P014 Invasion of squamous cell carcinoma in an organotypic model

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The integrin αvβ6 is upregulated in squamous cell carcinoma (SCC) and is virtually undetectable in normal adult epithelium. Using Transwell assays we have shown that αvβ6 promotes invasion through Matrigel. In order to study invasion in a more physiological situation we developed a model in which keratinocytes are plated onto a collagen Type 1 gel embedded with fibroblasts and are allowed to invade through the gel which is raised to a steel grid and fed from below thus creating an air tissue interface. After 14 days in organotypic culture both αvβ6 –expressing cell lines studied (CA1 and VB6) had formed a stratified epithelium with surface parakeratinisation. However VB6 cells showed little or no invasion through collagen Type 1 compared with CA1 cells but assumed a highly invasive phenotype when the collagen Type 1 was supplemented with Matrigel. Supplementation of the collagen Type 1 gel with two of the major components of Matrigel (namely collagen Type IV or laminin) was not sufficient to confer the invasive phenotype to VB6. Moreover we have shown that invasion is absolutely dependent on the presence of fibroblasts. Thus invasion of SCC is modulated both by stromal cells and matrix proteins.