

Stanford University
ALOK RANJAN, Ph.D.

Research Scientist | Medicinal Chemistry | Drug Discovery

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PROFESSIONAL SUMMARY

Senior Research Scientist with 10+ years of experience advancing small-molecule drug discovery, medicinal chemistry, process-oriented route development, and targeted delivery programs. Expertise in the design, multi-step synthesis, purification, characterization, and optimization of therapeutic compounds, including PKC modulators, KDM5 inhibitors, orexin receptor agonists, ADC-related chemistry, and Charge-Altering Releasable Transporter (CART)/LNP delivery systems. Strong background in SAR, computational molecular design, structure-guided and property-based optimization, ADME/DMPK profiling, scale-up, tech transfer, and data-driven compound prioritization. Experienced in collaborating with chemistry, biology, pharmacology, DMPK, CRO, and CMO teams to accelerate hit-to-lead and lead optimization programs and deliver high-quality drug candidates.

CORE COMPETENCIES

Medicinal Chemistry | Small-Molecule Drug Discovery | Process Chemistry | Organic & Multi-Step Synthesis | Route Design & Optimization | SAR & Lead Optimization | Computational Molecular Design / CADD | Structure-Based Design | ADME/DMPK Optimization | Targeted Drug Delivery | ADC Linker/Payload Chemistry | Scale-Up & Tech Transfer | Analytical Characterization | CRO/CMO Collaboration

PROFESSIONAL EXPERIENCE

Department of Chemistry, Stanford University, CA

04/2024 - Present

Research Scientist, Medicinal Chemistry | PKC Modulators & Targeted RNA Delivery

- Advance function-oriented synthesis programs focused on bryostatin 1 and benzolactam/oxazolidinone-based PKC modulators for neurodegenerative disease, HIV latency reversal, immunomodulation, and targeted disease-agnostic delivery.
- Design, synthesize, purify, and characterize new PKC modulator analogs; integrate biochemical, cellular, and structure-guided data to drive SAR and isoform-biased optimization.
- Support CART/LNP-based mRNA and circRNA delivery platforms through compound design, formulation support, and biological evaluation.
- Prepare scientific reports, research presentations, and proposal materials; collaborate across chemistry, biology, virology, delivery, and assay teams.

Kyntra Bio (formerly Fibrogen Inc.), San Francisco, CA

04/2023 - 03/2024

Research Scientist, Medicinal Chemistry | Small-Molecule Inhibitors of Epigenetic Targets for Oncology

- Designed and synthesized small-molecule inhibitors targeting KDM5 histone demethylases and supported ADC-related oncology chemistry programs.
- Applied structure- and property-based design, SAR analysis, ADME/DMPK data, and pharmacology insights to prioritize compounds for optimization.
- Contributed to hit identification, hit-to-lead prioritization, and lead optimization decisions in close collaboration with biology, pharmacology, and DMPK teams.

Department of Chemistry, Stanford University, CA

09/2018 - 03/2023

Postdoctoral Fellow, Organic Chemistry | Bryostatin 1 Analogs and PKC Modulators

- Designed and synthesized structurally diverse bryostatin 1 analogs and PKC modulators using function-oriented synthesis, complex macrocycle chemistry, and multi-step route optimization.
- Supported biological evaluation of PKC modulators for HIV latency reversal, immunomodulation, and drug delivery applications through close collaboration with biology teams.
- Developed and optimized synthetic routes, purification strategies, compound characterization workflows, and data interpretation for discovery-stage programs.

UT Southwestern Medical Center, Dallas, TX

02/2016 - 08/2018

Postdoctoral Fellow, Organic Chemistry | Orexin Receptor Agonists

- Designed and synthesized heterocyclic orexin receptor agonists as therapeutic leads for narcolepsy and neurological disorders.

- Solved route-design and synthetic chemistry challenges for arene- and pyridine-fused imidazole-2-imine scaffolds in collaboration with pharmacology teams.

EDUCATION

Indian Institute of Technology Kanpur, India

08/2011 - 02/2016

Ph.D., Organic Chemistry / Natural Product Synthesis

- Thesis: Enantioselective total syntheses of marine toxins, Oxazinins, Flinderoles, and one-pot multicomponent synthesis of heterocyclic scaffolds.
- Fellowship: Council of Scientific and Industrial Research Junior Research Fellowship (CSIR-JRF).

ACADEMIC ACHIEVEMENTS

- NET-SRF, Council of Scientific and Industrial Research, India, Dec 2011.
- NET-JRF, University Grants Commission, India, June 2009.
- Qualified GATE 2009 in Chemistry, Jan 2009.
- NET-JRF, Council of Scientific and Industrial Research, India, Dec 2008.

PUBLICATIONS

1. T. D. Zaikos, V. Pham, T. C. Chou, J. A. Morán, S. R. Turner, B. H. Yu, R. Hourani, **A. Ranjan**, J. A. Zack, P. A. Wender, M. D. Marsden*, "PKC Inhibitors Reveal PKC Isoforms Involved in HIV Latency Reversal and Immunomodulation," *J. Virol.* **2026**, e0050026.
2. N. S. Maggirwar, J. A. Morán, W. Mu, T. D. Zaikos, T. Chou, S. R. Turner, B. H. Yu, **A. Ranjan**, R. Hourani, P. A. Wender, A. Zhen, M. D. Marsden, "Leveraging HIV-Specific CAR T Cells and Rapamycin Treatment in Kick-and-Kill HIV Cure Approaches," *bioRxiv* **2026**, 2026.01.15.699756.
3. 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," *J. Am. Chem. Soc.* **2024**, *146*, 14785-14798.
4. M. Dimapasoc, J. A. Morán, 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**, *9*, 108-137.
5. 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," *Bioorg. Med. Chem. Lett.* **2024**, *99*, 129624.
6. Z. Li, L. Amaya, S. K. Wang, **A. Ranjan**, R. M. Waymouth, H. Y. Chang, P. A. Wender*, "Charge-Altering Releasable Transporters with a Distinct Polymeric Backbone Enhance mRNA Delivery in Vitro and in Vivo," *Nat. Commun.* **2023**, *14*, 8983.
7. J. A. Morán, **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.
8. 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," *J. Sleep Res.* **2023**, e13839.
9. 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*, 15925-15937.
10. **A. Ranjan**, A. Deore, S. G. Yerande, D. H. Dethe*, "Thiol-yne Coupling of Propargylamine under Solvent-Free Conditions via Through-Bond Anion Relay Chemistry: An Efficient Synthesis of Thiazolidin-2-Ylideneamine," *Eur. J. Org. Chem.* **2017**, 4130-4139.
11. **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. Commun.* **2015**, *51*, 14215-14218.
12. **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.
13. **A. Ranjan**, R. Yerande, P. B. Wakchaure, S. G. Yerande*, D. H. Dethe*, "Base-Mediated Hydroamination of Propargylamine: A Regioselective Intramolecular 5-exo-dig Cycloisomerization en Route to Imidazole-2-Thione," *Org. Lett.* **2014**, *16*, 5788-5791.
14. **A. Ranjan**, D. H. Dethe*, "Enantioselective Total Syntheses and Determination of Absolute Configuration of Marine Toxins, Oxazinins," *RSC Advances* **2013**, *3*, 23692-23703.

15. R. D. Erande, **A. Ranjan**, D. H. Dethe*, "Biomimetic Total Syntheses of Borreverine and Flinderole Alkaloids," *J. Org. Chem.* **2013**, 78, 10106-10120.
16. **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.
17. R. D. Erande, **A. Ranjan**, D. H. Dethe*, "Biomimetic Total Syntheses of Flinderole B and C," *J. Am. Chem. Soc.* **2011**, 133, 2864-2867.

PATENT

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

SELECTED SEMINARS AND SYMPOSIA

- Attended Drew University's 36th Annual Residential School on Medicinal Chemistry and Biology in Drug Discovery, June 11-16, 2023; Stanford Drug Discovery Symposium, April 28-29, 2025.
- A. Ranjan, P. A. Wender*, 34th William S. Johnson Symposium, Department of Chemistry, Stanford University, Oct 11, 2019.
- A. Ranjan, J. DeBrabander*, Excellence in Chemistry Symposium, Department of Biochemistry, UT Southwestern Medical Center, May 3, 2016.

TECHNICAL SKILLS & EXPERTISE

Total Synthesis & Design: Route design, multi-step organic synthesis, natural product synthesis, macrocycles, heterocycles, polymers, purification, medicinal/process chemistry.

Drug Discovery: SAR, hit-to-lead, lead optimization, structure-guided design, CADD, ADME/DMPK optimization, biological evaluation, data-driven prioritization.

Delivery Platforms: CART/LNP formulation, mRNA and circRNA delivery, nanoparticle delivery systems, cell-penetrating peptides, cationic lipids, dendrimers.

Analytical & Assays: NMR, HPLC, LCMS, GC-MS, IR, UV, DSC, XRPD, DLS, confocal microscopy, biochemical, biophysical, and cellular assays.

Software & Databases: PyMOL, Maestro, StarDrop, Spotfire, SciFinder, Scopus, Reaxys, ChemDraw, GraphPad Prism, Microsoft Office.

SELECTED RESEARCH AREAS

Natural Product Synthesis & PKC Modulators: Function-oriented synthesis, benzolactam/oxazolidinone analog design, isoform-biased PKC optimization, HIV latency reversal, immunomodulation, and neurodegenerative disease applications, CAR-T therapy.

Epigenetic Oncology: Design and synthesis of KDM5 histone demethylase inhibitors using SAR, property-based optimization, and ADME/DMPK-driven compound prioritization.

Orexin Receptor Agonists: Heterocyclic scaffold design and synthesis for narcolepsy and neurological disease programs in collaboration with pharmacology teams.

Targeted RNA Delivery: CART/LNP-enabled mRNA and circRNA delivery, formulation support, nanoparticle delivery concepts, and integration with biological evaluation.