



UNIVERSITÀ  
di **VERONA**

Corso di Dottorato in  
**INFIAMMAZIONE,  
IMMUNITÀ E CANCRO**

# SEMINAR

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Date  
**28 April 2026**



**Aula Magna S.20,  
Istituti Biologici 3**



Time  
**At 9:20 am**

## **MECHANOBIOLOGY OF MYELOID CELLS: FROM MECHANOSENSORY PODOSOMES TO IMMUNE SUPPRESSION.**

Tissue stiffness alteration, resulting in disrupted homeostasis of mechanical forces, is involved in many pathologies including pulmonary fibrosis, atherosclerosis and cancer as well as in implant rejection. Myeloid cells like dendritic cells (DCs), macrophages (MFs) or myeloid-derived suppressor cells (MDSCs) are specialized leukocytes involved in these pathologies. Myeloid cells experience multiple, elastically diverse extracellular environments both in healthy and diseased tissues. Yet, little is known about how mechanical forces in these microenvironments influence myeloid cell immunobiology.

This presentation will describe our efforts to understand the impact and relevance of mechanical signals on myeloid cell functions by integrating advanced quantitative bioimaging, transcriptomics, 2D/3D biomimetic substrates of variable stiffness and immunological assays. Our studies emphasize the use of actin-rich podosomes by myeloid cells to sense their mechanical environment and indicate the prevalence of an immune suppressive phenotype in stiffer environments. A better understanding of the mechanisms regulating myeloid cell mechanobiology may foster new immunotherapeutic approaches aimed at targeting aberrant extracellular matrix in pathologies such as cancer and fibrosis.