ISSN 0724-5130

Annual meeting of the

Deutsche Gesellschaft für Zellbiologie

Symposia

Mechanisms of protein export — ribosomes — extracellular matrix — cytoskeleton

Workshops

Posttranslational modifications — symbiosis in plant cells — imaging living cells — protein phosphorylation and translation — macrophages — steroid hormone receptors — in situ hybridization

München, 21—25 March 1988

83 Induction of differentiation in choriocarcinoma cells by placental extracellular matrix.

Hohn, H-P*; Parker, R'; Boots, L'; Denker, H-W"; Hook, M*; *) Connective Tissue Laboratory, Dept. of Biochemistry, ') Dept. of Obstetrics & Gynecology, University of Alabama in Birmingham, Birmingham, AL 35294, USA; ") Abt. Anatomie, RWTH, Aachen, FRG.

Choriocarcinoma is the malignant equivalent of the trophoblast that has invasive properties during embryo implantation But in the process of placentation this invasion is controlled and the trophoblast undergoes differentiation with formation of symplasms and secretion of peptide and steroid hormones. Although choriocarcinoma escaped the control of invasion the cells are still capable of differentiation as indicated by the production of placental hormones, formation of syncytiotrophoblast-like cells and other markers. Since extracellular matrix is known to contribute to the induction of cell differentiation it was attempted to induce differentiation in BeWo choriocarcinoma cells (ATTC CCL 98) by growing the cells on extracellular matrix. For a first series of experiments a complete biomatrix was extracted from placenta and coated onto cell culture dishes at concentrations from 1.5µg/ml to 1.5mg/ml. Coated dishes were blocked with 1% denatured BSA Attachment rates in serum-free media to dishes coated with biomatrix were significantly enhanced with a maximum (more than 50% higher than uncoated dishes) at 0.15mg/ml. No attachment was found on BSA. Higher concentrations of biomatrix (1.5 and 0.15 mg/ml) also stimulated cell spreading while spreading decreased with lower matrix concentrations. Growth on coated and uncoated dishes in medium with 15% Fetal Bovine Serum was compared for 10 days with daily exchange of media Growth rates as determined by total cell protein were the same on coated and uncoated dishes while differences of cell numbers referred to cell protein indicated a higher portion of giant cells on placental biomatrix during the first six days A more significant marker for increased differentiation during growth on placental biomatrix was found to be the synthesis of human chorionic gonadotropin (hCG) by BeWo cells. HCG production was significantly higher(up to 100%) on biomatrix than on uncoated dishes until day six in a peak on days three to four. After the peak hCG levels decreased until 7 d and then raised again to similar concentrations as on uncoated dishes. The highest induction of hCG was obtained on dishes coated with 0.15mg/ml of biomatrix. The secretion of progesterone was not increased during growth on placenta biomatrix

H-P Hohn is a postdoctoral fellow of the Max Kade Foundation

Supplement 22 (Vol. 46) 1988 p. 32

European Journal of Cell Biology

WISSENSCHAFTLICHE VERLAGSGESELLSCHAFT MBH STUTTGART