



TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO

ID CODE ____ 6479 ____

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Scienze Farmacologiche e Biomolecolari dell'Università degli Studi di Milano**

Scientist- in - charge: ____ **Prof. Norata Giuseppe Danilo** ____

BARBORA MUFFOVA

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	MUFFOVA
Name	BARBORA

PRESENT OCCUPATION

Appointment	Structure
PhD student and researcher in Laboratory for atherosclerosis research	Institute for Clinical and Experimental Medicine (IKEM), Prague

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree			
Specialization	x	x	x
PhD	Physiology of organisms	Charles University, Faculty of Science	Ongoing
Master	Immunology, 120 ECTS Final mark: 3	Charles University, Faculty of Science	2022
Degree of medical specialization	x	x	x
Degree of European specialization	x	x	x
Other Bachelor's degree	Bachelor's degree in Molecular biology and Biochemistry Final mark: 3	Charles University, Faculty of Science	2020



REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City
1.9.2022	Česká Společnost pro Aterosklerózu (The czech society for atherosclerosis)	Prague
19.4.2023	Česká imunologická společnost (Czech immunological society)	Prague
2023	Skupina mladých imunologů (Czech young immunologists)	Prague

FOREIGN LANGUAGES

Languages	level of knowledge
English	B2
German	A1

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2022	The best poster presentation on the international conference of atherosclerosis, Anti-inflammatory effect of statin treatment on macrophages markers in vitro The 3 rd place
2021	The best poster presentation on the international conference of atherosclerosis, The effect of statin treatment on macrophages polarization in vitro The 2 nd place

TRAINING OR RESEARCH ACTIVITY

<p>PhD candidate in biomedical science, Physiology of organisms</p> <p>Thesis focused on the atherosclerotic plaques in the patients with advanced atherosclerosis</p> <p>Laboratory for atherosclerosis research, IKEM</p> <p><u>Post-graduate courses on Charles University:</u></p> <ol style="list-style-type: none">1. Structure and function of biological membranes (passed 08.02.20203)2. Lipids of Biological membranes (passed 22.08.2023) <p><u>Other post-graduate courses:</u></p> <ol style="list-style-type: none">1. Course of the professional competence for designing experiments and experimental projects (passed 16.12.2022), Ministry of Agriculture, Czech Republic2. Minicourse of flow cytometry, Czech association for analytical cytometry (13.-14.2.2023)3. Minicourse of flow cytometry, Czech association for analytical cytometry (29.-30.1.2024)4. The Cellular and molecular basis of immunology, Czech Immunological society, Charles University and Homunkulus Foundation (passed 9.01.2024) <p>RESEARCH ACTIVITY</p>
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1. ANIMAL MODELS

Certificated for professional competence for designing experiments and experimental projects

Experienced with animal models experiments, specifically rodents (mice, rats),

- their guts explantation (such as spleen, pancreas, liver or various adipose tissues,..)

- cells isolating and culturing

2. ISOLATION OF THE CELLS, CULTURING

a. In vitro methods

Highly experienced with commercially available cells, such as

- primary cell line HUVEC, or THP-1

- cells isolated from human tissues (such as adipose tissue or blood).

- culturing of these cells (including controlling their differentiation and phenotype polarization)

- human adipose tissue organoids culturing

b. Isolation of the immune cells and adipocytes from the human tissues

i. Blood monocytes isolation

Isolation of PBMC via lymphocytes isolating medium or ficoll and subsequent isolation of monocytes via beads (positive selection via plastic beads or negative selection via magnetic beads) or by adherence

- their subsequent differentiation into macrophages

- and polarization towards anti-inflammatory (M2) or pro-inflammatory (M1) phenotype

ii. Isolation of innate immune cells and adipocytes from human (and animal) tissues

Highly experienced with isolation of the cells of innate immunity from various tissues, mostly human (such as adipose tissues, myocardium, arteries and atherosclerotic plaques) but also animals (mice and rats), also isolation of adipocytes.

3. METHODS

1. FLOW CYTOMETRY

Flow cytometry preparation of tissues, including all necessary supportive analysis

- FMO, compensation matrix processing

- design and optimisation of flow cytometry panel and protocol measurement (up to 7colour panel)

- analysis of obtained results in FlowJo

2. quantitative PCR (qPCR)/RT-PCR

Whole sample processing including analysis of obtained results. Design of primers and their optimisation.

3. IMMUNOHISTOLOGY (IHC)

- including optimisation of protocols

4. PROTEIN ANALYZING METHODS

ELISA, Luminex, and Griess reaction, briefly experienced with Western blotting



PROJECT ACTIVITY

Year	Project
Ongoing (till october 2023)	<p>Pericoronary adipose tissue - an active or passive player in atherosclerosis development?</p> <ul style="list-style-type: none"> • Processing of the explanted hearts, including myocardium, pericardial and pericoronary adipose (PVAT) tissue and coronary artery, isolation of the cells • Identification of immunocytes; macrophage subpopulations (including Trem2+ macrophages), eosinophils, lymphocytes and NK cells from listed tissues and blood via the FLOW CYTOMETRY
Ongoing (2022-2025)	<p>New morphological, immunological and biochemical markers of carotid plaques vulnerability</p> <ul style="list-style-type: none"> • Processing of the atherosclerotic plaques of human carotid arteries, isolation of the cells • Identification of immunocytes; macrophage subpopulations including Trem2+ macrophages and eosinophils in human atherosclerotic plaques and blood via the FLOW CYTOMETRY • Processing of the data, statistical analysis • Presentation of the results on the international conferences (e.g., The 27th international congress of atherosclerosis, Hradec Králové; 12/2023)
2023-2024	<p>Effect of statin treatment on macrophages polarization, in vitro; Student project</p> <ul style="list-style-type: none"> • Isolation of monocytes from human buffy coats, their differentiation into macrophages and subsequent polarization toward the pro-inflammatory (M1) and anti-inflammatory (M2) phenotype, coinubation with statins (fluvastatin) • Flow cytometry, qPCR, ELISA, Griess reaction • Processing of the data, statistical analysis
2022-2023	<p>Macrophage polarization and cellular membrane fatty acids of adipose tissue</p> <ul style="list-style-type: none"> • Processing the human perivascular and visceral adipose tissue • Isolation of the stromal vascular fraction (SVF) and adipocytes • Identification of immunocytes of SVF via FLOW CYTOMETRY • Sorting of the macrophages via the FACS (Fluorescence-Activated Cell Sorting)

PATENTS

Patent
x
x

CONGRESSES AND SEMINARS

Date	Title	Place
7.-9.12.2023	The 27th congress of atherosclerosis	Hradec Králové, Czech Republic
14.6.2023	The XXXVII. Lipoprotein conference	Prague, Czech Republic
21.-24.5.2023	The international 91st EAS congress	Mannheim, Germany



1.-3.12.2022	The 26th congress of atherosclerosis	Brno, Czech Republic
5.-8.10.2022	Czech Society of Allergology and Clinical Immunology: XXXIX. Congress of Czech and Slovak allergists and clinical immunologists	Prague, Czech Republic
2.12-4.12.2021	The 25th congress of atherosclerosis	Olomouc, Czech Republic

PUBLICATIONS

Books
x
x
x

Articles in reviews
Statins Directly Influence the Polarization of Adipose Tissue Macrophages: A Role in Chronic Inflammation Kauerova, S., Bartuskova, H., Muffova, (2021), <i>Biomedicines</i> , Volume 9, Issue 2, 211 Citations: 10; IF: 4,7 Biomedicines Free Full-Text Statins Directly Influence the Polarization of Adipose Tissue Macrophages: A Role in Chronic Inflammation (mdpi.com)
Perivascular adipocyte size is related to the lipid profile and inflammatory changes in a healthy population Biomedical Pharmacology, Submitted

Congress proceedings
The polarization of macrophages as a marker of high risk atherosclerotic plaque development The talk on the 27 th international conference of atherosclerosis, Hradec Králové, Czech Republic, 2023
The anti-inflammatory effect of statin treatment on macrophages polarization in vitro-the preliminary study https://www.atherosclerosis-journal.com/article/S0021-9150(23)04188-6/abstract The poster presentation on the international 91st EAS congress. Mannheim, Germany, 2023
New 3D organoid model suitable for in vitro adipose tissue testing https://onlinelibrary.wiley.com/doi/10.1111/jvp.13331
TREM2 macrophages in adipose tissue and cardiovascular risk https://www.atherosclerosis-journal.com/article/S0021-9150(23)04479-9/fulltext The poster presentation on the international 91st EAS congress. Mannheim, Germany, 2023
Anti-inflammatory effect of statin treatment on macrophages markers in vitro The poster presentation on the 26 th international conference of atherosclerosis, Brno, Czech Republic, 2022
The effect of statin treatment on macrophages polarization in vitro The poster presentation on the Clinical aerologists and immunologists, Prague, Czech Republic, 2022
The effect of statin treatment on macrophages polarization in vitro



The **online poster presentation** on the 25th international conference of atherosclerosis, Olomouc, Czech Republic, 2021

OTHER INFORMATION

Google scholar profile: [Barbora Muffová - Google Scholar](#)

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

Please DO NOT SIGN this form.

Place and date: Prague, Czech Republic, 8.3 2024