

Effects of artificial extracellular matrix on function of human endometrial epithelial cells *in vitro*

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Abstract

Introduction: The importance of extracellular matrix (ECM) in development and function of different cells has been reported but little is known about its role in human endometrial epithelial cells. We have examined effects of artificial ECM (Matrigel) on the function of human endometrial epithelial cells using molecular techniques.

Materials and methods: Endometrial samples were removed, with informed patient consent and Ethics Committee approval, from 17 previously fertile women undergoing total abdominal hysterectomy. The tissue was dissociated and centrifuged to provide an epithelial-rich suspension which was cultured either on plastic or seeded into Matrigel to produce polarised cells and then supplemented with or without progesterone (10^{-6} M). The amount of nucleic acid content of the cells in both *in vitro* model systems was examined by DNA, RNA extraction methods. The DNA and RNA content were later measured by spectrophotometry.

Results: The amount of total RNA in cells grown on Matrigel (23 ± 1.5 pg/cell) was more than double that in cells grown on plastic (9.1 ± 1.4 pg/cell). Cells cultured on both *in vitro* model systems had RNA induced by steroid hormones, but the extent of induction was greater in cells grown on ECM than those on plastic. Cells cultured on ECM were differentiated and became polarised but cells grown on plastic proliferated until full Confluency .

Conclusion: These results suggest that ECM plays an important role in gene expression, polarisation and differentiation of human endometrial epithelial cells *in vitro*.

Key words: human, endometrium, ECM, *in vitro*.

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