

# MD SHAMIM

Lawrenceville, United States, 30043  
(404)5429711, mdshamim4200@gmail.com

<https://scholar.google.com/citations?user=l6F34rEAAAAJ&hl=en>  
<https://www.linkedin.com/in/mdshamim1>

**No visa sponsorship is required.**

## PROFESSIONAL SUMMARY

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Self-motivated, creative, and innovative organic synthetic & medicinal chemist with experience in drug discovery, formulation development, and quality control. Proven ability to lead cross-functional teams and deliver high-quality results on time. Seeking an opportunity to impact patient lives through pharmaceutical innovation.

## SKILLS

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### Research

- Skilled in designing, modifying, synthesizing, and purifying novel small medicinal compounds for *in vivo* fluorescence imaging.
- Efficient in planning, designing, and carrying out analytical activities individually with collection, analysis, and characterization of data.
- Experienced in managing research laboratory according to good laboratory practice (GLP), environment health and safety (EHS), collaborating among cross functional team, and mentoring team members.

### Instruments (selected)

- NMR, HPLC, LC-MS, IC, GC-FID/TCD/ECD, UV, Fluorometer, FT-IR, AAS, TOC Analyzer, Viscometer, Particle Size Analyzer, Polarimeter, Refractometer

### Computer

- Microsoft office (Word, Excel, PowerPoint, Outlook)
- ERP software (SAP), Chromeleon, Empower, Marvin and JChem calculator software, ChemDraw, SPARTAN

### Others

- Competent to work under strict cGMP and cGLP environment
- Critical thinker, problem solver, team player, good listener, detailed-oriented
- Able to lead a team with specific responsibility

## WORK HISTORY

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### Aug 2018 – Present

#### Graduate Research Assistant (GRA), Organic Synthesis & Medicinal Chemistry, Georgia State University

- Performed rational design, modification, synthesis, and purification of organic dye/ fluorophores use as contrast agents in fluorescence imaging (NIR I & II).
- Routinely performed different moisture and air sensitive reactions including Heck Coupling, Suzuki Coupling, Stork Enamine, Michael addition, Robinson Annulation, Fischer Indole Synthesis, Vilsmeier-Haack etc. reactions are significant.
- Investigated bio-distribution and tissue specific imaging through structure inherent tumor targeting (SITT) of the synthesized fluorophores in collaboration with Harvard Medical School.
- Calculated optical properties of the synthesized fluorophores (Stokes shift, quantum yield, Extinction Coefficient, Absorption and Emission Maxima, pKa value)
- Applied Density Functional Theory (DFT) of compute QSAR properties of the synthesized fluorophores
- Trained several graduate and undergraduate students last four years or so on both soft (data interpretation, Characterization, DFT calculation, physicochemical calculation) and hard skills (synthesis, purification & instrumental use).

### Sep 2013 – Aug 2018.

#### Executive, R&D and QC Department, Square Pharmaceuticals Limited, Bangladesh

- Prepare Protocols, SOP, EOP and ECP according to regulatory guideline and conduct training to all QC members.
- Design and perform analyst validation and handling out of specification (OOS), out of trend (OOT), root cause analysis, and corrective action and preventive action (CAPA).
- Lead a team of seven members in,

- conducting daily, monthly, and yearly calibrations on all QC instruments with proper documentation according to protocol.
- performing routine analysis on purified and ETP water, conducting trend analysis on TOC, pH and conductance of purified water collected from forty-seven different points.
- Preparing Working Standard with proper documentation and manage inventory of Chemical reference substance (CRS), retention samples, HPLC, GC column, instrument spare parts, reagents, and solvents with documentation according to regulatory guideline.
- Design, Setup, and initiate operations for new Quality Control Laboratory in Square Formulations Ltd.
  - By facilitating IQ, OQ & DQ with managing associated documents and perform Performance Qualification (PQ) for the newly installed instruments (HPLC, GC, AAS, TOC Analyzer, Karl Fischer Potentiometer, Particle Size Analyzer, UV, Dissolution Tester, Friability Tester, Polarimeter, Refractometer, Weighing Balance etc.)
  - By validating phase I, II & III and determining LOD and LOQ value of purified water
  - By supporting production department during formulation by performing test for blended samples, granular samples, and prefinished products
- Method Development and Validation (MD&V)
  - Assay, Dissolution and Related substance method validation for finished goods according to ICH and WHO guidelines.
  - Analytical method development and testing method preparation for newly launched finished goods and API.
  - Writing protocols, specifications of finished products and transfer method from R&D to QC.

## EDUCATION

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- PhD (Organic Synthesis & Medicinal Chemistry), Georgia State University (GSU) **Aug 2018 – Present**. CGPA 3.75/4.00
- Master of Science (Organic Chemistry), University of Dhaka, Dhaka, Bangladesh. **Nov 2011 – March 2013**. CGPA 3.52/4.00
- Bachelor of Science (Major in Chemistry with Physics and Mathematics minor), University of Dhaka, Dhaka, Bangladesh. **Jan 2007 - May 2011**.

## PUBLICATIONS AND RESEARCH WORK PRESENTATION

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### Publications

#### ***Advanced Materials***

Dec 2021

- Kang, H.; Shamim, M.; Yin, X.; Adluru, E.; Fukuda, T.; Yokomizo, S.; Chang, H.; Park, S. H.; Cui, Y.; Moy, A. J.; Kashiwagi, S.; Henary, M.; Choi, H. S., Tumor-Associated Immune-Cell-Mediated Tumor-Targeting Mechanism with NIR-II Fluorescence Imaging. *Advanced Materials* **2022**, 34 (8), 2106500.

#### ***Journal of Heterocyclic Chemistry***

April 2020

- ER Buabeng, M Shamim, M Henary; Bicyclic Systems with Two Bridgehead (Ring Junction) Nitrogen Atoms., *Journal of Comprehensive Heterocyclic Chemistry*, IV, 311-388.

### Poster Presentation

41<sup>st</sup> Annual Biological Stain Commission Conference 2022

Aug 2022

- Md Shamim, Hak Soo Choi, Maged Henary. (**2022**). Modification of Cyanine Scaffolds through Heck Coupling Reaction.

## OTHER RELEVANT INFORMATION

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- Outstanding Poster Award with \$750 travel grant in Chemistry Graduate Student Association (CGSA) Symposium 2023, GSU
- Awards of 2023 David W. Boykin Graduate Fellowship worth \$5000 in Medicinal Chemistry by the Department of Chemistry, GSU
- Event Co-Ordinator of Chemistry Graduate Student Association (CGSA) (May 2022-Present)
- State Organizer of Bangladesh Chemical and Biochemical Association in North America (BACABANA) GA Chapter (Jan 2021-Present)
- Treasurer of Bangladeshi Student Association (BSA) at Georgia State University (2019-2020)

**\*\*References will be available upon request.**