Contribution ID: **107** Type: **Poster**

Sulfatide (SM4) serves as a regulatory molecule crucial in the transcription of BOLA2 gene.

Sulfatide (SM4), the simplest, and the most intensively studied sulfated GSL synthesized by the enzyme galactosylceramide sulfotransferase –CST. Increased amounts of sulfatides have been found in various types of carcinomas including breast cancer. The biochemical mechanisms producing altered sulfated glycan structures in cancer cells remain unclear, although understanding it seems to be fundamental in reducing breast cancer cell (BCC) mortality.

Our preliminary data strongly suggest that SM4 can shift the balance in BCC from pro-malignant properties (sulfatides act as malignancy-related adhesive molecules) to reduced-malignant properties (sulfatides act as pro-apoptotic molecules). It seems crucial to clarify how membrane-anchored SM4 can regulate the expression of genes involved in cell invasiveness and apoptosis and may have the opposite effect on the nature of tumor malignancy

To assess, whether the presence of SM4 affects gene expression associated with invasion promotion or apoptosis we applied Illumina NextSeq 500 sequencing and bioinformatic analyses for identification differentially expressed genes (DEGs) in BCCs overexpressing CST compared to controls. Finally, we correlated high expression of CST down-regulated expression of BOLA2 gene, known to be involved in the apoptosis through CIAPIN1 pathway.

It has been demonstrated that the promoter activity of the BOLA2 gene diminishes with the elevation of sulfatide levels on cell surfaces. Moreover, specific proteins from the STAT family have been identified whose activity is attenuated, implying a potential role in modulating BOLA2 promotor activity. Additionally, it has been observed that one of the subunits of integrin (β1) is markedly downregulated under conditions of elevated sulfatide levels, which may be associated, with the regulation of STAT transcription factor expression.

References

Acknowledgement of financial support

Primary author: Dr SUCHAŃSKI, Jarosław (Department of Biochemistry and Molecular Biology, Wroclaw University of Environmental and Life Sciences, C. K. Norwida 31, 50-375 Wroclaw, Poland.)

Co-authors: Ms WOLDAŃSKA, Weronika (Department of Biochemistry and Molecular Biology, Wroclaw University of Environmental and Life Sciences, C. K. Norwida 31, 50-375 Wroclaw, Poland.); Ms REZA, Safoura (Department of Biochemistry and Molecular Biology, Wroclaw University of Environmental and Life Sciences, C. K. Norwida 31, 50-375 Wroclaw, Poland.)

Presenter: Dr SUCHAŃSKI, Jarosław (Department of Biochemistry and Molecular Biology, Wroclaw University of Environmental and Life Sciences, C. K. Norwida 31, 50-375 Wroclaw, Poland.)

Session Classification: Life Science & Digital Health