



DIPARTIMENTO DI FARMACIA E BIOTECNOLOGIE

AVVISO DI SEMINARIO

Il giorno **6 giugno 2022**
alle ore **14.30**

in presenza:

Aula 1, FaBiT, via Belmeloro 6, Bologn

oppure in streaming:

<https://teams.microsoft.com/join/19%3aN09c0NlyEssBnF7ObCyDOQwkgDWm1qdd9f7F2nJV9fw1%40thread.tacv2/1631519544944?context=%7b%22Tid%22%3a%22e99647dc-1b08-454a-bf8c-699181b389ab%22%2c%22Oid%22%3a%225a941351-ef41-4aa4-8771-fa50a6d62ca1%22%7d>

Prof. Sirio Dupont, Ph.D.

*Department of Molecular Medicine, School of Medicine
University of Padova, Italy*

Chair: Dr. Enrico Nanetti (B2F2 PhD program) and Luca Ulfo (CMB PhD program)

terrà un seminario dal titolo:

**THE MECHANICAL PROPERTIES OF THE TISSUE
MICROENVIRONMENT REGULATE CELL FUNCTIONS:
REWIRING GENE TRANSCRIPTION AND CELL
METABOLISM IN RESPONSE TO FORCES**

Collegli e studenti sono cordialmente invitati

Commissione Ricerca e Attività Correlate - FaBiT

ABSTRACT

Physical laws and mechanical forces are an integral part of biological processes. Cells produce forces to move, to displace the extracellular matrix (ECM), or to fold epithelial tissues during embryogenesis. Cells produce tissue ECMs of different composition in order to withstand our body weight (bones and cartilage), to support body parts yet enabling cell migration within them (connective tissues), or to enable flowing within vessels (blood). Cells are also able to sense mechanical forces by adhesion receptors and by mechanosensitive ion channels. These mechanosensing events in turn tune intracellular processes and cell functions, including cell proliferation, differentiation and death, matching them to the physical properties of the cell's surroundings, or to coordinate cell functions with a tissue. This is relevant both for tissue homeostasis and during pathological remodeling such as fibrosis, atherosclerosis and cancer growth, where altered tissue mechanical properties drive aberrant cell behaviors. I will discuss recent discoveries from our lab on the mechanisms that enable cells to sense mechanical forces and to translate them into gene transcriptional and metabolic programs.

BIOGRAPHICAL SKETCH



Sirio Dupont is Associate Professor in Histology and Embryology at the School of Medicine at University of Padova. He obtained the Master's degree in Molecular Biology and then in 2003 the PhD in Genetics and Molecular Biology at the University of Padova. From 2003 to 2006 he was post-doc fellow in the Prof. Piccolo's lab at the University of Padua. In 2006, Sirio has become Researcher in Histology, Cell Biology and Embryology and in 2013 principal investigator at the University of Padova. Sirio is funded by Worldwide Cancer Research Award Grant, AIRC and PRIN and his research is focused on the mechanotransduction signaling in pathological remodeling such as fibrosis, atherosclerosis and cancer growth. He is main author of original papers published on Nature, EMBO Journal, Cell and Nature Reviews Molecular Cell Biology.