Project 1.3. Regulation of chromatin accessibility in the hypoxic tumour microenvironment of glioblastoma

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Background: Chromatin structure can be reversibly modulated and is often dysregulated in cancers. Glioblastoma is the most common adult brain tumour type with no efficient cure to date. Hypoxia (shortage of oxygen) often develops in solid tumours and plays a critical role in tumour progression as it can globally and rapidly alter gene expression, induce cancer cell invasiveness, stemness and lead to therapy resistance. Hypoxia can also enhance the pro-tumorigenic function of innate immune cells such as glioma-associated microglia and macrophages (GAMs), e.g. by inducing expression of cytokines and cell surface receptors. The project will characterize the genome-wide changes in chromatin accessibility in GAMs and glioma cells in response to hypoxic stress. We will combine the *in vivo* and *in vitro* approaches, including state-of-the-art single-cell Pi-ATAC methodology (Protein-indexed Assay of Transposase Accessible Chromatin with sequencing). The candidate will receive full training in the analysis of single cell ATAC-seq data, although the prior experience or knowledge on the genome-wide data analysis would be of great advantage. The candidate will also have an opportunity to learn the laboratory techniques in NGS, cell culture and molecular biology. The candidate is required to have very good spoken and written English, be very motivated and have 'can do' attitude. For more details please contact Dr Katarzyna Leszczyńska (k.leszczynska@nencki.edu.pl).

Aim: The project aims to characterize the properties of chromatin in cancer cells and microglia exposed to intratumoral hypoxic stress. The candidate will further investigate the role of hypoxia-imposed chromatin changes on the interaction between microglia and glioma cells in the malignant brain tumours.