Proteoglycans and Their Effects on Cancer Cell Migration

Isaacs-Perman, Denali (School: Northern Utah Academy for Math, Engineering and Science)

Cancer cell migration is an important part of the growth of secondary tumors as they invade local tissue, thus finding safe interventions to cancer cell migration can be an important tool to slow or prevent the spread of cancer. This study investigated three common complex carbohydrates, called proteoglycans, as methods to slow cell migration as measured via scratch assays. The three complex carbohydrates studied are hyaluronic acid, glucosamine chondroitin and glucosamine sulfate. Each was studied at 3 or 4 different dilution levels. MDA MB-231 cancerous breast tissue cells were used as the targets for these intervention tests with non-cancerous MCF-10a breast tissue cells used as a control. Results varied depending on solution, concentration and when the treatment was applied (before or after the cells were introduced to the plates). But the solution glucosamine sulfate at 30mg/ml showed the best results, as it hindered cancer cell migration and did not significantly affect non-cancerous cell migration. This solution could provide a method of malignant tumor prevention or hindering.

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