



GRK 2415

LECTURES

Sirio Dupont

Associate Professor of Histology and Embryology

Department of Molecular Medicine

University of Padua

<https://www.medicinamolecolare.unipd.it/labdupont>

Cross-Talk between Mechanotransduction and Metabolism: How Mechanosensitive Transcription Factors Shape Lipid Synthesis and Antioxidant Homeostasis

**Thursday, 25th February 2021
at 9.00 a.m.**

Zoom-Session

Host: Mohamed Mabrouk

Helmholtz-Institute for Biomedical Engineering

Division of Stem Cell Biology and Cellular Engineering

Contact: me3t@ukaachen.de

Zoom-Link:

<https://bit.ly/2XEXnrP>

Meeting-ID: 991 5459 4806

Password: 848470



Cross-Talk between Mechanotransduction and Metabolism: How Mechanosensitive Transcription Factors Shape Lipid Synthesis and Antioxidant Homeostasis

Mechanical forces are intrinsic to many biological processes, ranging from subcellular transports to morphogenetic tissue rearrangements. Cells not only generate forces, but also feel external forces, and respond to them accordingly. Among these, the resisting visco-elastic forces of the extracellular matrix (ECM) are key variables driving cell behavior, including proliferation, differentiation and death. Recent findings indicate that the mechanical properties of the cell microenvironment also regulate metabolism, with a focus on major anabolic pathways and energy production. I will discuss recent data linking ECM mechanics to regulation of lipid synthesis and to antioxidant metabolism by distinct mechanisms, yet collectively pointing to cross-talk between the cytoskeleton and organelle dynamics as an important mechano-responsive interface.