CURRICULUM VITAE

Work Details
Position: Director, Institute of Biomedicine and Pharmacy **Organization: Russian-Armenian University** **Address: Armenia, Yerevan 0052, H. Emin 123** **Email: roksana.zakharyan@rau.am**

Education:	
Date	Degree obtained, Institution
2013	***PhD in biology*** *Thesis title "Molecular genetic markers of immune system alterations in schizophrenia",* Supervisor: Prof. Anna Boyajyan, PhD, DrSc
2008-2012	***Ph.D. student*** *Institute of Molecular Biology National Academy of Sciences of the Republic of Armenia (NAS RA)*
2005-2007	***Master student (graduated with honors)*** *Faculty of Physics*, Yerevan State University (YSU)
2001-2005	***Bachelor student (graduated with honors)*** *Faculty of Physics*, YSU
Professional Experience*:*	
Date	Position, Organization
2019- up to date	***Senior Researcher*** *Laboratory of Human Genomics* Institute of Molecular Biology NAS RA
2018-2025	***Head of Department*** *Bioengineering, Bioinformatics, and Molecular Biology* Institute of Biomedicine and Pharmacy Russian-Armenian University (RAU)
2015- up to date	***Senior Lecturer*** *"Genome engineering", "Genetics"* *Department of Bioengineering, Bioinformatics, and Molecular Biology* Institute of Biomedicine and Pharmacy RAU
2013-2025	***Lecturer*** *Graduate courses "Functional genomics"* Department Molecular and Cellular Biology International Scientific-Educational Center of NAS RA
2009-2012	***Junior researcher*** *Laboratory of Macromolecular Complexes (Laboratory of Human Genomics), IMB*
2006-2007	***Laboratory assistant*** *Department of Molecular Physics, YSU*
Research Experience and Technical Skills:	
Laboratory skills: ELISA, Western blot, PCR-SSP, qRT-PCR, calorimetry, circular dichroism, DNA/RNA extraction, gel-electrophoresis, UV-spectrophotometry, Sanger sequencing, Mass Array, Nanopore sequencing, Next-generation sequencing (NGS), cell culturing, stem cells development	
Computer skills: MS Office, CorelDraw, Adobe Photoshop, SPSS, GraphPrism	
Languages: Russian (fluent), English (fluent)	

Academic Fellowships and Visits:	
Date (from - to)	Place
22.01.2020-27.01.2020	Department of Genetics/Epigenetics, University of Saarland, Saarbrucken, Germany
06.08.2017-27.08.2017	Department of Pathology, Palacky University Olomouc, Czech Republic
01.09.2009-02.02.2010	Laboratory of Immunogenomics and Proteomics, Palacky University
Honors/Awards:	

2024-2025	**"Infrastructure support program"**, competition of the Higher Education and Science Committee, RA (PI)
2021-2024	**"Study of molecular mechanisms of Familial Mediterranean fever using approaches of genetic engineering and functional genomics"**, competition of State Committee of Science, RA (PI)
2021	**"Equipment/reagents purchase program"**, Young Scientists Support Program (PI)
2019-2021	Research grant **"Study of association of treatment efficacy and genetic variants of drug metabolizing enzymes in schizophrenia",** competition of State Committee of Science, RA (PI)
2019-2019	**"Genetic engineering, genome editing and third generation sequencing"** center of excellence, supported by "Education improvement program" funded by the World Bank (program coordinator)
2019	***Winner of the Instrumental Access 2019*** *competition by Seeding Labs* (PI)
2018	***Winner of the competition "The most productive young scientist-2017",*** *Awarded by the State Committee of Science, Ministry of Education of the Republic of Armenia*
2017	***Winner of the competition "The most productive young scientist-2016",*** *Awarded by the State Committee of Science, Ministry of Education of the Republic of Armenia*
2017	***Travel Grant*** *to attend 9th EFIS-EJI South Eastern European Immunology School (SEEIS2017)*
2016	***Winner of the competition "The most productive young scientist-2015",*** *Awarded by the State Committee of Science, Ministry of Education of the Republic of Armenia*
2013	***Winner of the Young Scientists Competition "Best Scientific Work 2013", Section of Biology,*** *awarded by the National Academy of Sciences, RA*
Supervision of graduate students: Supervision of 12 graduate projects and 3 PhD project	
Additional Professional Activities	
Evaluation activities:	
2015-to date	Reviewer of the World Journal of Biological Psychiatry
2015-to date	Editorial Board Member of the Journal of Clinical Immunology and Immunotherapy
2015-to date	Editorial Board member of the Scientific Journal of Genetics and Gene Therapy
2015-to date	Reviewer of the Neuropsychiatric Disease and Treatment
2015-to date	Reviewer of the Research and reports in Biochemistry
2015-to date	Reviewer of the Neurological Disorders & Epilepsy
2015-to date	Reviewer of the Advances in Genomics and Genetics
2015-to date	Reviewer of the International Journal of Interferon, Cytokine and Mediator Research
2015	Abstract Reviewer of the Fourth International Congress of Immunology
2013-to date	Expert of the State Committee of Science of the Republic of Armenia
Fellowships and scholarships:	
Year received	
2023-2025	***"Development of novel molecular genetic testing system for familial mediterranean Fever"****, funded by AESA, USA*
2021-2024	***"Study of molecular mechanisms of Familial Mediterranean fever using approaches of genetic engineering and functional genomics",*** *research grant funded by the Committee of Higher Education and Science (Former Committee of Science of the Ministry of Science, Education, Culture and Sport), RA*
2019-2021	***"Study of association of treatment efficacy and genetic variants of drug metabolizing enzymes in schizophrenia",*** *research grant funded by the Committee of Science of the Ministry of Science, Education, Culture and Sport, RA*

2019-2021	*Educational-Scientific Center of Excellence for* ***"Genetic engineering, genome editing and 3rd generation sequencing"*** *grant in the frames of "Competitive Innovation Fund" under "Education Improvement" project supported by World Bank*
2019	***"Instrumental Access-2019"*** *program funded by Seeding Labs, USA*
2017-2019	*Targeted research project "Genetic mapping of Armenian pathogenome", State Committee of Science, Ministry of Education and Science, Republic of Armenia*

2017	*Educational grant award, provided by the World Federation of Societies of Biological Psychiatry (WFSBP) to attend special Educational Section at the* ***World congress of Biological Psychiatry****, June 18-22, 2017*
2015	*Educational grant award, provided by the World Federation of Societies of Biological Psychiatry (WFSBP) to attend special Educational Section at the* ***World congress of Biological Psychiatry****, June 14-18, 2015*
2015	*Travel grant, IncoNet EaP project, FP7, attendance to the Horizon 2020* ***"Health, Demographic Change & Wellbeing"*** *Health Partnering Day and Open Info Day, Brussels, September 17-18, 2015*
2015	*Travel grant for participation to the* ***"12th World congress of Biological Psychiatry"****, awarded by the "Young Scientists' Support Program"*
2013-2016	***"Schiff base cyclic amino acid derivatives for chemoprotection against damaging action of mycotoxins",*** *Grant of the International Science and Technology Center, ISTC (#A-2116), project participant*
2013-2015	*Grant of* ***"Study of synaptic plasticity regulating transcription factors in schizophrenia",*** *competition of the State Committee of Science (SCS MES RA) (#13-1F126), project participant*
2013	*Travel grant to attend* ***International Congress of Immunology****, Milan, Italy, awarded by the International Union for Immunological Societies (IUIS)-Gates Foundation*
2013	*Grant of "****Searching for schizophrenia biomarkers among the genes of synaptic proteins"*** *of the Armenian National Science and Education Fund (ANSEF), New York, USA, PI*
2012	*Grant of "Travel Support Program-2011" to participate in* ***"Genomic disorders: genomics of rare diseases"*** *conference, provided by the National Foundation of Science and Advanced Technologies (NFSAT) (TSP 09/2012)*
2012	*Grant of the* ***"Materials and Equipment Purchase Support-2012"*** *program, competition of the National Foundation of Science and Advanced Technologies (NFSAT) and Armenian International Woman Association (AIWA), PI*
2011-2013	*Grant of* ***"Complexin-2 and annexin-a5 as potential biomarkers of cognitive dysfunction in psychiatric disorders: genetic polymorphisms, expression levels",*** *competition of the State Committee of Science (SCS MES RA) (#11-1f151), project participant*
2011	*Travel grant to participate in* ***"FEBS Practical course on gene expression regulation and data integration"*** *funded by FEBS, August 27 – September 3, 2011, Debrecen, Hungary*
2010	*Grant of* ***"Immunogenetics of schizophrenia: single nucleotide polymorphisms of immune response related genes",*** *Early Careers Support Program (ECSP), competition of the National Foundation of Science and Advanced Technologies (NFSAT), the U.S. Civilian Research & Development Foundation and the State Committee of Science (SCS MES RA) (ECSP-09-70), principal investigator*
2009	*Grant of* ***"Study of possible involvement of genetic polymorphisms of C-reactive protein and C1q component of the complement in pathogenesis of schizophrenia",*** *In-coming scholarship of the International Visegrad Fund (IVF) (#50910830), principal investigator, in collaboration with Palacky University, Olomouc, Czech Republic*

Selected publications (2019-2026)

1. Stepanyan A, Hakobyan S, Brojakowska A, Bisserier M, Zakharyan R, Davitavyan S, Sirunyan T, Khachatryan G, Khlgatian MK, Zhang S, Baghoomian A, Sahoo S, Hadri L, Garikipati VNS, Arakelyan A, Goukassian DA. Long-Term Impact of Western Diet on Right Ventricular Transcriptome: Uncovering Sex-Specific Patterns in C57BL/6J Mice. Int J Mol Sci. 2025 Dec 26;27(1):259. doi: 10.3390/ijms27010259.
2. Khachatryan G, Sirunyan T, Hakobyan S, Davitavyan S, Zakharyan R, Stepanyan A, Brojakowska A, Khlgatian MK, Bisserier M, Zhang S, Goukassian DA, Arakelyan A. Long-term Pathway Activation in Cardiac Ventricular Tissues after Gamma and simGCRsim Irradiation. Radiat Res. 2025 Nov 1;204(5):550-559. doi: 10.1667/RADE-25-00043.1.
3. Zakharyan R, Hakobyan S, Brojakowska A, Bisserier M, Zhang S, Khlgatian MK, Rai AK, Davitavyan S, Stepanyan A, Sirunyan T, Khachatryan G, Sahoo S, Garikipati VNS, Arakelyan A, Goukassian DA. The effects of space radiation on the transcriptome of heart right ventricle tissue. **NPJ Microgravity** 2025 Jul 21;11(1):46. doi: 10.1038/s41526-025-00506-8.
4. Zakharyan R, Hakobyan S, Brojakowska A, Davitavyan S, Stepanyan A, Sirunyan T, Khachatryan G, Khlgatian MK, Bisserier M, Zhang S, Sahoo S, Hadri L, Garikipati VNS, Arakelyan A, Goukassian DA. Long-lasting sex-specific alteration in left ventricular cardiac transcriptome following gamma and simGCRsim radiation. **Scientific Reports** 2025 Feb 18;15(1):5963. doi: 10.1038/s41598-025-89815-2.
5. Stepanyan A, Brojakowska A, Zakharyan R, Hakobyan S, Davitavyan S, Sirunyan T, Khachatryan G, Khlgatian MK, Bisserier M, Zhang S, Sahoo S, Hadri L, Rai A, Garikipati VNS, Arakelyan A, Goukassian DA. Evaluating sex-specific responses to western diet across the lifespan: impact on cardiac function and transcriptomic signatures in C57BL/6J mice at 530 and 640/750 days of age. **Cardiovasc Diabetol.** 2024 Dec 28;23(1):454. doi: 10.1186/s12933-024-02565-9.
6. Hayrapetyan V, Karapetyan L, Ghukasyan L, Atshemyan S, Ghazaryan H, Vardanyan V, Mukuchyan V, Arakelyan A, Zakharyan R. Association of inflammasome gene expression levels with pathogenesis of Familial Mediterranean fever in Armenians. **International Journal of Molecular Sciences (MDPI) 2024;**25(23):12958. doi: 10.3390/ijms252312958.
7. Ghukasyan L, Khachatryan G, Sirunyan T, Minasyan A, Hakobyan S, Chavushyan A, Hayrapetyan V, Ghazaryan H, Martirosyan G, Mkrtchyan G, Vardanyan V, Mukuchyan V, Davidyants A, Zakharyan R, Arakelyan A. Genewise detection of variants in MEFV gene using nanopore sequencing. **Frontiers in Genetics 2024;**15:1493295. doi: 10.3389/fgene.2024.1493295.
8. Grigor'eva E.V., Karapetyan L.V., Malakhova A.A., Medvedev S.P., Minina J.M., Hayrapetyan V.H., Vardanyan V.S., Zakian S.M., Arakelyan A., Zakharyan R. Generation Generation of iPSCs from a Patient with the M694V Mutation in the MEFV Gene Associated with Familial Mediterranean Fever and Their Differentiation into Macrophages. **International Journal of Molecular Sciences (MDPI) 2024**; 25(11):6102. doi: 10.3390/ijms25116102.
9. Grigor'eva E.V., Malakhova A.A., Ghukasyan L., Hayrapetyan V., Atshemyan S., Vardanyan V., Zakian S.M., Zakharyan R., Arakelyan A. Generation of three induced pluripotent stem cell lines (RAUi001-A, RAUi001-B and RAUi001-C) from peripheral blood mononuclear cells of a healthy Armenian individual. **Stem Cell Research 2023**;71:103147. doi: 10.1016/j.scr.2023.103147.
10. Loeffler-Wirth H., Hopp L., Schmidt M., Zakharyan R., Arakelyan A., Binder H. The transcriptome and methylome of the developing and aging brain and their relations to gliomas and psychological disorders. **Cells (MDPI)** 2022;11(3):362. doi: 10.3390/cells11030362.
11. Avetyan D, Chavushyan A, Ghazaryan H, Melkonyan A, Stepanyan A, Zakharyan R, Hayrapetyan V, Atshemyan S, Khachatryan G, Sirunyan T, Davitavyan S, Martirosyan G, Melik-Andreasyan G, Sargsyan S, Ghazazyan A, Aleksanyan N, Yin X, Arakelyan A. SARS-CoV-2 detection by extraction- free qRT-PCR for massive and rapid COVID-19 diagnosis during a pandemic in Armenia. **Journal of Virology Methods.** 2021;295:114199. doi: 10.1016/j.jviromet.2021.114199.
12. Avetyan D., Chavushyan A., Ghazaryan H., Melkonyan A., Stepanyan A., Zakharyan R., et al. Molecular Genetic Analysis of SARS-CoV-2 Lineages in Armenia. **medRxiv 2020**, doi: https://doi.org/10.1101/2021.06.19.21259172
13. Avetyan D., Zakharyan R., Petrek M., Arakelyan A. Leucocyte telomere length, genetic variants at the TERT gene region and risk of posttraumatic stress disorder. **European Neuropsychopharmacology**

2020, 31: S9-S10, doi:10.1016/j.euroneuro.2019.12.012
14. Zakharyan R., Ghazaryan H., Kocourkova L., Chavushyan A., Mkrtchyan A., Zizkova V., Arakelyan A., Petrek M. Association of genetic variants of dopamine and serotonin receptors with schizophrenia. **Archives of Medical Research 2020**, 51(1):13-20, doi: 10.1016/j.arcmed.2019.12.011.
15. Atshemyan S., Zakharyan R., Arakelyan A. Revealing the functional role of the genes and /կրproteins associated with schizophrenia. **European Neuropsychopharmacology 2019**, 29:S532-S533, doi.org/10.1016/J.EURONEURO.2019.09.

16. Avetyan. D., Zakharyan R., Petrek M., Arakelyan A. Association between rs734194 genetic variant of nerve growth factor receptor (NGFR) and peripheral telomere length with posttraumatic stress disorder. **Journal of Neural Transmission 2019**, 126(11):1532. https://doi.org/10.1007/s00702-019-02095-9
17. Avetyan D., Zakharyan R., Petrek M., Arakelyan A. Telomere shortening in blood leukocytes of patients with posttraumatic stress disorder. **Journal of Psychiatric Research 2019**, 111:83-88, doi: 10.1016/j.jpsychires.2019.01.018.