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RESEARCH AREA

Although many new therapeutic compounds are tested in clinical trials, the mortality rate for some tumors (e.g. pancreatic tumors, ductal adenocarcinoma) is still very high. Among the main reasons for the poor prognosis is the lack of a targeted chemotherapeutic agent and the rapid development of resistance during standard chemotherapy (gemcitabine), in which the cellular elements of the microenvironment play a critical role. The main aims of our research are (i) to identify new antitumor compounds (mainly small molecules) by impedimetric methods (ii) to identify intracellular targets of these new drug candidates; (iii) to elucidate the exact molecular mechanism of the antitumor effect on pancreatic cancer model; (iv) to identify the molecular mechanisms of the antitumor effect on the tumor environment, e.g. immune cells and ECM composition, which may also influence both the possible development of resistance and the in vivo efficacy of the molecule.

TECHNIQUES AVAILABLE IN THE LAB

- Cell culturing (2D and 3D)
- Cell physiological, and molecular biological assays: Impedance-based measurement techniques (xCELLigence and ECIS)
- Live cell imaging (holographic microscopy, high content imaging)
- Cell-based assays (toxicity, apoptosis, migration, adhesion measurement)
- Protein and mRNA expression measurement (immunocytochemistry, flow cytometry, ELISA, real-time PCR).

SELECTED PUBLICATIONS

Kalabay, M., Szász, Z., **Láng, O.**, Lajkó, E., Pállinger, É., Duró, C., Jernei, T., Csámpai, A., Takács, A., Kóhidai, L. (2022) Investigation of the Antitumor Effects of Tamoxifen and Its Ferrocene-Linked Derivatives on Pancreatic and Breast Cancer Cell Lines. **Pharmaceuticals** **15**: 314.

Kóhidai, Z., Takács, A., Lajkó, E., Géczi, Z., Pállinger, É., **Láng, O.**, Kóhidai, L. (2022) The effects of mouthwashes in human gingiva epithelial progenitor (HGEPP) cells. **Clin Oral Invest** **26**: 4559-4574.

Takács, A., Szász, Z., Kalabay, M., Bárány, P., Csámpai, A., Hegyesi, H., **Láng, O.**, Lajkó, E., Kóhidai, L. (2021) The Synergistic Activity of Bortezomib and TIC10 against A2058 Melanoma Cells. **Pharmaceuticals** **14**: 820.

Láng, O., Nagy, K.S., Láng, J., Perczel-Kovács, K., Herczegh, A., Lohinai, Z., Varga, G., Kóhidai, L. (2021) Comparative study of hyperpure chlorine dioxide with two other irrigants regarding the viability of periodontal ligament stem cells. **Clin Oral Invest** **25**: 2981-2992.

Takács, A., Lajkó, E., **Láng, O.**, Istenes, I., Kóhidai, L. (2020) Alpha-lipoic acid alters the antitumor effect of bortezomib in melanoma cells in vitro. **Sci Rep** **14**: 287.