HANIEH NOROUZI ESFAHANI

MEDICAL MICROBIOLOGY | MOLECULAR DIAGNOSTICS | RESEARCH LABORATORY SCIENCE

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PROFESSIONAL PROFILE

Medical microbiology specialist with practical experience in clinical diagnostic and research laboratories. Experienced in molecular methods, including conventional and real-time PCR, Sanger sequencing, primer design, and DNA/RNA extraction, as well as antimicrobial susceptibility testing, bacterial culture, and biofilm assays. Contributes to laboratory research, data analysis, and scientific reporting. Co-author of a 2025 research article in Molecular Biology Reports investigating antimicrobial resistance and infection-related characteristics of Pseudomonas aeruginosa.

CORE COMPETENCIES

- Molecular diagnostics: conventional PCR, real-time PCR, Sanger sequencing, primer design, and sequence analysis
- Clinical and medical microbiology: specimen culture, bacterial identification workflows, and antimicrobial susceptibility testing
- Antimicrobial resistance research: MIC/MBC determination, broth dilution, and mCIM/eCIM carbapenemase detection assays
- Biofilm research: assessment and quantification using microtiter plate assays
- Research support: laboratory protocol implementation, quality control, data analysis, and scientific documentation

PROFESSIONAL EXPERIENCE

Laboratory Specialist | Isfahan Medical Sciences Research Laboratory, Isfahan, Iran
Current position

- Perform molecular and microbiological procedures in support of laboratory research protocols.
- Analyze laboratory data and contribute to research projects at Isfahan University of Medical Sciences.

Clinical Laboratory Specialist | Al-Zahra Teaching Hospital, Isfahan, Iran

- Performed routine and specialized biochemistry, hematology, and microbiology tests.
- Carried out internal quality-control procedures and collaborated with the hospital diagnostic team.

Clinical Laboratory Specialist | Shahid Sadoughi Hospital, Yazd, Iran

- Performed microbiological testing and specimen cultures, including blood cultures.
- Conducted antimicrobial susceptibility testing and communicated laboratory results to clinical units.

Clinical Laboratory Specialist | Part Laboratory

- Performed routine laboratory procedures and operated automated laboratory instruments.
- Followed established laboratory quality-control standards.

EDUCATION

M.Sc. in Medical Microbiology | Shahid Sadoughi University of Medical Sciences, Yazd, Iran
Academic focus: clinical microbiology, medical bacteriology, antimicrobial resistance, and molecular diagnostics. Thesis research examined antimicrobial resistance and biofilm formation in Pseudomonas aeruginosa and contributed to a publication in Molecular Biology Reports.

B.Sc. in Microbiology | Islamic Azad University, Falavarjan Branch, Isfahan, Iran
Coursework included general microbiology, virology, mycology, and immunology, with practical training in clinical diagnostic laboratories.

TECHNICAL SKILLS

Molecular Biology: Conventional PCR; real-time PCR; Sanger sequencing; primer and sequence analysis; agarose and polyacrylamide gel electrophoresis; DNA and RNA extraction from tissues and microorganisms.

Microbiology and Antimicrobial Resistance: Phenotypic antimicrobial susceptibility testing; MIC and MBC determination; broth dilution; mCIM and eCIM assays; microtiter plate assays; biofilm assessment and quantification; culture of blood, urine, stool, swab, and tissue specimens.

Microscopy and Cell Culture: Atomic force microscopy (AFM); fluorescence and inverted microscopy; cell culture and cell passaging.

SOFTWARE AND RESEARCH TOOLS

- SPSS: statistical analysis, comparative tests, regression, and preparation of tables and figures
- EndNote: reference management, citation formatting, and bibliography preparation
- Oligo: primer and probe design and evaluation for PCR and real-time PCR
- Microsoft Word, Excel, and PowerPoint: scientific writing, data management, and research presentations

SELECTED PUBLICATION

Norouzi H, Zandi H, Madadizadeh F, Heidari H. *Comparison of factors contributing to drug resistance and infection severity in Pseudomonas aeruginosa isolates among COVID-19 and non-COVID-19 patients.* Molecular Biology Reports. 2025 Jun 23;52(1):624. doi: 10.1007/s11033-025-10711-z. PMID: 40549117.

The study examined 125 Pseudomonas aeruginosa isolates from patients with and without COVID-19, comparing antimicrobial resistance patterns, biofilm formation, and selected resistance- and biofilm-associated genes.

RESEARCH INTERESTS

- Medical microbiology, pathogenic bacteria, and laboratory diagnostic methods
- Antimicrobial resistance mechanisms and resistance-gene identification
- Bacterial biofilms and infection-associated characteristics
- Molecular diagnostic methods, including PCR, real-time PCR, and sequencing
- Medical genetics and molecular techniques used in genetic diagnosis

LANGUAGES

- Persian: Native
- English: Proficient in reading and translating scientific literature for research purposes