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Lectin-based glycoprotein microarray – a tool for glycan analysis of gestational diabetes mellitus samples

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According to WHO approximately 422 million of people worldwide suffer from diabetes. This number increases every year. Gestational diabetes mellitus (GDM) is metabolic disease occurring during pregnancy, which can lead to several outcomes for mother and the child.

Glycans provide many important biological functions and appear as a potential tool to distinguish diabetes type 1 from type 2. Based on that, we focused on the glycans as possible biomarkers of GDM.

We compared glycan composition of serum, plasma and fibrinogen samples of healthy pregnant women and women with GDM. Samples were analysed using our lectin-based microarray method. Significant differences were found in serum and plasma samples. GDM serum samples showed significant drop of N-acetylgalactosamine (RCA), N-glycans with core fucose (LCA) and increase of glycan structures with sialic acid (MALII). GDM plasma samples indicated a significantly higher fucosylation (AAL). Found differences (GDM/non-GDM) in glycan composition can play important role for identification of potential glycan biomarkers, which can be useful in research and early diagnostics of GDM.

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