Multiple Reaction Monitoring Assay for Pre-eclampsia Related Calcyclin Peptides in Formalin Fixed Paraffin Embedded Placenta

Coşkun Güzeli, Robert Tonge2, Theo M. Luider1

1. Department of Neurology, Erasmus MC, Rotterdam, The Netherlands
2. Waters Corporation, Manchester, United Kingdom

Although the cause of pre-eclampsia during pregnancy has not been elucidated yet, it is evident that placental and maternal endothelial dysfunction is involved. It has been previously demonstrated that in early onset pre-eclampsia placental calcyclin expression is significantly higher compared to controls.

In the current study, the aforementioned results were confirmed and relatively quantified using multiple reaction monitoring (MRM) on two peptide fragments of calcyclin. Cells were obtained from control and pre-eclamptic placental tissue collected by laser capture microdissection, from formalin-fixed paraffin-embedded (FFPE) material, treated with a solution to reverse formalin fixation.

Data presented, demonstrates that MRM on laser microdissected material from FFPE tissue is possible and the developed MRM assay is capable to study quantitative levels of proteins from FFPE laser microdissected cells. The data showed that in pre-eclamptic patients, elevated levels of calcyclin is observed in placental trophoblast cells compared to normal trophoblast cells. This observation was confirmed in a qualitative manner by immunohistochemistry.

J Proteome Res. 2011 Jul 1;10(7):3274-3282