**In vitro platforms for mechanobiological studies**

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Given the emerging importance of mechanical signaling and sensing in cell function, mechanobiology has rapidly grown as an interdisciplinary field with tremendous implication in elucidating the onset and progression of a wide spectrum of diseases [1]. Advances in understanding cell mechanobiology strongly rely on technological platforms capable of probing the mechanical response of living cells and their physico–chemical interaction with the microenvironment [2].

Besides well-established methodologies such as AFM, a number of passive methods have been developed to measure cell-generated forces at the single cell scale. Such techniques rely on microscopic investigation and have the potential to be implemented in routine mechanobiological characterization.

This talk will overview the most relevant in vitro platforms for investigating cell-generated forces on engineered surfaces. In particular, traction Force Microscopy will be analyzed as a powerful platform for the evaluation of cellular forces on substrates with tunable stiffness. Results of TFM characterization will be detailed for biologically relevant scenarios, such as cancer cell characterization and post-ischemic fibroblast activation.

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