Preeclampsia (PE) is a disease occurring in 3% -5% of all pregnancies in Western Europe and North America. There has been almost 8.5 million cases a year worldwide. Clinically this desease is related to an hypertenssion ≥140 / 90 mm Hg and proteinuria ≥0,3 g / 24 hr., occurring after 20 weeks gestation in women with previously identified normal pressure and lack of protein in the urine. It is estimated that in nearly 35% of women with gestational hypertension before 34 weeks of pregnancy develops preeklampsia. It is the leading cause of death in pregnant women worldwide. PE is variable between individuals, may occur with varying degrees of severity of hypertension and proteinuria after 20 weeks. Pregnancy, or may be complicated by HELLP syndrome (Hemolytica anemia, Elevated Liver enzymes, Low Platelet count) and eclampsia. The symptoms are associated with generalized edema, headache and visual disturbances, and in severe cases may experience liver failure and kidney disease, coagulation disorders, respiratory failure and intrauterine fetal growth restriction

In the pathogenesis of PE decisive role played by abnormal uterine vascular remodeling. The effects of the impact of this process on the fetus is becoming more and more noticeable with the passage of time as the uterine vessels are not able to keep up the transport of blood and nutrients necessary for the development of the fetus. Placental ischemia leads to oxidative stress which results in the release placental proteins (including inflammatory factors), and imbalance between pro angiogenic and anti-angiogenic factors. This results in vascular endothelial dysfunction and development of generalized inflammation in the mother's body, including the above-mentioned target organ damage.

Therefore, based on this knowledge, the main objective of the project is an quantitative analysis of inflammatory factors and the panel of sphingolipids in the peripheral blood of pregnant women with preeclampsia, which has lead to revision of the proposed pathway of patomechanism preeclampsia. An additional objective is to determine the predictive value for a statistically relevant factors and construct a prognostic classifier. The protein concentration in the blood of a woman is indicated by a very accurate and sensitive method of protein macroarray while the lipid content is measured using tandem mass spectrometry. The blood will be used for the analysis came from the 60 pregnant women between 25-40 week of gestation diagnosed with mild preeclampsia (without any other comorbidities) - the study group and the 60 of women between 25-40 week of gestation with uncomplicated pregnancy- control group.

Obtained results may contribute to a better understanding of how occurs the disease and its development, but also the processes, therefore, occur in the body of the mother. This information can provide knowledge and set new directions of research potentially curative therapies and even preventive measures.