

RAUFUL ALAM, PhD

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PhD organic chemist with eight years of small-molecule drug discovery experience across industry and academia, including core contributions to **PTC518** (votoplam), now in Phase III trials for Huntington's disease. Proven delivery across the full discovery cycle—hit identification, lead optimization, and preclinical development—supported by four patent families, 13 peer-reviewed publications (7 as lead author), and a practical command of pharmacokinetic-pharmacodynamic (PK-PD) relationships that drive design decisions. Currently pairing hands-on medicinal chemistry with AI-driven tools (Boltz-2, Chemistry42, DrugCLIP) for virtual screening and candidate triage. An effective collaborator across biology, DMPK, pharmacology, and IP teams.

WORK EXPERIENCE

Staff Scientist, [CCBT](#), University of Chicago

Sep 2025—

- Lead medicinal chemistry efforts across multiple therapeutic targets, including oncology programs, from hit identification through lead optimization.
- Leverage computational and AI-driven tools, including Boltz-2, DrugCLIP, RowanSci, and Chemistry42, for virtual screening, hit identification, binding-affinity prediction, candidate and metabolite evaluation, and assessment of key drug-like properties, including permeability and toxicity.
- Analyze, interpret, and communicate experimental data to guide lead-compound selection and support scientific publications, grant and patent applications, and R&D decision-making.

Principal Scientist, PTC Therapeutics (New Jersey)

Sep 2023-May 2024

- Designed and synthesized a diverse range of small-molecule RNA splicing modulators for multiple targets, and developed several novel chemical core components to establish a strong IP space.
- Managed a team of CRO chemists, prepared work proposals, and monitored progress while providing synthetic suggestions.
- Collaborated closely with Biology, DMPK, and Pharmacology teams to discuss and provide intellectual input on suitable biomarkers, surrogate models, and PK-PD relationships to drive projects forward.

Senior Scientist, PTC Therapeutics

March 2020-Aug 2023

- Supervised a team of two PhD scientists.
- Worked on two inflammatory disease targets involving NLRP3 inflammasome inhibition. Discovered a series of compounds through careful observation. Some analogs from this series are among the most potent (picomolar range) in the program.
- Conceived and initiated two distinct projects, each involving early-stage discovery efforts.
- Initiated and hosted a monthly chemistry seminar from February 2021 to August 2023.
- Led the 2022 on-campus recruitment process within a set budget, coordinating with over 20 top universities; scheduled interviews, assigned tasks to colleagues, and onboarded five PhD scientists to the team.
- Managed a team of CRO chemists, maintaining a high level of productivity.
- Awarded **RNA** (Recognition for Novel Achievement) for proactive patent and prior-art searching.

Scientist-II, PTC Therapeutics

April 2018-Feb 2020

- Contributed to the synthetic route design and optimization for **PTC518** (votoplam; Phase III trial ongoing).
- Discovered a novel series of compounds with retained nM-range activity and desired P_{app} and MDCK ER properties for the Huntington's disease (HD) program. Received the **RNA** (Recognition for Novel Achievement) certificate for this discovery. Presented the findings through an oral and poster presentation at the PTC Science Forum (a three-day program).
- Supervised a team of CRO chemists.

SKILLS

- **Leadership and Project Management:** Proven ability to lead and manage projects in a dynamic, cross-functional environment with a fast-paced workflow. Experience in managing teams at Contract Research Organizations (CROs).
- **Organic/Analytical Chemistry and Synthesis:** Expertise in multistep synthesis, transition-metal- and organo-catalyzed asymmetric synthesis, photoredox catalysis, and API synthesis. Proficient in working

within a modern organic chemistry laboratory environment, utilizing a diverse array of analytical technologies (NMR, HPLC, GC-MS, SFC, FT-IR, etc.) while maintaining a high level of safety awareness.

- **Technical Proficiency: Proficient in** ChemDraw, D360 (Dotmatics), ELN, DataWarrior, Microsoft Office, ACD/Spectrus, TopSpin, Mnova, GraphPad Prism, BioRender, Boltz-2 for large-scale virtual screening, Schrödinger Maestro for molecular docking, RowanSci, EndNote, and BIOVIA Insight. **Experienced in** scientific writing, manuscript review, and grant proposal development, with **working knowledge of** patent filing processes and FDA regulatory guidelines.

• PROFESSIONAL COURSES/TRAINING

- “Pharmacokinetics for Chemists in Drug Discovery and Development” offered by ACS (American Chemical Society).
- “Introduction to molecular modeling in drug discovery” offered by Schrödinger.
- Attended the Drew University medicinal chemistry course (a one-week professional course).
- Attended the 19th “Drug Discovery Chemistry” conference, April 1-4, 2024.

ACADEMIC RESEARCH

Postdoctoral Research (UPenn, Philadelphia)

Sep 2016-March 2018

Advisor: Prof. Gary A. Molander

- Conceived and developed multiple novel synthetic methods to construct C_{SP^2} - C_{SP^3} and C-N bonds under photoredox catalysis. Drafted all associated manuscripts.
- Worked routinely at UPenn HTE (High-Throughput Experimentation) center for screening conditions.
- Presented ideas on a quarterly basis to support the grant application.

PhD in Organic Chemistry (Stockholm University, Sweden)

Jan 2012-March 2016

Advisor: Prof. Kálmán J. Szabó (www.organ.su.se/ks)

PhD Examiner: Prof. Varinder K. Aggarwal (Bristol University, UK)

- Developed several novel catalytic stereoselective allylboration methods, enabling the construction of multiple stereocenters in a single step. These strategies are important for forging asymmetric C_{SP^3} - C_{SP^3} bonds that are powerful disconnections in pharmaceutical drug discovery.
- Mentored three undergraduate students and one visiting graduate student, resulting in the publication of three research papers.
- Maintained a chiral HPLC (Waters) set-up and a glovebox (Vigor); provided training for new users.
- Awarded a prestigious postdoctoral stipend (~\$45,000/year) from the Swedish Chemical Society in recognition of the merit of my PhD research. Additionally, received seven travel grants totaling approximately \$10,000. Attended four ACS meetings and delivered oral and poster presentations.

EDUCATION

Research Assistant:

June 2011-Dec 2011

Advisor: Prof. Kálmán J. Szabó

- Reaction optimization and mechanistic study for a Pd-catalyzed allylic C-H fluorination reaction.

MS in Organic Chemistry (Stockholm University, Sweden)

Aug 2009-May 2011

Thesis Advisor: Prof. Kálmán J. Szabó

Thesis Grade: A (90-100)

MSc in Inorganic Chemistry (Chittagong University, Bangladesh)

2008

GPA: 3.73/4.0

- Achieved the highest GPA in the class

SELECTED PATENT APPLICATIONS

- WO/2019/191229 [Link](#); Highlighted in *ACS Med. Chem. Lett.*
- WO/2020/005873 [Link](#); Highlighted in *ACS Med. Chem. Lett.*
- WO/2021/207453 [Link](#); Highlighted in *ACS Med. Chem. Lett.*
- WO/2023/028536 [Link](#); Highlighted in *ACS Med. Chem. Lett.*

SELECTED PUBLICATIONS

Peer-reviewed articles: 13; Lead authorship articles: 7 (Full List: <https://rauf15.github.io/>)

4. Photoredox-catalyzed Direct Reductive Amination of Aldehydes without an External Hydrogen/Hydride Source. **Alam, R.**; Molander, G. A. *Org. Lett.*, **2018**, 20, 2680-2684. ([Link](#))
3. Catalytic Asymmetric Allylboration of Indoles and Dihydroisoquinolines with Allylboronic Acids: Stereodivergent Synthesis of up to Three Contiguous Stereocenters. **Alam, R.**; Diner, C.; Jonker, S.; Eriksson, L.; Szabó, K. J. *Angew. Chem. Int. Ed.* **2016**, 55, 14417-14421. ([Link](#))
2. Synthesis of Adjacent Quaternary Stereocenters by Catalytic Asymmetric Allylboration. **Alam, R.**; Vollgraff, T.; Eriksson, L.; Szabó, K. J. *J. Am. Chem. Soc.* **2015**, 137, 11262-11265. ([Link](#))
1. Stereoselective Intermolecular Allylic C-H Trifluoroacetoxylation of Functionalized Alkenes. **Alam, R.**; Pilarski, L. T.; Pershagen, E.; Szabó, K. J. *J. Am. Chem. Soc.*, **2012**, 134, 8778-8781. ([Link](#))

SELECTED PRESENTATIONS

- 254th ACS National Meeting and Exposition—August **2017** (Washington, USA): Oral and Poster Presentation. Presentation in *Sci-Mix* session.
- PACIFICHEM—December **2015** (Hawaii, USA): Oral and Poster Presentation.
- 248th ACS National Meeting and Exposition—August **2014** (San Francisco, USA): Oral and Poster Presentation. Presentation in *Sci-Mix* session.
- 246th ACS National Meeting and Exposition—September **2013** (Indianapolis, USA): Oral and Poster Presentation. Presentation in *Sci-Mix* session.

CAREER TRANSITION

- Took a voluntary career break (May 2024-August 2025) to address family and parenting responsibilities; maintained engagement with scientific literature and professional development.

REFERENCES

- Available upon request.