Dottorato di Fisica e Astronomia
Dipartimento di Fisica, G. Occhialini
Piazza della scienza 3, 20126 Milano

COLLOQUIUM DI DOTTORATO

Prof. Ronit Satchi-Fainaro

Tel Aviv University,
Center for Nanoscience and Nanotechnology

30/11/2015, 14:30

Aula: U4-08

Novel cancer models-based identification of molecular targets for the rational design of precision nanomedicines

Selective therapy remains a key issue for successful treatment in cancer therapy. Multimodality targeted nanomedicines offer the potential for improved efficacy and diminished toxicity. One way to achieve such selectivity is to activate a prodrug specifically by a confined enzymatic activity. In this concept, the enzyme is either expressed by the tumor cells or the tumor endothelial cells, or is brought to the tumor by a targeting moiety. The prodrug is converted to an active drug by the local or localized enzyme at the tumor site.
Our strategy for advancing the field of vascular biology and the development of vascular targeting nanomedicines is by characterizing tumor vasculature for tailored-made therapy, identifying new molecular markers on tumor endothelial cells in order to develop better drugs and better targeting moieties. We also design novel nanocarriers as strategies to target angiogenesis inhibitors to tumor vasculature with the aim to improve the therapeutic index of chemotherapeutic and antiangiogenic agents by conjugation to polymeric nanocarriers. In order to achieve these aims we apply intravital non-invasive molecular imaging of treated tumor-bearing mice to follow tumor progression, pharmacodynamics and pharmacokinetics of the synthesized nanomedicines.
In the colloquium I will discuss our results pointing at polymer therapeutics as novel bi-specific nano-conjugates targeting both the tumor epithelial and endothelial compartments warranting their use on a wide spectrum of primary tumors and metastatic ones.

Il coordinatore del dottorato
Giuseppe Chirico