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RESEARCH AREA

Myeloid-derived suppressor cells (MDSCs) originate from the bone marrow and are capable of inhibiting the anti-tumor functions of T cells, B cells, and NK cells. The presence of MDSCs in tumor-bearing mouse models as well as in human tumors and peripheral blood is associated with poor prognosis. Targeted inhibition of MDSCs therefore holds therapeutic potential in cancer.

Relatively little is known about the ion channels expressed by MDSCs. To date, TRPV1, P2X7R, and the Hv1 proton channel have been described. The latter was identified and characterized by our research group in tumor-associated MDSCs.

In our current research, we focus on determining how the Hv1 proton channel contributes to the immunosuppressive function of MDSCs within the tumor microenvironment, using both in vivo and in vitro approaches.

TECHNIQUES AVAILABLE IN THE LAB

Lewis lung carcinoma and B16 melanoma mouse models; preparation of frozen tissue sections; immunostaining; confocal microscopy; in vitro differentiation of MDSCs from mouse bone marrow cells; gelatin degradation assay; measurement of reactive oxygen species by flow cytometry and chemiluminescence; Western blotting; determination of intracellular pH.

SELECTED PUBLICATIONS

Borrego, J., Mészáros, B., Szanto, TG., Teshome, RT., **Korpos, É.**, Varga, Z., Papp, F. (2025) Modulators of the Human Voltage-Gated Proton Channel Hv1. **Pharmaceuticals (Basel) 10:** 1480.

Piga, M., Varga, Z., Feher, A., Papp, F., **Korpos, E.**, Bangera, KC., Frlan, R., Ilaš, J., Dernovšek, J., Tomašič, T., Zidar, N. (2024) Identification of a Novel Structural Class of Hv1 Inhibitors by Structure-Based Virtual Screening. **J Chem Inf Model 12:** 4850-4862.

Korpos, É., Papp, F. (2023) New 'kids' on the voltage-gated proton channel block. **FEBS J 4:** 970-973.

Paul, Konken, C., Beutel, B., Schinor, B., Song, J., Gerwien, H., **Korpos, E.**, Burmeister, M., Riemann, B., Schäfers, M., Sorokin, L., Haufe, G. (2023) Influence of N-arylsulfonamido d-valine N-substituents on the selectivity and potency of matrix metalloproteinase inhibitors. **Bioorg Med Chem 90:** 117350.

Szanto, TG., Feher, A., **Korpos, E.**, Gyöngyösi, A., Kállai, J., Mészáros, B., Ovari, K., Lányi, Á., Panyi, G., Varga, Z. (2023) 5-Chloro-2-Guanidinobenzimidazole (ClGBI) Is a Non-Selective Inhibitor of the Human Hv1. **Pharmaceuticals (Basel) 5:** 656.