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Differential expression of CD44 in rabbit uterine epithelium during early pregnancy

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The expression of the cell surface glycoprotein CD44 was monitored in rabbit endometrium during early pregnancy and pseudopregnancy by immunohistochemistry. The epitope was not detected in the uterine epithelium of non-pregnant does; in pseudopregnant animals it was expressed only weakly and late, most clearly detectable at the last stage investigated, i.e. on day 10. During pregnancy, however, CD44 was expressed more strongly in the epithelium starting on day 6, i.e. shortly before embryo implantation (day 7). Northern blot analysis confirmed this increase in expression. Immunohistochemically, CD44 expression peaked around days 8 and 9 of pregnancy and was generally localized on the lateral cell membranes of uterine epithelium, but not on basal or apical membranes. The staining pattern was similar on all major mucosal folds in that the signal was most intense in the luminal-most parts and slightly less in the middle of these folds. The intensity was gradually reduced towards the depth of the crypts with their deepest parts being negative. At day 10 of pregnancy the intensity of staining was clearly reduced in all parts of the epithelium that had been positive before. Fusion of epithelial cells, a characteristic phenomenon in pregnant rabbit uteri, which is particularly widespread in the implantation chamber, was accompanied with abolishment of CD44 expression. While stromal cells in general showed only a weak reaction, some individual cells in the stroma were always strongly positive (numbers increased after implantation). The trophoblast only occasionally exhibited some faint cellular staining in cytotrophoblast as well as in syncytiotrophoblast. These data show that CD44 is expressed in rabbit uterine epithelium during the periimplantation phase, and that its expression appears to be triggered by embryonic signalling and may be relevant for implantation.

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