Liana Manvel Vanyan

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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
Lecturer

Education

Institution	Yerevan State University
Faculty	Biology/ Biochemistry, Microbiology and Biotechnology
Date	2021 - 2024
Degree name	PhD student

Institution	Yerevan State University
Faculty	Biology
Date	2019 - 2021
Degree name	Masters

Institution	Yerevan State University
Faculty	Biology
Date	2015 - 2019
Degree name	Bachelor

Scientific Rank/degree

Institution	Yerevan State University
Date	2024
Degree name	Candidate
Scientific Supervisor	Karen Trchounian
Research Topic	Hydrogen metabolism and proton cycling in Escherichia coli during fermentation of different glucose concentrations

Language skills

Հայերեն Русский English

Work experience

Institution	YSU
Period of time	2024 till now
Rank/degree	Researcher

Institution	YSU
Period of time	2021 - 2024
Rank/degree	Junior researcher

Institution	YSU
Period of time	2019 - 2021
Rank/degree	Laboratory assistant

Participation in international conferences and seminars

15/07/2021 - 15/09/2021	Short Term Scientific Mission (STSM) within the framework COST Action CA18113 "THE ROLE OF pH IN BIOGAS AND BIOHYDROGEN PRODUCTION DURING UTILIZATION OF LIGNOCELLULOSIC WASTE" Հեղուկ հոսքային մեքենաների ինստիտուտ Poland
29/06/2021 - 31/07/2021	The 48th FEBS Congress Italy
26/08/2024 - 31/08/2024	EBEC 2024 — 22nd European Bioenergetics Conference Austria
19/06/2024 - 23/06/2024	ASM Microbe 2025 United States of America (the)
15/01/2024 - 14/04/2024	«Professional training 2024/1» Short term travel Research Grant of Ministry of Education and Science RA State Committee of Science (24PTS-1F008) “CRISPR-based genome engineering to obtain combinatorial mutants in hydrogenase enzymes” KU Leuven Belgium

Publications

Article

Efficient co-valorization of sugar beet pulp/molasses hydrolysates by Escherichia coli for enhanced biohydrogen production

Ani Aghajanyan, Gayane Mikoyan, Liana Vanyan, Akerke Toleugazykyzy, Ayaulym Daniyarova,

Kaisar Yegizbay, Kairat Bekbayev, Karen Trchounian

International Journal of Hydrogen Energy 2026 155559 - 155559

https://doi.org/10.1016/j.ijhydene.2026.155559

Article

Formate hydrogenlyase is essential for pH homeostasis, maintenance of ATP levels, and CO2 provision in stationary-phase Escherichia coli

Christopher Erdmann, Liana Vanyan, Karen Trchounian, R. Gary Sawers

Journal of Bacteriology 2026 e0000726

https://doi.org/10.1128/jb.00007-26

Article

Transforming Vegetable Waste Potential Into Biohydrogen and Biomass Using E. Coli

Liza Jorkntsyan, Liana Vanyan, Akerke Toleugazykyzy, Kairat Bekbayev, Karen Trchounian

International Journal of Energy Research 2026 7149980

https://doi.org/10.1155/er/7149980

Article

Fermentation of Sugar Beet Pulp by E. coli for Enhanced Biohydrogen and Biomass Production

Gayane Mikoyan, Liana Vanyan, Akerke Toleugazykyzy, Roza Bekbayeva, Kamila Baichiyeva,

Kairat Bekbayev, Karen Trchounian

Energies 2025 2648

Article

Biotechnological potential of spent coffee grounds for biohydrogen production by Escherichia coli

Liana Vanyan, Hayarpi Aghekyan, Anait Vassilian, Anna Poladyan, Karen Trchounian

International Journal of Hydrogen Energy 2025 1121-1131

Article

Microbial Valorization of Sunflower Husk for Sustainable Biohydrogen and Biomass Production

LIana Vanyan, Akerke Toleugazykyzy, Kaisar Yegizbay, Ayaulym Daniyarova, Lyudmila Zuloyan,

Gayane Mikoyan, Anait Vassilian, Anna Poladyan, Kairat Bekbayev, Karen Trchounian

Energies 2025 3885

Conference

Growth and Hydrogen Production of Escherichia Coli BW25113 in Mixtures of Sugar Beet Pulp and Sugar Beet Molasses

Gayane Mikoyan, Liana Vanyan, Karen Trchounian, Kamila Baichiyeva, Kaisar Yegizbay, Kairat Bekbayev

2025 68-68

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

Article

Evidence for bidirectional formic acid translocation in vivo via the Escherichia coli formate channel FocA

Liana Vanyan, Michelle Kammel, R Gary Sawers, Karen Trchounian

Archives of Biochemistry and Biophysics 2024 109877

Article

PROTON AND POTASSIUM FLUXES IN ESCHERICHIA COLI MUTANTS WITH DEFECTS IN SUBUNITS RESPONSIBLE FOR MATURATION OF HYD-1 AND HYD-2 DURING GLUCOSE FERMENTATION

L.M. Vanyan

Proceedings of the YSU B Chemical and Biological Sciences 2024 54-67

Article

Glucose concentration is determinant for the functioning of hydrogenase 1 and hydrogenase 2 in regulating the proton and potassium fluxes in Escherichia coli at pH 7.5

Liana Vanyan, Karen Trchounian

Biochimie 2024 205-216

Conference

The effect of entire deletion of Hydrogenase-1 and 2 on proton flux during utilization of varied glucose concentration at pH 7.5

L. Vanyan, K. Trchounian

2024 195 - 195

https://2024.febscongress.org/

Conference

The role of the CRP global regulator in proton flux of Escherichia coli under different glucose concentrations

Liana Vanyan, Lilit Grigoryan, Karen Trchounian

2024 88 - 88

https://www.ebec2024.org/

Conference

BIOTECHNOLOGICAL POTENTIAL OF SPENT COFFEE GROUNDS FOR LARGE-SCALE HYDROGEN PRODUCTION

Liana Vanyan, Anait Vassilian, Anna Poladyan, Karen Trchounian

2023 79 - 84

https://www.hbku.edu.qa/en/ICH2P23

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

Understanding the Role of Escherichia coli Hydrogenase-2 subunits in proton flux under different glucose concentrations

Liana Vanyan, Anait Vassilian, Anna Poladyan, Karen Trchounian

2023 1127 - 1127

https://www.fems2023.org/

Article

HyfF subunit of hydrogenase 4 is crucial for regulating FOF1 dependent proton/potassium fluxes during fermentation of various concentrations of glucose
Liana Vanyan, Karen Trchounian

Journal of Bioenergetics and Biomembranes 2022 69-79

Article

Biogas and Biohydrogen Production Using Spent Coffee Grounds and Alcohol Production Waste
Liana Vanyan, Adam Cenian, Karen Trchounian

Energies 2022 5935

Article

Coffee silverskin as a substrate for biobased production of biomass and hydrogen by Escherichia coli
Satenik Mirzoyan, Hayarpi Aghekyan, Liana Vanyan, Anait Vassilian, Karen Trchounian

International Journal of Energy Research 2022 23110-23121

Conference

THE ROLE OF E. COLI HYDROGENASE-1 IN PROTON FLUX DURING GLUCOSE UTILIZATION AT PH 7.5
Liana Vanyan, Karen Trchounian

2022 817 - 817

https://www.femsbelgrade2022.org/

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

Conference

Proton/potassium Fluxes Depend on GlucoseConcentration in E. coli at pH 7.5
Liana Vanyan, Anait Vassilian, Karen Trchounian

2021 WMF 21-2026

https://www.worldmicrobeforum.org/

Conference

Is FHL Complex Responsible for SensingGlucose Concentration?
Liana Vanyan, Anait Vassilian, Karen Trchounian

2021 WMF 21-2003

https://www.worldmicrobeforum.org/

Conference

Biohydrogen Production from Roasted Coffee Waste: Understanding the Role of E. coli Hydrogenases During Fermentation
S. Mirzoyan, L. Vanyan, H. Aghekyan, A. Poladyan, K. Trchounian

2021 WMF 21-0438

https://www.worldmicrobeforum.org/

Article

Defining the roles of the hydrogenase 3 and 4 subunits in hydrogen production during glucose fermentation: A new model of a H2-producing hydrogenase complex
Hripsime Petrosyan, Liana Vanyan, Armen Trchounian, Karen Trchounian

International Journal of Hydrogen Energy 2020 5192-5201

Article

Roasted coffee wastes as a substrate for Escherichia coli to grow and produce hydrogen
Hripsime Petrosyan, Liana Vanyan, Satenik Mirzoyan, Armen Trchounian, Karen Trchounian

FEMS Microbiology Letters 2020 fnaa088 ,7Էջ

Conference

The Role of Escherichia coli FOF1 -ATPase and Hydrogenases on Specific Growth Rate During Glucose Fermentation
Karen Trchounian, Hripmsime Petrosyan, Liana Vanyan, Armen Trchounian, Anait Vassilian

2020 MBP06

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

Conference

Anaerobic Utilization of Spent Coffee Grounds (SCG) by E. Coli: the Importance of Pretreatment to Optimize Hydrogen and Biomass Generation
L. Vanyan, H. Aghekyan, K. Trchounian

2020 132-133

https://www.bioicbh.com/

Conference

NOVEL APPLICATION FOR ROASTED COFFEE WASTES AS A SUBSTRATE FOR DEVELOPMENT OF BIOFERTILIZERS
Liana Vanyan Manvel
2020 157-160

Conference

Interaction between Escherichia coli Hydrogenase-4 and FOF1- ATPase for proton translocation during fermentation of various glucose concentrations at slightly alkaline pH.
LIANA VANYAN, ARMEN TRCHOUNIAN, KAREN TRCHOUNIAN

2019 139-141
