Annual meeting of the

Belgian Society for Cell Biology
German Society for Cell Biology

Polarity – Transport – Skeleton

Bonn, 18–22 March 1985

ABSTRACTS

Embryo implantation: controlled invasion of a non-tumor tissue

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The trophoblast is a non-tumor tissue which shows highly invasive properties during a limited period, i.e. during implantation and placenta formation: The mechanisms of regulation of its invasiveness should be of considerable interest but are largely unknown so far.

Trophoblast is provided, more or less throughout all phases of its existence, with all elements needed for cell motility (microfilaments, intermediate filaments, microtubuli). The high potential of trophoblast for ingression and destruction becomes particularly obvious when it is transplanted to ectopic sites. On the other hand, investigation of trophoblast invasion during embryo implantation in utero suggests that the reaction of the host tissue to the potentially invasive trophoblast is of utmost importance during this normal process of invasion. The implantation reaction starts when a (hormonally controlled) "receptive" state of the host tissue (the endometrium) coincides with the invasive phase of the trophoblast. Under this condition a complex local interaction is initiated which leads to the instruction for the endometrial cells (uterine epithelium, decidual cells) to undergo a set of changes in their physiological state which appear to involve: membrane-bound glycoproteins and enzymes, membrane fluidity, cell junctions, organization of the cytoskeleton, overall cell polarity, and attachment to basement membranes. As a result, endometrial cells appear to give way to the advancing trophoblast in a controlled manner, a process which is followed by activation of autolysis as well as phagocytosis.

European
Journal of Cell Biology