

Dr. Neha Taneja

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Languages known: Hindi,
English, German, Korean



Research Interest

- Metal-free Distal C-H functionalization of aromatic C–H bonds by exploring the concept of oxidative dearomatization using **Hypervalent Iodine Chemistry**.
- Transition-metal catalyzed and Organocatalysed **Asymmetric Synthesis**.
- **Organocatalyzed Photoredox reactions:** Functionalization of anilines and phenols *via* radical-radical cross-coupling reactions resulting phenol functionalized biological potent scaffolds.
- **CO₂ fixation:** Metal-free catalytic conversion of propargylic alcohols to cyclic carbonates using CO₂

Industrial Experience

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| Project Scientist(Sept. 2023–Sept. 2024) DST-CPR (Center for Policy Research), Panjab University, Chandigarh | <ul style="list-style-type: none">• Policy recommendations on Industry-Academia Interaction for Research and Development.• Study on Foreign Direct Investment (FDI) landscape of India. |
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Academic Experience

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| Post Doc. (Sept.2021–Sept. 2023) Applied Chemistry, Synthetic Organic Chemistry Institute Post-doctoral fellow Department of Chemistry IIT Delhi, New Delhi | <ul style="list-style-type: none">• Site-selective functionalization of Distal C-H bonds under Metal-free conditions.• Selective Reductive C–H Methylation of aromatic system.• Metal-free methodology for the synthesis of Drugs. |
| Post Doc. (Jan.2021–Aug. 2021) Medicinal Chemistry Drug Discovery Research Centre (DDRC), Translational Health Science and Technology Institute (THSTI-DBT), NCR Biotech Science Cluster, Faridabad, India. | <ul style="list-style-type: none">• To standardize the protocol for the synthesis of small molecular anti-cancer therapeutics.• CO₂ fixation for the synthesis of cyclic carbonates. |
| Post Doc. (Aug. 2019–Sept. 2020) Organometallic chemistry/ Peptide chemistry BK-21 research fellowship Department of Chemistry Seoul National University Seoul, South Korea | <ul style="list-style-type: none">• Preparation of chiral propargylamines.• Ruthenium-catalyzed oxidative functionalization of chiral propargylamines for the synthesis of β-oligopeptides.• Synthesis of macrocyclic 13-membered cyclic β-tetrapeptide Rhodopeptin B5 (an antifungal agent). |
| Post Doc. (Nov. 2018–Aug. 2019) Medicinal Chemistry Drug Discovery Research Centre (DDRC), Translational Health Science and Technology Institute (THSTI-DBT), NCR Biotech Science Cluster, Faridabad, India. | <ul style="list-style-type: none">• Process Chemistry for the synthesis, purification, characterization and structural-activity relationship of the APIs (Active pharmaceutical ingredients) mainly focussed on anti-tumor drug Sorafenib and its derivatives. |

TEACHING EXPERIENCE

Worked as an official Teaching Assistant (TA) at IIT Roorkee and IIT Delhi

- 1) As an official Teaching Assistant during my Ph.D. at IIT Roorkee and Post-doc and IIT Delhi, I was responsible for the practical classes and exam evaluations for the undergraduate (B.Tech) and post-graduate (M.Sc.) students. I also monitored the project of 2 Ph.D. Students.

ACADEMICS

Ph.D., Department of Chemistry, Indian Institute of Technology (IIT), Roorkee, India (Jan 2013–Jul 2018)

- Thesis title: “Dearomatization protocol for the synthesis of *meta*-substituted phenols”
- Supervisor: Prof. Rama Krishna Peddinti.

M.Sc., Department of Chemistry, Kurukshetra University, Kurukshetra, India (Jul 2010–May 2012)

- *Major*: Organic Chemistry
- Graduated with 75.40% (Distinction)
- Summer intern Scholarship by IASc (Bangalore), INSA (New Delhi) for 3 months during M.Sc. Summer Project title: “Asymmetric Total Synthesis of Sphingofungin B”.
- Guided by Prof. P. K. Tripathi (Chief Scientist), National Chemical Laboratory (NCL), Pune.

B.Sc., Department of Chemistry, Kurukshetra University, Kurukshetra, India (Jul 2007–May 2010)

- *Major*: Biotechnology, Chemistry
- Graduated with 78% (Distinction)

RESEARCH PUBLICATIONS

- “Fe(III)-Mediated Two-Fold Oxidative Coupling of Furan provides Modular Access to Bis (Indolyl)Furans: Novel Tetra-(hetero)arylated Furans with up to four different Substituents; Krishna Mhaske, Shon Gangai, **Neha Taneja**, Rishikesh Narayan* Accepted *Chemistry A European Journal*, **2024**.
- Silane-mediated, Facile and Selective C(sp²)-H and N-Methylation using Formaldehyde; Jabir Khan, **Neha Taneja**, Naveen Yadav, Chinmoy Kumar Hazra* *Chem. Commun.*, **2024**, doi.org/10.1039/D4CC03976A
- Practical Access to *meta*-substituted Anilines by Amination of Quinone Imine Ketals derived from Anisidines: Efficient Synthesis of Anti-Psychotic Drugs; Naveen Yadav †, **Neha Taneja**†, Dulal Musib and Chinmoy Kumar Hazra* *Angew. Chem. Int. Ed.* **2023**, 62(21):e202301166. (†equal first authors).
- I₂-Catalyzed/ Mediated C–S and C–I Bond formation: Solvent-and Metal-free approach for the Synthesis of β-Ketosulfones and Branched Sulfones. Aparna Tyagi, **Neha Taneja**, Jabir Khan and Chinmoy Kumar Hazra* *Adv. Synth. Catal.* **2023**, 365, 1247-1254.
- Non-directed, site-Selective C–H Arylation of Arylamines: A Practical Access to *meta*-Substituted Anilines. **Neha Taneja**†, Pragya Sharma†, Naveen Yadav, Dulal Musib, and Chinmoy Kumar Hazra* *Organic Letters*, **2023**, 25, 32, 6029–6034 (†equal first authors).
- Brønsted-Acid Catalyzed One-pot Synthesis of β,β-Di-aryl esters: Direct Regioselective Approach to Diverse Arrays of 3-Aryl-1-indanone Cores”, Pragya Sharma, **Neha Taneja**, Sanjay Singh and Chinmoy Kumar Hazra* *Chemistry A European Journal* **2023**, 29(2):e202202956.
- “Identification and optimization of pyridine carboxamide based scaffold as a drug lead for Mycobacterium tuberculosis”. Padam Singh, Arun Kumar, Pankaj Sharma, Saurabh Chugh, Ashish Kumar, Nidhi Sharma, Sonu Gupta, Manisha Singh, Saqib Kidwai, **Neha Taneja**, Yashwant Kumar, Rohan Dhiman, Dinesh Mahajan* and Ramandeep Singh*. *Antimicrobial Agents and Chemotherapy* **2024**. [10.1128/aac.00766-23](https://doi.org/10.1128/aac.00766-23).
- Metal-free direct C-arylation of 1,3-dicarbonyl compounds and ethyl cyanoacetate: A Platform to access a diverse array of *meta*-substituted phenols, **Neha Taneja**, Rama Krishna Peddinti* *Chem. Commun.*, **2018**, 54, 11423-11426.
- Iodobenzene and *m*-chloroperbenzoic acid-mediated oxidative dearomatization of phenols, **Neha Taneja**, Rama Krishna Peddinti* *Tetrahedron Letters*, **2016**, 57, 3958–3963.
- Catalyst-free sulfonylation of 2-methoxyphenols: facile one-pot synthesis of Arylsulfonyl catechols in aqueous media, **Neha Taneja**, Rama Krishna Peddinti* *Eur. J. Org. Chem.*, **2017**, 2017, 5306–5314.
- A study on Foreign Direct Investment (FDI) landscape in strengthening the Nation’s R&D and innovation ecosystem, **Neha Taneja**, Manraj Singh, Naveen, Nishika, Kashmir Singh* *Asia Pacific Management Review*, Communicated, **2024**.

- Ru-Catalyzed Transamidation from Terminal Alkynes: An efficient Route for the synthesis of β -oligopeptides, **Neha Taneja**, Chulbom Lee* *et al. Nature Chemistry*, Communicated, **2024**.

Conference Presentations

- Oral Presentation on “Non-directed, site-Selective C–H Arylation of Arylamines: A Practical Access to *meta*-Substituted Anilines” in Prof. R. C. Paul National Symposium at Punjab University, Chandigarh during Feb-15-16, 2024.
- Oral Presentation on “Practical Access to *meta*-substituted Anilines by Amination of Quinone Imine Ketals derived from Anisidines: Efficient Synthesis of Anti-Psychotic Drugs” in International Conference on Organic and Medicinal Chemistry-2023 held at NIT Warangal during June 28-30, 2023.
- Oral Presentation on “Direct C-arylation of 1,3-dicarbonyl compounds and ethyl cyanoacetate : A Platform to synthesize *meta*-functionalized Phenols” in organic molecules as synthons & reagents for innovations held at IIT Roorkee, Roorkee during Feb 8-10, 2019.
- Poster Presentation “Metal-free direct C-arylation of 1,3-dicarbonyl compounds and ethyl cyanoacetate: A Platform to access a diverse array of *meta*-substituted phenols” in **22nd-ICOS** International Conference on organic synthesis held at Florence, Italy during Sep 16-22, 2018.
- Poster Presentation “One-pot sulfonylation of 2-methoxyphenols: facile catalyst-free synthesis of (Arylsulfonyl) catechols in aqueous media” in **CFOS-contemporary facets in organic synthesis** held at IIT, Roorkee during Dec 22-24, 2017
- Poster Presentation “Catalyst-free sulfonylation of 2-methoxyphenols: Facile one-pot synthesis of (Arylsulfonyl) catechols in aqueous media” in **21st CRSI-ACS** held at IICT Hyderabad during Jul 14-16, 2017.
- Poster Presentation “Iodine(I)arene and *m*-chloroperbenzoic acid mediated oxidative dearomatization of phenols” in **XII J-NOST** conference held at CSIR-CDRI, Lucknow during Nov 24-27, 2016.
- Poster Presentation “Iodobenzene catalyzed mediated oxidative dearomatization of phenols” in **21st International Conference on Organic Synthesis (ICOS)** conference held at IIT Bombay, Powai during Dec 11-16, 2016.

Scientific and Experimental skills

- Experience in multistep synthesis in milligram scale (~5 mg), synthesis of chiral organic catalyst,
- Handling various kinds of reagents and goods in dry as well as low-temperature reactions,
- Have a good knowledge of spectral analysis and handling of machines such as **NMR, HRMS, HPLC, IR, GCMS**.
- Have worked on Gaussian for calculating Fukui functions.
- Operated/ Handled the departmental instrument **HRMS and NMR** for 2 years including processing the samples and analysing the data.

Awards and honors

- DST-INSPIRE Faculty Fellowship awarded in 2024.
- Best Oral Presentation at Prof. R. C. Paul National Symposium at Punjab University, Chandigarh during Feb-15-16, 2024.
- Best Oral Presentation at International Conference on Organic and Medicinal Chemistry-2023 at NIT Warangal.
- Selected for Institute Post-Doctoral Fellowship funded by IIT Delhi in April 2021.
- Lifetime membership of the Chemical Research Society of India (CRSI).
- Prestigious BK-21 Fellowship by the Republic of Korea for Post-Doctoral Studies 2019-2020.
- Poster prize at the 22nd International Conference on Organic Synthesis (ICOS) conference in Florence, Italy.
- Graduate Aptitude Test Exam (GATE) Qualified in Chemistry for Ph.D. in Jan 2012.