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**For a lecture hosted by Prof. De Cola,
Strasbourg University with
Prof. Giovanna Brusatin**

Department of Industrial Engineering,
Università di Padova, Italy

**5th July - 16:30
Strasbourg University**

**Biomaterials and engineered
microenvironments to control
cell behaviour**

Abstract

Development of innovative cell culture systems are indispensable for advancing in basic biology and clinical translations.

Breakthroughs have been discovered evidencing that signals that cells receive from the physicality of their microenvironment are absolutely essential for their survival and to direct their fate. These results go far beyond the limit of the classically preferred culture model, 2D cell monolayers cultured on adhesive rigid and flat plastic petri dish substrates.

At the seminar, I will introduce examples of engineered soft hydrogels with controlled rigidity and micropatterned substrates, to control cell-behavior using mechano-transcriptional regulators, YAP and TAZ, as molecular beacon of the cell response. The use of such chemically defined 2D and 3D microenvironments to control and study mechano-regulation of cell differentiation/proliferation, protein association and tumor initiation, will be presented.

The engineering of in vitro 2D and 3D culture microenvironments still requires efforts to develop reproducible and chemically/physically defined biomaterials, in particular hydrogels, and to use microfabrication techniques to generate controlled shapes and microenvironment, which more closely mimics key aspects of the natural environment of cells. New opportunities in these directions will be discussed.



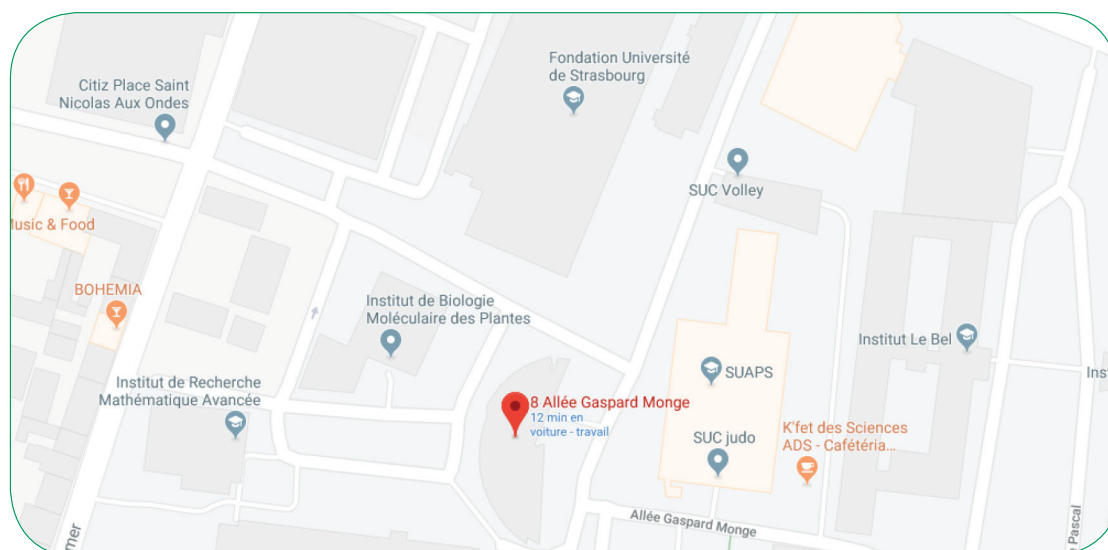
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Lecture Location:

ISIS (Institut de Science et d'Ingénierie Supramoléculaires)
8, Rue Gaspard Monge
67000 Strasbourg
France (see map below)



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