Varvara Lazarenko

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PERSONAL STATEMENT

I am a curious and dedicated graduate with a Master's degree in Medical Biology, driven by a passion for advancing healthcare through science. My experience spans both fundamental research and clinical trial development. With a solid biomedical background and a keen interest in sharing knowledge, I am motivated to learn new research methods and to grow within the academic field.

EDUCATION

09/2022 – 08/2024 **MSc in Medical Biology – Radboud University, Nijmegen, The Netherlands**

- ✓ Specialisation: Science, Management and Innovation
- ✓ GPA result: **7.63/10.00**
- ✓ Principal subjects: Future of health, How Health Systems Work, Sustainable Innovation Management, Molecular and Cellular Neurobiology, Molecular Therapy, Trends in Stem Cell Biology
- ✓ Master thesis: «Potential added value of home telemonitoring technology in elderly care», GPA result: **8.00/10.00**

09/2016 – 06/2020 **BSc in Biology – Lomonosov Moscow State University (MSU), Moscow, Russia**

- ✓ Specialisation: Human and Animal Physiology
- ✓ GPA result: **4.83/5.00**
- ✓ Principal subjects: Human and animal physiology, Electrophysiology of excited cells, Physiology of central nervous and visceral systems, Physiology of circulation, Biochemistry, Immunology, Genetics, Microbiology, Embryology
- ✓ Skills: qPCR, RT-PCR, gel electrophoresis, wire myography, western blotting, ELISA,HPLC, microscopy, cell culture, immunohistochemistry, intracellular recording (microelectrodes, patch clamp), behaviour tests (open field test, elevated plus maze, light-dark box test)
- ✓ Bachelor thesis: «Role of TASK-1 channels in arterial tone regulation in different organs in rats», GPA result: **5.00/5.00**

WORK EXPERIENCE

10/2024 – current **Part-time staff while searching for a life sciences position**

Renato's Pizzeria – Nijmegen, The Netherlands

- ✓ Providing customer service
- ✓ Selling the restaurant's menu

02/2024 – 08/2024 **Intern at Digital Transformation of Rehabilitation Care**

HAN University of Applied Sciences – Nijmegen, The Netherlands

- ✓ Added value research of home telemonitoring in elderly care based on the HTA framework presented onto the Quadruple aim
- ✓ Deployment of surveys (22) in Dutch and interviewing (7) medical professionals in English on their home telemonitoring experience/attitude
- ✓ Cost-effectiveness analysis (Markov model cohort simulation) on home telemonitoring in elderly peripheral arterial disease (PAD) patients in the Netherlands

02/2023 – 08/2023 **Intern at Neuronal Networks of Memory**

Donders Institute – Nijmegen, The Netherlands

- ✓ *In vivo* Ca^{2+} imaging of the retrosplenial cortex in mice during head-fixed virtual social learning using two-photon microscopy
- ✓ Management of laboratory animals (GCaMP6 transgenic mice, handling & feeding, craniotomy)
- ✓ Computational analysis of the obtained data (Python, DeepLabCut)

08/2021 – 08/2022 **Assistant at the Science Department of the Contract Research Organization LABMGMU, LLC – Moscow, Russia**

- ✓ Developing designs, synopses, protocols, investigator's brochures for more than 35 phase I, II, III clinical trials and bioequivalence trials
- ✓ More than 30 user interviews (testing the readability of pharmaceuticals' package leaflets)
- ✓ Advising on the number & design of (pre-)clinical studies for pharma clients
- ✓ Project management (control of the deadlines; compliance with the sponsor's requirements)
- ✓ Computational analysis of the obtained data (STATISTICA, GraphPad Prism)

10/2020 – 10/2021 **Junior Research Assistant at Faculty of Biology**

Lomonosov Moscow State University – Moscow, Russia

- ✓ Physiological experiments (wire myography technique, rat coronary and renal arteries)
- ✓ Molecular experiments (RNA extraction, reverse transcription, qPCR, western blotting)
- ✓ Cell and tissue culture experiments (cultivation of arteries in the presence of methoxamine, isoproterenol, and H2O)
- ✓ Management of laboratory animals (Wistar rats: housing, care, breeding)
- ✓ Statistical analysis of the obtained data (STATISTICA, GraphPad Prism)
- ✓ Project management (experiment and research strategy planning)
- ✓ Presentation of the results at the virtual conference ARTERY20, 23-24 October 2020, and at the Conference "Lomonosov-2021", 12-23 April 2021

SCIENTIFIC JOURNAL PUBLICATIONS

1. Shvetsova Anastasia A., **Lazarenko Varvara S.**, Gaynullina Dina K., Tarasova Olga S., Schubert Rudolf (2022). TWIK-Related Acid-Sensitive Potassium Channels (TASK-1) Emerge as Contributors to Tone Regulation in Renal Arteries at Alkaline pH. *Frontiers in physiology, 13*: 895863. https://doi.org/10.3389/fphys.2022.895863

2. **Lazarenko Varvara**, Shvetsova Anastasia, Gaynullina Dina, Schubert Rudolph (2020). TASK-1 Channels Play an Anticontractile Role in Rat Septal Coronary Artery Under Pharmacological Blockade of Endothelium. *Artery Research, 26*(S1): S58. https://doi.org/10.2991/artres.k.201209.048

3. Borzykh A.A., Kuzmin I.V., Kiryukhina O.O., Selivanova E.K., Shvetsova A.A., **Lazarenko V.S.**, Los-Arkos Uvarova S., Nesterenko A.M., Tarasova O.S. (2020). Voluntary running training of female rats during gestation: characteristics of an experimental model [in Russian]. *Aviakosmicheskaya i Ekologicheskaya Meditsina, 54*(2): 89–95. https://www.elibrary.ru/item.asp?id=42721639

CONFERENCE PUBLICATIONS

1. **Lazarenko V. S.**, Shvetsova A. A. (2021). Removal of the endothelium leads to augmented contractile responses in rat renal interlobar arteries under alkaline conditions [Abstract in Russian]. In I.A. Aleshkovsky, A.V. Andriyanov, E.A. Antipov & E.I. Zimakova (Eds.), *Materials of the International Youth Scientific Forum "LOMONOSOV-2021"*. MAKS Press, Moscow. https://lomonosov-msu.ru/archive/Lomonosov_2021/data/section_2_21890.htm

2. Tarasova O.S., Selivanova E.K., Borzykh A.A., Kiryukhina O.O., Shvetsova A.A., **Lazarenko V.S.**, Makukha Yu.A., Bogotskoy K.A., Ivanova A.D., Voronina Ya.A., Kuzmin V.S. (2021). Nitric oxide deficiency during prenatal development is accompanied by a change in the nervous regulation of the heart in postnatal ontogenesis [Abstract in Russian]. In R.I. Sepiashvili & M.A. Ostrovsky (Eds.), *VII Russian Congress on Physiology, Biochemistry and Molecular Biology, X Russian Symposium "Proteins and Peptides", VII Russian Biochemical Congress, VII CIS Congress on Physiology (Proceedings. Sochi–Dagomys, October 3-8, 2021), 1*: 90-91. Pero Publishing House, Moscow.

3. Shvetsova A.A., Selivanova E.K., Gaynullina D.K., Kiryukhina O.O., Borzykh A.A., **Lazarenko V.S.**, Los Arcos Uvarova S., Schubert R., Tarasova O.S. (2020). An increase in the anticontractile effect of potassium channels in the arteries of 2-week-old offspring of female rats with experimental preeclampsia [Abstract in Russian]. Proceedings of *VII All-Russian School-Conference with International Participation on Physiology and Pathology of Blood Circulation*, pp. 154-155. RA ILF, Moscow.

4. **Lazarenko V.S.**, Sebentsova E. A. (2019). Influence of DMSO on the physical and motor development in C57BL/6 mice [Abstract in Russian]. In I.A. Aleshkovsky, A.V. Andriyanov & E.A. Antipov (Eds.), *Materials of the International Youth Scientific Forum "LOMONOSOV-2019".* MAKS Press, Moscow. https://lomonosov-msu.ru/archive/Lomonosov_2019/data/section_2_16089.htm

CERTIFICATES

2023 A FELASA accredited course on Laboratory Animal Science (EU function B) at Radboudumc
2021 An upgrade training on ICH guidelines on Good Clinical Practice (GCP) at LABMGMU

ACADEMIC HONORS AND AWARDS

2022-2024 Awarded Orange Tulip Scholarship for the studies at Radboud University
2020-2021 Awarded MSU Increased State Academic Scholarship for scientific and academic achievements
2021 Second prize-winner in the Lomonosov Universiade on modern problems of biology

DIGITAL SKILLS

Python (beginner), DeepLabCut, STATISTICA, GraphPad Prism, Rotor-Gene Q Series, and MS Office softwares

LANGUAGES

Russian (native), English (fluent – C_2), German (intermediate – B_1-B_2), Dutch (low intermediate – A_2-B_1), French (beginner - A_1)

VOLUNTEERING ACTIVITY

2024 Mentorship of the international exchange and Master's students at the Radboud Intro
2023 Organization of the BBB Career Event 2023, Nijmegen
2022-2023 Organization of volleyball tournaments in the international volleyball group at Radboud
2018-2021 Mentorship of the first-year students at Faculty of Biology, MSU, Moscow

HOBBIES

Animals (horses & dogs), volleyball, reading, drawing, guitar playing, traveling

REFERENCES

1. Arie Kim, PhD, Assistant Research Scientist at Columbia University Irving Medical Center – a supervisor of the first master's internship at Donders Institute, arie.kim@nyspi.columbia.edu

2. Anastasia Shvetsova, PhD, Leading Research Scientist at the Department of Human and Animal Physiology at Lomonosov Moscow State University, - a supervisor of the bachelor's internship and the bachelor's thesis, anastasiashvetsova92@gmail.com

Extra: 3. Geert Frederix, PhD, Associate professor Health Technology Assessment at UMC Utrecht and Applied Professor Digital Transformation in healthcare at HAN University of Applied Sciences – a supervisor of the master's thesis, geert.frederix@han.nl

MOTIVATION LETTER

Dear Dr. Hooijmans, Dr. Goulding, and Selection Committee,

I am writing to express my strong motivation to apply for the PhD position in exercise physiology at Vrije Universiteit Amsterdam. With a physiology profile from my BSc in Biology and an MSc in Medical Biology, I have always been most fascinated by how the human body responds to exercise, adapts under stress, and maintains health. This project, focused on unraveling exercise limitations in ME/CFS, resonates deeply with my passion for physiology and my ambition to contribute to translational research with direct impact on patients' lives.

From early on, physiology has been the field I enjoyed most. During my BSc practical courses, I trained in EEG, ECG, and respirometry measurements on human subjects, sparking my interest in dynamic system responses. I later gained hands-on experience with advanced models: fMRI in mice to study brain ischaemia, whole-cell patch clamp to study Kir channels in fish cardiomyocytes, and vascular physiology research in rats, where I investigated arterial regulation in the heart, kidney, mesentery, and skeletal muscle. My BSc thesis on TASK-1 channels in rat arteries laid the foundation for my later work as a Junior Research Assistant, where I further studied vascular regulation under varying pH conditions using wire myography, qPCR, and western blotting. I also contributed to models of preeclampsia and voluntary exercise in rats, which strengthened my experience in *in vivo* physiology and data interpretation. My MSc internship at the Donders Institute further developed my data analysis skills, where I used Python and DeepLabCut to analyze *in vivo* neuronal imaging data.

Through my education and work roles, I also developed extensive wet lab skills in molecular and cellular biology, including PCR/qPCR, cloning, western blotting, ELISA, immunohistochemistry, microscopy, RNA/DNA extraction, and cell and tissue culture. This provided me with a versatile toolkit to study physiology from molecular mechanisms to whole-body function.

I also bring experience working directly with human subjects, both through user-interviewing at a Contract Research Organization and through surveys and interviews with healthcare professionals for my MSc thesis on telemonitoring innovations in elderly care in the Netherlands. These experiences taught me how to engage with patients, clinicians, and researchers, handle sensitive data, and integrate physiological findings with broader healthcare perspectives.

I am highly motivated to bring together my physiology background, experimental versatility, and data analysis skills to this project. The opportunity to apply non-invasive techniques such as MRI, NIRS, and 31P-MRS to understand muscle physiology in ME/CFS is particularly exciting, as it bridges my passion for exercise physiology with clinically meaningful research. I value the integrative approach of your department, combining physiology with anatomy, psychology, and biomechanics, and I am eager to contribute to this multidisciplinary team while growing into an independent researcher in exercise physiology.

Thank you for considering my application. I would be honoured to join your team and contribute my skills, motivation, and dedication to this exciting project.

Warm regards,
Varvara Lazarenko