UNIVERSITÀ DEGLI STUDI DI BRESCIA

SEZIONE DI ONCOLOGIA E IMMUNOLOGIA SPERIMENTALE
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Fellowship position at the University of Brescia

The group of Prof. M. Presta and Dr. R. Ronca is evaluating expression of interest for a fellowship position at the Experimental Oncology and Immunology Unit; Department of Experimental and Translational Medicine of the University of Brescia.

Main topic: Anti-angiogenic/anti-tumor functions of FGF-trap molecules

Tumor microenvironment represents a complex and heterogeneous tissue mainly composed of cancer associated fibroblasts, endothelial cells and immune infiltrate. Microenvironment components, both individually and collectively, are well known contributors to the different steps of tumor progression.
The Fibroblast growth factor (FGF) gene family encompasses 22 members that exert their activity by binding to tyrosine kinase FGF receptors (FGFRs) expressed by four distinct FGFR1-4 genes. FGFRs are composed of an extracellular portion consisting of three immunoglobulin (Ig)-like domains, a hydrophobic transmembrane region, and a cytoplasmic TK tail. Experimental evidences indicate that the FGF/FGFR system modulates the growth, neovascularization and metastatic activity of different tumor types.
The soluble pattern recognition receptor Long Pentraxin-3 (PTX3) is a component of the innate immunity. PTX3 is a member of the pentraxin family produced locally in response to inflammatory signals and exerts non-redundant functions in various physio-pathological conditions including angiogenesis and cancer. Studies conducted in our laboratory have shown that PTX3 acts as a natural FGF-trap by binding FGF2 (and other FGFs) with high affinity and selectivity, preventing its binding to FGFRs and hampering the biological activity of FGF2. Accordingly, we have demonstrated that PTX3 overexpression can inhibit FGF-driven EMT and tumor/metastatic burden in murine and human melanoma models and can impair tumor growth in preclinical models of prostate cancer.
Starting from the structure of PTX3, our laboratory has identified the minimal amino acid sequence of PTX3 endowed with FGF-neutralizing properties. Recently, we have shown that the corresponding peptidomimetic small drug NSC12 represents the first orally available low molecular weight pan FGF-trap endowed with a potent anti-tumor activity and limited toxicity in vivo.
The candidate will be enrolled in the validation and characterization in vitro and in vivo of new FGF-trap molecules as well as in the validation of anti-FGF approaches in different types of cancer.

Candidate Requirements

We are looking for very motivated and enthusiastic post-doc or graduated students with a genuine interest in cancer research, ideally evidenced by his/her master or PhD thesis.

Please email your expression of interest (explaining your motivation to join the proposed project) accompanied by a CV to Roberto Ronca (roberto.ronca@unibs.it).

1. Ronca R, et al: Long-Pentraxin 3 Derivative as a Small-Molecule FGF Trap for Cancer Therapy. *Cancer Cell* 28:225-239, 2015.
2. Ronca R, et al: Long pentraxin-3 as an epithelial-stromal fibroblast growth factor-targeting inhibitor in prostate cancer. *J Pathol* 230:228-238, 2013.