Project 7.1 Towards re-definition of the mechanisms of entotic cell death; the role of HAX1 and SEPT7 in the regulation of entosis in breast cancer models in vivo and in vitro.

Supervisor: Ewa A. Grzybowska
Institute: Maria Sklodowska-Curie National Research Institute of Oncology
WWW: https://www.pib-nio.pl/

Background:

Entosis is frequent in tumors, but its role is elusive. In our laboratory we have shown that anti-apoptotic HAX1 protein has a role in entosis. In this project we propose to resolve this role and the molecular mechanisms behind it, including possible re-definition of the role of cell-cell junctions and the involvement of septins.
Proposed experiments should encompass molecular and structural part, based on confocal and superresolution microscopy and a part performed in a mouse model.

Aim:

Entosis is a less known form of cell death, but may have a big impact on cancer progression as a form of eliminating highly proliferating tumor cells from the epithelial cell layer. In this project we propose to test the role of HAX1 and septins in entosis.
Specific aims:
• to re-define the role of cell-cell junctions in entosis in adherent monolayer
• to establish the participation of septins
• to establish the role of HAX1
• to assess the role of entosis for tumor progression in mouse model

Requirements:

Successful candidate should hold a MSc degree, have an excellent expertise in laboratory techniques and the ability to learn new techniques, advanced knowledge of molecular biology, computer skills (programming not required, but appreciated – for example R, Python), relative fluency in English, serious attitude towards science.

Funding: NCN OPUS 2020/39/B/NZ3/03152