

#### **RESEARCH TOPIC MEM 14**

## Dissecting the role of innate immunity in pathology Curriculum MEM

#### Laboratory name

Tumor microenvironment Unit, Istituto clinico e di ricerca Humanitas Campus, Edificio C, Via Rita Levi Montalcini, 4, 20090 Pieve Emanuele, Milano

## Pre-clinical Supervisor

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## Abstract

This PhD project will investigate the crosstalk between innate immune cells and their targets, including pathogens and cancer cells. Main aim is to unravel novel mechanisms that determine immune cell activation or that restrain immune cell function in infections and cancer. Particular attention will be payed to the impact of innate immunity on therapy efficacy in in vivo models of disease.

The lines of research ongoing on in the Unit are focused on the profiling of immune system composition and immune cell dynamics in cancer, infectious and inflammatory diseases by mean of single-cell based technologies including scRNAseq, Cytomass and multiparametric Flow Cytometry. Main scope is the dissection of mechanisms that regulate the innate immune response in pathology, with a specific focus on macrophages. Transgenic and transplantable mouse models are employed to validate human data and test novel therapeutic approaches.

## Main technical approaches

Basic skills in cellular biology and molecular biology are required

## Scientific references

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Alvisi G, Termanini A, Di Mitri D, Lugli E, Lleo A. Multimodal single-cell profiling of intrahepatic cholangiocarcinoma defines hyperactivated Tregs as a potential therapeutic target. J Hepatol. 2022 Jun 20:S0168-8278(22)00370-1. doi: 10.1016/j.jhep.2022.05.043

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# Type of contract

PhD scholarship of € 18.000 gross per year awarded by Humanitas University. This sum is exempt from IRPEF income tax according to the provisions of art. 4 of Law no. 476 of 13th August 1984, and is subject to social security contributions according to the provisions of art. 2, section 26 and subsequent sections, of Law no. 335 of 8th August 1995 and subsequent modifications.

Borsa di dottorato pari a € 18.000 annui lordi erogata da Humanitas University. Importo non soggetto a tassazione IRPEF a norma dell'art. 4 della L. 13 agosto 1984 n. 476 e soggetto, in materia previdenziale, alle norme di cui all'art. 2, commi 26 e segg., della L. 8 agosto 1995, n. 335 e successive modificazioni.

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