

HUMANITAS UNIVERSITY

Selection procedure for 1 Type B Research Fellowship in Life Sciences in compliance with art. 22 of Law 240/2010

Humanitas University invites applications for 1 position as Research Fellow in Life Sciences.

Research Program Title	Role of molecules associated to M2 polarization of macrophages in cancer progression
Research supervisor - Tutor	Prof.ssa Cecilia GARLANDA
Scientific Area	05 – Biological Sciences
Gross amount of the fellowship	25.000 Euro
Duration of the fellowship	12 months with possibility to extend
Objectives of the research	<p>'Tumor-associated macrophages (TAM) are inflammatory cells with an M2-like phenotype that infiltrate tumors. TAMs influence neoplastic cell growth, neoangiogenesis and tissue remodeling. We have recently observed that M2 macrophages express a characteristic set of genes. In this project we plan to characterize one of the molecules differentially expressed by M2 macrophages using both in vitro assays and in vivo approaches. In particular, we will study the ability of this molecule to directly stimulate the invasion of tumor cells using in vitro and in vivo models of remodeling and / or invasion in the matrix; we will analyze the signaling processes activated by the molecule, and we will perform in vivo therapeutic targeting experiments in models of metastatic dissemination of tumor cells. The project is based on the use of advanced imaging techniques, such as 2P intravital microscopy and STED-based super-resolution microscopy.</p> <p>The fellow will participate in the following activities:</p> <p>In vitro invasion assays and silencing of signaling pathways; RT-PCR, SDS-PAGE and western blot will be used for EMT</p>

	analysis; in vivo analysis of tumor growth and metastatic dissemination in orthotopic models; use of confocal microscopy, 2-photon and in vivo imaging techniques.
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The work place is in Pieve Emanuele - Milano.

A brief description of the project, activities to be carried out, mandatory requirements to take part into the selection process, information on the application procedure and on the selection criteria are presented in the following.

RESEARCH PROJECT:

Tumor-associated macrophages (TAM) are inflammatory cells with an M2-like phenotype that infiltrate tumors. TAMs influence neoplastic cell growth, neoangiogenesis and tissue remodeling. We have recently observed that M2 macrophages express a characteristic set of genes. In this project we plan to characterize one of the molecules differentially expressed by M2 macrophages using both in vitro assays and in vivo approaches. In particular, we will study the ability of this molecule to directly stimulate the invasion of tumor cells using in vitro and in vivo models of remodeling and / or invasion in the matrix; we will analyze the signaling processes activated by the molecule, and we will perform in vivo therapeutic targeting experiments in models of metastatic dissemination of tumor cells. The project is based on the use of advanced imaging techniques, such as 2P intravital microscopy and STED-based super-resolution microscopy.

ACTIVITIES TO BE CARRIED OUT:

The fellow will participate in the following activities:

1. In vitro invasion assays and silencing of signaling pathways;
2. RT-PCR, SDS-PAGE and western blot will be used for EMT analysis;
3. in vivo analysis of tumor growth and metastatic dissemination in orthotopic models;
4. use of confocal microscopy, 2-photon and in vivo imaging techniques.

MANDATORY REQUIREMENTS:

In order to be considered for the post candidates must hold :

1. Masters' Degree in Biotechnology, Biological Sciences, Medicine and Surgery or equipollent.
2. PhD
3. Scientific and professional Curriculum apt to managing of research activity as per above procedure.

SELECTION PROCESS:

Application for admissions must be submitted at the following link:

<https://pica.cineca.it/humanitas>

No hard copy of the application must be sent by post.

At first access, applicants need to register by clicking on "Register" and completing the requested data.

If applicants already have LOGINMIUR credentials, they do not need to register again. They must access with their LOGINMIUR username and password in the relevant field LOGINMIUR.

Applicants must enter all data necessary to produce the application and attach the required documents in PDF format.

SELECTION CRITERIA:

Selection criteria are predetermined by the Selection Committee. As part of the selection process, the Committee will evaluate the curriculum, titles and publications presented by the candidate and will consider, in particular an excellent theoretical knowledge in the field of immunology; moreover she/he must have experience in preclinical models in mice and aptitude to learn new models, familiarity with basic immunological techniques (ELISA), biochemical techniques (SDS-PAGE, western blot) and cell culture; knowledge of imaging techniques will represent a preferential criterion.

FURTHER INFORMATION:

For more details on the selection process please refer to the **Rectorate Decree n. 055/2021** (<http://www.hunimed.eu/it/lavora-con-noi/>) or send an inquiry to ufficiodocenti@hunimed.eu or telephone +39 02.8224.5642/5421.