

## 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	Amniotic epithelial stem cells (AECs) vs adipose-derived mesenchymal stem cells (ADSCs): translational potential as biological injective treatment for osteoarthritis.
Research supervisor - Tutor	Prof. Elizaveta KON
Scientific Area	05 Biological Sciences
Gross amount of the fellowship	30.000 Euro
Duration of the fellowship	12 months
Objectives of the research	<p>Adipose Derived mesenchymal Stem Cells (ADSCs) and amniotic epithelial stem cells (AECs) are emerging as minimally invasive solutions able to restore the joint homeostasis and to delay Osteoarthritis (OA) progression due to the due to their immunoregulatory and anti-inflammatory properties and the ability to produce paracrine factors, enhancing tissue regeneration. The project aims to develop a new minimally invasive biological approach for OA treatment, comparing the therapeutic potential of ADSCs and AECs for the treatment of experimentally induced OA in sheep.</p> <p>Main activities to be carried out are: comparison of the data collected through the in vivo and the in vitro experiments carried out with ADSCs and AECs; data collection and report writing of the in vitro experiments on the evaluation of the ADSCs, AECs and their MVs activities on chondrocytes and synovial cells; coordination, data collection and scientific reports writing of the in vivo experiments.</p>

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:**

Adipose Derived mesenchymal Stem Cells (ADSCs) and amniotic epithelial stem cells (AECs) are emerging as minimally invasive solutions able to restore the joint homeostasis and to delay Osteoarthritis (OA) progression due to the due to their immunoregulatory and anti-inflammatory properties and the ability to produce paracrine factors, enhancing tissue regeneration. Cell microvesicles (MVs) have been shown to play in an OA environment anti-fibrotic, anti-apoptotic, anti-inflammatory, and pro-regenerative actions. The project aims to develop a new minimally invasive biological approach for OA treatment, comparing the therapeutic potential of ADSCs and AECs for the treatment of experimentally induced OA in sheep. The in vitro arm will characterize AECs in terms of proliferation, adhesion, plasticity and stemness and verify their chondrogenic differentiation. Moreover, it will compare the AECs and ADSCs chondrogenic potential and verify the effects of AECs and ADSCs on chondrocytes and synovial fibroblasts. Finally, the role of MVs obtained from ADSCs and AECs will be tested.

#### **ACTIVITIES TO BE CARRIED OUT:**

Comparison of the data collected through the in vivo and the in vitro experiments carried out with ADSCs and AECs. Data collection and report writing of the in vitro experiments on the evaluation of the ADSCs, AECs and their MVs activities on chondrocytes and synovial cells. Coordination, data collection and scientific reports writing of the in vivo experiments.

#### **MANDATORY REQUIREMENTS:**

In order to be considered for the post candidates must hold a Masters' degree in Biological Sciences, Pharmacy or Chemistry and Pharmaceutical Technology and a PhD in similar topics.

#### **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:

- a) well documented knowledge of English language;
- b) well documented experience in immunology research activities and regenerative medicine;
- c) experience as investigator in the ortophaedics field, in particular on the conservative treatments of the knee osteoarthritis;
- d) well documented skills in project, abstracts and scientific papers writing;
- e) particular attention will be reserved to candidates with research or study experience abroad.

#### **FURTHER INFORMATION:**

For more details on the selection process please refer to the **Rectorate Decree n. 122/2018** (<http://www.hunimed.eu/it/lavora-con-noi/>) or send an inquiry to [ufficiodocenti@hunimed.eu](mailto:ufficiodocenti@hunimed.eu) or telephone +39 02.8224.5642.