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	"**Ruolo di molecole associate alla polarizzazione M2 dei macrofagi nella progressione tumorale**." *Courtesy translation*: Role of molecules associated to M2 polarization of macrophages in cancer progression.
Tutor	Prof. Cecilia GARLANDA
Scientific Area	05 - Biological Sciences
Gross amount of the fellowship	23.000 Euro
Duration of the fellowship	12 months
Objectives of the research	Tumor-associated macrophages (TAM) are inflammatory cells with an M2-like phenotype that infiltrate tumors. TAMs influence neoplastic cell growth, neoangiogenesis and tissue remodeling. It has recently been observed that M2 macrophages express a characteristic set of genes. Aim of the project is to characterize one of the molecules differentially expressed by M2 macrophages using both in vitro assays and in vivo approaches. In particular, the study of 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 will be studied; the signaling processes activated by the molecule will be analyzed, and in vivo therapeutic targeting experiments in models of metastatic dissemination of tumor cells will be performed. 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	Main activities to be carried out in the context of the

out	research project are: - In vitro invasion assays and silencing of signaling pathways; - RT-PCR, SDS-PAGE and western blot will be used for EMt analysis; - in vivo analysis of tumor growth and metastatic dissemination in orthotopic models; - use of confocal microscopy, 2-photon and in vivo imaging techniques.

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. It has recently been observed that M2 macrophages express a characteristic set of genes. Aim of the project is to characterize one of the molecules differentially expressed by M2 macrophages using both in vitro assays and in vivo approaches.

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ACTIVITIES TO BE CARRIED OUT:

Main activities to be carried out in the context of the research project are:

- In vitro invasion assays and silencing of signaling pathways;

- RT-PCR, SDS-PAGE and western blot will be used for EMt analysis;

- in vivo analysis of tumor growth and metastatic dissemination in orthotopic models;

- use of confocal microscopy, 2-photon and in vivo imaging techniques.

MANDATORY REQUIREMENTS:

In order to be considered for the post candidates must hold a Master's Degree in the field of Biotechnology or Biological Sciences and a PhD.

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:

- theoretical knowledge in the field of immunology;
- 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 techiques will represent a preferential criterion.

FURTHER INFORMATION:

For more details on the selection process please refer to the **Rectorate Decree n. 020/2020** (http://www.hunimed.eu/it/lavora-con-noi/) or send an inquiry to ufficiodocenti@hunimed.eu or telephone +39 02.8224.5642/5421.