Faculté de pharmacie

Séminaire de l'axe

« Formulation et analyse du médicament »

« Cells as smart materials : Dissecting and reverse-engineering mechaniobiological units »

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À l'invitation du professeure Suzanne Giasson

Living cells are capable of processing a variety of mechanical signals encoded within their microenvironment, which can in turn act through the cellular structural machinery to regulate many fundamental behaviors. In this sense, cells may be regarded as "smart materials" that dynamically and locally modulate their physical properties in response to environmental stimuli. I will discuss our recent efforts to understand and control these living materials, and to create new, bio-inspired materials that mimic sequence/structure/function relationships of cytoskeletal networks. Key areas of emphasis will include: (1) Understanding and targeting biomechanical regulation of tumor infiltration in the brain; (2) Applying materials and genetic strategies to probe the timing of mechanosensitive stem cell fate decisions; and (3) Engineering stimulus-sensitive intrinsically disordered protein brushes based on neuronal cytoskeletal networks.

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