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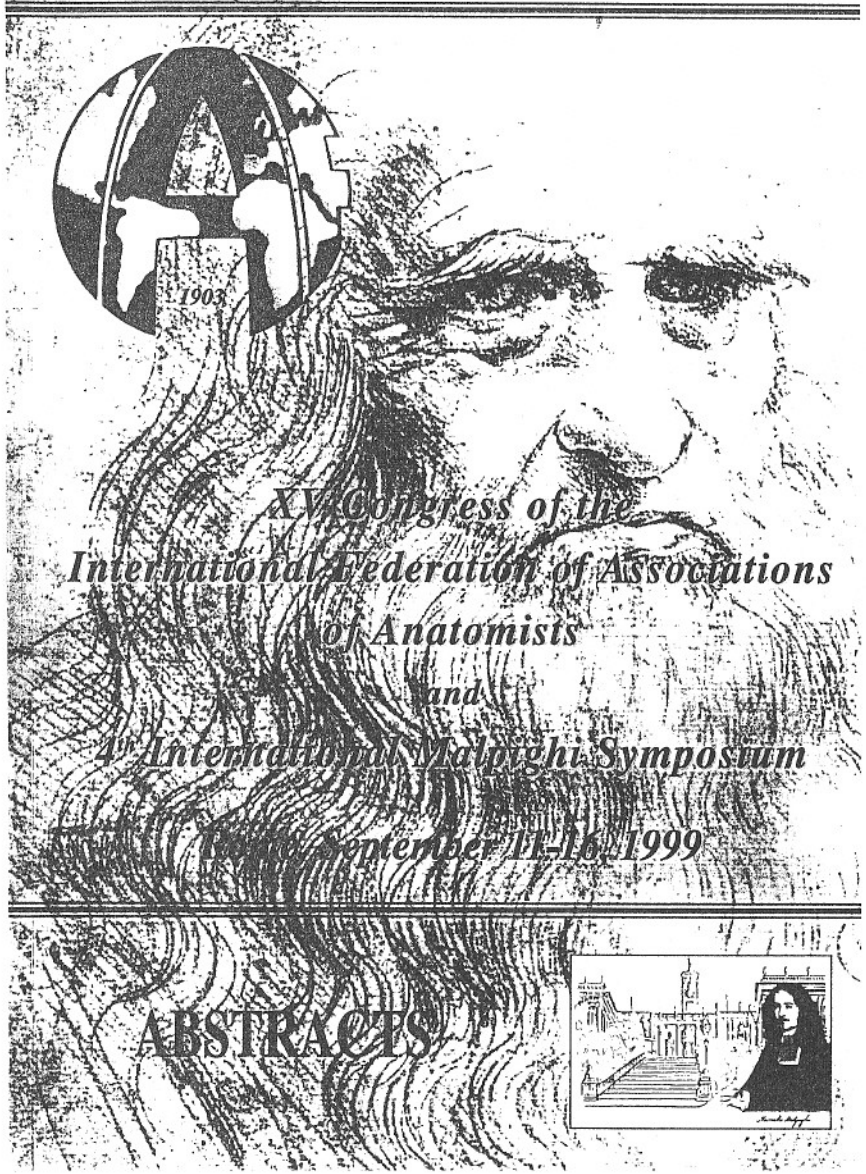

STUDIES ON THE REGULATORY FUNCTION OF THE UTERINE EPITHELIUM FOR TROPHOBLAST ATTACHMENT

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Embryo implantation in the mammalian uterus is initiated by the formation of a direct cell-to-cell contact between the trophoblast of the blastocyst and the uterine epithelium. This process is far from trivial since apical plasma membranes of epithelial cells are normally non-adhesive. The uterine epithelium has the remarkable ability to enter, under steroid hormone control, a specific state („receptivity") at which it can down-regulate this repellent property and can finally become apically adhesive for trophoblast (probably aided additionally by local paracrine signals). Experimental data from recent years are beginning to shed some light on the involved cell biological/molecular events. They will be discussed on the basis of concepts concerning the regulation of epithelial cell polarity and with side views on epithelial-mesenchymal transformation. Recently developed experimental in-vitro systems have allowed to detect a remarkable degree of selectivity in the interaction of trophoblast and uterine epithelium, in contrast to stroma invasion. A new approach enables us to determine actual adhesive forces between living trophoblast and uterine epithelial cells with a special modification of the atomic force microscope. The potential use of such an approach will be discussed.