

PROGESTERONE SPECIFICALLY DECREASES GP96 AND ITS RECEPTOR CD91 AT THE MATERNAL-FETAL INTERFACE OF NORMAL EARLY PREGNANCY DECIDUA

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INTRODUCTION: Embryo implantation is essential for human survival; but it still remains an enigmatic biological phenomenon. Complex process of tissue remodelling at the maternal-fetal interface during the physiological and pathological processes is associated with blastocyst adhesion, trophoblast invasion, vessels and glandular accommodation, and decidual lymphocyte infiltration. This processes induce reaction of heat shock response, in which highly conserved proteins named heat shock proteins (HSPs), as molecular chaperons, monitor the configurations of newly synthesized proteins and prevent the formation of functionless aggregates of misfolded proteins, in that way promote cell survival and maintenance of cell homeostasis. Also tissue remodelling is associated with cell necrosis and increased levels of extracellular HSPs that have powerful effects on the immune response. Pro-inflammatory response could lead to pregnancy failure. The aim was to investigate regulation of glycoprotein 96 (gp96) and its receptor CD91 in the first trimester normal human pregnancy decidua.

MATERIAL AND METHODS: Single labelling using immunohistology and double labelling by immunofluorescence were used to detect gp96 and CD91 in paraffin embedded tissue sections of in the first trimester normal human pregnancy decidua. The estimation of the total number of positively stained cells per square millimetre and detection of the staining intensities were analysed using the Alphelys Spot Browser 2 integrated system. The expression of CD91 and gp96 were analysed in isolated decidual mononuclear cells by flow cytometry and RT-qPCR.

RESULTS: Gp96 and its receptor CD91 were abundantly expressed in early normal pregnancy decidua. Progesterone Induced Blocking Factor (PIBF) as specific mediator of progesterone action decreased the frequency of CD91⁺ expressing T cells, natural killer (NK) cells and mature dendritic cells. PIBF on dose dependent manner significantly down-regulated mRNA of gp96 and CD91. We can conclude that the presence of gp96 and CD91 at the maternal-fetal interface provides a molecular basis for their interaction, particularly in the absence of PIBF.

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