

Kartik Bomb

Chemical and Biomolecular Engineering,
University of Delaware
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EDUCATION

Ph.D. Candidate in Chemical Engineering, Collins Fellow Fall 2018 – Present
University of Delaware, Newark, DE
Cumulative GPA: 3.76 / 4.00

B.Tech in Chemical Engineering, Gold Medalist Fall 2014 – Summer 2018
Vellore Institute of Technology, Vellore, India
Cumulative GPA: 9.52 / 10.00

RESEARCH EXPERIENCE

Graduate Research Assistant Spring 2019 – Present
University of Delaware, Department of Chemical and Biomolecular Engineering
Advisors: Dr. Catherine A. Fromen and Dr. April M. Kloxin
Development of an *in vitro* synthetic hydrogel model of idiopathic pulmonary fibrosis to study the interaction of immune cells.

Undergraduate Research Assistant Winter 2017 – Summer 2018
Indian Institute of Technology, Department of Chemical Engineering
Advisor: Dr. Rajdip Bandyopadhyaya
Development of a Poly(lactic-co-glycolic) Acid-based nanoparticle system to deliver chemotherapeutic drugs for the treatment of breast cancer.

Undergraduate Research Assistant Summer 2017
Institute of Chemical Technology, Department of Chemical Engineering
Advisor: Dr. Virendra K. Rathod
Continuous preparation of nimesulide nanoparticles by liquid antisolvent precipitation using a spinning disc reactor.

RESEARCH SKILLS

Material synthesis and characterization

End group modification of commercial polymers, solid-phase peptide synthesis, rheometry, dynamic mechanical analysis, ¹H NMR, reverse phase HPLC, mass spectroscopy (LC-MS), dynamic light scattering (DLS), UV-Vis spectroscopy

Cell culture

Mammalian cell culture, viability/metabolic activity assays, flow cytometry, immunostaining, confocal microscopy, enzymatic assays (ELISA)

Software

Minitab, ImageJ, MATLAB

PUBLICATIONS

- **K. Bomb***, R.S Prabhuraj*, R. Srivastava, and R. Bandyopadhyaya. “Selection of superior targeting ligands using PEGylated PLGA nanoparticles for delivery of curcumin in the treatment of triple negative breast cancer cells” Journal of Drug Delivery Science and Technology, 2020. DOI: 10.1016/j.jddst.2020.101722 *co-first authors
- R.S Prabhuraj, **K. Bomb**, R. Srivastava, and R. Bandyopadhyaya. “Dual drug delivery of curcumin and niclosamide using PLGA nanoparticles for improved therapeutic effect on breast cancer cells.” Journal of Polymer Research, 2020. DOI: 10.1007/s10965-020-02092-7

PROFESSIONAL EXPERIENCE

National Fertilizers Limited

Engineering Intern

Supervisor: S. K. Saha

Studied the process of ammonia production and worked with on-site engineers in day-to-day operations for desulphurization of the hydrocarbon feed.

Vijaypur, India

Dec. 2016 – Jan 2017

HONORS AND AWARDS

- **Collins Fellowship**, University of Delaware, 2019
- Awarded **Gold Medal** for securing department Rank 1 at the 33rd Annual Convocation at Vellore institute of Technology, 2018
- **Achievers Award**, Vellore Institute of Technology, 2018
- **Donald F.& Mildred Topp Othmer Scholarship Award AIChE**, 2017
- **Special Achievers Award**, Vellore Institute of Technology, 2017 and 2018
- **Academic Excellence Award**, Vellore Institute of Technology, 2015, 2016 and 2017

LEADERSHIP EXPERIENCE

Vellore Institute of Technology

President, AIChE Student Chapter

2016 – 2017

- Previous positions: Core committee member (2014-2016)
- Work with the department to organize various academic and professional events.
- Maintain relations with the AIChE global office and AIChE Sister Chapter university.

Program Representative, Chemical Engineering Department

2014 – 2018

- Represent the department in the student council.
- Provide updates and voice out the concerns of the department to the university.
- Organize University Day, an annual event to celebrate students' achievements.

VOLUNTEER EXPERIENCE

Vellore Institute of Technology

- **Youth Red Cross Society**
- **Advisory Council**, AIChE Student Chapter

2016 – 2017

2017 – 2018