BIOGRAPHICAL SKETCH

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NAME: Avinash Devidas Londhe

eRA COMMONS USER NAME (credential, e.g., agency login): ALONDHE

POSITION TITLE: PhD student

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Start Date MM/YYYY	Completion Date MM/YYYY	FIELD OF STUDY
University of Pune	B.Sc.	07/2005	05/2008	Microbiology
National Institute of Virology, University of Pune,	M.Sc.	08/2008	06/2010	Virology
Autonomous University of Madrid	M.Sc	09/2014	09/2015	Molecular Biomedicine
SUNY Polytechnic Institute	Ph.D.	08/2016	06/2024	Nanobioscience

A. Personal Statement

During my undergraduate and graduate studies, I developed a deep interest in understanding the molecular mechanisms that underly pathologies such as cancer, diabetes and cardiac hypertrophy. My scientific journey started as an undergrad in Microbiology which led me to pursue a Masters in Virology. During my Masters degree at the University of Pune, I purified and characterized the helicase activity of the Chikungunya virus. I then had the chance to work on the role of interferon regulatory factors in dendritic cell development at the National Institute of Immunology, and on a clinical trial using vitamin D to increase the immune response at the Translational Health Science and Technology Institute in India. During this formative period, I learned several methods that prepared me for my Ph.D., and I gained a profound and lasting impression on the importance of doing research that translates into treatments for patients. In my search for an environment to learn protein biochemistry and cell signaling involved in diseases, I briefly worked in a lab at the CNIC in Spain on myocarditis before joining Dr. Boivin's lab at SUNY POLY to work on the emerging field of redox signaling in cardiac diseases and cancer. My graduate research in Dr. Boivin's lab focuses on understanding how protein tyrosine phosphatase (PTPs) become oxidized in cells and whether we can find ways to re-activate PTPs that become highly oxidized and inactivated in diseases. Dr. Boivin is an accomplished protein biochemist that has developed techniques that have moved the redox field forward and I have learned a lot from his scientific insight and technical expertise. Together, we formulated various hypotheses on ways to test whether PTPs can be reactivated in cells. These studies allowed us to identify 14-3-3ζ as a novel interacting partner of PTP1B, and to demonstrate that this novel interaction was essential to stabilize the "off" form of PTP1B. We recently published our work in *Nature Chemical Biology*. I am also writing two follow-up manuscripts with Dr. Boivin and working on a final follow-up research project in which we identify a mechanism of enzymatic oxidation transfer on PTPs. This project will involve a large amount of RNA work, since we will be looking at mRNA transcripts downstream from NRF2, the master regulator of antioxidants involved in K-Ras^{G12D} and B-Raf^{V619E} driven cancers. Obtaining the RNA fellowship would be a fantastic opportunity to learn state-of-the-art RNA techniques and knowledge that will directly benefit my Ph.D. project and support me in my journey towards scientific independence.

B. Positions and Honors

2008 M.Sc. Scholarship in Virology from the Government of India
07/2010-09/2010 Research Assistant, King George Medical College, Lucknow, UP, India.
11/2010-04/2013 Junior Research Fellow, National Institute of Immunology, New Delhi, India.

B. Positions and Honors (Ctd)

04/2013-08/2014	Senior Research Fellow, the Translational Health Science and Technology Institute, Faridabad, UP, India.
09/2014-09/2015	M.Sc. Scholarship from the Autonomous University of Madrid/CNIC
08/2019	Member of the Society for Free Radical Biology and Medicine
10/2019	GSEU Travel Award
02/2020	John J. Sullivan Professional Development Award

C. Contributions to Science

1) **Master Dissertation**; "Characterization of helicase activity of Chikungunya virus", under Dr. Kavita S Lole. While pursuing a Master of Science in Virology (2008-2010), at the National Institute of Virology, Pune, India. I cloned, purified the protein and performed biochemical studies to understand Chikungunya virus pathogenesis.
1- Poster: Londhe A, Karpe Y & Lole K (2010) Characterization of Helicase activity of Chikungunya Virus. NIV Annual Colloquium, National Institute of Virology, Pune India.

2) **Research Assistant** at King George Medical College, Lucknow UP, India (07/2010-09/2010). During a brief tenure at KGMC, I initiated to set up a Regional Virus Diagnostic Center at Dept. of Microbiology, that is currently playing a critical role in testing and analyzing COVID-19 pandemic in Northern India.

3) **Junior Research Fellow** at the National Institute of Immunology, in Dr. Prafulla Tailor's laboratory of Innate Immunity and Inflammation, New Delhi, India (11/2010-03/2013). At NII, I worked on the "Role of Interferon regulatory factors (IRFs) in Dendritic cell development and Differentiation". During my tenure, I worked on purifying IRF8 to study crystal structure and cloning different genes in mammalian expression vector with IRFs to understand their role in dendritic cell's development.
1- Publication: Khandokar, Y.B., Londhe, A.D., Patil, S. & Forwood, J.K. (2013) Expression, purification and crystallization of acetyl-CoA hydrolase from Neisseria meningitides. (2013) Acta Cryst. F69.
2- Poster: Londhe A, Kaushik M, Tailor P (2012), X-ray crystallization of Interferon Regulatory Factor 8. Annual NII Poster Symposium, New Delhi.

4) **Senior Research Fellow** at Translational Health Science and Technology Institute (THSTI), Faridabad, India, in Dr. U. C. M. Natchu's Pediatric Biology Center (05/2013-08/2014). At THSTI, I participated in "Vitamin D supplementation to improve immune responses to vaccines administered in early infancy-The Nutrivac-D trial". I have performed blood analysis using flow cytometry.

5) **Master Dissertation**; "Role of Aryl Hydrocarbon Receptor (Ahr) in Experimental Autoimmune Myocarditis (EAM)" (09/2014-06/2015). While pursuing Master's in molecular Biomedicine at Autonomous University of Madrid, I worked in Dr. Pilar Martin's Laboratory at National Center for Cardiovascular Research (CNIC). I developed and characterized Ahr deficient mice and I administered intraperitoneal injections of myosin heavy chain to study the development of myocarditis.

6) **Graduate Researcher** in Dr. Boivin's Lab at SUNY Polytechnic Institute, Albany, NY. "Characterization of regulators of PTP1B oxidation in cells" (08/2016-ongoing). I have been performing research, analuzing data, presenting data and writing manuscripts relating to the regulation of PTPs by reversible oxidation. I presented my work at multiple platforms including SfRBM-2019, Las Vegas, ANTS 2016 and NanoSymposium, 2019 at SUNY POLY. I was also awarded a GSGA travel award and a John J Sullivan Professional Development award.
1- Publication: Londhe, A.D., Bergeron, A., Curley, S., Zhang, F., Kannan, A., Rivera, K.D., Coulis, G., Kim, S.J., Pappin, D.J. Tonks, N.K., Lindhart, R.J., Boivin, B. (2020) Regulation of PTP1B Activation Through Disruption of Redox-Complex Formation. Nat. Chem. Biol. 16(2):122-125
2- Poster: Londhe AD, Bergeron A, Rizvi SHM, Rivera K, Kim SJ, Pappin DJ, Tonks NK, Linhardt RJ, Boivin B. Characterization of PTP1B activation by small molecules. SfRBM-2019 Las Vegas, Nevada.
3- Poster: Londhe AD, Bergeron A, Rizvi SHM, Rivera K, Kim SJ, Pappin DJ, Tonks NK, Boivin B. Characterization of PTP1B-OX interactome. SUNY POLY Annual Symposium 2019.
4- Poster: Londhe AD, Bergeron A, Eisenbraun E, Sramek K, Bergkvist M, Tonks NK, Boivin B, Molecular characterization of PTP1B with scFv45, a conformation sensor nanobody. ANTS-2016. SUNY POLY, 2016.

D. Scholastic Performance

YEAR	SCIENCE COURSE TITLE	GRADE	YEAR	SCIENCE COURSE TITLE	GRADE
	Undergraduate Level Courses				
2005	Chemistry Theory Paper I	B	2007	Microbiology Theory Paper I	A+
2005	Chemistry Theory Paper II	A+	2007	Microbiology Theory Paper II	A
2005	BotanyTheory Paper I	A	2007	Microbiology Theory Paper III	A+
2005	Botany Theory Paper II	A+	2007	Microbiology Theory Paper IV	A+
2005	Microbiology Theory Paper I	A	2007	Microbiology Theory Paper V	A+
2005	Microbiology Theory Paper II	A+	2007	Microbiology Theory Paper VI	A+
2005	MARATHI	A+	2008	Microbiology Theory Paper I	A
2006	Chemistry Theory Paper I	A	2008	Microbiology Theory Paper II	A
2006	Chemistry Theory Paper II	A+	2008	Microbiology Theory Paper III	A+
2006	Chemistry Practical	A+	2008	Microbiology Theory Paper IV	A+
2006	BotanyTheory Paper I	A+	2008	Microbiology Theory Paper V	A+
2006	Botany Theory Paper II	A+	2008	Microbiology Theory Paper VI	A+
2006	Botany Practical	A+	2008	Microbiology Practical Paper I	A+
2006	Microbiology Theory Paper I	A	2008	Microbiology Practical Paper II	A+
2006	Microbiology Theory Paper II	A+	2008	Microbiology Practical Paper III	A+
2006	Microbiology Practical	A+			
2006	Environmental Sciences	A			

YEAR	SCIENCE COURSE TITLE	GRADE	YEAR	SCIENCE COURSE TITLE	GRADE
	Postgraduate Level Courses				
2008	Basic Virology	B	2009	Applied Entomology	A
2008	Tissue Culture and cell biology	D	2009	Epidemiological Data Management and Analysis	O
2008	Basic Immunology	D	2009	Medical Entomology	B
2008	Basic Epidemiology and Biostatistics	C	2009	Biochemical/ Biophysical Methods	B
2008	Vector Biology	B	2009	Serological Methods	D
2008	Virological Methods	C	2009	Enteric Viral Diseases Cancers linked to Viruses	A
2008	Tissue Culture Techniques	A	2009	Respiratory diseases of Viral aetiology	O
2008	Propagation of Viruses	A	2009	Exanthematous disease of viral aetiology	A
2008	Statistical Methods	C	2009	Viral Heamorrhagic fevers	O
2008	Entomological Methods	B	2009	HIV/AIDS	A
2008	Analytical Methods	C	2009	Viral diseases of Veterinary and Agricultural importance	A
2008	Virus/Antigen Methods	B	2009	Viral Encephalitis	A
2009	Gene regulation and DNA based technology	B	2009	Viral hepatitis	B
2009	Virus Replication	A	2009	Enteric Viruses	O
2009	Antivirals and Vaccines	A			
2009	Bioinformatics	B	2009	Viruses Associated with Respiratory Diseases	B
2009	Molecular Techniques	C	2009	Viruses associated with Exanthematous Diseases	A

YEAR	SCIENCE COURSE TITLE	GRADE	YEAR	SCIENCE COURSE TITLE	GRADE
2009	Immunological Techniques	A	2009	Viruses Associated with Hemorrhagic fevers	B
2009	Practical Bioinformatics	A	2009	Laboratory of HIV/AIDS	A
2009	Virus cell Interaction	B	2009	Viruses Assocaited with Encephalitis	C
2009	Advanced Immunology	B	2009	Viruses Associated with Hepatitis	B
2009	Applied Epidemiology	D	2009	M.Sc. Dissertaion	B

YEAR	SCIENCE COURSE TITLE	GRADE	YEAR	SCIENCE COURSE TITLE	GRADE
	Postgraduate Level Courses				A
2016	NanoF1: Principles of NanoBiol	A-	2017	NanoF4:NanoSurfaces/Interfaces	C+
2016	Interfacial Prop Nanosyst	A-	2017	NanoF4:Plymr/Amphorph Nnmterls	B
2016	NanoF4:Intro NEMS/MEMS	B-	2017	Biomedical Nanotechnology	A
2016	Cellular Signal & NanoBio Appl	B+	2017	Finance &Valuation Nano Based Firms	B
2017	NanoF3:Optical/Phototonic Prop	C+			