

# BARBARA FÜLÖP



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## RESEARCH AREA

The project provides the opportunity to acquire a broad methodological skill set. This includes performing in vivo pain and complex behavioral analyses in chronic pain models, as well as quantitative assessments of inflammatory parameters, such as regional blood flow and edema formation. Ex vivo approaches involve immunohistochemical analyses of nervous system tissues. The work encompasses the full execution of animal experiments, from animal handling and surgical procedures to perfusion and tissue processing, ensuring comprehensive hands-on expertise in preclinical research.

## TECHNIQUES AVAILABLE IN THE LAB

Our research aims to elucidate the mechanisms of chronic stress-induced pain in mouse models of fibromyalgia. Our investigations focus on identifying the signaling pathways that are essential for the development and maintenance of the disease at both central and peripheral levels of the nervous system. We want to investigate the roles of glial cells, particularly microglia and astrocytes, and the signaling factors that initiate the neuroinflammatory cascade, including neuropeptides and cytokines. In addition to mapping the underlying molecular and cellular mechanisms, our goal is to identify potential drug targets and to investigate the effects of their pharmacological blockade in preclinical models. Our results may contribute to a better understanding of chronic primary pain conditions, particularly the pathomechanisms of fibromyalgia, and may support the development of disease-specific, targeted therapeutic strategies.

## SELECTED PUBLICATIONS

**Fülöp, B.,** Borbély, É., Helyes, Z. (2025) How does chronic psychosocial distress induce pain? Focus on neuroinflammation and neuroplasticity changes. **Brain Behav Immun Health** **44**: 100964.

**Fülöp, B.,** Hunyady, Á., Bencze, N., Kormos, V., Szentes, N., Dénes, Á., Lénárt, N., Borbély, É., Helyes, Z. (2023) IL-1 Mediates Chronic Stress-Induced Hyperalgesia Accompanied by Microglia and Astroglia Morphological Changes in Pain-Related Brain Regions in Mice. **Int J Mol Sci** **24**: 5479.

Borbély, É., Kecskés, A., Kun, J., Kepe, E., **Fülöp, B.,** Kovács-Rozmer, K., Scheich, B., Renner, É., Palkovits, M., Helyes, Z. (2023) Hemokinin-1 is a mediator of chronic restraint stress-induced pain. **Sci Rep** **13**: 20030.