

## HtrA1 in differentiation and growth of human placental tissues

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HtrA1 is a secreted multidomain protein with serine protease activity. We used immunohistochemistry, western blotting, real time PCR and ELISA techniques to analyse the role of HtrA1 in normal and pathological development of human placental villous trees. In addition, we evaluated the alterations of maternal plasma HtrA1 level in preeclampsia (PE) complicated by intrauterine growth restriction (IUGR).

HtrA1 is expressed in the mesenchymal villi which are considered the basis of growth and differentiation of the villous trees and in the villous stroma directly opposed to cell islands and cell columns in first trimester placentas. In addition, the villous trophoblast, the syncytial knots and the foetal vessels are stained for HtrA1 in first as well as third trimester placentas [1]. When the placenta escapes the normal differentiation and growth control mechanisms, which are present during normal pregnancy, it may develop gestational diseases, such as trophoblastic disease as well as PE and IUGR [1,2]. The most striking finding of our investigation is the decrease of this protease in placental tissues with increasing severity of gestational diseases and the increase of HtrA1 in maternal plasma of PE complicated by IUGR [3]. Based on these data HtrA1 could be considered as a possible marker of an occurring IUGR in preeclamptic women.

### References

- [1] Marzioni et al. (2009) Expression Pattern Alterations of the Serine Protease HtrA1 in Normal Human Placental Tissues and in Gestational Trophoblastic Diseases. *Histol Histopathol* 24: 1213-1222.
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### Key words

HtrA1, placenta, development, gestational diseases.