

Curriculum Vitae

Name: Gholamreza, Ahmadian

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Research Experience:

1-2024- 30/2026	Appointed as the ASM Country Ambassador to Iran
1/2023-now	Professor, NIGEB, Iran
2018-2022	Head of System Biotechnology Group, NIGEB, Iran
2002-now	Associate Professor, NIGEB, Iran
2008-2013	Head of research management office, NIGEB, Iran
2006-2006	Short-term postdoctoral fellowship, Shinshu University, Japan
2005-2005	Short-term postdoctoral fellowship, ICGEB, Italy
2002-2002	Short-term postdoctoral fellowship, University of Tokyo, Japan
1998-2002	Postdoctoral Research Associate, University of Toronto, Canada
1992-1994	Diagnostic molecular biology laboratory in a Amir-Kabir Hospital. Iran

Education:

1984-1988	B.Sc. in Microbiology, Tehran University, Iran
1989-1993	M.Sc, Medical Microbiology, Tehran University, Iran
1994-1998	Ph.D. Warwick University, U.K.

Reviewer of Journals:

Appointed as the ASM Country Ambassador to Iran, playing a pivotal role in ASM's mission to advance microbiological understanding worldwide.

Membership: ASM. Actively involved in the ASM Mentorship Program, providing guidance and support to early-career scientists in the microbial sciences.

Contributing as a reviewer for ASM journals, ensuring the quality and rigor of scientific publications.

FEMS Microbiology Letters (Wiley), Journal of the Science of Food and Agriculture (Wiley), African journal of microbiology research, Journal of Applied Microbiology, World Journal of Microbiology and Biotechnology (Springer), Bioresource Technology (Elsevier), International J of Biological Macromolecules (Elsevier), and etc.

Awards:

- Collaborative Research Grant from ICGEB, Italy, 2005 (total 36,000 Euro)
- Short-Term Fellowship award from ICGEB, Italy, 2004
- Postdoctoral fellowship from the University of Toronto (Hospital for Sick Children) in Canada.
- Research Grant from Iran National Science Foundation, 2022 (total 10,000 \$)
- Research Grant from Iran National Science Foundation, 2021 (total 10,000 \$)
- Research Grant from Iran National Science Foundation, 2017 (total 30,000 \$)
- Research Grant from Iran National Science Foundation, 2012 (total 20,000 \$)
- Research Grant from Iran National Science Foundation, 2010 (total 18,000 \$)
- Outstanding operational Grant from NIGEB, Iran, 2004
- Year 2001 traveling fellowship awards of Journal of cell science; U.K. to attend Dr Yamamoto's lab in University of Tokyo, Japan.
- PhD Scholarship from Ministry of Higher Education of Iran to perform my PhD in England (1998).

Current and Previous collaborations :

- Key Laboratory of Infection and Immunity, Institute of Biophysics, Chinese Academy of Sciences (Prof. Mingzhao Zhu), on Surface Display as a platform for vaccine development.
- Universität Stuttgart (Prof. J. Altenbuchner), Institut für Industrielle Genetik, on Studying Regulation of Bacterial Operons and developing novel expression systems.
- Federico University (Prof. E. Ricca), Dept of Structural & Functional Biology, Naples, Italy, on *B. subtilis* Spore Surface Display.
- Shinshu University (Prof. J Sekiguchi) · Department of Bioscience and Textile Technology, Ueda, Japan.
- Medical University of Gdańsk (Dr. K. Hinc; Prof. M. Obuchowski), Laboratory of Molecular Bacteriology, Poland, on *B. subtilis* Spore Surface Display.
- University of Groningen (prof. dr. J.M. (Jan Maarten) van Dijk), Department of Medical Microbiology. Groningen, The Netherlands, on sortase-mediated surface Display.

Research Interests:

1. **Enhancing Immunogenicity through Protein Nanocarriers:** My research focuses on leveraging protein nanocarriers, such as virus-like particles (e.g., AP205, mi3) and ferritin nanoparticles, to enhance the immunogenicity of antigens. By exploring their potential as adjuvants and vaccine carriers, I aim to develop innovative strategies for improving vaccine efficacy and immune response.
2. **Antigen Presentation on Diverse Platforms:** I am interested in exploring the display of vaccine candidate antigens on various surfaces, including virus-like particles and ferritin nanoparticles, as well as non-protein platforms. By investigating different presentation methods, I aim to elucidate the mechanisms underlying antigen recognition and immune activation, ultimately contributing to the development of more effective vaccines.
3. **Innovative Surface Display Approaches:** My research focuses on developing novel surface display techniques, such as oriented display mediated by sortase or other methods, on a variety of substrates including living cells, nanoparticles, and polymer surfaces. By harnessing these approaches, I aim to engineer customizable platforms for vaccine development and bioadsorbent applications, with the potential to revolutionize immunotherapy and biotechnology.

These research interests converge at the intersection of vaccine development, nanotechnology, and surface engineering, with the overarching goal of advancing our understanding of immune modulation and designing innovative solutions for combating infectious diseases and other health challenges.

Minor activities:

Expression of industrial recombinant Enzymes including chymosin, chitinase Protein A, and so on and use of Genetics Engineering methods to Improve their activity
Studying Regulation of Bacterial Operons and developing novel expression systems.

Publications:

https://scholar.google.com/citations?hl=en&user=hFUUksoAAAAJ&view_op=list_works&sortby=pubdate

1- G Ahmadian, P Chambers and A Easton. Detection and characterization of novel proteins encoded by the second ORF of the M2 gene of pneumoviruses. *Journal of General Virology*, 1999, 80: 2011-2016.

2- Gholamreza Ahmadian, Jaspal S. Randhawa and Andrew J. Easton. Expression of the ORF-2 protein of the human respiratory syncytial virus M2 gene is initiated by a termination-reinitiation mechanism. *EMBO J.* 2000 Jun 1;19 (11):2681-9.

- 3- JW Lin, W Ju, K Foster, SH Lee, G Ahmadian, M Wyszynski, YT Wang and M Sheng. Distinct molecular mechanisms and divergent endocytotic pathways of AMPA receptor internalization. *Nature Neuroscience*, 2000, 3, 1282-1290.
- 4- HY Man, J Lin, W Ju, G Ahmadian, L Liu, M Sheng and YT Wang. Regulation of AMPA Receptor-Mediated Synaptic Transmission by Clathrin-Dependent Receptor Internalization. *Neuron*, 2000, 25: 649-662
- 5- Heng-Ye Man, William Ju, G. Ahmadian and Yu Tian Wang. Intracellular trafficking of AMPA receptors in synaptic plasticity. *Cell Mol Life Sci*. 2000 Oct;57(11):1526-34.
- 6- Wang J, Liu S, Haditsch U, Tu W, Cochrane K, Ahmadian G, Tran L, Paw J, Wang Y, Mansuy I, Salter MM, Lu Y. Interaction of calcineurin and type-A GABA receptor gamma 2 subunits produces long-term depression at CA1 inhibitory synapses. *J Neuroscience* 2003 Feb 1;23(3):826-36
- 7- Yi Nong, Yue-Qiao Huang, William Ju, Lorraine V. Kalia, Gholamreza Ahmadian, Yu Tian Wang and Michael W. Salter. Glycine binding primes NMDA receptor internalization. *Nature*, vol 422 , 20 March 2003.
- 8- Heng-Ye Man, Qinghua Wang, Wei-Yang Lu, William Ju, Gholamreza Ahmadian, Lidong Liu, Sandra D'Souza, T.P. Wong, C. Taghibiglou, Jie Lu, Larry E. Becker, Lin Pei, Fang Liu, Matthias P. Wymann, John F. MacDonald, and Yu Tian Wang. Activation of PI3-Kinase Is Required for AMPA Receptor insertion during LTP of mEPSCs in Cultured Hippocampal Neurons. *Neuron*, 2003, 38, 611–624.
- 9- Wang Q, Liu L, Pei L, Ju W, Ahmadian G, Lu J, Wang Y, Liu F, Wang YT. Control of synaptic strength, a novel function of akt. *Neuron*. 2003 Jun 19;38(6):915-28.
- 10- G. Ahmadian, W Ju, L Liu, M Wyszynski, SH Lee, AW Dunah, C Taghibiglou, Y W, Jie Lu, TP Wong, M Sheng and YT Wang. GluR2 Tyrosine phosphorylation of GluR2 is required for regulated AMPA receptor endocytosis and hippocampal LTD. *EMBO Journal*, 2004, Feb 19, 1-11.
- 11- Ying Wu, Saima Ali, Gholamreza Ahmadian, Chun Che Liu, Yu Tian Wang, K. Michael Gibson, Andrew R. Calver, Joseph Francis, Menelas N. Pangalos, O. Carter Snead. γ -Hydroxybutyric Acid (GHB) and γ -Aminobutyric acid_B Receptor (GABA_BR) Binding sites are Distinctive from One Another: Molecular Evidence. *Neuropharmacology*, 47 (2004) 1146–1156
- 12- Ahmadian G, Arbabi GH M, Rastgoo N, Rahimi Mianji G. Bacterial expression and functional characterization of a naturally occurring exon6-less preprochymosin cDNA. *Iranian Journal of Biotechnology*, 2005, vol 3, No. 1.
- 13- Seifati M and Ahmadian G. (2005) Applications of Microarray in Molecular Genetics. *Modern Genetics*. No 4.

- 14- Gholamreza Ahmadian*, Mehdi Shamsara, Andrew J. Easton. Pneumoviruses: Molecular Genetics and Reverse Genetics. *Iranian Journal of Biotechnology*, 2005, Vol 3, No 2.
- 15- Vetiska S.M, Ahmadian G, Ju W, Liu L, Wymann M.P, Wang Y.T. (2006) GABAA receptor-associated phosphoinositide 3-kinase is required for insulin-induced recruitment of postsynaptic GABAA receptors. *Neuropharmacology* August 3, 1-10 (doi:10.1016).
- 16 - Shamsara M, Ghorashi SA, Ahmadian G. (2006) Cloning and nucleotide analysis of the vp2 gene of a very virulent infectious bursal disease virus isolate from iran. *Acta Virol.* 50: 229-34
- 17- Ahmadian G*., Degrassi G., Venturi V., Zeigler D., Soudi M., Zangui-nejad P. Bacillus pumilus SG2 isolated from saline conditions produces and secretes two chitinases. *Journal of Applied Microbiology*, 2007 Oct; 103(4):1081-9.
- 18- L. Badiefar , G. Ahmadian , E. Asgarani , S. Ghandili , M. Salek, Esfahani , M. Khodabandeh. Optimization of Conditions for Expression and Activation of a Splice Variant of Prochymosin Lacking Exon 6 in *Escherichia coli*. (2009) *Int J of Dairy Tech.* 62, No 2 , 265-271
- 19- Ali DEHESTANI, Gholamreza AHMADIAN*, Ali Hatf SALMANIAN, Nadali Babaeian JELODAR1, Mehdi SEYEDI and Kamal KAZEMITABAR. Investigation into the Arabidopsis transformant selection time and escapes frequency reduction. *Biharean Biologist* (2009) Vol. 3, No.1, Pp.: 51-58, P-ISSN: 1843-5637, E-ISSN: 2065-1155 Article No.: 031109
- 20- A. Dehestani, G. Ahmadian*, A. H. Salmanian, N. B. Jelodar, K. Kazemitabar. Transformation efficiency enhancement of Arabidopsis vacuum infiltration by Surfactant application and apical inflorescence removal. *Trakia Journal of Sciences*, 2009 (accepted)
- 21- Abbas Shali, Seyedhadi Ghasemi, Gholamreza Ahmadian*, Gholamali Ranjbar, Naeimeh Khalesi, Ebrahim Motallebi, Majid Vahed. Bacillus pumilus SG2 chitinases induced and regulated by chitin, show inhibitory activity against Fusarium graminearum and Bipolaris sorokiniana. (2010), *Phytoparasitica* 38 (2), pp. 141-147
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- 23- Seyedhadi Ghasemi, Gholamreza Ahmadian*, Nadali Babaeian Jelodar, Heshmatollah Rahimian, Soheila Ghandili, Ali Dehestani and Parvin Shariati. Antifungal Chitinases from *Bacillus pumilus* SG2: preliminary report. (2010) *World Journal of Microbiology and Biotechnology* 26 (8), pp. 1437-1443.
- 24- Ahmadi Zeydabadi, M., Ahmadian, G*., Sorouri, R. Production of full-length and splicing form of chymosin using pET expression system in E-coli and investigation its enzyme activity and preplasmic secretion. *Koomesh*, (2008) 9 (3), pp. 187-192+27.

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- 26- Krzysztof Hinc[#], Soheila Ghandili[#], Gholamreza Karbalaee, Abbas Shali, Kambiz A Noghabi, Ezio Ricca, Gholamreza Ahmadian*. Efficient binding of nickel ions to recombinant *Bacillus subtilis* spores. *Research in Microbiology*, (2010), 161 (9), 757-764
Special Issue on "Biology of Spore-formers.
- 27- Seyedhadi Ghasemi, Gholamreza Ahmadian*, Mehdi Sadeghi, Daniel R Zeigler, Heshmatollah Rahimian, Soheila Ghandili, Neda Naghibzadeh, Ali Dehestani. First report of a bifunctional chitinase/lysozyme produced by *Bacillus pumilus* SG2. *Enzyme and Microbial Technology*, (2011), 48 (3), 225-231
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Cadmium Adsorption and Cell Immobilization. *Applied Microbiology and Biotechnology*, (2012) 167:462–473, DOI 10.1007/s12010-012-9684-x

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36- Vida Tafakori, Ibrahim Torktaz, Mohsen Doostmohammadi, Gholamreza Ahmadian* (2012) Microbial cell surface display; its medical and environmental applications. *Iranian J. Biotechnology*, 2012, 10, 231-239

37- Zakeri F, Sadeghizadeh M, Kardan MR, Shahbani Zahiri H, Ahmadian G, Masoumi F, Sharafi H, Rigi G, Vali H, Akbari Noghabi K. (2012) Differential proteome analysis of a selected bacterial strain isolated from a high background radiation area in response to radium stress. *J Proteomics*. 2012; 75(15):4820-32. Epub 2012 May 23.

38- Samie, N., Noghabi, K.A., Gharegozloo, Z., Zahiri, H.S., Ahmadian, G., Sharafi, H., Behrozi, R., Vali, H. (2012) Psychrophilic α -amylase from *Aeromonas veronii* NS07 isolated from farm soils, *Process Biochemistry* 47 (9), pp. 1381-1387

39- Morabbi K, Shali A, Naghibzadeh N, Ahmadian G. Characterization of cis-acting elements residing in the chitinase promoter of *Bacillus pumilus* SG2. *World J Microbiology and Biotechnology*, 2013, 30 (5), 1491-1499

40- H Sharafi, Maleki H, G Ahmadian, H Shahbani Zahiri, F Masumi, B Houshmand, H Vali and Akbari Noghabi K. Antibacterial activity and probiotic potential of *Lactobacillus plantarum* HKN01: A new insight into the morphological changes of antibacterial compound-treated *Escherichia coli* by electron microscopy. *J. Microbiol. Biotechnol.* (2013), 23(2), 225–236.

41- Esmaelizad M, Ahmadian G, Aghaiypour K, Shamsara M, Paykari H, Tebianian M. 2013. Induction of prominent Th1 response in C57Bl/6 mice immunized with an *E. coli*-expressed multi T-cell epitope EgA31 antigen against *Echinococcus granulosus*. *Folia Parasitol* (Praha). 2013 Feb;60(1):28-34.

42- Setareh Tavassoli, Krzysztof Hinc, Adam Iwanicki, Michal Obuchowski, Gholamreza Ahmadian*. Investigation of spore coat display of *Bacillus subtilis* b-galactosidase for developing of whole cell biocatalyst. *Arch of Microbiol*, (2013), 195 (3), 197-202.

43- Esmaelizad M, Ahmadian G, Aghaiypour K, Shamsara M, Paykari H, Tebianian M. 2013, Induction of protective T-helper 1 immune responses against *Echinococcus granulosus* in mice by a multi-T-cell epitope antigen based on five proteins. *Memo Inst Oswaldo Cruz*. Jun;108(4).

- 44- Vahed M, Motalebi E, Rigi G, Akbari Noghabi K, Soudi MR, Sadeghi M, Ahmadian G*. Improving chitinolytic activity of Bacillus pumilus SG2 by random mutagenesis. *J Microbiol Biotechnol*. 2013, 23 (11), 1519-1528.
- 45- Rigi G, Mohammadi SG, Arjomand MR, Ahmadian G*, Noghabi KA. Optimization of extracellular truncated Staphylococcal Protein A (SpA) expression in Escherichia coli BL21 (DE3). *Biotechnol Appl Biochem*. 2014, 61 (2), 217-225.
- 46- Gashtasbi F, Ahmadian G* and Akbari K. New insights into the effectiveness of alpha-amylase enzyme presentation on the Bacillus subtilis spore surface by adsorption and covalent immobilization. *Enzyme and Microbial Technology*, 2014, 64, 17-23 doi: 10.1016/j.enzmictec.2014.05.006.
- 47- F. Ghaemimanesh, G. Ahmadian, S. Talebi, A-H. Zarnani, M. Behmanesh, Sh. Hemmati, R. Hadavi, M. Jeddi-Tehrani, M. Farzi, M.M. Akhondi, H. Rabbani. 2014. The Effect of Sortilin Silencing on Ovarian Carcinoma Cells. *Avicenna journal of medical biotechnology*, 2014, 6 (3), 169
- 48- S.K. FalahatiPour, Abbas Sahebghadam Lotfi, G. Ahmadian, A. Baghizadeh. Immobilization of Organophosphorus Hydrolase (OPH) on the Surface of Bacillus subtilis Spores by Adsorption Method. Modares Journal of Medical Sciences, 2015, *Modares Journal of Medical Sciences: Pathobiology* 18 (1), 39-53
- 49- S.K. FalahatiPour, A.S. Lotfi, G. Ahmadian, A. Baghizadeh. Covalent Immobilization of Recombinant Organophosphorus Hydrolase on Spores of Bacillus subtilis. *Journal of Applied Microbiology*, (2015) 118(4):976-88. doi: 10.1111/jam.12744. Epub 2015 Feb 4
- 50- Samira Ghaedmohammadi, Garshasb Rigi, Reza Zadmard, Gholamreza Ahmadian*. Display of bioactive protein A of Staphylococcus aureus (SpA) on the surface of Bacillus subtilis spores, Development of novel immunoadsorptive particles. *Mol Biotechnol*. 2015 Apr 4. [Epub ahead of print], doi: 10.1007/s12033-015-9868-z.
- 51- S.K. FalahatiPour, A.S. Lotfi, G. Ahmadian, A. Baghizadeh. High Level Extracellular Secretion of Organophosphorous Hydrolase of Flavobacterium sp. in Escherichia coli BL21(DE3)pLysS". *Biotechnol Appl Biochem*. 2015 Aug 31. doi: 10.1002/bab.1438.
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- 59- Maryam Rezaei Arjomand, Mehran Habibi-Rezaei, Gholamreza Ahmadian*, Malihe Hassanzadeh, Ali Asghar Karkhane, Mandana Asadifar, Massoud Amanlou. 2016. Deletion of loop fragment adjacent to active site diminishes the stability and activity of Exo-inulinase. *Int J Biol Macromol* 2016 Nov; 92:1234-1241 doi:10.1016/j.ijbiomac.2016.08.039.
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1- Hossein Tarrahimofrad, Camellia Katalani 2, Zakieh Sadat Hoseini, S Mahmoodian, G Ahmadian*. Development and Commercialization of Biopesticides: Costs and Benefits, (chapter title: Microbial nanobiopesticides as nextgen biopesticides:development,commercial potential,and challenges, 2023, *Elsevier*, ISBN:978-0-323-95290-3

2- Howra Bahrulolum1#, Hossein Tarrahimofrad1#, Saghi Nooraei1#, and Gholamreza Ahmadian1*. Book title: "Metal nanoparticles: Microbial and Enzymatic Synthesis and Biomedical Applications". Springer, Chapter 3. Title: Bacterial and Cyanobacterial Assisted Synthesis of Metal Nanoparticles. under revision.

Genes identified, sequenced and submitted in the Gene Bank (NCBI):

1: DQ859055

Bacillus pumilus chitinase operon, complete sequence
gi|112293922|gb|DQ859055.1|[112293922]

2: DQ490987

Bacillus cf. pumilus SG2 chitinase large (chiL) gene, complete cds
gi|94984082|gb|DQ490987.1|[94984082]

3: DQ355512

Bacillus cf. pumilus SG2 chitinase (chiS) gene, complete cds
gi|86129857|gb|DQ355512.1|[86129857]

4: NM_008074

Mus musculus gamma-aminobutyric acid (GABA) A receptor, subunit gamma 3 (Gabrg3), mRNA
gi|117168290|ref|NM_008074.2|[117168290]

5: AY704912

Infectious bursal disease virus VP2 (VP2) gene, partial cds
gi|51512148|gb|AY704912.1|[51512148]

Patents:

- **US Patent 2016 (Provisional)**, Application No; 62/369,172. Display of Protein A on the Surface of Bacillus subtilis.
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- **Iranian Patent Organization 1394**. Development of a matrix to purify histidine tag-containing proteins.
- **Iranian Patent Organization 1392**. Developing a Dual vector for Expression and secretion of recombinant proteins in B. subtilis and E. coli based on B.pumilus promoter of Chitinase operon.
- **Iranian Patent Organization 1386**. Development of a protein molecular weight size marker based on truncated chitinase

Abstracts and Conference Presentations:

- Oral presentation at the 134th SGM (Society for General Microbiology) meeting held in Warwick University (England) in March 1996. Title “Evidence for the use of second open reading frame in the 22K gene of respiratory syncytial virus”.
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