Heghine Khazhak Gevorgyan

heghine.gevorgyan@ysu.am

Research Institute of Biology
Laboratory of Microbiology, Bioenergetics and Biotechnology
Scientific Worker

Faculty of Biology
Research Institute of Biology
Laboratory of Microbiology, Bioenergetics and Biotechnology
Scientific Worker

Faculty of Biology
Chair of Biochemistry, Microbiology, and Biotechnology
Assistant

Education

Institution	Yerevan State University
Faculty	Faculty of Biology, Department of Biochemistry, Microbiology and Biotechnology
Date	2018 - 2021
Degree name	PhD student

Institution	Yerevan State University
Faculty	Faculty of Biology, Department of Biochemistry, Microbiology and Biotechnology
Date	2016 - 2018
Degree name	Masters

Institution	Yerevan State University
Faculty	Faculty of Biology, Department of Biochemistry
Date	2012 - 2016
Degree name	Bachelor

Scientific Rank/degree

Institution	Yerevan State University
Date	2021
Degree name	Candidate
Scientific Supervisor	Trchounian Karen Armen
Research Topic	The interaction between proton FOF1-ATPase and formate-hydrogen lyase during fermentation of a mixture of different carbon sources

Language skills

Հայերեն English Русский

Work experience

Institution	YSU, Faculty of Biology, Biology research institute, Laboratory of Microbiology,Bioenergetics and Biotechnology
Period of time	2023 till now
Rank/degree	Scientific Researcher

Institution	YSU, Faculty of Biology, Biology research institute, Laboratory of Basic and Pathological Biochemistry, Faculty of Biology, YSU
Period of time	2021 - 2023
Rank/degree	Junior Scientific Researcher

Institution	YSU, Faculty of Biology, Department of Biochemistry, Microbiology and Biotechnology
Period of time	2021 - 2023
Rank/degree	Administrative assistant

Institution	YSU, Faculty of Biology, Department of Biochemistry, Microbiology and Biotechnology
Period of time	2021 till now
Rank/degree	Assistant Professor

Institution	YSU, Faculty of Biology, Biology research institute, Laboratory of Biochemistry
Period of time	2019 - 2021
Rank/degree	Laboratory assistant

Institution	YSU, Faculty of Biology, Department of Biochemistry, Microbiology and Biotechnology
Period of time	2018 - 2021
Rank/degree	PhD student

Participation in international conferences and seminars

30/06/2022 - 02/07/2022	FEMS Conference on Microbiology Serbia
20/10/2021 - 22/10/2021	Biotechnology: Science and Practice Innovation and Business Armenia
08/08/2021 - 12/08/2021	TUBA World Conference on Energy Science and Technology Turkey

07/06/2021 - 11/06/2021	XI International Scientific Conference «Microbial biotechnologies: fundamental and applied aspects» - Belarus
20/06/2021 - 24/06/2021	World Microbe Forum United States of America (the)
26/11/2020 - 27/11/2020	THE 7TH INTERNATIONAL RENEWABLE AND CLEAN ENERGY CONFERENCE Armenia
29/10/2020 - 31/10/2020	V INTERNATIONAL CONFERENCE OF BIOTECHNOLOGY AND HEALTH Armenia
16/11/2020 - 18/11/2020	Microbial Stress 2020 Italy
11/11/2019 - 13/11/2019	Modern trends in Biochemistry, Radiation and Space Biology: The Great Sissakian and importance of his research Yerevan State University Armenia
06/07/2019 - 11/07/2019	The 44th Congress of the Federation of European Biochemical Societies Poland
07/07/2018 - 12/07/2018	The 43rd Congress of the Federation of European Biochemical Societies Czech Republic (the)

Membership

Institution	Armenian Microbiological Association (FEMS member society)
Period of time	2018 till now
Institution	All-Armenian Association of Biochemists, FEBS constituent society
Period of time	2018 till now
Institution	ArMicro ASM student chapter, Yerevan, Armenia
Period of time	2018 till now
Institution	American Society for Microbiology (ASM)
Period of time	2017 till now
Institution	European Federation of Biotechnology (EFB)
Period of time	2021 till now

Publications

Article

Role of E. coli acid resistance systems in proton motive force formation during fermentation
Heghine Gevorgyan, Tamara Abaghyan, Stella Hakobyan, Sophie Brameyer, Kirsten Jung,

Karen Trchounian

Biophysical Reports 2026 100266

https://doi.org/10.1016/j.bpr.2026.100266

Article

FhlA-mediated regulation of proton transport and energy transduction in Escherichia coli at acidic pH
Heghine Gevorgyan, Anait Vassilian, Anna Poladyan, Karen Trchounian

PLOS ONE 2026 e0351220

https://doi.org/10.1371/journal.pone.0351220

Article

Role of the FhlA transcriptional activator in metabolic changes in Escherichia coli during fermentation of mixed carbon sources at acidic pH
Heghine Gevorgyan, Marine Parsadanyan, Anait Vassilian, Anna Poladyan, Karen Trchounian

Biochimie 2025 1-9

Article

FOF1-ATPase mediates regulation of fermentation and energy metabolism at pH 5.5
Heghine Gevorgyan, Karen Trchounian

Scientific Reports 2025 35873

Conference

Contribution of Proton ATPase in the Formation of Proton Motive Force in Escherichia coli during Mixed Carbon Fermentation at pH 5.5
H.Gevorgyan, K.Trchounian

2025 MBP-IDS-301

https://asm.org/events/asm-microbe/asm-microbe-2025-highlights

Conference

Effects of Amino Acid Mutations in E. coli DcuD Transporters in Proton Flux at pH 7.5
H.Gevorgyan, L.Jorkntsyan, A.Valle, J.Bolivar, K.Trchounian

2025 MBP-P-305

https://asm.org/events/asm-microbe/asm-microbe-2025-highlights

Conference

Proton and Potassium Flux Alterations in the Presence of Propionic Acid in Gut-Isolated Escherichia coli
H. Gevorgyan, T. Abaghyan, K. Yenkoyan, K. Trchounian

2025 MBP-P-205

https://asm.org/events/asm-microbe/asm-microbe-2025-highlights

Conference

Impact of short-chain fatty acids on the anaerobic growth of Escherichia coli K12 and Enterococcus hirae ATCC9790

Tamara Abaghyan, Heghine Gevorgyan, Karen Trchounian

2025 1024 - 1024

https://fems-microbiology.org/opportunities/fems-micro-milan-2025-congress-and-...

Conference

Gad Acid Resistance System Plays a Critical Role in Escherichia Coli Growth, Significantly Influencing the Extracellular pH During Fermentation

Heghine Gevorgyan, Kirsten Jung, Karen Trchounian

2025 34-34

https://www.ysu.am/en/conference/869

Conference

The Impact of Different Concentrations of Formate and Lactate on Escherichia coli Growth Properties and H2 Production

Tamara Abaghyan, Heghine Gevorgyan, Karen Trchounian

2025 47-47

https://www.ysu.am/en/conference/869

Article

Regulation of metabolism and proton motive force generation during mixed carbon fermentation by an Escherichia coli strain lacking the FOF1-ATPase

Heghine Gevorgyan, Lilit Baghdasaryan, Karen Trchounian

Biochimica et Biophysica Acta (BBA) - Bioenergetics 2024 149034

Article

Proton conductance and regulation of proton/potassium fluxes in Escherichia coli FhlA-lacking cells during fermentation of mixed carbon sources

Heghine Gevorgyan, Anna Poladyan, Karen Trchounian, Anait Vassilian

Archives of Biochemistry and Biophysics 2024 109999

Conference

Exploring the role of propionic acid: link between gut microbiome and neurodevelopmental disorders

T. Abaghyan, H. Gevorgyan, M. Mirumyan, K. Yenkoyan, K. Trchounian

2024 363-363

https://2024.febscongress.org

Conference

The regulation of ATPase activity by K+ ions in gut isolated E. coli strains and its role in propionic acid sensing

Tamara E. Abaghyan, Heghine Gevorgyan, Margarita Mirumyan, Konstantin Yenkoyan, Karen Trchounian

2024 71-72

https://www.ebec2024.org

Article

Propionic and valproic acids have an impact on bacteria viability, proton flux and ATPase activity

Heghine Gevorgyan, Tamara Abaghyan, Margarita Mirumyan, Konstantin Yenkoyan, Karen Trchounian

Journal of Bioenergetics and Biomembranes 2023 397-408

Conference

ՕՐԳԱՆԱԿԱՆ ԹԱՓՈՆՆԵՐԻՑ ԿԵՆՍԱԶԱՆԳՎԱԾԻ ԵՎ ԿԵՆՍԱԷՆԵՐԳԻԱՅԻ ՓՈԽԱԿԵՐՊՄԱՆ ԿԵՆՍԱՔԻՄԻԱԿԱՆ ՈՒՂԻՆԵՐԻ ԲՆՈՒԹԱԳՐՈՒՄԸ ԵՎ ՕՔՍԻԴԱՎԵՐԱԿԱՆԳՈՂԱԿԱՆ ԿԱՐԳԱՎՈՐՈՒՄԸ

Փոլադյան Ա.Ա., Գևորգյան Հ.Խ., Վանյան Լ.Մ., Բաբայան Ա.Ռ., Բաղդասարյան Լ.Հ., Վասիլյան Ա.Վ., Պետրոսյան Հ.Հ.

2023 91-92

https://www.ysu.am/conference/770/53120

Conference

Influence of acidic pH on the interaction between proton ATPase and enzymes responsible for molecular hydrogen generation

Karen Trchounian, Heghine Gevorgyan, Lilit Baghdasaryan, Anait Vassilian, Anna Poladyan

2023 22 - 22

https://euromicroph.eu/

Conference

The penetration of PPA is mediated with H +efflux in Gram-negative and Grampositive bacteria

Tamara Abaghyan, Heghine Gevorgyan, Margatita Mirumyan, Konstantin Yenkoyan, Karen Trchounian

2023 54-54

https://euromicroph.eu/

Conference

Formate-hydrogen lyase has a significant role in proton motive force generation in Escherichia coli at acidic pH during mixed carbon fermentation

Heghine Gevorgyan, Anait Vassilian, Anna Poladyan, Karen Trchounian

2023 105 - 105

https://www.efbiotechnology.org/microbialstress/

Article

The influence of hydrogen production on the formation of metabolic pathways and regulation of ΔpH in Escherichia coli

Heghine Gevorgyan, Anait Vassilian, Anna Poladyan, Karen Trchounian

International Journal of Hydrogen Energy 2022 40264-40274

Article

Metabolic pathways and ΔpH regulation in Escherichia coli during the fermentation of glucose and glycerol in the presence of formate at pH 6.5: the role of FhlA transcriptional activator

Heghine Gevorgyan, Satenik Khalatyan, Anait Vassilian, Karen Trchounian

FEMS Microbiology Letters 2022 1-9

Conference

The contribution of proton ATPase in E. coli growth during mixed carbon sources fermentation at different pHs

Heghine Gevorgyan, Lilit Baghdasaryan, Anait Vassilian, Karen Trchounian

2022 723

https://www.femsbelgrade2022.org/

Conference

Role of E. coli potassium transporters in proton / potassium flux during mixed carbon

fermentation at pH 7.5
Heghine Gevorgyan, Mariam Danielyan, Anait Vassilian, Karen Trchounian

2022 816

https://www.femsbelgrade2022.org/

Study manual

FERMENTATION
HEGHINE GEVORGYAN, KAREN TRCHOUNIAN

2022 76

Article

Interdependence of Escherichia coli formate dehydrogenase and hydrogen-producing hydrogenases during mixed carbon sources fermentation at different pHs
Karen Trchounian, Heghine Gevorgyan, Gary Sawers, Armen Trchounian

International Journal of Hydrogen Energy 2021 5085-5099

Article

The role of Escherichia coli FhlA transcriptional activator in generation of proton motive force and FOF1-ATPase activity at pH 7.5
Heghine Gevorgyan, Satenik Khalatyan, Anait Vassilian, Karen Trchouian

IUBMB Life (International Union of Biochemistry and Molecular Biology Life) 2021 883-892

Article

INDUSTRIAL WASTE-BASED HYDROGEN PRODUCTION TECHNOLOGY: THE PROFITABILITY FOR INDUSTRIAL WASTE GENERATORS
Liana Vanyan, Heghine Gevorgyan, Hripsime Petrosyan, Armen Trchounian, Karen Trchounian

ՎԵՐԱԿԱՆԳՆՎՈՂ ԵՎ ՄԱՔՈՒՐ ԷՆԵՐԳԻԱՅԻ 7-ՐԴ ՄԻՋԱԶԳԱՅԻՆ ՀԱՄԱԺՈՂՈՎԻ ՆՅՈՒԹԵՐ 2021 56-59

Article

THE EFFECT OF MOLECULAR HYDROGEN GENERATION ON THE METABOLIC NETWORK FORMATION DURING FERMENTATION OF MIXED CARBON SOURCES IN Escherichia coli AT pH 7.5
Heghine Gevorgyan, Armen Trchounian, Karen Trchounian

ՎԵՐԱԿԱՆԳՆՎՈՂ ԵՎ ՄԱՔՈՒՐ ԷՆԵՐԳԻԱՅԻ 7-ՐԴ ՄԻՋԱԶԳԱՅԻՆ ՀԱՄԱԺՈՂՈՎԻ ՆՅՈՒԹԵՐ 2021 60-64

Article

THE ROLE OF PROTON ATPASE SPECIFIC INHIBITOR N,N’-DICYCLOHEXYLCARBODIIMIDE AND EXTERNAL FORMATE CONCENTRATION ON E. COLIGROWTH DURING MIXED CARBON SOURCES FERMENTATION AT DIFFERENT PHs
Heghine Kh. Gevorgyan, Anait V. Vassilian, Karen A. Trchounian

Proceedings of the YSU B Chemical and Biological Sciences 2021 67-74

Conference

The Role of Hydrogenases on the Interplay Between Potassium Transport System and FOF1-ATPase During the Co-fermentation of Mixed Carbon Sources in E. coli at pH 7.5
H. Gevorgyan, K. Trchounian

2021 WMF 21-1521

https://www.worldmicrobeforum.org/index.html

Conference

The Role of Molecular Hydrogen Generation in the Metabolic Flux During Co-utilization of Mixed Carbon Sources in Escherichia coli at pH 6.5
H. Gevorgyan, K. Trchounian

2021 WMF 21-2029

https://www.worldmicrobeforum.org/index.html

Conference

The Role of FhlA Regulatory Protein in Escherichia coli ATPase Activity at pH 5.5 During Fermentation of Mixed Carbon Sources
S. Khalatyan, H. Gevorgyan, K. Trchounian

2021 WMF 21-2033

https://www.worldmicrobeforum.org/index.html

Conference

Role of fhlA Regulatory Protein in theAssimilation of Substrates and Generation ofFermentation End-products in Escherichia coli at Acidic pH
S. Khalatyan, H. Gevorgyan, K. Trchounian

2021 WMF 21-1483

https://www.worldmicrobeforum.org/index.html

Conference

The role of formate neutralization and molecular hydrogen generation in the metabolic flux in Escherichia coli during fermentation of mixed carbon sources
Gevorgyan H., Poladyan A., Trchounian K.

2021 12-13

http://www.mbio.bas-net.by/2021/index_en.php

Conference

INFLUENCE OF BIOHYDROGEN PRODUCTION ON THE RATIO OF GENERATED ACIDS AND REGULATION OF ΔpH IN E. coli DURING FERMENTATION OF MIXED CARBON SOURCES AT pH 7.5
Heghine Gevorgyan, Karen Trchounian

2021 177-178

https://wcest.tuba.gov.tr/

Study manual

Մանրէների կենսաքիմիա և կենսատեխնոլոգիա. լաբորատոր աշխատանքներ
Կարեն Թռչունյան, Հեղինե Գևորգյան, Լուսինե Կարապետյան

2021 130

Article

Formate and potassium ions affect Escherichia coli proton ATPase activity at low pH during mixed carbon fermentation
Heghine Gevorgyan, Armen Trchounian, Karen Trchounian

IUBMB Life (International Union of Biochemistry and Molecular Biology Life) 2020 915-921

Article

THE UTILIZATION OF CARBON SOURCES MIXTURE (GLUCOSE, GLYCEROL AND FORMATE) AND GENERATION OF FERMENTATION END-PRODUCTS BY ESCHERICHIA COLI
H. Kh. GEVORGYAN

Proceedings of the YSU B Chemical and Biological Sciences 2020 55-62

Conference

Interaction of membrane-bound enzymes related to proton transport and hydrogen production in Escherichia coli at acidic pH

Heghine Gevorgyan, Armen Trchounian, Karen Trchounian

2020 37

https://euromicroph.eu/

Conference

Simultaneous Utilization of Glucose and Glycerol in the Presence of External Formate by E. coli at Slightly Alkaline Ph

Karen Trchounian, Armen Trchounian, Heghine Gevorgyan, Anait Vassilian

2020 MBP06

https://www.asm.org/Events/ASM-Microbe-Online/Home

Conference

THE SIGNIFICANT ROLE OF FHLA PROTEIN IN ESCHERICHIA COLI GROWTH, PROTON ATPASE ACTIVITY AND ΔPH REGULATION DURING MIXED CARBON FERMENTATION AT PH 6.5

Heghine Gevorgyan Khazhak

2020 160-163

Conference

pH homeostasis in Escherichia coli at acidic pH during fermentation of glucose and glycerol in the presence of external formate

Heghine Gevorgyan, Armen Trchounian, Karen Trchounian

2020 50

http://www.efbiotechnology.org/microbialstress/

Conference

Study of Co-Fermentation of Glucose and Glycerol in the Presence of External Formate in Escherichia Coli Bacteria at pH 6.5. The Role of Fhla Regulatory Protein

H. Gevorgyan, S. Khalatyan, A. Trchounian, K. Trchounian

2020 61-62

https://www.bioicbh.com/

Conference

The impact of FOF1-ATPase on H2 producing hydrogenase activity in Escherichia coli during mixed carbon sources fermentation

H. Gevorgyan, S. Mirzoyan, A. Trchounian, K. Trchounian

2019 313-314

https://2019.febscongress.org/

Conference

Investigation of Escherichia coli bacteria growth during fermentation of mixed carbon sources at different external formate concentration

HEGHINE GEVORGYAN, ARMEN TRCHOUNIAN, KAREN TRCHOUNIAN

2019 48-51

Article

Understanding the role of Escherichia coli hydrogenases and formate dehydrogenases in the FOF1-ATPase activity during the mixed acid fermentation of mixture of carbon sources

Heghine Gevorgyan, Armen Trchounian, Karen Trchounian

IUBMB Life (International Union of Biochemistry and Molecular Biology Life) 2018 1040-1047