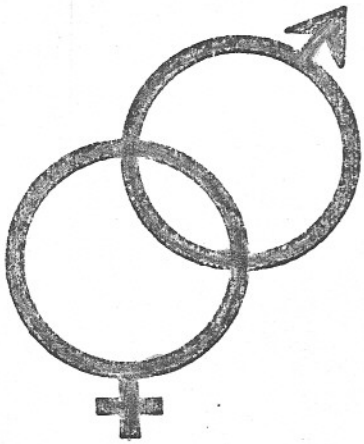
Seventh Annual Meeting

August 19-22, 1974

SOCIETY FOR THE STUDY OF REPRODUCTION



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152. Peptidases Related to Implantation in the Rabbit: Local Stimulation of Endometrial Arylamidase Secretion by the Blastocyst Immediately Preceding Implantation. H.W. Denker and Gerhild van Hoorn, Arbeitsgruppe Gottschewski am Max-Planck-Institut für Immunbiologie, Freiburg, Germany.

Amino acid arylamidase activity (in earlier work also referred to as "leucine aminopeptidase") has been found to increase dramatically in the rabbit uterine epithelium between 2 and 5 d p.c., and to be secreted into the uterine fluid. In the present investigations, blastocyst site and interblastocyst endometrium were studied separately.

For histochemical tests, uteri were obtained at 5, 6, 6-2/3, 7, 7-1/3 and 8 d p.c. and frozen with liquid nitrogen. Longitudinal 14 μm sections were cut on a cryostate. Substrate: L-leucine-β-naphthylamide. For biochemical tests 3000 g supernatants of homogenates of blastocyst site and of interblastocyst endometrium were tested separately, using 6-2/3 and 8 d p.c. stages. Uteri from 8 d pseudopregnant animals (mated by vasectomized bucks) were treated similarly. Substrates in the biochemical tests: L-leucine-3-naphthylamide and L-leucine-p-nitroaniline.

5 and 6 d p.c., the enzyme activity is uniform over the whole length of the uterus. Beginning 6-2/3 d p.c., the endometrium in the neighbourhood of the blastocyst is progressively depleted of arylamidase, whereas the interblastocyst areas retain high activity: 6-2/3 d p.c., interblastocyst area: 34.8 ± 1.3, blastocyst site: 24.0 ± 2.9; 8 d p.c., interblastocyst area: 43.4 ± 5.5, blastocyst site: 18.4 ± 2.5 (mU/mg protein ± SE, 4 uteri from 2 animals each stage; substrate: L-leucine-β-naphthylamide). 8 d pseudopregnant endometrium gave values in the range of interblastocyst areas of pregnant uteri, indicating that the low activities found in implantation sites are caused by the presence of a blastocyst. The effect is thought to be due to a discharge of arylamidase into the uterine secretion, locally stimulated by blastocyst factors acting as early as 6-2/3 d p.c., i.e., few hours before lysis of blastocyst coverings starts. (Supported in part by Deutsche Forschungsgezeinschaft Grant No. De 181/3.)