes underlying reproductive senescence.

TECHNIQUES AVAILABLE IN THE LAB

Immunohistochemistry
In situ hybridisation
RNA-sequencing
Laser capture microdissection

SELECTED PUBLICATIONS

Hrabovszky, E., Shughrue, P.J., Merchenthaler, I., Hajszán, T., Liposits, Zs., Carpenter, C.D. and Petersen, S.L. (2000) Detection of estrogen receptor- β messenger ribonucleic acid and I [estrogen] binding sites in luteinizing hormone-releasing hormone neurons of the rat brain. **Endocrinology** **141**: 3506-3509.

Hrabovszky, E., Ciofi, P., Vida, B., Horvath, M.C., Keller, É., Caraty, A., Bloom, S.R., Ghatei, M.A., Dhillon, W.S., Liposits, Z. and Kallo, I. (2010) The kisspeptin system of the human hypothalamus. Sexual dimorphism and relationship with gonadotropin-releasing hormone and neurokinin B neurons. **Eur. J. Neurosci** **31**: 1984-1998.

Skrapits, K., Sárvári, M., Farkas, I., Göcz, B., Takács, S., Rumpler, É., Vácz, V., Vastagh, C., Rácz, G., Matolcsy, A., Solymosi, N., Póliska, S., Tóth, B., Erdélyi, F., Szabó, G., Culler, M.D., Allet, C., Cotellessa, L., Prévot, V., Giacobini, P. and **Hrabovszky E.** (2021) The cryptic gonadotropin-releasing hormone neuronal system of human basal ganglia. **Elife** **10**: e67714.

Campbell, R.E., Coolen, L.M., Hoffman, G.E. and **Hrabovszky, E.** (2022) Highlights of neuroanatomical discoveries of the mammalian gonadotropin-releasing hormone system. **J Neuroendocrinol** **34**: e13115.

Göcz, B., Rumpler, É., Sárvári, M., Skrapits, K., Takács, S., Farkas, I., Csillag, V., Trinh, S.H., Bardóczi, Z., Ruska, Y., Solymosi, N., Póliska, S., Szőke, Z., Bartoloni, L., Zouaghi, Y., Messina, A., Pitteloud, N., Anderson, R.C., Millar, R.P., Quinton, R., Manchishi, S.M., Colledge, W.H. and **Hrabovszky E.** (2022) Transcriptome profiling of kisspeptin neurons from the mouse arcuate nucleus reveals new mechanisms in estrogenic control of fertility. **Proc Natl Acad Sci U S A** **119**: e2113749119.