BIOGRAPHICAL SKETCH

Name: Nivedita Shetty

Position Title: Ph.D. Candidate

Institute: Department of Industrial & Physical Pharmacy, College of Pharmacy, Purdue University

Email: shetty8@purdue.edu

Personal Statement: I graduated with a bachelor's degree in pharmacy from Bombay College of Pharmacy in India in 2013. I then joined the master's program at Northeastern University in Boston and worked as a graduate research assistant with Dr. Vladimir Torchilin in the "Center for Pharmaceutical Biotechnology and Nanomedicine". During my masters I had the unique opportunity to work as an intern in the formulation team at Acetylon Pharmaceuticals and in the PK/PD department at Takeda Pharmaceuticals. After graduating from Northeastern in 2015, I joined Purdue University for my PhD in Pharmaceutical Sciences. I am currently a third-year graduate student in the department of Industrial and Physical Pharmacy working with Dr. Tony Zhou in the area of pharmaceutical manufacturing and particle engineering.

My current research focuses on combating the respiratory infections caused by multidrug resistant 'super bugs'. I have developed a novel combination powder formulation of colistin and ciprofloxacin with combined benefits of high aerosol efficiency, synergistic antibacterial activity and moisture protection.

CV

Professional Experience

Graduate Research Assistant, **Purdue University**, West Lafayette, IN August 2015 – present
Particle Engineering Lab

- Designed novel formulations for pulmonary drug delivery using spray drying technique
- Characterized solid state property of spray dried formulations
- Evaluated *in-vitro* dispersion property of spray dried powders for inhalation

Summer Intern, **Genentech Ltd**, South San Francisco, CA May 2018– July 2018
Pharmaceutical Processing and Technology Department

- Worked on developing room temperature stable lyophilized formulations
- Prepared protein formulations using tangential flow filteration
- Characterized solid state property of lyophilized formulations using DSC, karl fischer and BET

Trainee Intern, **TAKEDA Pharmaceuticals**, Boston, MA January 2015 – March 2015
PK/PD Department

- Gained hands-on training on MATLAB for PK/PD compartmental analysis

Summer Intern, **ACETYLON Pharmaceuticals**, Boston, MA May 2014 – July 2014
Formulation Department

- Performed standard HPLC assays for drug product
- Documented pre-formulation and formulation studies
- Conducted drug-container compatibility studies

Graduate Research Assistant, **Northeastern University**, Boston, M January 2014 – May 2015

- Formulated liposomes by extrusion
- Carried out cell culture experiments, cytotoxicity studies, BCA assays
- Trained in animal handling – oral gavage technique in mice

Education

- Doctor of Philosophy in Pharmaceutics, **Purdue University**, West Lafayette, IN 2019
- Masters in Pharmaceuticals, **Northeastern University**, Boston, MA 2015
- Bachelor's in pharmacy, **Bombay College of Pharmacy**, Mumbai, India 2013

Skills

- Professional experience in documentation and literature survey.
- Instruments handled: HPLC, XRPD, SEM, DSC, FTIR, Raman spectrometer, AFM, Multi-stage liquid impinger (MSLI) and Next generation impactor (NGI).

Research Publications

- **Shetty, N.;** Zeng, L.; Mangal, S.; Nie, H.; Rowles, M. R.; Guo, R.; Han, Y.; Park, J. H.; Zhou, Q. T. Effects of Moisture-Induced Crystallization on the Aerosol Performance of Spray Dried Amorphous Ciprofloxacin Powder Formulations. ***Pharm Res*** 2018, *35*, (1), 7.
- **Shetty, N.;** Park, H.; Zemlyanov, D.; Mangal, S.; Bhujbal. S.; Zhou, Q. T. Influence of excipients on physical and aerosolization stability of spray dried high-dose powder formulations for inhalation. ***International Journal of Pharmaceutics.*** Accepted April 16th 2018. https://doi.org/10.1016/j.ijpharm.2018.04.034

Conference Presentations

- **Shetty, N.,** Zeng, L., Mangal, S., Nie, H., Rowles, M., Guo, R., Han, Y., Park, J. Y., Zhou, Q. Effect of moisture-induced recrystallization on the aerosol performance of inhalable spray dried amorphous ciprofloxacin particles. 7th March, 2017. The Fourteenth Annual Garnet E. Peck Symposium. West Lafayette, USA.
- **Shetty, N.,** Zeng, L., Mangal, S., Nie, H., Rowles, M., Guo, R., Han, Y., Park, J. Y., Zhou, Q. Challenges Of maintaining stability of spray dried ciprofloxacin for use in dry powder inhalation (DPI) and its impact on aerosol performance.15TH June, 2017. 49th Annual Pharmaceutics Graduate Student Research Meeting. Michigan, USA (**Oral Presentation).**

- **Shetty, N.,** Zeng, L., Mangal, S., Nie, H., Rowles, M., Guo, R., Han, Y., Park, J. Y., Zhou, Q. Impact of Recrystallization of Ciprofloxacin Amorphous Particles on Aerosol Performance. 12th November, 2017. AAPS Annual Meeting and Exposition. San Diego. USA
- **Shetty, N.,** Zeng, L., Mangal, S., Nie, H., Rowles, M., Guo, R., Han, Y., Park, J. Y., Zhou, Q. Critical Impact of Crystallization on Aerosol Performance of Amorphous Spray Dried Ciprofloxacin. October, 2017. Center for Pharmaceutical Processing Research. West Lafayette, USA
- **Shetty, N.,** Ahn, P., Mangal, S., Zemlyanov,D., Cavallaro, A., Zhou, Q. Stable aerosol formulation of spray dried ciprofloxacin with colistin for treating resistant respiratory infections. March 2018. The Fifteenth Annual Garnet E. Peck Symposium. West Lafayette, USA.
- **Shetty, N.,** Zemlyanov,D., Nie, H., Zhou, Q. DPI Formulations of Ciprofloxacin: Role of Excipients in Enhancing Stability and Aerosol Performance. March 2018. The Fifteenth Annual Garnet E. Peck Symposium. West Lafayette, USA.
- **Shetty, N.,** Zemlyanov,D., Nie, H., Zhou, Q. Spray Dried Amorphous Dry Powder Inhaler Formulations: Role of Excipients on Physical Stability and Aerosol Performance. April 2018. Respiratory Drug Delivery, Arizona, USA.

Achievements and Awards

- Recipient of **Graduate School Summer Research Grant**, May 2016 at Purdue University.
- **Second Place Winner** for 3 Minute Thesis competition at Peck Symposium, 2018
- **Top finalist** in Purdue University Student Soybean Product Innovation Competition and received a **provisional patent** (62/476/077) for the innovative product.
- **Top finalist** in the **3 Minute Thesis Competition,** April 2017 at Purdue University.

Leadership and Professional Service

- **Nominated** to serve on the College of Pharmacy Graduate Student Council, Purdue University, 2018-2019.
- **Programming Chair** for American Association of Pharmaceutical Scientist Purdue Student Chapter.
- **Chair of Career Development** for American Association of Pharmaceutical Scientist Northeastern University Student Chapter.
- **Director of Public Relations** for Graduate Women in Science and Engineering Northeastern University Student Chapter.

Teaching Experience

- Teaching assistant for Dosage Form I August 2015 - December 2015
- Teaching assistant for Pharmaceutical Science Orientation August 2017 – December 2017