

# Alok Ranjan, Ph.D

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## SENIOR RESEARCH SCIENTIST

Accomplished Senior Research Scientist with a rich history (6-8 years) of spearheading cutting-edge research projects. Proficient in synthesizing and analyzing new compounds with therapeutic potential. Experienced in utilizing both structure- and property-based strategies to identify promising drug candidates. Led multidisciplinary teams to innovate solutions, enhanced drug discovery efficiency by integrating advanced computational techniques. Committed to continuous learning and staying well-informed of the latest trends in medicinal chemistry and drug design.

## CORE COMPETENCIES

Drug Discovery | Research & Development | Drug delivery | Organic synthesis | SAR | Medicinal Chemistry | ADC

## PROFESSIONAL EXPERIENCE

**FibroGen Inc.**, San Francisco, CA

04/2023 – Present

**Research Scientist, Medicinal Chemistry | Work Title: "Small Molecule Inhibitors of Epigenetic target for Oncology."**

Experienced in structure- and property-based drug design, pharmacokinetics, pharmacology and worked in hit finding stage, shaping effective hit finding and prioritization strategies to synthesize the small molecule Inhibitors of KDM5 Histone Demethylases.

**Department of Chemistry, Stanford University**, Stanford, CA

09/2021 – 03/2023

**Staff Scientist, Medicinal Chemistry**

**Work Title: "Function-Oriented Synthesis: Design new concepts and synthesize potent compounds for PKC-mediated latency reversal towards HIV eradication || Worked on m-RNA delivery system (charge altering releasable transporters, CART)"**

**Department of Chemistry, Stanford University**, Stanford, CA

09/2018 – 08/2021

**Postdoctoral Fellow, Organic Chemistry**

**Work Title: "Function-Oriented Synthesis: Design, synthesis, & biological evaluation of potent diversified bryostatin analogs that modulate Protein Kinase C"**

**UT Southwestern Medical Center**, Dallas, TX

07/2016 – 08/2018

**Postdoctoral fellow, Organic Chemistry**

**Work Title: "Design and Synthesis of Heterocyclic compounds for Orexin Receptor Agonist, Aiming a New Therapeutic Approach for the Treatment of Narcolepsy || Neurological disorder || Autoimmune disorders"**

## EDUCATION

**Ph.D. (Organic Chemistry, Natural Product Synthesis)** – Department of Chemistry, Indian Institute of Technology Kanpur

- Thesis Title:** "Enantioselective Total Syntheses of Marine Toxins, Oxazinins and One Pot Multicomponent Synthesis of Imidazole-2-(thi) one, Thiazolidine-2-ylideneamine and 2-Amino-1,3- selenazole"
- Funded:** Council of Scientific and Industrial Research (CSIR-JRF)

## ACADEMIC ACHIEVEMENTS

- Honors & Awards.** NET-JRF (Council of scientific and industrial research) fellowship Dec 2008. || NET-SRF (Council of scientific and industrial research) fellowship Dec 2011, India
- NET-JRF (University grant commission, India) Fellowship June 2009
- Qualified GATE-2009 (Graduate Aptitude Test in Engineering) in the field of chemistry in Jan 2009

**LIST OF PUBLICATIONS**

- Z. Li, L. Amaya, A. Ee, S. K. Wang, **A. Ranjan**, R. M. Waymouth, H. Chang, P. A. Wender\* "Organ and Cell Selective Delivery of RNA in vivo Using Guanidinylated Serinol Charge- altering Releasable Transporters" *JACS*, **2024**, Accepted.
- M. Dimapasoc, J. A. Moran, S. W. Cole, **A. Ranjan**, R. Hourani, J. T. Kim, P. A. Wender\*, M. D. Marsden\* J. A. Zack\* "Defining the effects of PKC modulator HIV latency reversing agents on natural killer cells" *Pathogens and Immunity*, **2024**, Accepted.
- W. Wang, **A. Ranjan**, W. Zhang, Q. Liang, K. MacMillan, K. Chapman, D. Rosenbaum\*, J. DeBrabander\* "Novel orexin receptor agonists based on arene- or pyridine-fused 1,3-dihydro-2H- imidazole-2-imines" *Bioorganic & Medicinal chemistry letters*, **2024**, 99, 129624.
- Z. Li, L. Amaya, S. K. Wang, **A. Ranjan**, R. M. Weymouth, H. Y. Chang, P. A. Wender\* "Charge-Altering Releasable Transporters with a Distinct Polymeric Backbone enhance mRNA Delivery in Vitro and in Vivo" *Nature Communications*, **2023**, 14, 8983.
- J. A. Moran, **A. Ranjan**, R. Hourani, J. T. Kim, P. A. Wender\*, J. A. Zack\*, M. D. Marsden\* "Secreted Factors Induced by PKC Modulators do not Indirectly cause HIV Latency reversal" *Virology*, **2023**, 581, 8 – 14.
- Y. Sun, **A. Ranjan**, R. Tisdale, S. Ma, S. Park, M. Haire, J. Heu, S. R. Morairty, X. Wang, D. M. Rosenbaum, N. S. Williams, J. K. De Brabander\* T. S. Kilduff\* "Evaluation of the Efficacy of the Hypocretin/orexin Receptor Agonists TAK-925 and ARN-776 in Narcoleptic Orexin/tTA; TetO-DTA Mice" *Journal of Sleep Research*, **2023**, e13839, 1 – 16.
- P. A. Wender\*, J. L. Sloane, Q. H. Luu-Nguyen, **A. Ranjan** "A Trimethylene Methane Dianion Equivalent for the Asymmetric Consecutive Allylation of Aldehydes: Applications to Prins-Driven Macrocyclizations for the Synthesis of Bryostatin 1 and Analogs" *J. Org. Chem*, **2022**, 87, 23, 15925 - 15937.
- **A. Ranjan**, A. Deore, S. G. Yerande, D. H. Dethe\* "Thiol-yne Coupling of Propargylamine under Solvent Free Condition via through bond anion relay Chemistry: An Efficient Synthesis of Thiazolidin-2- ylideneamine" *Eur. J. Org. Chem.* **2017**, 28, 4130 - 4139.
- **A. Ranjan**, A. Mandal, S. G. Yerande, D. H. Dethe\* "Asymmetric Alkynylation/Hydrothiolation Cascade: Enantioselective Synthesis of Thiazolidine-2-imines from Imine, Acetylene and Isothiocyanate" *Chem. Comm.* **2015**, 51, 14215 - 14218.
- **A. Ranjan**, R. Yerande, M. Jadhav, S. G. Yerande\*, D. H. Dethe\* "One Pot Synthesis of 2-Amino-1,3- Selenazole through Intermediary Amidinoselenourea" *Eur. J. Org. Chem.* **2015**, 3230 - 3234.
- **A. Ranjan**, R. Yerande, P. B. Wakchaure, S. G. Yerande\*, D. H. Dethe\*, "Base-Mediated Hydroamination of Propargylamine: A Regioselective Intramolecular 5-exo-dig Cyclo isomerization en Route to Imidazole-2-thione" *Org. Lett.*, **2014**, 16, 5788 - 5791.
- **A. Ranjan**, D. H. Dethe\*, "Enantioselective Total Syntheses and Determination of Absolute Configuration of Marine Toxins, Oxazinins" *RSC Advance*, **2013**, 3, 23692 - 23703.
- D. H. Dethe\*, R. D. Erande, **A. Ranjan** "Biomimetic Total Syntheses of Borreverine and Flinderole Alkaloids" *J. Org. Chem.*, **2013**, 78, 10106 - 10120.
- **A. Ranjan**, V. H. Pardeshi, D. H. Dethe\*, "Asymmetric first Total Syntheses and Assignment of Absolute Configuration of Oxazin-5, Oxazin-6 and Preoxazin-7" *Org. Biomol. Chem.*, **2011**, 9, 7990-7992.
- D. H. Dethe\*, R. D. Erande, **A. Ranjan** "Biomimetic Total Syntheses of Flinderoles B and C" *J. Am. Chem. Soc.*, **2011**, 133, 2864 - 2867.

**PUBLISHED PATENT**

- D. H. Dethe\*, R. D. Erande, **A. Ranjan** "Flinderole analogues and process for synthesis thereof." *PCT Int. Appl.*, **2012**, WO 2012107934 A1 20120816.

**Seminar and Symposium**

- Attended (ResMed) Drew University's 36th Annual, Residential school on medicinal Chemistry and Biology in Drug Discovery, June 11-16, 2023.

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- A. Ranjan, D. H. Dethe\*, V. Pardeshi, "Enantioselective total syntheses and determination of absolute configuration of marine toxins, oxazinins in National Science Day, CSIR-NCL Research Foundation, National chemical Laboratory, Pune. During Ph.D. in February 24-25,2011.
- A. Ranjan, Jef De Brabander\*, Cutting Edge Lineage Chemistry Symposium organized on occasion of the 70th birthday of Prof. K. C. Nicolaou, Bioscience Research Collaborative, Rice University at Huston, Texas, on Friday, October 7, 2016.
- Ranjan, Jef De Brabander\*, Excellence in Chemistry Symposium, Department of Biochemistry, UT Southwestern Medical Center, Dallas, Texas on May 3, 2016
- A. Ranjan, Paul A. Wender\*, 34th William S. Johnson Symposium, Department of Chemistry, Stanford University, California, on Friday, October 11, 2019.
- A. Ranjan, Rami Hourani, Edward Knoo, Paul A. Wender\*, Merck Seminar & Poster Session, Department of Chemistry, Stanford University, California, on Monday, May 02, 2022.
- A. Ranjan invited speaker in ICCHHE-2022, Department of Chemistry, Navyug Kanya Mahavidyalaya, Lucknow, Uttar Pradesh, India, on March 02, 2022.

### TECHNICAL SKILLS & EXPERTISE

- Molecule Design and Synthesis:
  - Design, plan and execute multi-step organic synthesis and purification of high-quality target molecules, macrocycles and solve synthetic chemistry challenges to enable expansion of available chemical space.
  - Significant experience and successful implementation of independent synthetic route design and problem solving. Experience working with ADC, m-RNA delivery system, peptide, polymer.
- Process Transfer and Optimization:
  - Partner with CROs, tech transfer to CMO and GMP scale-up of chemistry to enable timely delivery of target compounds.
  - Understanding of correlations between compound structure, properties, and ADME and ability to optimize multiple parameters.
- Biological Evaluation and Drug Development:
  - Proactively seek input from computational chemistry and structural biology to collaboratively work through iterative design processes to generate novel design ideas.
  - Analyze data sets and develop SAR using in-house and commercial in silico tools and communicate results in formal and informal settings.
- Scientific Responsibility and Documentation:
  - Maintain high scientific standards and maintained the experimental records. Summarize results in well-written reports and oral presentations.
  - Work as part of multidisciplinary teams from early discovery to the delivery of drug candidates.
- Technical Skills:
  - Proficient in computer-assisted design (Pymol), chemical simulation, confocal microscopy, NMR, HPLC, LCMS, GC-MS, IR, UV, DSC, TGA, XRPD, biochemical, biophysical, and cellular assays.
  - Experienced with software tools like MS-Office, Star Drop, Excel, and search engines (SciFinder, Scopus, Reaxys).