



Dr. Zeeshan Rafi

**Assistant Professor, Department of Bioengineering, Faculty of Engineering,
Integral University, Lucknow**

(Phone no: 7080319786, email id: zrafi@iul.ac.in, zeddqazi@gmail.com)

Hyperlinks of

[Google scholar Profile](#)

[ORCID ID](#)

[ResearchGate](#)

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PROFILE

- Assistant Professor with expertise in biotechnology, nanomedicine, and glycation biology.
- Researcher specializing in nano-drug delivery, protein-nanomaterial interactions, and antiglycation studies.
- Published author with substantial research contributions in nanomedicine, anticancer research, and glycation biology.
- Earned M.Tech and Ph.D. in Biotechnology, concentrating on nanoparticle synthesis for novel antiglycation and anticancer therapies.
- Editorial Board member of Online Journal of Biological Sciences (Scopus Indexed).
- Actively engaged in teaching U.G & P.G. Students, along with Research work to discover out the lead natural bioactive molecule & their nano formulations in combating diabetes and cancer as well as other free radical mediated diseases.
- Extensive experience in understanding the biology of normal and cancerous cell lines.

RESEARCH INTEREST:

- **Nanotechnology and Drug Delivery:** Exploring innovative methods to enhance drug delivery systems using nanotechnology.
- **Nanomedicine, Glycation Biology, and Targeted Drug Delivery:** Investigating the role of nanomedicine in targeted therapies and its implications in glycation biology.
- **Synthesis, Bioconjugation, and Functionalization of Nanoparticles:** Developing novel nanoparticles aimed at inhibiting glycation and providing anticancer therapies.

- **Protein-Nanomaterial Interactions:** Studying the interactions between proteins and nanomaterials to optimize therapeutic applications.
- **Nano-Biotechnology and Toxicity Studies:** Conducting research on the biocompatibility and toxicity of nanomaterials in biological systems.

SUMMARY OF RESEARCH ACCOMPLISHMENT:

- **Nanoparticle-Based Therapeutics:** Synthesized and optimized herbal drug-conjugated gold nanoparticles (AuNPs) with demonstrated potential for antiglycation, antidiabetic, and anticancer applications.
- **Citation Metrics:** Research recognized with a total citation count of 592, h-index of 11, and i10-index of 13, published in high-impact international journals.
- **Plant-Mediated Nanoparticles:** Successfully synthesized numerous inorganic nanoparticles (silver, gold, zinc, selenium) from green machinery (using plants and herbal compounds) and tested their antiglycation, antidiabetic, antibacterial, and anticancer efficacy.
- **Natural Compounds for Cancer Treatment:** Investigated the cytotoxic effects of compounds like Isoferulic acid, Garcinol, Ajmalicine, Bromelain, and Sericin, with a focus on their molecular mechanisms and potential combination therapies for cancer treatment.
- **Targeted Drug Delivery and Theragnostic:** Planning to explore nanobiotechnology for developing targeted drug delivery systems and theranostic tools, improving drug efficacy and diagnostics.
- **Publications and Conferences:** Authored/co-authored over 26 research and review articles in the fields of nanobiotechnology, biochemistry, and molecular biology, and actively engaged in national and international conferences for knowledge dissemination and collaboration.

PROFESSIONAL MEMBERSHIP:

NA

COURSE TAUGHT:

- Bionanotechnology
- Immunology

- Biomedical Nanotechnology
- Nanobiotechnology
- Immunotechnology
- Animal Cell Engineering
- Pharmaceutical Biotechnology
- Tissue Engineering
- Research and Methodology

ADMINISTRATIVE/DEPARTMENTAL RESPONSIBILITY

- NAAC Criteria II Departmental In charge
- Departmental Time-Table Co-ordinator
- Departmental Activity Coordinator
- Course Coordinator for the B. Tech Biotechnology 2nd year program

STUDENTS SUPERVISION

- Supervised 2 M.Tech students and 1 B.Tech Biotechnology student in their dissertations
- Currently supervising 3 Ph.D. students as Supervisor and 2 Ph.D. students as Co-Supervisor

PUBLISHED/GRANT PATENTS

NA

PUBLISHED/ACCEPTED SCI/SCOPUS RESEARCH PAPERS

1. Mishra, Pooja, **Zeeshan Rafi**, Tabrez Faruqui, Shazia Mansoor, Irshad Ahmad, Irfan Ahmad, Samra Siddiqui, and Mohd Saeed. "Exploring the Significance and Cutting-Edge Applications of Terpenes and Terpenoid-Derived Inorganic Nanoparticles." *Science of Advanced Materials* 16, no. 6 (2024): 665-681. **(Impact factor:1.06)**
2. Alsukaibi, Abdulmohsen KD, Salman Khan, Mohd Wajid Ali Khan, **Zeeshan Rafi**, Ahmed Al-Otaibi, Asma KAA Alshamari, Kirtanjot Kaur et al. "Eco-Synthesis of Gold Nanoparticles Using *Vigna unguiculata* Seed Extract: A Leap in the Direction of Antiglycation Remedies." *Science of Advanced Materials* 16, no. 5 (2024): 614-623. **(Impact factor:1.06)**
3. **Rafi, Zeeshan**, Salman Khan, Subuhi Sherwani, Eida M. Alshammari, Mahvish Khan, Bander Fayeze Alshammari, Mohd Wajid Ali Khan et al. "Citrus sinensis Seed-Mediated Gold Nanoparticles for Combating Diabetes and Bacterial Infections: A Promising Multifunctional Nano Formulation." *Science of Advanced Materials* 16, no. 2 (2024): 260-270. **(Impact factor:1.06)**

4. Ahmad, Saheem, Qurain T. Alshammari, **Zeeshan Rafi**, Shahnawaz Rehman, Mohd Yasir Khan, Mohd Faisal, and Abdulrahman A. Alatar. "Generation of Autoantibodies in Metal-catalyzed Oxidatively Damaged DNA in Various Cancer Subjects." *Current Medicinal Chemistry* 31, no. 5 (2024): 640-648. **(Impact factor:3.5)**
5. Khan, Hamda, **Zeeshan Rafi**, Mohd Yasir Khan, Farah Maarfi, Shahnawaz Rehman, Kirtanjot Kaur, Mohammad Kaleem Ahmad, Uzma Shahab, Naved Ahmad, and Saheem Ahmad. "Epigenetic contributions to cancer: Exploring the role of glycation reactions." *International review of cell and molecular biology* 387 (2024): 143-193. **(Impact factor:6.8)**
6. **Rafi, Zeeshan**, Mahvish Khan, Saif Khan, Manish Srivastava, Shafiu Haque, Sundeep S. Bhagwath, Kurian Punnoose, and Mohd Sajid Khan. "Glycation derived AuNPs bioconjugated novel herbal drug isoferulic acid: As a potential anti-glycation, anti-diabetic and antineoplastic agent." *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 676 (2023): 132148. **(Impact factor:5.5)**
7. Mishra, Pooja, Tabrez Faruqui, Suma Akhtar, Iqra Nadeem, Imran Khan, Saikh Mohammad Wabaidur, Mohsin Kazi, Moniba Rahim, **Zeeshan Rafi**, and Salman Khan. "Antiproliferative activity of gold and silver nanoparticles fabricated using bark extract of *Murraya koenigii*." *Journal of Drug Delivery Science and Technology* (2023): 105014. **(Impact factor:5.06)**
8. Alyahyawi, Amjad R., Salman Khan, **Zeeshan Rafi**, Parul Singh, Kakhkashan Moheet, Rihab Akasha, and Saheem Ahmad. "Exploring Kinnow mandarin's hidden potential: Nature's key to antimicrobial and antidiabetic gold nanoparticles (K-AuNPs)." *Saudi Journal of Biological Sciences* 30, no. 10 (2023): 103782. **(Impact factor:4.05)**
9. Alyahyawi, Amjad R., Mohd Yasir Khan, Sultan Alouffi, Farah Maarfi, Rihab Akasha, Saif Khan, **Zeeshan Rafi**, Talal Alharazi, Uzma Shahab, and Saheem Ahmad. "Identification of Glycooxidative Lesion in Isolated Low-Density Lipoproteins from Diabetes Mellitus Subjects." *Life* 13, no. 10 (2023): 1986. **(Impact factor:3.25)**
10. **Rafi, Zeeshan**, Mohammad Hassan Baig, Fohad Mabood Husain, Suliman Yousef Alomar, Jae-June Dong, and Mohd Sajid Khan. "Biological reaction mediated engineered AuNPs facilitated delivery enhance the anticancer, antiglycation, and antidiabetic potential of garcinol." *Journal of King Saud University-Science* 35, no. 3 (2023): 102524. **(Impact factor:4.01)**
11. Maarfi, Farah, Saheem Ahmad, Sultan Alouffi, Rihab Akasha, M. Salman Khan, **Zeeshan Rafi**, Hemashri Basnet, and Mohd Yasir Khan. "Differential impact of glycation on Apolipoprotein AI of high-density lipoprotein: a review." *Glycobiology* (2023): cwad010. **(Impact factor:4.06)**
12. Khan, Salman, **Zeshan Rafi**, Pooja Mishra, Lamyia Ahmed Al-Keridis, Alvina Farooqui, Shazia Mansoor, Nawaf Alshammari, Fatimah A. Al-Saeed, Samra Siddiqui, and Mohd Saeed. "Unleashing the Potential of *Benincasa hispida* Peel Extract: Synthesizing Selenium Nanoparticles with Remarkable Antibacterial and Anticancer Properties." *Molecular Biotechnology* (2023): 1-11. **(Impact factor: 2.86)**
13. Ahmad, Saheem, Qurain Turki Alshammari, **Zeeshan Rafi**, Shahnawaz Rehman, Mohd Khan, Mohd Faisal, and Abdulrahman A. Alatar. "Generation of Autoantibodies in Metal-catalyzed Oxidatively Damaged DNA in Various Cancer Subjects." *Current Medicinal Chemistry* (2023). **(Impact factor: 4.18)**
14. Faruqui, Tabrez, Mohd Sajid Khan, Yusuf Akhter, Salman Khan, **Zeeshan Rafi**, Mohd Saeed, Iln Han, Eun-Ha Choi, and Dharmendra Kumar Yadav. "RAGE Inhibitors for Targeted Therapy of

- Cancer: A Comprehensive Review." *International Journal of Molecular Sciences* 24, no. 1 (2022): 266. (Impact factor:6.208)
15. Alenazi, Fahaad, Mohd Saleem, Azharuddin Sajid Syed Khaja, Mubashir Zafar, Mohammed Salem Alharbi, Turki Al Hagbani, Jalaluddin Mohammad Ashraf, Mohammad Qamar, **Zeeshan Rafi**, and Saheem Ahmad. "Metformin encapsulated gold nanoparticles (MTF-GNPs): A promising antiglycation agent." *Cell Biochemistry and Function* 40, no. 7 (2022): 729-741. (Impact factor:3.96).
 16. Abu Lila, Amr Selim, Bader Huwaimel, Ahmed Alobaida, Talib Hussain, **Zeeshan Rafi**, Khalid Mehmood, Marwa H. Abdallah et al. "Delafloxacin-Capped Gold Nanoparticles (DFX-AuNPs): An Effective Antibacterial Nano-Formulation of Fluoroquinolone Antibiotic." *Materials* 15, no. 16 (2022): 5709. (Impact factor:4.02).
 17. Rehman, Shahnawaz, Mohammad Aatif, Zeeshan Rafi, Mohd Yasir Khan, Uzma Shahab, Saheem Ahmad, and Mohd Farhan. "Effect of non-enzymatic glycosylation in the epigenetics of cancer." In *Seminars in Cancer Biology*, vol. 83, pp. 543-555. Academic Press, 2022. (Impact factor:12.1)
 18. Ahmad, Saheem, Khalid Al-Shaghдали, Shahnawaz Rehman, Mohd Yasir Khan, **Zeeshan Rafi**, Mohammad Faisal, Abdulrahman A. Alatar et al. "Nonenzymatic glycosylation of isolated human immunoglobulin-G by D-ribose." *Cell Biochemistry and Function* 40, no. 5 (2022): 526-534. (Impact factor:3.96)
 19. Al Hagbani, Turki, Syed Mohd Danish Rizvi, Talib Hussain, Khalid Mehmood, Zeeshan Rafi, Afrasim Moin, Amr Selim Abu Lila et al. "Cefotaxime mediated synthesis of gold nanoparticles: characterization and antibacterial activity." *Polymers* 14, no. 4 (2022): 771. (Impact factor: 4.96)
 20. Khan, Salman, Shazia Mansoor, **Zeeshan Rafi**, Bhawna Kumari, Ambreen Shoaib, Mohd Saeed, Sultan Alshehri et al. "A review on nanotechnology: Properties, applications, and mechanistic insights of cellular uptake mechanisms." *Journal of Molecular Liquids* 348 (2022): 118008. (Impact factor: 6.63)
 21. Khan, Salman, **Zeeshan Rafi**, Abu Baker, Ambreen Shoaib, Ali G. Alkhatami, Mohammed Asiri, Mohammad Y. Alshahrani et al. "Phytochemical screening, nutritional value, anti-diabetic, anti-cancer, and anti-bacterial assessment of aqueous extract from *Abelmoschus esculentus* Pods." *Processes* 10, no. 2 (2022): 183. (Impact factor: 2.97)
 22. **Rafi, Zeeshan**, Alshahrani, Mohammad Y., Nadiyah M. Alabdallah, Ambreen Shoaib, Irfan Ahmad, Mohammed Asiri, Gaffar Sarwar Zaman, Shadma Wahab, Mohd Saeed, and Salman Khan. "A comparative antibacterial, antioxidant, and antineoplastic potential of *Rauwolfia serpentina* (L.) leaf extract with its biologically synthesized gold nanoparticles (R-AuNPs)." *Plants* 10, no. 11 (2021): 2278. (Impact factor: 4.65)
 23. **Rafi, Zeeshan**, Sultan Alouffi, Mohd S. Khan, and Saheem Ahmad. "2'-Deoxyribose mediated glycation leads to alterations in BSA structure via generation of carbonyl species." *Current Protein and Peptide Science* 21, no. 9 (2020): 924-935. (Impact factor:3.27)
 24. Ahmad, Saheem, Firoz Akhter, Uzma Shahab, Zeeshan Rafi, Mohd Sajid Khan, Rabia Nabi, Mohd Salman Khan, Khurshid Ahmad, and Jalaluddin Mohammad Ashraf. "Do all roads lead to the Rome? The glycation perspective!." In *Seminars in cancer biology*, vol. 49, pp. 9-19. Academic Press, 2018. (Impact factor: 12.1)
 25. Ahmad, Saheem, Mohd Yasir Khan, **Zeeshan Rafi**, Hamda Khan, Zeba Siddiqui, Shahnawaz Rehman, Uzma Shahab et al. "Oxidation, glycation and glycooxidation—the vicious cycle and lung

cancer." In *Seminars in cancer biology*, vol. 49, pp. 29-36. Academic Press, 2018. **(Impact factor: 12.1)**

26. Ahmad, Saheem, Hamda Khan, Uzma Shahab, Shahnawaz Rehman, **Zeeshan Rafi**, Mohd Yasir Khan, Ahsanullah Ansari et al. "Protein oxidation: an overview of metabolism of sulphur containing amino acid, cysteine." *Frontiers in Bioscience-Scholar* 9, no. 1 (2017): 71-87. **(Impact factor:2.16)**

PAPER PUBLISHED IN INTERNATIONAL CONFERENCES

(In Bullets)

PUBLISHED NON-SCI-SCOPUS BUT PEER REVIEWED RESEARCH PAPERS

(In Bullets)

BOOK EDITED/ AUTHORED

- Editor: *Recent Advancements in Nanotechnology: Current Trends & Future Scope*. Aargon Press. ISBN: 978-93-94070-07-3

BOOK CHAPTERS

- Rafi, Z., et al. (2023). Role of nanoparticles in targeted drug delivery. In *Recent Advancements in Nanotechnology: Current Trends & Future Scope* (pp. 39-46). Aargon Press. ISBN: 978-93-94070-07-3
 - Rafi, Z., et al. (2023). Enzyme derived synthesis, surface functionalization and bioconjugation of inorganic nanoparticles. In *Recent Advancements in Nanotechnology: Current Trends & Future Scope* (pp. 63-92). Aargon Press. ISBN: 978-93-94070-07-3
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