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	MEFISTO - Meniscal functionalised scaffold to prevent knee Osteoarthritis onset after meniscectomy
Research supervisor - Tutor	Prof. Elizaveta KON
Scientific Area	06 Medical Sciences
Gross amount of the fellowship	23.000 Euro
Duration of the fellowship	12 months
Objectives of the research	The aim of the MEFISTO project is to develop novel solutions to treat meniscus loss, to prevent post-meniscectomy knee osteoarthritis. Two different reconstructive strategies will be developed: 1) a controlled vascularized bioactive biodegradable meniscal scaffold to regenerate the native meniscus. 2) a bioactive non-biodegradable meniscal prosthesis, which will act as a mechanical unloading device and drug delivery system, with the capacity to modulate inflammation. The biodegradable scaffold will promote revascularization in the peripheral zone, while leaving the inner zone avascular, reflecting the native meniscal tissue, and functionalization with micro/nanoparticles of the non-biodegradable device will provide modulation of inflammation. The interventions developed in MEFISTO will prevent patients undergoing meniscectomy from receiving joint-sacrificing procedures whilst reducing the social burden, associated costs and high levels of morbidity resulting from osteoarthritis.

	The scientist will focus his/her activity on the immunotoxicological and efficacy evaluation in vitro of new meniscus functionalized-scaffolds. 2D/3D culture systems using macrophages, chondrocytes and endothelial cells will be established and optimized to reduce the need of animal experiments and to facilitate the clinical translation of the new meniscal scaffolds. The researcher will be also responsible for analysis of experimental results and their preparation to write reports, research papers and present research findings at national and international meetings. His/her activities will also include attending consortium meetings and participation in dissemination activities.

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:

The aim of the MEFISTO project is to develop novel solutions to treat meniscus loss, to prevent post-meniscectomy knee osteoarthritis.

Two different reconstructive strategies will be developed:

1) a controlled vascularized bioactive biodegradable meniscal scaffold to regenerate the native meniscus.
2) a bioactive non-biodegradable meniscal prosthesis, which will act as a mechanical unloading device and drug delivery system, with the capacity to modulate inflammation.

The biodegradable scaffold will promote revascularization in the peripheral zone, while leaving the inner zone avascular, reflecting the native meniscal tissue, and functionalization with micro/nanoparticles of the non-biodegradable device will provide modulation of inflammation. The interventions developed in MEFISTO will prevent patients undergoing meniscectomy from receiving joint-sacrificing procedures whilst reducing the social burden, associated costs and high levels of morbidity resulting from osteoarthritis.

ACTIVITIES TO BE CARRIED OUT:

The scientist will focus his/her activity on the immunotoxicological and efficacy evaluation in vitro of new meniscus functionalized-scaffolds. 2D/3D culture systems using macrophages, chondrocytes and endothelial cells will be established and optimized to reduce the need of animal experiments and to facilitate the clinical translation of the new meniscal scaffolds. The researcher will be also responsible for analysis of experimental results and their preparation to write reports, research papers and present research findings at national and international meetings. His/her activities will also include attending consortium meetings and participation in dissemination activities.

MANDATORY REQUIREMENTS:

In order to be considered for the post candidates must hold a Medical Degree.

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.

As part of the selection process, a Selection Committee will evaluate the curriculum, titles and publications presented by the candidate.

SELECTION CRITERIA:

Preference will be given to candidates who have experience with advanced in vitro models to study inflammation and/or to evaluate new immunomodulatory drugs. Previous experience with the biological evaluation of nanomaterials or studies related with their biodegradation will be considered a plus. Fluent English (written and spoken) is required.

FURTHER INFORMATION:

For more details on the selection process please refer to the **Rectorate Decree n. 084/2019** (http://www.hunimed.eu/it/lavora-con-noi/) or send an inquiry to ufficiodocenti@hunimed.eu or telephone +39 02.8224.5642.