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RESEARCH AREA

Our aim is to screen and identify natural and artificially synthesized small molecules that can potentially serve as pharmacons. We established and constantly develop a screening platform that can primarily identify molecules with antineoplastic or antibacterial properties. Using that screening platform, we have identified a set of molecules with submicromolar inhibitory constants that are now under intellectual property protection. Our aim is to continue screening for molecules with similar properties and through that, provide feedback for rational drug design. Furthermore, we want to shed light on the mechanism through which the molecules exert their effects in order to support the subsequent steps in drug development.

TECHNIQUES AVAILABLE IN THE LAB

Alongside the basic cell culture techniques, the attendee can learn basic techniques in studying cell proliferation. Furthermore, important toxicology methods (cell death and mitochondrial assays) and basic biochemical and molecular biology techniques can be acquired. At the level of theory the background of molecules screening and basic preclinical evaluation can be learned.

SELECTED PUBLICATIONS

Kacsir, I.[#], **Sipos, A.[#]**, Major, E., Bajusz, N., Bényei, A., Péter Buglyó, P., Somsák, L., Kardos, G., Bai, P., Bokor, É. (2023) Half-sandwich type platinum-group metal complexes of C-glucosaminyl azines: syntheses, antineoplastic and antimicrobial activities. **Molecules** **28** (7): 1-55. [#]joint first authorship.

Kacsir, I.[#], **Sipos, A.[#]**, Kiss, T., Major, E., Bajusz, N., Tóth, E., ... & Bokor, É. (2023) Half sandwich-type osmium, ruthenium, iridium and rhodium complexes with bidentate glycosyl heterocyclic ligands induce cytostasis in platinum-resistant ovarian cancer cells and bacteriostasis in Gram-positive multiresistant bacteria. **Front Chem** **11**: 1-18. [#]joint first authorship.

Kacsir, I.[#], **Sipos, A.[#]**, Bényei, A., Janka, E., Buglyó, P., Somsák, L., Bai, P., Bokor, É. (2022) Reactive oxygen species production is responsible for antineoplastic activity of osmium, ruthenium, iridium and rhodium half-sandwich type complexes with bidentate glycosyl heterocyclic ligands in various cancer cell models. **Int J Mol Sci** **23**(2): 813. [#]joint first authorship.

Kacsir, I.[#], **Sipos, A.[#]**, Ujlaki, G., Buglyó, P., Somsák, L., Bai, P., Bokor, É. (2021) Ruthenium half-sandwich type complexes with bidentate monosaccharide ligands show antineoplastic activity in ovarian cancer cell models through reactive oxygen species production. **Int J MolSci** **22**(19): 10454. [#]joint first authorship.

Sipos, A., Ujlaki, G., Mikó, E., Maka, E., Szabó, J., Uray, K., Krasznai, Z., Bai, P. (2021) The role of the microbiome in ovarian cancer: mechanistic insights into oncobiosis and to bacterial metabolite signaling. **Mol Med** **27**(1): 33.