



# CURRICULUM Vitae

## Azam Safary

### *Assistant Professor of Medical Biotechnology*

Faculty Member of Connective Tissue Diseases Research Center (CTDRC)

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### PERSONAL INFORMATION

Date of Birth: 3 Apr 1982      Born in: Tabriz-Iran  
Hometown: Tabriz-Iran      Nationality: Iranian  
Marital Status: Married      Gender: Female

### EDUCATION

Apr 2011- June 2016      Ph.D., Medical Biotechnology, *Kashan University of Medical Science*  
Feb 2010- Mar 2011      M.Phil., Medical Biotechnology, *Kashan University of Medical Science*  
Jan 2006 – Jul 2008      M.Sc., Cellular & Molecular Biology-Microbiology  
*Shahid Chamran University of Ahvaz*  
Jan 2002 – Jul 2005      B.Sc., Cellular & Molecular Biology-Microbiology  
*Shahid Chamran University of Ahvaz*

### Thesis Topics

**Thesis Topic (Ph.D.)** "Cloning, Expression, purification and Characterization of hydrolytic and industrially significant enzymes from Halo-thermo tolerant *Bacillus licheniformis* SL1"

**Thesis Topic (M.Sc.)** "Isolation, screening and identification of biosurfactant producing bacteria from Caspian Sea and optimization of production condition"

## HONOURS & AWARD

### 2002 –2005

- Ranked #1 among all microbiology students during the whole years of B.Sc. (GPA 17.89) and M.Sc. (GPA 18.63) studies.

### 2005

- My highest grade point average in my class, made me qualified to get accepted to the graduate school without taking Graduate Record Exam (GRE).

## National Patents

- [1396/ 2017](#) Syntheses and production of targeted enzymatic nano drug against colon cancer (No.93309)
- [1396/ 2017](#) Engineering and Improved Production of Salt Resistant multicopper oxidase enzyme from local *Bacillus* sp. SL-1 as recombinant (No. 93297)
- [1395/2016](#) Using of halothermophile *Bacillus* sp. SL-1 to production of salt-resistant hydrolytic enzymes (No. 89798)
- [1401/2022](#) Construction and nanoformulation of recombinant asparaginase anticancer enzyme without harmful glutaminase activity from native bacterium *Bacillus licheniformis* SL1 (No. 107765)
- [1401/2022](#) Construction of triazine chromatography column for immune globulin separation (No. 10739)
- [1402/2023](#) Production of staphylococcal recombinant protein A for purifying antibodies and immunoglobulin (No. 110255)

## Grants

- **Production and purification of anti-inflammatory eugenol by microbial biotransformation method in *Saccharomyces cerevisiae***
- Role: PI  
Funder: National Institute for Medical Research Development (NIMAD), Tehran, Iran  
Status: In progress
- **Targeted nanosystem enzyme therapy of colon cancer**
- Role: Co-PI  
Funder: Liver and Gastrointestinal Diseases Research Center (LGDR), Tabriz University of Medical Sciences, Iran  
Status: Finished. 2016-4-21/2019-10-28.
- **Targeted nan-enzyme therapy of CRC**
- Role: Co-PI  
Funder: Iran National Science Foundation (INSF), Tehran, Iran  
Status: Finished. 2018-1-25/2020-4-4.

## Journal publications

- S. Toraby, H. Farzi-Khajeh, L. Rahbarnia, A. Safary and M. Akbarzadeh-Khiavi (2024). Immobilized recombinant laccase over PEGylated silica-coated magnetic nanoparticles for anti-inflammatory modulation in pro-monocytic model cell line. *Process Biochemistry* 2024 Vol. 146 Pages 56-67
- M. Yousefi, H. Farzi-Khajeh, M. Akbarzadeh-Khiavi, A. Safary and K. Adibkia (2024). Improved Biological Impacts of anti-EGFR Monoclonal Antibody in KRAS-Mutant Colorectal Cancer Cells by Silica-Coated Magnetic Nanoparticle Conjugation. *Pharmaceutical Sciences* 2024
- R. J. Black, M. Cross, L. M. Haile, G. T. Culbreth, J. D. Steinmetz, H. Hagins, et al. (2023). Global, regional, and national burden of rheumatoid arthritis, 1990–2020, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021. *The Lancet Rheumatology* 2023 Vol. 5 Issue 10 Pages e594-e610
- T. K. Gill, M. M. Mittinty, L. M. March, J. D. Steinmetz, G. T. Culbreth, M. Cross, et al. (2023). Global, regional, and national burden of other musculoskeletal disorders, 1990–2020, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021. *The Lancet Rheumatology* 2023 Vol. 5 Issue 11 Pages e670-e682
- H. Goshtasbi, Y. B. Okolodkov, A. Movafeghi, S. Awale, A. Safary, J. Barar and Y. Omidi (2023). Harnessing microalgae as sustainable cellular factories for biopharmaceutical production. *Algal research* 2023 Pages 103237
- A-H. Olfati, A. Safary, M. Akbarzadeh-Khiavi and K. Adibkia (2023). Recent advances in protein corona and practical application of nanoparticle-based therapeutic agents. *Journal of Drug Delivery Science and Technology* 2023 Pages 104844
- A. Safary, M. Akbarzadeh-Khiavi, J. Barar and Y. Omidi (2023). SARS-CoV-2 vaccine-triggered autoimmunity: Molecular mimicry and/or bystander activation of the immune system. *BiolImpacts: BI* 2023 Vol. 13 Issue 4 Pages 269
- A Khabbazi, M Mahmoudi, K Esalatmanesh, M Asgari-Sabet, A Safary (2023). Vitamin D Status in Palindromic Rheumatism: A Propensity Score Matching Analysis. *Laboratory Medicine*.
- PM Rad, L Rahbarnia, A Safary, A ShadiDizaji, Z Maani (2023). The Synthetic Antimicrobial Peptide Derived From Melittin Displays Low Toxicity and Anti-infectious Properties. *Probiotics and Antimicrobial Proteins*, 1-11
- S Aslzad, P Heydari, ED Abdolahinia, N Amiryaghoubi, A Safary, M Fathi, et al. (2023). Chitosan/gelatin hybrid nanogel containing doxorubicin as enzyme-responsive drug delivery system for breast cancer treatment. *Colloid and Polymer Science* 301 (3), 273-281
- H Farzi-Khajeh, S Toraby, M Akbarzadeh-Khiavi, A Safary, MH Somi (2022). Development of biomimetic triazine-based affinity ligands for efficient immunoglobulin G purification from human and rabbit plasma. *Journal of Chromatography A* 1684, 463559
- M Akbarzadeh-Khiavi, H Farzi-Khajeh, MH Somi, A Safary, J Barar, et al. (2022). Eradication of KRAS mutant colorectal adenocarcinoma by PEGylated gold nanoparticles-cetuximab conjugates through ROS-dependent apoptosis. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 653, 129890

- S Simay, M Akbarzadeh-Khiavi, MM Pourseif, J Barar, A Safary, Y Omid (2022). Recombinant production and characterization of L-glutaminase (glsA) as a promiscuity therapeutic enzyme. *Applied Microbiology and Biotechnology* 106 (17), 5511-5524
- A Safary, K Esalatmanesh, AT Eftekharsadat, MRJ Nakjavani, A Khabbazi. (2022). Autoimmune inflammatory rheumatic diseases post-COVID-19 vaccination. *International Immunopharmacology* 110, 109061
- M Akbarzadeh-Khiavi, M Torabi, AH Olfati, L Rahbarnia, A Safary. (2022) Bio-nano scale modifications of melittin for improving therapeutic efficacy. *Expert Opinion on Biological Therapy* 22 (7), 895-909
- M Akbarzadeh-Khiavi, M Torabi, L Rahbarnia, A Safary. (2022) Baricitinib combination therapy: a narrative review of repurposed Janus kinase inhibitor against severe SARS-CoV-2 infection. *Infection* 50 (2), 295-308
- KB Tran, JJ Lang, K Compton, R Xu, AR Acheson, HJ Henrikson, ... A Safary, et al., (2022). The global burden of cancer attributable to risk factors, 2010–19: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet* 400 (10352), 563-591
- KS Ikuta, LR Swetschinski, GR Aguilar, F Sharara, T Mestrovic, AP Gray, ..., A Safary, et al., (2022). Global mortality associated with 33 bacterial pathogens in 2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet* 400 (10369), 2221-2248.
- HH Kyu, A Vongpradith, SB Sirota, A Novotney, CE Troeger, MC Doxey, ..., A Safary, et al., (2022). Age–sex differences in the global burden of lower respiratory infections and risk factors, 1990–2019: results from the Global Burden of Disease Study 2019. *The Lancet Infectious Diseases* 22 (11), 1626-1647.
- SG Sepanlou, HR Aliabadi, M Naghavi, R Malekzadeh, ..., A Safary et al., (2022) Neonate, Infant, and Child Mortality by Cause in Provinces of Iran: An Analysis for the Global Burden of Disease Study 2019. *Archives of Iranian Medicine (AIM)* 25 (8)
- F Lotfi, M Akbarzadeh-Khiavi, Z Lotfi, L Rahbarnia, A Safary, H Zarredar, et al (2021). Micronutrient therapy and effective immune response: a promising approach for management of COVID-19. *Infection*.
- A Safary, H Moghaddas-Sani, M Akbarzadeh-Khiavi, A Khabbazi, et al (2021). Enzyme replacement combinational therapy: effective treatments for mucopolysaccharidoses. *Expert Opinion on Biological Therapy*.
- KM Akbarzadeh, A Safary, J Barar, A Ajoolabady, MH Somi, Y Omid (2020). Multifunctional nanomedicines for targeting epidermal growth factor receptor in colorectal cancer. *Cellular and molecular life sciences: CMLS* 77 (6), 997-1019
- MA Khiavi, A Safary, J Barar, H Farzi-Khajeh, A Barzegari, R Mousavi, et al (2020). PEGylated gold nanoparticles-ribonuclease induced oxidative stress and apoptosis in colorectal cancer cells. *BiolImpacts* 10 (1), 27-36
- M Akbarzadeh Khiavi, A Jalili, A Safary, Z Gharedaghchi, SK Mirinezhad, et al (2020). Karyotypic abnormalities and molecular analysis of Y chromosome microdeletion in Iranian Azeri Turkish population infertile men. *Systems biology in reproductive medicine* 66 (2), 140-146.
- A Safary, MA Khiavi, Y Omid, MA Rafi. Targeted enzyme delivery systems in lysosomal disorders: an innovative form of therapy for mucopolysaccharidosis (2019). *Cellular and Molecular Life Sciences* 76 (17), 3363-3381
- MA Khiavi, A Safary, A Aghanejad, J Barar, SH Rasta, A Golchin, Y Omid, et al (2019). Enzyme-conjugated gold nanoparticles for combined enzyme and photothermal therapy of colon cancer cells. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 572, 333-344

- M Akbarzadeh Khiavi, A Safary, MH Somi (2019). Recent advances in targeted therapy of colorectal cancer: impacts of monoclonal antibodies nanoconjugates. *BiolImpacts* 9 (3), 123-127
- A Safary, MA Khiavi, R Mousavi, J Barar, MA Rafi (2018). Enzyme replacement therapies: what is the best option? *BiolImpacts: BI* 8 (3), 153
- A Safary, R Moniri, SM Mirhashemi, H Nikzad, MA Khiavi (2013). Phylogenetic and Biochemical Characterization of a New Halo-Thermotolerant, Biofilm-Forming Bacillus from Saline Lake of Iran *Polish journal of microbiology* 62 (4), 419
- A Safary, M Akbarzadeh-Khayavi, M Roayaei-Ardakani, H Motamedi (2012). Isolation of biosurfactant-producing bacteria from the Caspian Sea and determination of their biosurfactant activity. *Feyz Journal of Kashan University of Medical Sciences* 16 (1)
- Safary A., Roayayei M., Abolhasani A., Akbarzadeh M., Motamedi H.(2010). Isolation and characterization of biosurfactant producing bacteria from Caspian Sea. *Biotechnology* 9 (3): 378-382.

### **Selected Conference Proceedings**

- Hamieh Goshtasbi, Mostafa Akbarzadeh-Khiavi, Azam Safary, Ali Movafeghi, Yadollah Omid. "In vitro anticancer activity of methanolic extract of *Chroococcus* sp., from Kani Barazan International Wetland" 3rd international congress 4th national conference of biotechnology of medicinal plant and mushrooms, 2021-05-17, University of Zanjan, Zanjan, Iran
- Hamieh Goshtasbi, Azam Safary, Mostafa Akbarzadeh-Khiavi, Ali Movafeghi, Yadollah Omid. "Antimicrobial impacts of methanolic extract of Cyanobacteria isolated from Iran's Lake Urmia" 3rd international congress 4th national conference of biotechnology of medicinal plant and mushrooms, 2021-05-17, University of Zanjan, Zanjan, Iran
- Seyed Kazem Mirinezhad, Mostafa Akbarzadeh-Khiavi, Azam Safary, Aziz Eftekhari, Mohammad Hossein Somi. "Covid-19 pandemic status and the human microbiome pattern: Real Challenges and future perspective" International E-Conference on COVID-19 & Health System: The Lessons Learned, 2021-05-25, Zanjan university of medical sciences, Zanjan, Iran
- Mostafa Akbarzadeh-Khiavi, Azam Safary, Seyed Kazem Mirinezhad, Mohammad Hossein Somi "The survey of the effect of ribonuclease A conjugated to PEGylated gold nanoparticles on the expression of ERK1 / ERK2" Third International Conference on Biology and Earth Sciences, 2021-03-10, Hamadan, Iran
- Seyed Kazem Mirinezhad, Mostafa Akbarzadeh-Khiavi, Azam Safary, Mohammad Hossein Somi "Evaluation of APC gene mutations in patients with the classic form of familial adenomatous polyposis" Third International Conference on Biology and Earth Sciences, 2021-03-10, Hamadan, Iran
- Mostafa Akbarzadeh Khiavi, Azam Safary, Jaleh Barar, Seyyed Kazem Mirinezhad, Yadollah Omid, Mohammad Hossein Somi "Oxidative stress-induced antiproliferative and apoptotic effects of nanoformulated RNase A in colorectal cancer cells" 19<sup>th</sup>Iranian Congress of Gastroenterology and Hepatology (ICGH 2019), Razi International Convention Center, 2019-11-8, Tehran, Iran.
- Mostafa Akbarzadeh Khiavi, Azam Safary, Jaleh Barar, Yadollah Omid, Mohammad Hossein Somi "Designing and synthesis Enzyme-based nanobiosystem against colon cancer" 18<sup>th</sup>Iranian Congress of Gastroenterology and Hepatology (ICGH 2019), Razi International Convention Center, 2018-11-2, Tehran, Iran

## Professional Experiences

- **Standard Microbiology Techniques** including, Isolation of extremophile bacteria, Bacterial and yeast culture, Biochemical identification, Molecular identification, 16S rDNA analysis, RFLP, Bacterial staining methods
- **Standard Molecular Biology Techniques** including, Primer design, DNA and RNA extraction, Polymerase Chain Reaction (PCR), Real Time PCR, Agarose gel electrophoresis, Gene Cloning, Bacterial transformation, Competent cell preparation
- **Recombinant Protein Techniques** including, Protein expression in prokaryotic systems, Protein purification, Affinity chromatography, Ion-exchange chromatography, PAGE, SDS-PAGE, Western-blot
- **Standard Cell Culture Techniques** including, Cell Biology, MTT Assay, Apoptosis detection, Cell cycle assay
- **Recombinant Enzyme Production and Biochemistry Techniques** including, Kinetic parameters assay, Enzyme stability assay, Enzyme inhibitors, Enzyme modifications; Enzyme promiscuity
- **Nanomedicine Techniques** including, Targeted drug delivery nanosystems, Nanoparticles synthesis, PEGylated nanoparticles; PEGylated antibodies; PEGylated enzymes
- **Autoimmune-Mediated Immunological Pathways** including, Molecular biology in rheumatoid diseases, Innovative diagnostic biomarkers, and Targeted therapy in immunological pathways

## Employments

- **Jun 2017– Present**

Assistant professor of Medical Biotechnology

*Faculty Member of Connective Tissue Diseases Research Center (CTDRC)*

*Research Center for Pharmaceutical Nanotechnology (RCPN)*

**Tabriz University of Medical Sciences, Tabriz, Iran**

## Language skills

- English
- Turkish
- Persian

## References

- **Professor Mohammad A Rafi**, Thomas Jefferson University, Philadelphia, USA

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- **Professor Yadollah Omid**, Nova Southeastern University, Fort Lauderdale, FL, USA

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