Dr. Manish Dixit

Research Areas

- Radiopharmaceutical chemistry: synthesis, radiolabeling and quality control of PET/SPECT radiotracers
- Cyclotron-based radionuclide production (F-18, Ga-68, Cu-64, C-11)
- Development of novel radiotracers for molecular imaging and theranostics
- Organic synthesis of small molecules and their radiolabeling
- Molecular docking and in-silico drug design approaches
- Automation in radiopharmaceutical production and synthesis modules

Research Projects / Funding

Ongoing / Completed Projects:

- **Principal Investigator**
  Development and evaluation of antiepileptic-based radiotracers for imaging epileptic lesions in refractory epilepsy
  Funding Agency: Department of Health Research (DHR), Ministry of Health & Family Welfare, Government of India
- **Principal Investigator**
  Production of Gallium-68 using hospital cyclotron: targetry, purification and clinical application
  Funding Agency: U.P. Council for Science & Technology
- Zr-89 production and Zr-89 Radiopharmaceuticals Coordinated research program IAEA (2019-24) €24,000 Completed
- Design and construction of computer controlled automated radio-chemistry synthesizer MHRD, New Delhi (2018-20) ₹ 10.0 L Completed

Research Expertise / Specialization

- PET radiotracer synthesis (F-18, Ga-68, Cu-64, C-11)
- Radiopharmacy and quality control techniques
- Cyclotron operation and radioisotope production
- Analytical instrumentation: HPLC, LC-MS, GC-MS, NMR, IR
- Automated synthesis modules and purification systems
- Multi-step organic synthesis and handling of air-sensitive compounds

Selected Publications

- Singh, A. K., Pandey, V., Gambhir, S., & Dixit, M. (2026). Design semi-automated radio-synthesis strategy and synthesis of benzimidazole-based radiotracer 2-(4-(2-(fluoro-18F) ethyl) piperidin-1-yl) benzo imidazo [1, 2-a] pyrimidine for Tau as a PET imaging agent. *Current Radiopharmaceuticals*, *19*(2), 100038.
- Pandey, V., Faheem, M., Gambhir, S., & Dixit, M. (2026). Synthesis of [18 F] rufinamide as a radiotracer for epileptic brain imaging. *RSC advances*, *16*(17), 15350-15360.
- Faheem, M., Pandey, V., Prasad, M., & Dixit, M. (2025). In-silico study of thiazolidinone-linked Glu-Ureido based PSMA ligands for PET application. *Discover Chemistry*, *2*(1), 323.
- Islam, S. N., Shah, M. A., Kumar, M., Jaiswal, A., Hekmotiar, G., Dixit, M., ... & Ahmad, A. (2025). Highly fluorescent sustainable SnWO4 nanoparticles as contrast agent for computed tomography (CT). *Nanomedicine: Nanotechnology, Biology and Medicine*, 102859.
- Shrivastav, A., Maurya, S., Dixit, M., Kumari, S., & Gambhir, S. (2025). Pressed Solid Target Production of 89Zr and its Application for Antibody Labelling. *Current Radiopharmaceuticals*, *18*(2), 120-130.
- Singh, A. K., Gambhir, S., & Dixit, M. (2024). Automated Synthesis of [11C] PiB via [11CH3OTf]-as Methylating Agent for PET Imaging of β-Amyloid. *Current Radiopharmaceuticals*, *17*(3), 302-311.
- Shrivastav, A., Faheem, M., Pandey, V., & Dixit, M. (2024). Development and Validation of the Stability of p-SCN-Bn-Df via the Reversed-Phase Chromatography Method: Practical Experiences. *Chemistry Proceedings*, *16*(1), 39.
- Pandey, V., Faheem, M., Ranjan, S., & Dixit, M. (2024). Evaluation Electronic Properties of Rufinamide via Ab-Initio Study as Anti-Epileptic Drug. *Chemistry Proceedings*, *16*(1), 16.
- Faheem, M., Pandey, V., Shrivastav, A., Prasad, M., & Dixit, M. (2024). Evaluation the Electronic Properties of Glu-Ureido Template via Ab-Initio Study as Target Specific for PSMA. *Chemistry Proceedings*, *16*(1), 9.
- Singh, A. K., Faheem, M., Jaiswal, A., Ponnala, M., Gambhir, S., & Dixit, M. (2023). 99mtc-selenium-nps as spect tracers: radio synthesis and biological evaluation. *Chemistry Proceedings*, *14*(1), 54.
- Islam, S. N., Naqvi, S. M. A., Raza, A., Jaiswal, A., Singh, A. K., Dixit, M., ... & Ahmad, A. (2022). Mycosynthesis of highly fluorescent selenium nanoparticles from Fusarium oxysporum, their antifungal activity against black fungus Aspergillus niger, and in-vivo biodistribution studies. *3 Biotech*, *12*(11), 309.
- Akhilesh, S. K., Shanker, N., Subhash, K. C., Sanjay, G., & Dixit, M. (2022). Fully automated synthesis of nitrogen-13-NH3 by SHIs HM-18 cyclotron and dedicated module for routine clinical studies: Our institutional experiences. *Indian Journal of Nuclear Medicine*, *37*(1), 50-53.
- Saxena, P., Singh, A. K., Dixit, M., Kheruka, S. C., Mahmood, T., & Gambhir, S. (2021). Establishing the [18F]-FDG production via two different automated synthesizers for routine clinical studies: our institutional experiences of 4 years. *Indian Journal of Nuclear Medicine*, *36*(2), 120-124.

- Saxena, P., Singh, A. K., Dixit, M., Kheruka, S. C., Mahmood, T., & Gambhir, S. (2021). Establishing the [18F]-FDG production via two different automated synthesizers for routine clinical studies: our institutional experiences of 4 years. *Indian Journal of Nuclear Medicine*, *36*(2), 120-124.

Research Facilities / Laboratory

- State-of-the-art PET-CT and SPECT-CT imaging facilities
- On-site medical cyclotron for radionuclide production
- Production of multiple PET isotopes including F-18, Ga-68, C-11, and Cu-64
- Advanced radiochemistry laboratories for tracer development
- Facility equipped with automated synthesis modules and quality control systems
- Capability for development of novel tracers such as PSMA, DOTANOC, and FAPI-based agents

News

- Ongoing development of novel radiopharmaceuticals for molecular imaging
- Expansion of cyclotron-based radionuclide production facility
- Initiation of funded research projects in radiotracer development
- Contribution to advanced PET imaging and theranostics research

Events / Academic Activities

- Active participation in national and international conferences in Nuclear Medicine and Radiopharmacy
- International Workshop on Solid Target Production & Their Application [07 – 09 April 2025]
- Indo-Thai Solid Target Training Program [training program on “solid target methodology for production of radio-isotopes on october 7, 2024]
- Involvement in training programs and academic mentoring of research scholars and residents

Achievements / Highlights

- Principal Investigator of multiple funded research projects
- International research experience and fellowships
- Significant contribution in PET radiotracer development and clinical translation
- Expertise in cyclotron-based isotope production and radiochemistry

Alumni

1. Dr Akhilesh kumar singh [PhD 2019-2025]
2. Dr Juhi raise [CSIR-RA 2021-2024]

Research Group

1.	Mrs Anjli Srivastav	PhD Scholar
2.	Mr Mohd Faheem	CSIR-SRF
3.	Ms Nidhi Kushwaha	PhD Scholar
4.	Mr Vaibhav Pandey	PhD Scholar
5.	Mr Rishabh Yadav	PhD Scholar
6.	Mr Vasudev Dubey	PhD Scholar
7.	Ms Neha Bano	PhD Scholar