Curriculum Vitae

Full name: **Farzad Badmasti**

Nationality: Iranian

Department of Bacteriology,

Work address: Pasteur square, Pasteur Institute of Iran, Tehran, Iran

Email: fbadmasti1985@gmail.com, f_badmasti@pasteur.ac.ir

EDUCATIONAL QUALIFICATIONS

- **Medical Bacteriology, Ph.D.**, Pasteur Institute of Iran, Tehran, Iran (2009-2015)
- **Medical Microbiology, M.Sc.**, Pasteur Institute of Iran, Tehran, Iran (2007-2009)
- **Molecular Microbiology, B.Sc.**, Tehran University, Tehran, Iran (2003-2007)

PROFESSIONAL EXPERIENCE

2015-Till date: Assistant professor, Department of Bacteriology, Pasteur Institute of Iran (IPI)

2020-Till date: Head of bacterial vaccine lab at IPI

2016-2017: As Iran-site project manager and data manager in international pertussis project entitled "Pertussis Immunization programmer in Low and middle Income Countries" (PERILIC)

2022: Guest Associated Editor in Frontiers in Microbiology, Research topic: Virulence Factors Influencing Pathogenicity of *Acinetobacter baumannii*

2022: Guest Associated Editor in Frontiers in Cellular and Infection Microbiology, Research topic: Molecular epidemiology and antibiotic resistance mechanism of Acinetobacter to novel antibacterial drugs.

RESEARCH SUMMARY

I have been working as an assistant professor at the Pasteur Institute of Iran in Tehran for eight years. At the beginning of my career, I worked on antimicrobial resistance and microbial genomics, reverse vaccinology and recombinant vaccines, and virtual screening in antibiotic discovery. In

the last two years, I have focused on the notorious nosocomial bacteria such as *Staphylococcus aureus*, *Klebsiella pneumoniae,* and *Acinetobcter baumannii*.

Skills

- **Strong capability in conceptualization and development of novel ideas**
- **Scientific study designer**
- **Team working spirit and flexible leadership**
- **Wet-lab working independently**
- **Data analyzer**
- **Strong background in scientific writings**
- **Good verbal speaker with a strong background in teaching**

RESEARCH INTEREST

1. Bacterial vaccine
2. Molecular immunology
3. Microbial genomics
4. Antimicrobial resistance
5. Bioinformatics

TECHNICAL PROFICIENCY

Techniques

- **Bacterial culture and identification**: Design of media or primer; isolation and/or molecular detection of ubiquitous, fastidious or anaerobic bacteria
- **Molecular typing**: PFGE and MLST and other PCR-based typing
- **Recombinant DNA technology**: Mutation, cloning, expression and purification of recombinant proteins
- **Protein based techniques**: ELISA, SDS-PAGE and Western blotting
- **Bioinformatics and computer skills**: Genomics, pan-genomics and meta-genomics, NGS analysis data (WGS and 16s), reverse vaccinology and immuneinformatics, structural based virtual screening, molecular dynamic simulation, familiar with Python, R languages and machine learning.
- **Animal handling**: Mice and Geneva pig
- **Familiar with Eukaryotic cell culture and electron microscopy**

PROJECTS AND STUDENTS

Projects:

- Surface exposed proteins of *Acinetobacter baumannii* as putative vaccine candidates
- Investigating the effect of niosome containing sultamicillin and cis-2-Decenoic Acid against carbapenem-resistant *Acinetobacter baumannii* in the mouse pneumonia model
- Expression and immunological evaluation of *Staphylococcus aureus* proteins as vaccine candidates against blood stream infection using reverse vaccinology method
- Identification of novel protein antigens as vaccine candidates for immunization against *Neisseria gonorrhoeae* using reverse vaccinology approach, and evaluation of immunoreactivity of the antigen candidates
- Clinical and molecular characterization of hyper-virulent *Klebsiella pneumoniae*.
- Carbapenem-resistant *Enterobacteriaceae* (CRE)in fecal carriers
- Pertussis sero-epidemiology in Iran
- Reverse vaccinology in bacteria
- Whole-genome sequencing of highly resistant nosocomial bacteria
- Novel drug target against highly resistant bacteria based on structural virtual screening

Students:

- Class 1 integrons, and disruption of *carO* and *dacD* by insertion sequences among *Acinetobacter baumannii* isolates in Tehran, Iran (Maryam Mirshekar, MSc).
- A reliable combination method to identification and typing of epidemic and endemic clones among clinical isolates of *Acinetobacter baumannii* (Arezoo Piran, MSc).
- Emergence of carbapenem resistant *Acinetobacter baumannii* clonal complexes CC2 and CC10 among fecal carriages in an educational hospital (Mohsen Nazari, MSc).
- Virulence capabilities and OmpA expressions in ST2 and ST513 of multidrug-resistant *Acinetobacter baumannii* (Armaghan Soltani Shirazi, MSc).
- Immunological evaluation of OmpA and DcaP-like protein from *Acinetobacter baumannii* individually and in combination as putative vaccine candidates (Sepideh Fereshteh, PhD).
- Molecular characterization of beta-lactamase producing hypervirulent *Klebsiella pneumoniae* isolated from clinical samples (Rahimeh Sanikhani, PhD).
- Clinical and molecular characterization of classic and hypervirulent *Klebsiella pneumoniae* isolated from pyogenic liver abscess (Maryam Sohrabi, PhD).
- Investigation of the effect of nanoparticles niosome containing minocycline antibiotic and Gallium Nitrate (GaN) on pneumonia *Acinetobacter baumannii* in the mouse model (Farnaz Shamkani, PhD).
- Molecular detection of carbapenemase-producing *Enterobacteriaceae* family isolated from fecal outpatients and inpatients carriers (Armaghan Soltani Shirazi, PhD).
- Identification of antigen vaccine candidates for immunization against *Neisseria gonorrhoeae* using Reverse vaccinology approach, and evaluation of immunogenicity of the antigen candidates (Narjes Noori Goudarzi, PhD).

RECENT PUBLICATIONS

More publications in Google scholar profile:
https://scholar.google.com/citations?user=GeCd2n8AAAAJ&hl=en

1. Firoozeh F, Nikibakhsh M, Badmasti F, Zibaei M, Nikbin VS: **Clonal relatedness of carbapenem-resistant Acinetobacter baumannii: high prevalence of ST136pas in a burn center**. *Annals of Clinical Microbiology and Antimicrobials* 2023, **22**(1):1-8 10.1186/s12941-023-00589-9
2. Fereshteh S, Noori Goodarzi N, Kalhor H, Rahimi H, Barzi SM, **Badmasti F** (corresponding author): **Identification of Putative Drug Targets in Highly Resistant Gram-Negative Bacteria; and Drug Discovery Against Glycyl-tRNA Synthetase as a New Target**. *Bioinformatics and Biology Insights* 2023, **17**:11779322231152980. https://doi.org/10.1177/11779322231152980
3. Firoozeh F, Bakhshi F, Dadashi M, **Badmasti F** (corresponding author), Zibaei M, Omidinia N: **Detection of multidrug-resistant Acinetobacter baumannii from burn patients and healthcare workers in Iran**. *Acta Microbiologica et Immunologica Hungarica* 2023. https://doi.org/10.1556/030.2023.01921
4. Shamkani F, Barzi SM, **Badmasti F**, Chiani M, Zafari M, Shafiei M: **Enhanced anti-biofilm activity of the minocycline-and-gallium-nitrate using niosome wrapping against Acinetobacter baumannii in C57/BL6 mouse pneumonia model**. *International Immunopharmacology* 2023, **115**:109551. https://doi.org/10.1016/j.intimp.2022.109551
5. Fereshteh S, Ajdary S, Sepehr A, Bolourchi N, Barzi SM, Jouriani FH, Riazi-Rad F, Shahcheraghi F, **Badmasti F** (corresponding author): **Immunization with recombinant DcaP-like protein and AbOmpA revealed protections against sepsis infection of multi-drug resistant Acinetobacter baumannii ST2Pas in a C57BL/6 mouse model**. *Microbial Pathogenesis* 2023, **174**:105882. https://doi.org/10.1016/j.micpath.2022.105882
6. Bolourchi N, Fereshteh S, Noori Goodarzi N, **Badmasti F** (corresponding author): **Subtractive genomic analysis for computational identification of putative immunogenic targets against clinical Enterobacter cloacae complex**. *PloS one* 2022, **17**(10):e0275749. https://doi.org/10.1371/journal.pone.0275749
7. Bolourchi N, Naz A, Sohrabi M, **Badmasti F** (corresponding author): **Comparative in silico characterization of *Klebsiella pneumoniae* hypervirulent plasmids and their antimicrobial resistance genes**. *Annals of Clinical Microbiology and Antimicrobials* 2022, **21**(1):1-9. https://ann-clinmicrob.biomedcentral.com/articles/10.1186/s12941-022-00514-6
8. Tasbiti AH, **Badmasti F**, Siadat SD, Fateh A, Yari F, Jajin MG, Yari S: **Recognition of specific immunogenic antigens with potential diagnostic value in multi-drug resistant *Mycobacterium tuberculosis* inducing humoral immunity in MDR-TB patients**. *Infection, Genetics and Evolution* 2022, **103**:105328. https://doi.org/10.1016/j.meegid.2022.105328
9. Sohrabi M, Alizade Naini M, Rasekhi A, Oloomi M, Moradhaseli F, Ayoub A, Bazargani A, Hashemizadeh Z, Shahcheraghi F, **Badmasti F** (corresponding author): **Emergence of K1 ST23 and K2 ST65 hypervirulent *klebsiella pneumoniae* as true pathogens with specific virulence genes in cryptogenic pyogenic liver abscesses Shiraz Iran**. *Frontiers in Cellular and Infection Microbiology* 2022:1146. https://doi.org/10.3389/fcimb.2022.964290
10. Aghamohammad S, Nikbin VS, **Badmasti F**, Shahcheraghi F: **High heterogeneity of fecal carriage extended-spectrum beta-lactamase-producing *E. coli* isolated from iranian community and clinical settings**. *BMC Infectious Diseases* 2022, **22**(1):1-9. https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-022-07304-7
11. Bolourchi N, Giske CG, Nematzadeh S, Mirzaie A, Abhari SS, Solgi H, **Badmasti F** (corresponding author): **Comparative resistome and virulome analysis of clinical NDM-1–**

producing carbapenem-resistant *Enterobacter cloacae* complex. *Journal of Global Antimicrobial Resistance* 2022, **28**:254-263. https://doi.org/10.1016/j.jgar.2022.01.021

12. Bolourchi N, Goodarzi NN, Giske CG, Nematzadeh S, Jouriani FH, Solgi H, **Badmasti F** (corresponding author): **Comprehensive pan-genomic, resistome and virulome analysis of clinical OXA-48 producing carbapenem-resistant *Serratia marcescens* strains**. *Gene* 2022, **822**:146355. https://doi.org/10.1016/j.gene.2022.146355
13. Fereshteh S, Noori Goodarzi N, Sepehr A, Shafiei M, Ajdary S, **Badmasti F** (corresponding author): **In silico analyses of extracellular proteins of *Acinetobacter baumannii* as immunogenic candidates**. *Iranian Journal of Pharmaceutical Research* 2022. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9420209/
14. Gharaghie TP, Beiranvand S, Riahi A, **Badmasti F**, Shirin NJ, Mirzaie A, Elahianfar Y, Ghahari S, Ghahari S, Pasban K: **Fabrication and characterization of thymol-loaded chitosan nanogels: improved antibacterial and anti-biofilm activities with negligible cytotoxicity**. *Chemistry & biodiversity* 2022. https://doi.org/10.1002/cbdv.202100426
15. Bolourchi N, Azizi O, Tabrizi AMA, Esmaeili S, Fereshteh S, **Badmasti F** (corresponding author): **Clonal relatedness of *Acinetobacter baumannii* isolated from the middle east: A systematic review**. *Reviews in Medical Microbiology* 2022, **33**(1): e48-e56. https://journals.lww.com/revmedmicrobiol/Abstract/2022/01000/Clonal_relatedness_of_Acinetobacter_baumannii.18.aspx

Book (in Persian)

- **Applied Bioinformatics (protein subject)**
- **Bacterial culture and collection**