Nauman Nazeer, PhD.

R&D Scientist | Biomaterials | Drug Delivery | Analytical Chemistry

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SUMMARY

Researcher with over 8 years of hands-on laboratory experience in analytical chemistry, biomaterial synthesis, drug delivery, and *in vitro* biological testing. Experienced in developing SOPs, analytical methods, and data processing, as well as statistical analysis. Currently working as a **Scientist, R&D** at TUNISTRONG Technologies Inc., PE, Canada, focusing on material synthesis, testing, and analytical techniques. Authored and co-authored 19 peer-reviewed publications, with strong skills in scientific communication, technical documentation, collaboration, and project-driven research.

SKILLS

- **Analytical Chemistry:** HPLC, LC-MS, FTIR, NMR, DLS
- **Peptide Synthesis & Characterization:** Manual and automated SPPS; HPLC, LC-MS, FTIR, NMR
- **Biomaterials & Polymer Science:** RAFT polymerization, peptide-polymer conjugates, cryoprotectants
- **Material Characterization:** Polymer analysis, peptide purity/identity, cryoprotectant evaluation
- **Biological Assays:** ELISA, flow cytometry, Western blot, viability assays
- **Cell Culture:** Mammalian and bacterial cell lines
- **Instrumentation:** Automated HPLC, microplate readers, CL2 biosafety cabinets
- **Assay Validation:** Biological and chemical assay validation
- **Quality Control:** Raw materials, intermediates, and finished products
- **Regulatory & Quality:** SOPs, method validation, CAPA, CL2 biosafety
- **Data Analysis:** Statistical analysis, acceptance criteria, trend evaluation
- **Software:** Microsoft Office, Python, MATLAB, basic C++

EXPERIENCE

SCIENTIST, RESEARCH & DEVELOPMENT

TUNISTRONG Technologies Inc., PE, Canada | 07/2025 - Current

Collaboration with the University of Prince Edward Island, PEI, Canada

- Performed QC-oriented analytical testing for material characterization, supporting industrial process development.
- Researched innovative extraction of nanocrystalline cellulose and proteins from tunicates for value-added applications.
- Conducted validated assays including HPLC purity analysis, LC-MS identification, FTIR functional group verification, and DLS particle sizing; collaborated with cross-functional teams to evaluate raw material specifications for production feasibility.
- Analyzed data, prepared method development reports, and published research findings.

POSTDOCTORAL RESEARCHER

University of Prince Edward Island (UPEI), PE, Canada | 07/2024 - 06/2025

Collaboration with Atlantic Veterinary College, PEI, Canada

- Conducted analytical testing of biological samples, including viability assays, ELISA quantification, and antimicrobial activity evaluation; executed validated QC assays for biomaterial and polymer-based formulations.
- Developed polymer-based cryoprotectants that improved post-thaw viability of cells and tissues by 35%.
- Designed and optimized self-assembling antimicrobial peptides for drug delivery and immunotherapy.
- Analyzed and compiled data into structured technical reports for supervisory and regulatory review.
- Partnered with the Atlantic Veterinary College and biotech collaborators to translate peptide research into industry applications.

Graduate Researcher

University of Prince Edward Island (UPEI), PEI, Canada | 09/2018 - 06/2024

- Performed routine analytical testing of synthesized peptides and polymers using HPLC, LC-MS, FTIR, and NMR.
- Conducted cell-based assays including viability, cytotoxicity, and antimicrobial screening.
- Executed method optimization and validation supporting research and biomaterials development.
- Created antimicrobial and immunomodulatory peptides that were published in peer-reviewed journals.
- Conducted mammalian and bacterial cell culture studies to validate therapeutic potential.

EXPERIENCE

MITACS Lab2Market Researcher

Collaboration with UPEI and Dalhousie University, Halifax, NS | 01/2023 - 05/2023

- Translated analytical research into commercially viable QC-relevant applications.
- Collaborated with industry mentors to translate academic innovations into viable biotech commercialization strategies, ensuring scientific research was aligned with market demands and regulatory pathways.
- Gained exposure to regulatory requirements and industry validation pathways.

NOTABLE RESEARCH ACHIEVEMENT

Development of New Biomaterials

- **Designed and developed** a novel self-assembling peptide sequence (mCA4-5) featuring potent antimicrobial and immunomodulatory activities.
- **Published foundational findings** as first author, establishing the peptide's utility for advanced immunotherapy and drug encapsulation applications.
- **Scaled laboratory adoption of** the mCA4-5 sequence, which now serves as a core platform for multiple ongoing teams research projects.

PUBLICATIONS

Authored and co-authored 19 peer-reviewed research publications in journals including the International Journal of Pharmaceutics, Journal of Medicinal Chemistry, Journal of Materials Chemistry, Pharmaceuticals, European Polymer Journal, Biotechnology and Bioengineering Journal. These works have amassed over 2,700 reads and 280 citations. *Refer to* **ResearchGate.**

Selected Publications

- Nazeer, N., et al. Peptide-Based Hydrogels. Elsevier, Jan. 2025.
- Nazeer, N., et al. Intrinsically Fluorescent Nano-Scaled Peptide Aggregates Upon Arginine to Citrulline Swap. Journal of Biotechnology and Bioengineering, Sept. 2025.
- Nazeer, N., et al. Secondary Structure Stabilization of Macrocyclic Antimicrobial Peptides via Cross-link Swapping. Journal of Medicinal Chemistry, May 2024.
- Nazeer, N., et al. Antibacterial Activities of Self-Assembled Peptide Nanoparticles. Journal of Materials Chemistry B, Nov. 2021.
- Nazeer, N., et al. Bacterial-Specific Aggregation & Killing of Immunomodulatory Host Defense Peptides. Pharmaceuticals, Aug. 2021.

EDUCATION

Ph.D., Molecular & Macromolecular Sciences

University of Prince Edward Island, PE, Canada | 09/2019 - 06/2024

M.Sc., Sustainable Design Engineering

University of Prince Edward Island, PE, Canada | 09/2018 - 08/2019

B.Sc., Chemical Engineering (ABET Accredited)

University of Bahrain, Kingdom of Bahrain | 09/2014 - 06/2018

CERTIFICATIONS

- GLP and GMP Fundamentals - Bio Talent, Canada
- Containment Level 2 Biosafety - Health Canada
- WHMIS Certified - Canadian Centre for Occupational Health and Safety (CCOHS)
- CPR and First Aid - Occupational Health & Safety, PE, Canada.

MEMBERSHIP / AFFILIATIONS

- American Institute for Chemical Engineers - International Member
- Society for Biological Engineering (SBE) - Member
- Institute for Sustainability (IFS) – Member

HONORS AND AWARDS

- MITACS Lab2Market Fellowship (2023)
- UPEI International Graduate Student Award (2020 - 2021)
- Faculty of Science International Fellowship (2019 - 2023)
- High GPA Honor, BSc Chemical Engineering (2016)

Professional references will be provided upon request.