

EDUCATION	<b>Princeton University, USA</b> 2012-17 Ph.D., Chemical and Biological Engineering Thesis: Quantitative biology of developmental Ras signaling Advisors: Stanislav Y. Shvartsman and Gertrud M. Schüpbach
	<b>Indian Institute of Technology (IIT) Gandhinagar, India</b> 2008-12 B.Tech. (Honors), Chemical Engineering
RESEARCH EXPERIENCE	<b>Postdoctoral Researcher</b> , Arjun Raj, University of Pennsylvania, USA 2017- Developing computational and experimental single-cell platforms to study the plasticity and reprogramming paradigms in cancer.
	<b>Research Intern</b> , Genentech, USA 2016 Assisted in identifying novel regulatory mechanisms underlying the epigenetic control of tumorigenesis in cancer cells.
	<b>Research Intern</b> , Washington University in St. Louis, USA 2010 Developed a data-driven regression model to predict the metabolic yield for various microbial species.
	<b>Research Intern</b> , IIT Bombay, India 2009 Performed experiments and quality control tests to produce biodiesel from different feedstocks.
FELLOWSHIPS & AWARDS	<b>Post-PhD</b>
	Jane Coffin Childs Memorial Fund Fellowship [\$163,500 stipend] 2019-
	Schmidt Science Fellowship, with the Rhodes Trust [\$100,000 stipend] 2018-19
	<b>PhD</b>
	Sir Gordon Wu Fellowship: Highest honor for an incoming engineering graduate student, Princeton University [\$20,000 supplement] 2012-16
	William R. Schowalter Travel Fund, Princeton University [\$500/travel] 2015, 2017
	Peoples Choice Award, Art of Science, Princeton University 2014
	<b>Undergraduate</b>
	Institute Gold Medal: First rank, Chemical Engineering, IIT Gandhinagar 2012
	Outstanding Research Award: Class of 2012, IIT Gandhinagar 2012
Award for Undergraduate Publications, IIT Gandhinagar [₹50,000] 2012	
Scholarship for Academic Excellence, IIT Gandhinagar [₹20,000] 2011-12	
International Travel Grant, DST, Government of India [₹1,00,000] 2011	
Merit-cum-Means Scholarship, IIT Gandhinagar [Full tuition+stipend] 2010-11	
Travel Grant, McDonnell International Scholars Academy [\$1,500] 2010	
MAGEEP Fellowship, Washington University in St. Louis [\$5,000] 2010	
JOURNAL PUBLICATIONS	Total: 17; first/co-first author: 10 [* = equal contribution; # = corresponding author]  *Jindal G.A., *Goyal Y., Humphreys J.M., Yeung E., Tian K., Patterson V.L., He H., Burdine R.D., Goldsmith E.J., Shvartsman S.Y., "How activating mutations affect MEK1 regulation and function", <u>Journal of Biological Chemistry</u> , 2017.

Cuellar T. L., Herzner A-M., Zhang X., **Goyal Y.**, Watanabe C., et. al., “Silencing of retrotransposons by SETDB1 inhibits the interferon response in acute myeloid leukemia”, Journal of Cell Biology, 2017.

*Previewed by:* Robbez M.L., Tie H.C., and Rowe H.M., Journal of Cell Biology, 2017.

**\*Goyal Y.**, \*Levario T.J., Mattingly H.H., Holmes S., Shvartsman S.Y., and Lu H., “Parallel imaging of *Drosophila* embryos for quantitative analysis of genetic perturbations of the Ras pathway” Disease Models & Mechanisms, 2017.

*Highlighted by:* [The Node](#).

\*Rogers W.A., **\*Goyal Y.**, Yamaya K., Shvartsman S.Y., and Levine M.S., “Uncoupling neurogenic gene networks in the *Drosophila* embryo”, Genes & Development, 2017.

*Previewed by:* Crews S., Genes & Development, 2017.

**\*Goyal Y.**, \*Jindal G.A., Pelliccia J.L., Yamaya K., Yeung E., Futran A.S., Burdine R.D., Schüpbach T., and Shvartsman S.Y., “Divergent effects of intrinsically active MEK variants on developmental Ras signaling”, Nature Genetics, 2017.

*Highlighted by:* [F1000Prime](#).

*Media coverage:* [MedicalXpress](#), [EurekAlert](#), [Technology Org](#), [Medical News](#).

\*Jindal G.A., **\*Goyal Y.**, Yamaya K., Futran A.S., Kountouridis J., Schüpbach T., Burdine R.D., and Shvartsman S.Y., “In vivo severity ranking of Ras pathway mutations associated with developmental disorders”, PNAS, 2017.

\*Johnson H.E., **\*Goyal Y.**, Pannucci N., Schüpbach T., Shvartsman S.Y., and Toettcher J.E., “The spatiotemporal limits of developmental Erk signaling”, Developmental Cell, 2017.

*Awarded:* [Best of 2017, Developmental Cell](#).

*Journal cover:* [January 23, 2017 issue](#).

*Previewed by:* Shilo B. and Barkai N., Developmental Cell, 2017.

*Highlighted by:* [F1000Prime](#).

\*Jindal G.A., **\*Goyal Y.**, Burdine R.D., Rauen K.A., and Shvartsman S.Y., “Rasopathies: unraveling mechanisms with animal models”, Disease Models & Mechanisms, 2015.

Jenni S., **Goyal Y.**, Grotthuss M.V., Shvartsman S.Y., and Klein D.E., “Structural basis of neurohormone perception by the receptor tyrosine kinase torso”, Molecular Cell, 2015.

**Goyal Y.**, Kumar M., and Gayen K., “Metabolic engineering for enhanced hydrogen production: a review”, Canadian Journal of Microbiology, 2013.

Kumar M., **Goyal Y.**, Sarkar A., and Gayen K., “Comparative economic assessment of ABE fermentation based on cellulosic and non-cellulosic feedstocks”, Applied Energy, 2012

\*Colletti P. F., **\*Goyal Y.**, Varman A. M., Feng X., Wu B., and Tang Y.J., “Evaluating factors that influence microbial synthesis yields by linear regression with numerical and ordinal variables”, Biotechnology and Bioengineering, 2011.

*Highlighted by:* [Two year metabolic engineering issue](#), Biotechnology and Bioengineering.

Sahu M., Wu B., Zhu L., Jacobson C., Wang W., Jones K., **Goyal Y.**, Tang Y.J., Biswas P., “Role of dopant concentration, crystal phase, and particle size on microbial inactivation of Cu-doped TiO<sub>2</sub> nanoparticles”, Nanotechnology, 2011.

FORTHCOMING PUBLICATIONS	Paul S., Yang L., Mattingly H.H., <b>Goyal Y.</b> , Shvartsman S.Y., Veraksa A., “Activation-induced substrate engagement in Erk signaling”. ( <u>in revision</u> )	
	<b>Goyal Y.</b> , Schüpbach T., Shvartsman S.Y., “A quantitative model of developmental RTK signaling”. ( <u>in review</u> )	
	Zhu L., # <b>Goyal Y.</b> , “Art and science through the ages”. ( <u>in preparation</u> )	
	Syal S., <b>Goyal Y.</b> , et. al., “Critical requirement of BMP signaling during embryonic primordial germ cell (PGC) specification”. ( <u>in preparation</u> )	
TALKS	Institute of Bioengineering, EPFL, Switzerland	2018
	Developmental Biology, Stanford University, USA	2017
	Chemical Engineering, Indian Institute of Science Bangalore, India	2017
	Mathematical Institute, University of Oxford, UK	2017
	Molecular Biosciences, Imperial College London, UK	2017
	AIChE Annual Meeting, USA	2016
	Discovery Oncology, Genentech, USA	2016
	Molecular Biology, Genentech, USA	2016
	Biophysics, UT Southwestern Medical Centre, USA	2016
	Developmental Colloquium, Princeton University, USA	2016
	Graduate Student Symposium, Princeton University, USA	2015
	Chemical Engineering, IIT Gandhinagar, India	2013
	64 <sup>th</sup> Annual IChE meeting, India	2011
POSTER PRESENTATIONS	Bioengineering Day <sup>‡</sup> , Princeton University, USA	2015
	4 <sup>th</sup> International RASopathies Symposium, USA	2015
	56 <sup>th</sup> Annual <i>Drosophila</i> Research Conference, USA	2015
	111 <sup>th</sup> American Society for Microbiology General Meeting, USA	2011
	[ <sup>‡</sup> best poster award]	
MENTORING	<b>Graduate students</b>	
	Lea Schuh, Mathematics, Technische Universität München	2018
	Shannon Keenan, Chemical Engineering, Princeton University	2016-17
	Eyan Yeung, Molecular Biology, Princeton University	2016-17
	<b>Undergraduate students</b>	
	Kaijia Tian <sup>†</sup> , Chemical Engineering, Princeton University	2016-17
	Kei Yamaya, Molecular Biology, Princeton University	2015-17
	Natalia Chen, Electrical Engineering, Princeton University	2015
	An Chu, Chemistry, Princeton University	2014-15
	Nalin Ratnayeke, Physics and Biology, UT Austin	2014
	[ <sup>†</sup> best thesis award]	
TEACHING EXPERIENCE	<b>Teaching Assistant</b> , Princeton University, USA	
	MAT/MAE 305: Mathematics in Engineering-I Instructor: Yannis G. Kevrekidis	2014
	<b>Teaching Assistant</b> , IIT Gandhinagar, India	
	CL 207: Chemical Process Calculations Instructor: S.L. Narayanamurthy	2009

	MA 102: Linear Algebra Instructor: Devidas Pai	2009
	MA 104: Ordinary Differential Equations Instructor: Devidas Pai	2009
ACADEMIC SERVICE & AFFILIATIONS	Reviewer, Journal of Developmental Biology, MDPI Reviewer, Development, The company of biologists Reviewer, Biophysical Journal, Cell press Student Member, American Institute of Chemical Engineers (AIChE) Student Member, Genetic Society of America (GSA) Institute Nominee Member, American Mathematical Society (AMS)	2018- 2016- 2014- 2016-17 2015-16 2011-13
MEDIA COVERAGE	Awards and Fellowships <a href="#">Forbes</a> , <a href="#">The Times of India</a> , <a href="#">Princeton University</a> , <a href="#">University of Pennsylvania</a> Research and Academics <a href="#">Princeton University</a> <a href="#">Princeton Engineering</a> <a href="#">Amar Ujala</a> , <a href="#">Dainik Jagran</a> Art and Science <a href="#">The Wall Street Journal</a> , <a href="#">Princeton Alumni Weekly</a> , <a href="#">Princeton University</a> <a href="#">Smithsonian</a> , <a href="#">NBC</a> , <a href="#">PhysOrg</a> , <a href="#">Business Insider</a> , <a href="#">New Scientist</a> , <a href="#">Daily Mail</a> Extracurricular activities <a href="#">DNA India</a> <a href="#">Hindustan Times</a> , <a href="#">Amar Ujala</a> , <a href="#">Punjab Kesri</a> , <a href="#">Kashmir Times</a> , <a href="#">Early Times</a>	2018   2017 2015 2006  2018 2014  2009 2006
POSITIONS OF LEADERSHIP	<b>President, Association of South Asians</b> , Princeton University Revived leadership for the body of South Asian graduate students at Princeton. Duties included securing and managing funds, collaborating with university administrators, selecting association officers, and event management. <b>CBE Departmental Representative</b> , Princeton University Selected to represent CBE graduate students in the Graduate Engineering Council (GEC). GEC holds monthly meetings, plans, and executes events for the engineering population at Princeton. <b>Class Representative</b> , CBE, Princeton University Elected as the class representative to express graduate students' concerns. Activities involved periodic meetings with the Director of Graduate Studies, attending advisory council meetings, and organizing monthly social events. <b>Captain, Basketball Team</b> , IIT Gandhinagar Led the institute team in regional and national tournaments. Involved in team selection and organizing tournaments. Captained the Chemical Engineering basketball team and won three inter-department championships in a row. <b>Founder and coordinator, Green Gang</b> , IIT Gandhinagar Spearheaded activities such as education drive, cleanliness drive, and survey regarding non-conventional energy sources. Our survey was highlighted in the <a href="#">media</a> .	2013-16   2013-16  2012-13  2008-10  2009-10