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107 IMPLANTATION-INDUCED CHANGES IN UTERINE ARYLAMIDASE LOCALIZATION IN THE RABBIT, RAT, HAMSTER AND GUINEA PIG. J.A. Mitchell^x and H.-W. Denker, Depts. of Anatomy, Wayne State University, Detroit, USA and RWTH, Aachen, West Germany. A number of observations suggest that the arylamidases (AAs) may be involved in

implantation. In the rabbit, AAs are concentrated at the apical surface of the luminal epithelium where blastocyst-uterine contact first occurs; implantation results in localized depletion of enzyme activity in the implantation chamber and AAs are secreted into the uterine fluid during the peri-implantation period. To further investigate the possible involvement of AAs in implantation, the pattern of enzyme localization and the effects of blastocyst implantation on arylamidase distribution were determined in the rat, hamster and guinea pig. Implantation sites were detected by the blue-reaction following iv injection of Pontamine Blue dye. Uteri were collected from pregnant rats (Day 4 post coitum), hamsters (Day 4 pc) and guinea pigs (Day 7 pc), quick-frozen and longitudinal cryostat sections (≅14u) prepared. Sections of rabbit implantation sites (Days 5-7 pc) were concomitantly processed during each enzyme localization procedure as controls. Arylamidase was localized histochemically using L-leucine-4-methoxyl-B-naphthylamide as substrate coupled with Blue B. Arylamidase localization was compared at implantation sites vs. adjacent non-implantation regions. Distribution of arylamidase activity in regions between implantation sites differed among species. Activity was uniformly intense in the apical region of the luminal epithelium in the rabbit and hamster, was variable in the rat, and was absent in the guinea pig. Arylamidase activity was very low or absent in the non-decidualized stroma of the rabbit, rat and hamster but was very intense in the guinea pig. Implanting blastocysts typically altered the distribution of arylamidase activity. Enzyme reactivity was markedly depleted in the luminal epithelium in contact with blastocysts in the rabbit but not obviously changed in the hamster. Blastocyst-induced decidualization enhanced enzyme activity in the uterine stroma in the rat but markedly depleted activity in the guinea pig. The diversity of uterine arylamidase localization between species and the variation in blastocyst-induced changes in enzyme distribution suggest that AAs have diverse functions in different species. Furthermore, it is apparent that this family of enzymes can serve as a particularly sensitive indicator of altered physiological state in cells involved in blastocyst implantation. (Supported by DFG: De 181/9-6; XAlexander von Humboldt Fellow)

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