

During the preimplantation phase, the rabbit endometrium shows an impressive tissue remodeling and considerable changes in secretory activity. Subsequent implantation of the embryo starts with attachment of the trophoblast to the (otherwise non-adhesive) apical end of the uterine epithelium (1).

Lectin probes were used in order to monitor changes in the composition of cell surface coat carbohydrates as related to cell attachment, and changes in intracellular distribution as related to secretory processes. Cryostat sections from rabbit uteri (and embryos where applicable) were taken at the non-pregnant stage and at 3, 5, 7 and 8 days post coitum (d p.c.) and incubated with FITC-conjugated lectins (RCA, PNA, SBA, DBA, WGA, Succinyl-Con A, UEA). Except for UEA, all used lectins showed strong binding to at least some tissues in our material. Binding was generally maximal on blastocyst coverings (except DBA), intermediate in some parts of endometrium (see below), and minimal on the trophoblast. Patterns in the uterine epithelium showed impressive differences with various lectins and in different stages of pregnancy. Considerable contrast in lectin binding site density between deep (SBA) vs. upper parts (RCA, WGA) of uterine crypts and luminal epithelium seems to be correlated with different functional states which are morphologically not very apparent. With PNA, this differential reactivity was found to change to the reverse between 3 and 5 d p.c. At 8 d p.c., a marked loss of WGA, SBA and RCA binding was seen at the uterine epithelium of placental folds. With S-Con A, maximal binding was in the subepithelial endometrial stroma, decreasing at 8 d p.c. Knowledge of these patterns will be used to design experiments on the potential role of the identified carbohydrate groups in embryo implantation. (Supported by Deutsche Forschungsgemeinschaft grant De 181/9-5)

References: (1) Denker, H.-W.: Adv.Anat.Embryol.Cell Biol. 53 Part 5 (1977)

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