

# TANHAUL ISLAM

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## EDUCATION

- 2019–Current**                      **Ph.D. Candidate**, Department of Chemistry  
University of Missouri, Columbia, MO, USA
- 2017-2019**                            **Master of Science**, Organic Chemistry  
University of Dhaka, Bangladesh
- 2013-2017**                            **B.S. Honors**, Chemistry  
University of Dhaka, Bangladesh

## WORK EXPERIENCE

- Aug 2024–Current**                      **Research Specialist Sr.**  
RSCH Core Facilities  
MU Metabolomics Core  
University of Missouri Columbia
- Responsibilities:
- Collaborate with researchers and external clients to ensure precise and reliable data for research applications.
  - Manage sample processing, data analysis, and interpretation for a wide range of metabolomics projects.
  - Perform targeted and non-targeted metabolite analysis of plant samples using advanced instrumentation, including UHPLC-qTOF-MS, UHPLC-QQQ-MS, and GC-qTOF-MS.
  - Conduct small molecule analysis with UHPLC-MS for accurate mass detection and separation.
  - Operate and maintain additional core facility instrumentation, including ICP-MS for metal detection and quantification.
- Jan 2020-Jul 2024**                      **Graduate Research Assistant**  
Advisor: Dr. Kent S. Gates  
University of Missouri, Columbia, MO
- Responsibilities:
- Developed research projects on capping abasic sites with different drug like compounds.
  - Screened and developed endogenous base excision repair (BER) enzyme inhibitors.
  - Studied formation of endogenous DNA interstrand crosslinks arising from Abasic sites.
  - Performed enzymatic reactions on DNA abasic sites and interstrand crosslinks towards understanding of DNA repair.
  - Labeled oligonucleotides with radioisotope and fluorescent dyes to visualize and quantify reaction products.
  - Purified and analyzed oligonucleotides with PAGE.
  - Analysed oligonucleotide reaction products with MALDI-TOF-MS, RP-HPLC, UHPLC-qTOF-MS.

**Jan 2022-Jul 2024      Radiation Safety and Compliance Manager**

Dr. Kent S. Gates' Research Lab  
Department of Chemistry  
University of Missouri, Columbia, MO

- Responsibilities:
- Oversee the safe handling and management of P-32 radionuclide in the laboratory, ensuring compliance with federal Nuclear Regulatory Commission regulations.
  - Efficiently manage both liquid and solid radioactive waste within the lab, ensuring proper disposal through coordination with the Environmental Health and Safety (EHS) office.
  - Maintain comprehensive survey reports on radiation safety measures and protocols to ensure up-to-date compliance records with the relevant regulatory authorities (NRC and EHS).

**Aug 2019-Jul 2024      Graduate Teaching Assistant**

Department of Chemistry  
University of Missouri, Columbia, MO

- Responsibilities:
- Led discussion and lab sections for undergraduate courses, oversaw students' performance of lab experiments, graded papers, and provided support for additional education requirements during office hours.

**Aug 2017- Jan 2019      Research Assistant**

Advisor: Dr. Mohammad Shoeb  
Department of Chemistry,  
University of Dhaka, Dhaka, Bangladesh

- Responsibilities:
- Extracted fatty acids from fish samples and analysed fatty acid content using GC-FID.
  - Analysed heavy metal content in fish samples using AAS.

**Jan 2016- Aug 2017      Research Assistant, Undergrad Project**

Advisor: Dr. Nilufar Nahar  
Department of Chemistry,  
University of Dhaka, Dhaka, Bangladesh

- Responsibilities:
- Developed method to detect artificial colour added to watermelon for consumer's safety.
  - Extracted natural colouring pigment in watermelon and analysed using NMR.

**PUBLICATIONS**

**2024      Tanhaul Islam**, Saosan Bintah Md Amin, and Kent S. Gates\*, "The intercalator ethidium bromide generates covalent adducts at apurinic/apyrimidinic sites in DNA" (Chemical Research in Toxicology, Manuscript id-tx-2024-00378s).

**2024      Tanhaul Islam**, Garam Shim, Doug Melton, Calvin D. Lewis, Zhentian Lei, and Kent S. Gates\*, "Ultrafast Reaction of the Drug Hydralazine with Apurinic/Apyrimidinic Sites in DNA Gives Rise to a

Stable Triazolo[3,4-a]phthalazine Adduct” (Chemical Research in Toxicology, 2024, 37(6), 1023–1034.)

- 2024** Anuoluwapo Gomina, **Tanhaul Islam**, Garam Shim, Zhentian Lei, and Kent S. Gates\*, “Formation and Properties of DNA Adducts Generated by Reactions of Abasic Sites with 1,2-Aminothiols Including Cysteamine, Cysteine Methyl Ester, and Peptides Containing N-Terminal Cysteine Residues” (Chemical Research in Toxicology, 2024, 37(2), 395–406)
- 2022** Saosan Binth Md Amin, **Tanhaul Islam**, Nathan E. Price, Amanda Wallace, Xu Guo, Anuoluwapo Gomina, Marjan Heidari, Kevin M. Johnson, Calvin D. Lewis, Zhiyu Yang, & Kent S. Gates\*, “Effects of Local Sequence, Reaction Conditions, and Various Additives on the Formation and Stability of Interstrand Cross-Links Derived from the Reaction of an Abasic Site with an Adenine Residue in Duplex DNA” (ACS omega, 2022, Volume 7, 36888–36901).
- 2021** Kurt Housh, Jay S. Jha, Tuhin Haldar, Saosan Binth Md Amin, **Tanhaul Islam**, Amanda Wallace, Anuoluwapo Gomina, Xu Guo, Christopher Nel, Jesse W. Wyatt, Kent S. Gates\*, “Formation and repair of unavoidable, endogenous interstrand cross-links in cellular DNA” (DNA Repair, 2021, Volume 98, 103029).
- 2020** **Tanhaul Islam**, Mohammad Shoeb\*, Md Nazrul Islam, Rafiza Islam, Md Mizanur Rhaman, Nilufar Nahar, “Proximate analysis and nutrient content estimation of marine fish species of saint martin’s island in Bangladesh” (Journal of Bangladesh Academy of Sciences, 2020, Volume 44, 191-195)

## **CONFERENCE PRESENTATIONS**

- 2023** **Tanhaul Islam**, Kent S. Gates\*, “Formation of covalent Ethidium-DNA complexes at an Abasic site in DNA”. Poster presented at the TOXI poster session of **ACS Fall National Meeting & Exposition**, San Francisco, August 15, 2023. *This poster was selected for the presentation on **SCI-MIX** session on August 14, 2023, at the conference.*
- 2022** **Tanhaul Islam**, Calvin D. Lewis, Douglas Melton, Kent S. Gates\*, “Repurposing the antihypertensive drug hydralazine as an inhibitor of AP endonuclease 1”. Poster presented at the TOXI poster session of **ACS Fall National Meeting & Exposition**, Chicago, August 23, 2022. *This poster was selected for the presentation on **SCI-MIX** session on August 22, 2022, at the conference.*
- 2022** **Tanhaul Islam**, Calvin D. Lewis, Douglas Melton, Kent S. Gates\*, “Repurposing the antihypertensive drug hydralazine as an inhibitor of AP endonuclease 1”. 1min rapid talk on **ACS Fall National Meeting & Exposition**, Chicago, August 22, 2022.
- 2022** **Tanhaul Islam**, Calvin D. Lewis, Douglas Melton, Kent S. Gates\*, “Interstrand DNA cross-links generated by an Endo III-derived base excision repair intermediate”. Poster presented at the TOXI poster session of **ACS Fall National Meeting & Exposition**, Chicago, August 23, 2022.
- 2018** **Tanhaul Islam**, Ahasan Habib Khandakar, Md. Kamrul Hasan, Mohammad Shoeb, Nilufar Nahar\*, “Development of easy, quick, cheap, method to analyse red dyes in watermelon for consumer’s safety”. Poster presented at the **Bangladesh Chemical Congress Meeting**, Dhaka, October 19, 2018.

## PROFESSIONAL SKILLS

### **Analytical and Metabolomics Techniques**

- Targeted and non-targeted metabolite analysis of plant samples using UHPLC-qTOF-MS, UHPLC-QQQ-MS, and GC-qTOF-MS.
- Small molecule analysis with UHPLC-MS for mass detection and separation.
- Operation and maintenance of ICP-MS for metal detection and quantification.

### **Molecular Biology and Biochemical Techniques**

- Oligonucleotide radiolabeling and fluorescent labeling for biochemical assays.
- Expertise in procedures involving DNA modification, enzymatic reactions, and DNA-protein interactions.
- Denaturing and Native PAGE analysis of oligonucleotides
- Chromatographic separation of oligonucleotides using RP-HPLC.
- MALDI-TOF-MS and UHPLC-qTOF-MS for oligonucleotide mass spectrometry and analysis

## LEADERSHIP ROLES

- 2022-Current** President, *Missouri State Chapter*, Bangladesh Chemical and Biochemical Association in North America (BACABANA).
- 2022-23** Executive board member, *Central Committee*, Bangladesh Chemical and Biochemical Association in North America (BACABANA).
- 2022-23** Secretary, Bangladesh Student Association, University of Missouri-Columbia.
- 2021-22** Secretary, Chemistry Graduate Student Organization, University of Missouri-Columbia.
- 2022-Current** Member, American Chemical Society
- 2019-Jul 2024** Training and supervision of first-year graduate, undergraduate, and summer internship students with their research in Gates' Lab.

## AWARDS

- Spring 2024** Outstanding Graduate Achievement Award, Department of Chemistry, University of Missouri-Columbia.
- Fall 2023** Outstanding Poster Presentation Award, Division of Chemical Toxicology, *ACS National Meeting & Exposition*, San Francisco.
- Fall 2023** Travel Award, Division of Chemical Toxicology (NIH R13 Grant: 1R13ES035636-01), *ACS National Meeting & Exposition*, San Francisco.
- Spring 2021** Arneson Memorial Scholarship, Department of Chemistry, University of Missouri, Columbia.