

# GERGELY KOVÁCS



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## RESEARCH AREA

One of the research topics of our research group is to investigate the central nervous system and peripheral effects of the pituitary adenylate cyclase activating polypeptide (PACAP) on fertility. PACAP is a neuropeptide produced by different cell types. It affects fertility and sexual function among other effects. In this project, we investigate the effects of PACAP on the hypothalamic-pituitary-gonadal (HPG) axis in knock-out and wild-type male and female mice using microscopic and molecular biological methods.

Another research topic is the expression and function of P2 purinergic receptors in the brain, including P2X4 and P2X7 receptors in the hippocampus and hypothalamus.

## TECHNIQUES AVAILABLE IN THE LAB

Confocal laser scanning microscopy, stochastic optical reconstruction microscopy, STED microscopy, in vitro calcium imaging, immunofluorescent and immunohistochemical staining techniques, RNAscope technique, in vitro electrophysiology, cell culture techniques.

## SELECTED PUBLICATIONS

Barabás, K., **Kovács, G.**, Vértes, V., Kövesd, E., Faludi, P., Udvarács, I., Pham, D., Reglödi, D., Abraham, I M., Nagy, Zs. (2022) Stereology of gonadotropin-releasing hormone and kisspeptin neurons in PACAP gene-deficient female mice. **Front Endocrinol (Laussane) 13:** 993228.

Kövesdi, E., Udvarács, I., Kecskés, A., Szőcs, Sz., Farkas, Sz., Faludi, P., Jánosi, T Z., Ábrahám, I M., **Kovács, G.** (2023) 17 $\beta$ -estradiol does not have a direct effect on the function of striatal cholinergic interneurons in adult mice in vitro. **Front Endocrinol (Lausanne) 13:** 993552.

**Kovács, G.**, Környei, Zs., Tóth, K., Baranyi, M., Brunner, J., Neubrandt, M., Dénes, Á., Sperlág, B. (2018) Modulation of P2X7 purinergic receptor activity by extracellular Zn<sup>2+</sup> in cultured mouse hippocampal astroglia. **Cell Calcium 75:** 1-13.