

## Naseema Azim

Senior Research Officer

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### WORK EXPERIENCE

#### Institution:

School of Biological Sciences, University of the Punjab, Lahore, Pakistan

#### Positions Held:

Senior Research Officer	08/2019 - Present
Post-Doctoral Fellowship/ Experimental Officer	04/2015 - 07/2019
Research Officer	04/2014 – 04/2015

### RESEARCH INTERESTS

My area of expertise are recombinant protein production and purification, protein chemistry and mechanistic analysis. Recently I've moved onto development and production of recombinant proteins with diagnostic applications and their use in point of care diagnostic kits.

### FUNDED PROJECTS

#### Completed:

- Punjab University Research Grant titled "**Cloning and recombinant synthesis of large fragment of DNA polymerase from *Geobacillus thermopakistanensis*.**" Fiscal year 2023-2024, award amount 0.2 million PKR.
- HEC funded project (NRPU-15727) titled "**Production of recombinant DNA polymerase for rapid diagnosis of infectious diseases**". Fiscal years 2022-2025, award amount 4.56 million PKR.

#### Ongoing:

- Punjab University Research Grant titled "**Engineering large fragment of DNA polymerase I from *Geobacillus thermopakistanensis* for enhanced strand displacement activities.**" Fiscal year 2025-2026, award amount 0.3 million PKR.

## RESEARCH PROJECTS SUPERVISED

### M.Phil. Thesis Supervised

Ongoing: 02

Completed: 07

- Saba Younas: Recombinant production of K133E variant of the large fragment of DNA polymerase from *Geobacillus thermopakistaniensis*.
- Fatima Shahid: Recombinant production of DNA binding domain of DNA ligase from *Pyrobaculum calidifontis*.
- Ahmad Sheraz: Recombinant production and characterization of large fragment of DNA polymerase from *Geobacillus thermopakistaniensis*
- Fiza Ali: Recombinant production of the large fragment of DNA polymerase from *Geobacillus thermopakistaniensis*
- Maham Ijaz: Genetic engineering of a putative asparaginase from *Methanocaldococcus jannaschii*.
- Saman Safdar: Evaluation of antioxidant and anti-cancer potential of ethanolic and n-hexane extracts of fresh water algae from Lahore.
- Rida Fatima: Engineering of novel interferon derivatives and assessment of their half-life.

### Ph.D. Thesis Supervised

Ongoing: 02

## PUBLICATIONS

- Sania A., Muhammad M.A., Sajed M., **Azim, N.**, Ahmad N., Aslam M., Tang X. F., Rashid N (2026) Biochemical insights into the key residue substituents of an L-asparaginase from *Thermococcus kodakarensis* and their application in acrylamide mitigation, *International Journal of Biological Macromolecules*, Volume 348, <https://doi.org/10.1016/j.ijbiomac.2026.150819>.
- Ahmad S., Gardner Q.A., Shakir N.A., Gulzar S., **Azim N.**, Akhtar M. (2025). Nature of recombinant human serum amyloid A1 in *Escherichia coli* and its preferable approach for purification, *Protein Expression and Purification*, Volume 227, [doi.org/10.1016/j.pep.2024.106620](https://doi.org/10.1016/j.pep.2024.106620)
- Shaeer A., Aroob I., Aslam M., **Azim N.**, & Rashid N. (2025). Investigating recombinant manganese-catalases from *Geobacillus thermopakistaniensis* for sustainable and eco-friendly textile processing, *International Journal of Environmental Science and Technology*, Volume 22, 6903–6912 (2025). <https://doi.org/10.1007/s13762-024-06072-y>.
- Ijaz M., Shad M., Nazir A., **Azim N.** and Sajjad M., (2025) Production of an Asparaginase-Like Domain of AnsA from *Methanocaldococcus jannaschii* in *Escherichia coli*, its purification and In Silico Analysis, *Pakistan Journal of Zoology* DOI: 10.17582/journal.pjz/20231025191403 (Impact factor: 0.5)

- Nazir A., Shad M., Rehman H. M., **Azim N.**, Sajjad M., (2024) Application of SUMO Fusion Technology for the Enhancement of Stability and Activity of Lysophospholipase from *Pyrococcus abyssi*, World Journal of Microbiology and Biotechnology, Vol. 40. No. 6. 183 DOI: 10.1007/s11274-024-03998-w (Impact factor: 4.0)
- Sania A., Muhammad M.A., Sajed M., **Azim, N.**, Ahmad N., Aslam M., Tang X. F., Rashid N., (2024), Structural and functional analyses of an L-asparaginase from *Geobacillus thermopakistanensis*, International Journal of Biological Macromolecules, Volume 263, Part 2, 130438, DOI: 10.1016/j.ijbiomac.2024.130438 (Impact factor: 8.025)
- Nazir, A., Shad, M., Rashid, N., **Azim, N.**, Sajjad, M., (2024) Recombinant production and characterization of a metal ion-independent Lysophospholipase from a hyperthermophilic archaeon *Pyrococcus abyssi* DSM25543, International Journal of Biological Macromolecules, <https://doi.org/10.1016/j.ijbiomac.2024.129345> (Impact factor: 8.025)
- Ahmad, S., Ali, S.F., **Azim, N.**, Rashid, N. (2021) Studies on enhancement of production of recombinant DNA polymerase originated from *Pyrobaculum calidifontis*. Biologia. <https://doi.org/10.1007/s11756-021-00887-7> (Impact factor: 1.74)
- **Azim N**, Gardner QA, Rashid N, Akhtar M. (2019) Mechanistic studies on *Pyrobaculum calidifontis* porphobilinogen synthase (5-aminolevulinic acid dehydratase). Bioorganic Chemistry. Oct; 91 103117. doi:10.1016/j.bioorg.2019.103117. (Impact factor: 3.926)
- N. Mills-Davies, D. Butler, E. Norton, D. Thompson, M. Sarwar, J. Guo, R. Gill, **N. Azim**, A. Coker, S. P. Wood, P. T. Erskine, L. Coates, J. B. Cooper, N. Rashid, M. Akhtar and P. M. Shoolingin-Jordan (2017) Structural studies of substrate and product complexes of 5-aminolaevulinic acid dehydratase from humans, *Escherichia coli* and the hyperthermophile *Pyrobaculum calidifontis*. Acta Crystallographica Section D 73, (9-21). (Impact factor: 3.099)
- **N. Azim**, E. Deery, M. J. Warren, P. T. Erskine, J. B. Cooper, S. P. Wood and M. Akhtar, (2014) Structural evidence for the partially oxidised dipyrromethene and dipyrromethanone forms of the cofactor of porphobilinogen deaminase - structures of the *Bacillus megaterium* enzyme at near-atomic resolution. Acta Crystallographica Section D 70, (744–751). (Impact factor: 2.680)
- **N. Azim**, E. Deery, M. J. Warren, P. T. Erskine, J. B. Cooper, S. P. Wood and M. Akhtar, (2013) Crystallization and preliminary X-ray characterization of the tetrapyrrole-biosynthetic enzyme porphobilinogen deaminase from *Bacillus megaterium*. Acta Crystallographica Section F 69(906–908). (Impact factor: 0.568)
- Asgher M., **Azim N.**, Bhatti H. N., (2009) Decolorization of practical textile industry effluents by white rot fungus *Coriolus versicolor* IBL-04. Biochemical Engineering Journal 47(1-3), Pages 61-65. (Impact factor: 2.58)