Aditi Deshpande, PhD

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SUMMARY

- Drug development experience in immunology, oncology, nephrology and neurodegenerative therapeutic areas across various stages of development in start-ups, large biotech companies and venture incubators
- Experience leading early-stage programs and teams across varied biologic modalities: monoclonal and bispecific antibodies, recombinant proteins, enzymes, therapeutic vaccines (protein, mRNA and DNA)
- Deep understanding of successful transition of programs from discovery to Phase 1 including IND submissions and response to regulatory questions
- Lead Inventor on a patent for an engineered enzyme which is in Phase II clinical development (ALLN-346)
- Due diligence experience for potential partnership opportunities and to inform investment decisions
- Demonstrated ability to work effectively in cross-functional teams and communicate scientific data to key internal and external stakeholders including board meetings, investors and potential partners
- Passion for developing a deep understanding of unmet disease areas and to contribute to emerging external innovation effort and partnership opportunities across therapeutic areas

WORK EXPERIENCE

Morningside Portfolio Companies (Morningside Biopharma Advisory) (Concord, MA) Jun 2021 – Present

ClearB Therapeutics, Director, Research & Early development

- Spearhead multiple discovery/preclinical programs for development of novel DNA, mRNA and engineered bionanoparticles therapeutic vaccines for chronic Hepatitis B
- Design and manage animal studies at contract research organizations (CROs) to establish proof-of-concept
- Collaborate with founding scientists and vendors for generation of key experimental data
- Partner with cross-functional team members for determination of corporate and business development strategy for potential partnership opportunities

Epsila Bio, Director, Research & Early development

- Scientific Program Leader for an early-stage novel immunotherapy program for advanced ovarian cancer
- Maintain excellent working relationship with founding scientists while driving aggressive program timelines
- Serve as a pharmacology subject matter expert and contribute to IND enabling studies
- File provisional patents and support patent prosecution in collaboration with patent attorneys
- Participate and contribute to advisory board meetings through interaction with key opinion leaders (KOLs)
- Lead assessments of disease pathogenesis, unmet medical needs to guide selection of follow-on indications

Orthogonal Neuroscience, Director, Research & Early development

- Serve as a pharmacology subject matter expert and contribute to IND enabling studies for an antibody based therapy for neurodegenerative indications
- Lead development of bioanalytical assays at CROs for clinical sample analysis
- Communicate broadly on behalf of the program with cross-functional team and board members

Visterra, an Otsuka company (Waltham, MA) Jun 2020 – May 2021

Principal Scientist, Research

- Lead project-based teams for discovery and early development of novel antibody therapeutics from conception through pre-clinical stage in the immunology and nephrology space
- Apply structural insights to improve function and developability of antibodies using protein engineering
- Design and manage animal studies at contract research organizations (CROs)
- Provide medical and basic science insight to guide selection of follow-on indications

Allena Pharmaceuticals (Newton, MA) Aug 2016 – May 2020

Sr. Scientist/ Scientist Early-stage discovery and Pre-clinical Research

- Scientific lead for IND submission of an oral engineered enzyme ALLN-346, involved in authoring IND modules, developing responses to regulatory agency questions, IND approved without clinical hold.
- Lead identification of new targets and indications in the rare disease and nephrology space for expansion of company's pipeline
- Evaluate business-development opportunities by working in close partnership with research, clinical, business development and regulatory colleagues with a primary focus on the scientific and technical merit to advance opportunities for further diligence
- Lead cross-functional diligence teams to deliver distilled viewpoints, to identify key outstanding questions and to articulate rational next steps towards partnership opportunities
- Develop competitive intelligence for pipeline programs to support executives and managers in strategic decision making for the organization

Brandeis University (Waltham, MA) Jul 2010 – Jul 2016

Doctoral student and Graduate Assistant

- Established methods for expression, purification and characterization of novel metalloenzymes
- Established the connection between protein structure, function and metal identity, using a combination of mechanistic enzymology tools, mass spectroscopy and protein structural methods
- Solved three-dimensional protein structures of novel metalloenzyme implicated in cancer using X-ray crystallography and solution NMR methods
- Served as an instructor and mentor to undergraduate students for National Science Foundation (NSF)-funded Research Experiences for Undergraduates (REU) Fellowship Program
- Performed in-silico screening studies using Schrodinger suite to identify small molecule stabilizers of α-Synuclein to identify novel therapies for Parkinson's disease and tested these molecules in vitro using a suite of biochemical/biophysical methods

Amgen Inc. (Seattle, WA) Nov 2006 – May 2010

Sr. Associate Scientist/ Associate Scientist, Drug Product and Device Development

- Drug product team lead for early-stage program to support drug product development and IND submission
- Technical lead for Phase II program to support technology transfer, site selection, process design and validation strategy for commercialization of drug product
- Involved in process characterization studies in preparation of Phase III drug product process
- Designed and optimized unit operations including ultrafiltration/diafiltration (UF/DF), protein freeze-thaw, formulation, sterile filtration, mixing, filling and inspection
- Supported technology transfer, provided floor support and resolved non-conformances for clinical manufacturing
- Authored process transfer documentation, technical reports, batch records, drug product CMC section of regulatory filings and regulatory response to questions
- Involved in set-up of a new lab at Amgen Seattle that included testing and qualification of instruments, development of equipment operating procedures and staff training

Altus Pharmaceuticals Inc. (Cambridge, MA) Nov 2005 – Oct 2006

Process Development Engineer, Pharmaceutics Division

- Developed purification process for scale-up of protein crystallization for oral and suspension drug delivery formulations
- Designed and executed bench and pilot scale experiments to develop UF/DF and microfiltration processes
- Recommended process and formulation fill- finish equipment and assisted in troubleshooting of formulation development

EDUCATION

Brandeis University
Doctor of Philosophy, Biochemistry & Biophysics

University of Delaware
Master of Science, Chemical Engineering

University Institute of Chemical Technology
Bachelor of Science, Chemical Engineering

HONORS AND AWARDS

- AAAS/Science Program for Excellence in Science (2016)
- Brandeis Provost Dissertation Support Award (2015-2016)
- Brandeis Travel and Research Grant for three consecutive years (2014, 2015 & 2016)
- Gronich Family Endowed Fellowship and the Rose Simon Endowed Fellowship (2011-2013)
- Amgen Acclaim Award for contribution to commercial formulation development activities and development of UF/DF process for a novel formulation (2008)
- Amgen Acclaim Award for successfully leading a team to develop drug product particle testing strategy for Phase I formulations to mitigate risks due to particles (2009)
- Amgen Applause Award for completion of 'new technology development projects' (2009)
- Prof. R.A. Rajadhyaksha Award for innovative undergraduate research for the year 2000-2001

PUBLICATIONS

- Pierzynowska, K., Deshpande, A., Mosiichuk, N., Terkeltaub, R., Szczurek, P., Salido, E., Pierzynowski, S., Grujic, D. Front Med (2020) Nov 24;7:569215.
- X Liu, A Garber, J Ryan, A Deshpande, D Ringe, TC Pochapsky, Biochemistry (2020), 59 (44), 4238-4249
- Deshpande, A. (2017), Science, 358, (6366), 1098
- Deshpande, A, Pochapsky, T, Ringe, D. (2017), *Chem. Rev.*, 117 (15), 10474–10501
- Deshpande, A, Pochapsky, T, Petsko, G, Ringe, D. (2017), *Protein Eng Des Sel.* 30 (3), 197-204
- Deshpande, A, Wagenpfeil, K, Pochapsky, T, Petsko, G, Ringe, D. (2016), *Biochemistry* 55 (9), 1398–1407
- Friedman E, Wang H, Perovic I, Deshpande A, Pochapsky T, Temple B, Hicks S, Harden T, Jones A. (2011), *J Biol Chem* 286, 30107–30118

PATENTS

- Deshpande, A.R., Grujic, D., Effort, A., Margolin, A., Recombinant Uricase Enzyme**,** U.S. Provisional Patent Application No. 62/529,726)

CONFERENCE PRESENTATIONS

- ASBMB Annual Meeting, Chicago, IL (Apr 2017) – Poster
- AAAS Annual Meeting, Boston, MA (Feb 2017) – Poster
- Gordon Research Conference 'Metallocofactors', Easton, MA (Jun 2015) – Poster
- Gordon Research Seminar 'Biocatalysis', University of New England, ME (Jul 2016) – Invited talk
- Gordon Research Conference 'Metallocofactors', Easton, MA (Jun 2015) – Poster
- European Molecular Biology Organisation (EMBO) Conference, Oulu, Finland (Jun 2016) – Poster
- Gordon Research Seminar 'Bioinorganic Chemistry', Ventura, CA (Feb 2015) – Invited talk
- Gordon Research Conference 'Metals in Biology', Ventura, CA (Jan 2015) – Poster
- IBC Life Sciences Conference, Carlsbad, CA (March 2010) – Poster