

Mouillage de gouttes "vivantes" / Mechanics of Cellular Aggregates

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Embryonic morphogenesis, wound healing, cancer growth, and metastasis are all examples where the mechanical properties play an important role in the functioning of a tissue. It has been suggested that certain embryonic tissues mimic the behavior of viscous fluids. However, due to the immense variety of tissues ranging from very soft (brain) to very hard (bone), such an analogy between tissues and fluids remains not well understood. We shall describe aspiration and compression experiments performed on cell aggregates, which provide a convenient laboratory model to characterize the mechanical properties of tissue. Using this characterization, we study the spreading of cell aggregates on a coated substrate, as well as their deformation and detachment under flow. In addition, we perform analogous experiments on viscous pastes, which provide a comparison with an inert system. Our results should yield insights in the understanding of pathologies related to artery obstruction, such as atherosclerosis or thrombosis.