

# HUDSON Institute established assay for early detection of preeclampsia

Preeclampsia is a serious disorder of human pregnancy with the risk of a premature birth and life-threatening blood pressure of the mother. The adjustment of the blood pressure as well as the measurement of the excreted protein in urine is of great importance and the early detection of preeclampsia is still a field of extensive research.

“Our major goals are to develop strategies for early detection and treatment of pre-eclampsia, a life-threatening disorder of human pregnancy. In addition, we are interested in the long-term health consequences of placental insufficiency and pregnancy diseases,” says Prof. Guiying Nie from Hudson Institute of Medical Research’s Implantation and Placental Development research group. She and her team developed a HtrA3 isoform specific ELISA for the early detection of preeclampsia (1) and a test system for HtrA4 (2).

The ELISAs were validated using the difficult to express HtrA family proteins (high temperature required factor A) HtrA1, HtrA3 and HtrA4 that were purchased from the BioTeZ GmbH. “We are glad to be able to provide valuable reagents for basic research. This helps us to develop new products which can be translated into real innovations for the health sector” says Dr. Anca Marksteder scientist, working for the protein expression facility at BioTeZ.

Preeclampsia can be divided into subtypes of early onset (<34 weeks of gestation) and late onset (>34 weeks). The recently published study examined serum levels of HtrA3 isoforms (Long form, L; total form, T) at 11-13 weeks of gestation in patients who subsequently developed preeclampsia in the 3<sup>rd</sup> trimester. The results show that compared with controls, the patient’s developed late-onset preeclampsia and had significantly higher levels of HtrA3-L, whereas those who developed early-onset preeclampsia had significantly lower ratios of HtrA3-L/HtrA3-T. This data supports the utility of the HtrA3 ELISAs for early detection of preeclampsia.

Prof. Guiying Nie’s research group is interested in uterine infertility and receptivity for embryo implantation, non-hormonal contraception, endometrial cancer, placental development and diseases of pregnancy in particularly preeclampsia.

Hudson Institute of Medical Research is globally renowned for its ground-breaking research into reproductive and baby health and is a leading center for research into infection and innate immunity. It is one of the largest and most respected medical research institutes in Australia. It has 75 years of research excellence in discoveries included the development of IVF technology, discovery of the hormone Inhibin, which enabled diagnostic tests for Down’s Syndrome and ovarian cancers.

BioTeZ is a 1992 founded Biotech Company, developing and producing ELISA kits, protease activity kits, antibodies, diagnostics and oligonucleotides. BioTeZ has longstanding experience in the development of biochemical test procedures for research institutes, hospitals and laboratories worldwide.



1. Wang Y, Li Y, Hyett J, da Silva Costa F, Nie G. HtrA3 Isoform-Specific ELISAs for Early Detection of Preeclampsia. *J Biomol Screen* 2016;
2. Wang Y, Nie G. High levels of HtrA4 observed in preeclamptic circulation drastically alter endothelial gene expression and induce inflammation in human umbilical vein endothelial cells. *Placenta* 2016;47:46-55.