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### *Assaying Cellular Migration on a 2D Surface: A Comparative Approach to Cancer Metastasis*

Cell migration occurs in three steps in most cells: the protrusion of lamellipod from the leading edge, adhesion of the extension to and reaction of the rear of the cell from the substrate, and the contraction of the cell via the acto-myosin network (Wang, 1985, Ridley, et al. 2003). On a poly (ethylene glycol) (PEG)-based scaffold, I photopatterned a concentration gradient of the arginine - glycine - aspartic acid - serine (RGDS) peptide and quantified HT1080 human fibrosarcoma and NIHv3T3 human epithelial fibroblast migration using the linear positions of cells. Migrational data indicated that the RGDS concentration has a significant effect on cell distribution in both cell types, and that the optimal adhesion factor level of fibrosarcomas is at a higher RGDS concentration than that of fibroblasts,  $p < 0.05$ , using a two-tailed t-test. The third order polynomial models for 3T3 and HT1080 migration after 72 hours each had Pearson Correlation Coefficients  $r_{obs} > r_{crit} = 0.478$ . The range of concentrations such that 3T3 migration was higher than that of HT1080 was from 0.304913 mM RGDS. Future research should address how RGDS differently affects cancer cell migration and if the cancer-specific effect remains at each step of the metastatic cascade as well as the validity of these results in live tissue.