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Mediation of cell adhesion by the pericellular matrix¹

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Cell adhesion requires a close proximity on the nanometer scale between the plasma membrane and the surrounding material (or neighboring cell). Yet, in many classic scenarios where cell adhesion is carefully regulated, including proliferation, migration, embryogenesis and cancer metastasis, the cell's surface is insulated by an invisible but microns thick polymer brush-like structure, called the pericellular matrix. Indeed the presence of the pericellular matrix has been correlated with increased migration and proliferation rates, where disruption of this bound polymer brush interferes with the efficacy of these processes. We present methods to characterize the pericellular matrix distribution, mechanics and mesh size and explore how cells orchestrate adhesion with the help of the pericellular matrix.

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