

P042 Breast cancer cell migration through Matrigel™: the importance of glycosidase enzymes.

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The interaction between tumour cells and the stroma has been the focus for many studies aimed at elucidating mechanisms underlying tumour cell invasion. A feature of the majority of connective tissue proteins is their glycan composition, and the physical barrier that this may present to cancer cells during invasion is an unexplored area of tumour biology. We aimed to determine if glycosidase enzymes are involved in cancer cell migration through the extra-cellular matrix.

Five cell lines were evaluated ranging from normal breast epithelia to invasive breast cancer cells. The activity of ten glycosidase enzymes was measured using paranitrophenol-sugar as the substrate. An increase in the activity of β N-acetylglucosaminidase and β N-acetylgalactosaminidase was noted in the cancer compared with the normal cells ($P < 0.05$), a similar result was obtained when the cells were grown in serum-free media. MDA-MB435 cells were seeded onto Matrigel™ and grown in the presence of either glycosidase or protease inhibitors, or both. The glycosidase and protease inhibitor treatment resulted in a 60% decrease in cell migration compared with protease inhibitor treatment alone. The data suggests that glycosidases are involved in the digestion of the extracellular Matrigel™ material. This may be a functionally important step in cancer cell migration.