JOB OFFER – *Post-Doc*

A postdoctoral research position is available to participate in a research that has been designed to elucidate the role of SARS-CoV-2 infection on the compartment of adult stem cells

Project Title:

Early and late consequences of stem cell compartment damage due to SARS-CoV-2 infection

Project Background:

COVID19 or SARS-CoV-2 virus is single-stranded RNA virus, whose infection can be asymptomatic or lead to damage of several vital organs and a fatal complication involving "cytokine storm", which results in uncontrolled hyperactivation of the immune response by innate immunity cells. The major concern is that we still cannot foresee late complications of this infection including direct or indirect effects on stem cell compartment. SARS-CoV-2 may enter human cells after binding to the angiotensin-converting enzyme 2 (ACE2) receptor and utilizes its surface spike protein (SP) for attachment and entry into the target cells. It has been demonstrated that ACE2 receptor is highly expressed on hematopoietic stem cells (HSCs) and endothelial progenitors (EPCs) isolated from adult hematopoietic organs as well on developmental early precursors of these cells. Its expression increases with more primitive phenotype of cells and it may explain that our group noticed its high expression in addition to HSC and EPC on human very small CD133+CD34+Lin-CD45– cells, which can be specified as reported by us and others into functional HSCs and EPCs. COVID19 after binding to ACE2 may hyperactivate Nlrp3 inflammasome as we recently demonstrated in cells at different level of specification into hematopoietic and endothelial lineage. This may lead to pyroptotic death of the cells exposed to virus SP. Moreover, this could lead also as we postulated of an initiation of "cytokine storm" by innate immunity cells. Evidence accumulates that COVID19 infection despite a fact that it manifests primarily as a respiratory syndrome has significant impact on other organs including the hematopoietic system and endothelium leading to several
complications. To support this a large percentage of infected patients, suffer from lymphopenia and thrombocytopenia as well as from damage of endothelium that promotes hypercoagulability. Nevertheless, there are still not very well known mechanisms how virus affect human stem cells and damage them by productive or abortive infection. It is well known that the innate immune response and activation of the Nlrp3 inflammasome are important defense mechanisms during the first days of infection, until acquired immunity responds with the production of antibodies. However, as mentioned above hyperactivation of this intracellular protein complex in innate cells may induce a cytokine storm or may lead to their death of other cells in mechanism of pyroptosis. Virus may also damage cells by lysis or theoretically what we hypothesize may stay after entry into long living stem cells in a latent form and become activated when immune system becomes impaired.

Our group postulated a possibility that damage of stem cells for hemato/endothelial lineage may occur mainly by hyperactivation of Nlrp3 inflammasome after binding of viral SP to ACE2 expressed on these cells. Similar role may play interaction of SP with Toll like receptor-4 (TLR4). Our group and group of Dr. Hal Broxmeyer has demonstrated that exposure of umbilical cord blood-derived HSCs to SP protein decreases viability and in vitro clonogenicity of these cells. We also observed similar effect on proliferation of human EPC. Based on this a central hypothesis of our proposal is that COVID19 infection may damage by SP-ACE2 or SP-TLR4 interaction stem cells from hematopoietic/endothelial lineage which contributes to early and late consequences of this infection.

We are looking for a highly motivated person to participate as a post-doctoral fellow within scientific project at the Warsaw Medical University at the Department of Regenerative Medicine

Supervisors: Magdalena Kucia, MD, PhD,
Type of employment relationship: Contact of mandate
Employing entity: Warsaw Medical University
Application deadline: July 31st, 2022
Expected start date: September 2022
Duration: 36-month position
Salary: 10 000 PLN gross gross (tax included)

Eligibility:
A suitable applicant should have the following qualifications:

1. PhD degree in Biology or Biotechnology
2. Basic previous experience in the following biology techniques: RNA Seq, proteomics, flow cytometry
3. Academic background in cell biology, molecular biology, and/or genetics.
4. Scientific research experience (full-text international publications, full-text articles published in Polish journals, international abstracts, active participation in (inter)national meetings, and scientific courses)
5. Ability to work independently
6. The candidate is required to have knowledge of stem cell biology
7. Good knowledge of English
8. Strong interest in science

How to apply:
Please send:

1. Letter of interest
2. CV
3. Publication list
4. Photo
5. Contact details of 1-2 potential referees with **recommendation letter**

to: magdalena.kucia@wum.edu.pl
medycyna.regeneracyjna@wum.edu.pl

All documents should be sent as PDF files.
The e-mail heading should be: „**Post-doc – OPUS grant".**

Please provide also the statement that you grant us a permission to process your personal details for the recruitment process:
"I hereby give consent for my personal data included in the job offer to be processed for the purposes of recruitment conducted by the Medical University of Warsaw located in Warsaw".

The rules for the protection of personal data used by the Medical University of Warsaw:

1. The administrator of personal data is the Medical University of Warsaw located in Warsaw, Żwirki i Wigury 61, 02-091 Warszawa,
2. Contact to the Data Protection Officer - email address: iod@wum.edu.pl.
3. Personal data will be processed in order to implement the recruitment process pursuant to art. 22^1 of the Labor Code, and in the case of providing a broader scope of data pursuant to art. 6 § 1a GDPR - consent expressed by the candidate.
4. Access to personal data within the University's organizational structure shall only have employees authorized by the Administrator in the necessary scope.
5. Personal data will not be disclosed to other entities, except for entities authorized by law.
6. Personal data will be stored for the period necessary to carry out the recruitment process, up to 12 months from the settlement of the recruitment process. After this period, they will be removed.
7. You have the right to access your data, the right to rectify, delete, limit processing, the right to transfer data, the right to object to the processing, the right to withdraw consent.
8. You have the right to withdraw consent to the processing of your personal data at any time, which will not affect the lawfulness of the processing that was carried out on the basis of consent before its withdrawal.
9. You have the right to lodge a complaint with the Office for Personal Data Protection when it is justified that his personal data are processed by the Administrator in breach of the general regulation on the protection of personal data of April 27, 2016.
10. Providing personal data is voluntary, but necessary to participate in the recruitment process to the extent specified in art. 22^1 § 1 of the Labor Code, voluntary in the remaining scope.
11. Decisions will not be taken in an automated manner and personal data will not be subject to profiling.

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