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RESEARCH AREA

Complex cannabinoid signaling contributes to the regulation of a number of (patho)physiological processes in human skin. These include, but are not limited to, local inflammatory processes, sebum production, pigmentation, hair growth, or differentiation of epidermal keratinocytes. Dysregulation of these processes play an important role in the pathogenesis of highly prevalent diseases (e.g., acne, hair growth disorders, atopic dermatitis, etc.). Thus, together with national and international collaborators, and industrial partners, our team aims to explore the putative therapeutic potential of the cannabinoid signaling in the above diseases. We mostly use molecular and cellular physiology approaches. In addition to the "endogenous" cannabinoids produced in our body, we also study the effects of plant-derived cannabinoids and "cannabinoid-like" compounds, as well as signaling systems that are related to the cannabinoid signaling (e.g., purinergic signaling, TRP channels, etc.). Moreover, we plan to pay special attention to the interactions between the cannabinoid signaling and the extracellular vesicle-mediated intercellular communication.

TECHNIQUES AVAILABLE IN THE LAB

In our experiments, we investigate cell lines, primary human cells, reconstructed 3D skin equivalents, as well as various organ cultures (e.g., hair follicle, full-thickness human skin). Among others, changes in viability, proliferation, lipid production, intracellular ion homeostasis, gene expression (Q-PCR, western blot, immunolabeling), and mediator production (ELISA) are monitored. We influence gene expression by various methods (e.g., siRNA-mediated selective gene silencing), while in the case of genomic and lipidomic studies, we rely on the expertise of our collaborators.

SELECTED PUBLICATIONS

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Markovics, A., Angyal, Á., Tóth, K.F., Ádám, D., Pénzes, Zs., Magi, J., Pór, Á., Kovács, I., Törőcsik, D., Zouboulis, C.C., Bíró, T.[#], **Oláh, A.**[#,&] (2020) GPR119 is a potent regulator of human sebocyte biology. **J Invest Dermatol 140:** 1909-1918.e8. [#]Shared last authorship. [&]Corresponding author.