





Organized by: Prof. Valeria Chiono (DIMEAS – Politecnico di Torino)

With keynote lectures by:



Prof. Roger Dale Kamm

Cecil and Ida Green Distinguished Professor of Biological and Mechanical Engineering Massachusetts Institute of Technology - MIT, Dept. of Biological Engineering; Dept. of Mechanical Engineering – Cambridge, US .



**Prof. Federico Bussolino,** M.D. Ph.D. Full Professor of Biochemistry University of Torino, School of Medicine

The workshop will take place at the Meeting Room (5<sup>th</sup> floor) of the Department of Electronics and Telecommunications – Politecnico di Torino, Turin.

The **workshop** is **free-of-charge but registration is mandatory by 15**<sup>th</sup> **June 2017** sending an email to <u>valeria.chiono@polito.it</u> with subject "workshop registration".

This workshop is organized within the MITOR collaborative project between MIT and Politecnico di Torino "In Vitro Modelling of Nanoparticle-Mediated Drug Delivery to the Central Nervous System by a Microfluidic Platform Mimicking the Biological Barriers (NANOCAB)".

## PROGRAM OF THE WORKSHOP: "MICRO- AND NANO-TECHNOLOGIES FOR HEALTH"

Monday, 19<sup>th</sup> June, 2017

13:15 - 13:45 Registration

13:45 – 14:00 Valeria Chiono – Introduction to the workshop

## **Keynote Lectures**

14:00 - 14:45 Roger Dale Kamm – Keynote Lecture: Emergence of In Vitro Vascularized Models and their Application to Studies of Metastatic Cancer

Over the past 10 years, our ability to realistically model the critical biological steps in disease have dramatically improved, due in part to advances in microfluidic technologies. In particular, the capabilities to create realistic 3D microenvironments, including microvascular perfusion, have led to in vitro models for disease that offer considerable advantages over in vivo experiments. In this talk, I will present some recent advances in creating microvascular networks in vitro through the emergent behaviors of heterotypic cell populations and using these to model the successive stages of metastatic cancer. I will also present the evolution and stabilization of these networks as characterized by the mechanical properties of the vascularized tissue, proteomic analysis of the corresponding extracellular matrix, and genomic analysis of the different cell types present.

14:45 – 15:15 Federico Bussolino – New perspectives in cancer treatment

## Senior researchers' talks

15:15-15:45 Gianni Ciofani - Remote nanomaterials-mediated cell activation

15:45-16:00 Marta Miola - Multifunctional Magnetic Materials for Cancer Treatment

16:00-16:15 Gianluca Ciardelli – Bioartificial materials for tissue engineering and nanomedicine

16:15-16:45 Coffee Break

16:45-17:00 Marco Deriu - Molecular Modelling to Design/Optimize Dendrimer Nanoparticles Employed as Delivery Systems or Therapeutic Agents in Nanomedicine

17:00-17:15 Fabrizio Pirri - New solutions for biosensing based on lab-on-chips

17:15-17:30 Kristen M. Meiburger, Massimo Salvi, Cristina Caresio, Filippo Molinari - Automation in cancer imaging: vascular and morphological analyses

## Ph.D students' talks

17:30-17:40 Rossella Laurano - Hydrogels for bio-printing

17:40-18:00 Carlotta Pontremoli, Giorgia Montalbano - Nanomaterials and 3D scaffolds for tissue regeneration

18:00-18:20 Beatrice Miccoli, Antonia Silvestri - Micro&Nano Electronic Systems for Organs on Chip & Drug Delivery

18:20-18:30 End of the workshop