

Characterization and phenotypic variation with passage number of cultured human endometrial adenocarcinoma cells

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Abstract

Despite numerous endometrial cancer cell lines, little is known about the progression and transition of primary cultured endometrial tumours. Herein, a stage I grade III endometrial adenocarcinoma was maintained in primary culture and the phenotypic and protein expression changes were observed in relation to passage number. At early passage numbers, cultured human endometrial cancer (CHEC) cells displayed classic epithelial cell morphology, growing in groups in a glandular structure and staining positive for cytokeratin. However, with increasing passage number, CHEC cells changed in morphology to display a stromal phenotype which was accompanied by a significant reduction in cytokeratin and increases in α -actin and vimentin expression. Simultaneous culture of stromal cells isolated from the original tumour failed to show the same morphological characteristics or protein expression patterns. We further characterised CHEC cells through a screening of cancer related proteins, among others, caveolin-1 and Tissue factor in comparison with established cancer cell lines and corresponding non-cancerous cells. This report demonstrates that endometrial adenocarcinoma cells in culture can undergo phenotypic and protein expression changes reminiscent of epithelial–mesenchymal transition. This work suggests that primary tumours and cell lines displaying stromal morphologies may have undergone epithelial–mesenchymal transition from an adenocarcinoma origin.