Mid-year Progress Report Preeclampsia Foundation Vision Grant
January 1 to December 31, 2012

Biomarker Assay Development for Translation of Discovery-based Placental mRNA Candidates to Serum Protein Concentrations in Early Pregnancy to Predict Preeclampsia

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We have been working with the new leadership of the Biomedical Mass Spectrometry Center (BSMC) of the Schools of the Health Sciences at the University of Pittsburgh. New immuno-depletion methods were developed using our Vision Grant project as a prototype. Among the 36 preeclampsia candidate genes we propose to test in maternal circulation, peptides of 4 encoded proteins were detected, however, the majority of these peptides were not unique or sufficiently specific. It has been determined that the cost of LC-MS/MS outweighs potential benefit of continuing mass spectrometry methods. We have obtained first trimester preeclampsia and control serum samples from additional sites including Boston, Sweden, and Finland to optimize and conduct ELISA studies of the candidate proteins. These experiments will provide preliminary data and effect sizes for larger studies in biomarker development of these candidates identified through global gene expression differences in first trimester placental samples of preeclampsia versus normal pregnancies.