

## ANNA SEBESTYÉN



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## RESEARCH AREA

The signalling network failures of solid tumours, and their tissue heterogeneity are in the focus of our Tumour Metabolism Research Group. Our main questions are related to the regulatory role of mTOR signalling in cellular metabolism, metabolic heterogeneity and plasticity. We are characterising human cancer tissues and additionally, we can use traditional 2D cell culturing and xenograft models in our experimental research work regarding to tumour progression, therapy resistance and metastasis. Furthermore, in our new research direction we are developing and applying new in vitro 3D bioprinted cancer models.

## TECHNIQUES AVAILABLE IN THE LAB

In vitro 2D, 3D cell culturing, 3D bioprinting, and in vivo cancer modelling using genetically modified cancer cells; in vivo studies using xenograft models; protein expression and metabolite alteration studies in situ and in experimental model systems (IHC, Western blot, WES Simple, mass spectrometry, LC-MS); molecular biology technology (FISH, sequencing, mRNA expression analyses).

## SELECTED PUBLICATIONS

Dankó, T., Petővári, G., Raffay, R., Sztankovics, D., Moldvai, D., Vetlényi, E., Krencz, I., Rókus, A., Sipos, K., Visnovitz, T., Pápay, J., **Sebestyén, A.** (2022) Characterisation of 3D Bioprinted Human Breast Cancer Model for In Vitro Drug and Metabolic Targeting. *Int J Mol Sci* **23**(13): 7444.

**Sebestyén, A.**, Dankó, T., Sztankovics, D., Moldvai, D., Raffay, R., Cervi, C., Krencz, I., Zsiros, V., Jeney, A., Petővári, G. (2021) The role of metabolic ecosystem in cancer progression - metabolic plasticity and mTOR hyperactivity in tumor tissues. *Cancer Metastasis Rev* **40**(4): 989-1033.

Misra, S., Moro, CF., Del Chiaro, M., Pouso S., **Sebestyén, A.**, Löhr M., Björnstedt, M., Verbeke, CS. (2019) Ex vivo organotypic culture system of precision-cut slices of human pancreatic ductal adenocarcinoma. *Sci Rep* **9**(1): 2133.

Hujber, Z., Horváth, G., Petővári, G., Krencz, I., Dankó, T., Mészáros, K., Rajnai, H., Szoboszlai, N., Leenders, WPJ., Jeney, A., Tretter, L., **Sebestyén, A.** (2018) GABA, glutamine, glutamate oxidation and succinic semialdehyde dehydrogenase expression in human gliomas. *J Exp Clin Cancer Res* **37**(1): 271.

Nemes, K., Csóka, M., Nagy, N., Márk, Á., Váradi, Z., Dankó, T., Kovács, G., Kopper, L., **Sebestyén, A.** (2015) Expression of certain leukemia/lymphoma related microRNAs and its correlation with prognosis in childhood acute lymphoblastic leukemia. *Pathol Oncol Res* **21**(3): 597-604.