Forces and migration of cancer cells in a 3-dimensional environment

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The migration of cancer cells through a 3-dimensional (3-D) extracellular matrix is governed by a balance of active pushing or pulling forces generated by the cells, and passive resisting forces caused by matrix and cell deformations. For a comprehensive understanding of cancer cell migration, knowledge of the cell and matrix mechanical properties, matrix morphology, and cell traction forces are important. I will present methods to measure and characterize the 3-D migration behavior and 3-D force generation of cancer cells in an artificial tissue system, and present data on different migration strategies of diverse cancer cells types.