

EDUCATION	Princeton University, USA 2012-17 Ph.D., Chemical and Biological Engineering Thesis: Quantitative biology of developmental Ras signaling Advisors: Stanislav Y. Shvartsman and Gertrud M. Schüpbach
	Indian Institute of Technology (IIT) Gandhinagar, India 2008-12 B.Tech. (Honors), Chemical Engineering
RESEARCH EXPERIENCE	Research Assistant , Princeton University, USA 2013-17 Developed novel quantitative frameworks to study signaling networks in the context of <i>Drosophila</i> development and human diseases.
	Research Intern , Genentech, USA 2016 Assisted in identifying novel regulatory mechanisms underlying the epigenetic control of tumorigenesis in cancer cells.
	Research Intern , Washington University in St. Louis, USA 2010 Developed a data-driven regression model to predict the metabolic yield for various microbial species.
	Research Intern , IIT Bombay, India 2009 Performed experiments and quality control tests to produce biodiesel from different feedstocks.
FELLOWSHIPS & AWARDS	Graduate 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
	Undergraduate 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: 15; first/co-first author: 10 [*equal contribution]
	*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”, <u>Journal of Cell Biology</u> , 2017.
	<i>Reviewed by:</i> Robbez M.L., Tie H.C., and Rowe H.M., <u>Journal of Cell Biology</u> , 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.

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 TiO₂ nanoparticles”, Nanotechnology, 2011.

FORTHCOMING
PUBLICATIONS

Paul S., Yang L., Mattingly H.H., **Goyal Y.**, Shvartsman S.Y., Veraksa A., “Activation-induced substrate engagement in Erk signaling”. ([in revision](#), PNAS)

Goyal Y., Schüpbach T., Shvartsman S.Y., “A quantitative model of developmental RTK signaling”. ([in preparation](#))

TALKS	Institute of Chemical Sciences and Engineering, 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 th Annual IChE meeting, India	2011
POSTER PRESENTATIONS	Bioengineering Day [‡] , Princeton University, USA	2015
	4 th International RASopathies Symposium, USA	2015
	56 th Annual <i>Drosophila</i> Research Conference, USA	2015
	111 th American Society for Microbiology General Meeting, USA	2011
	[[‡] best poster award]	
UNDERGRADUATE MENTORING	Kaijia Tian [†] , 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
	[[†] best thesis award]	
TEACHING EXPERIENCE	Teaching Assistant , Princeton University, USA	
	MAT/MAE 305: Mathematics in Engineering-I	2014
	Instructor: Yannis G. Kevrekidis	
	Teaching Assistant , IIT Gandhinagar, India	
	CL 207: Chemical Process Calculations	2009
	Instructor: S.L. Narayanamurthy	
	MA 102: Linear Algebra	2009
	Instructor: Devidas Pai	
	MA 104: Ordinary Differential Equations	2009
	Instructor: Devidas Pai	
ACADEMIC SERVICE & AFFILIATIONS	Reviewer, Biophysical Journal, Cell press	2014-present
	Reviewer, Development, The company of biologists	2016-present
	Student Member, American Institute of Chemical Engineers (AIChE)	2016-17
	Student Member, Genetic Society of America (GSA)	2015-16
	Institute Nominee Member, American Mathematical Society (AMS)	2011-13
MEDIA COVERAGE	Studies point way to precision therapies for common class of genetic disorders	2017
	Fusion of multiple disciplines on display at Bioengineering Day	2015
	Who Knew Fungi and Fruit Fly Ovaries Could Be So Beautiful?	2014
	Students to turn IIT-GN campus eco-friendly	2009
	APS wins national quiz competition	2006

POSITIONS OF
LEADERSHIP

President, Association of South Asians, Princeton University 2013-16
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.

CBE Departmental Representative, Princeton University 2013-16
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.

Class Representative, CBE, Princeton University 2012-13
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.

Captain, Basketball Team, IIT Gandhinagar 2008-10
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.

Founder and coordinator, Green Gang, IIT Gandhinagar 2009-10
Spearheaded activities such as education drive, cleanliness drive, and survey regarding non-conventional energy sources. Our survey was highlighted in the [media](#).

REFERENCES

[Stanislav Y. Shvartsman](#)

Professor of Chemical and Biological Engineering
Professor of Lewis-Sigler Institute for Integrative Genomics
Princeton University, Princeton, NJ
E-mail: stas@princeton.edu

[Gertrud M. Schüpbach](#)

Henry Fairfield Osborn Professor of Biology
Professor of Molecular Biology
Princeton University, Princeton, NJ
E-mail: schupbac@princeton.edu

[Jared E. Toettcher](#)

Assistant Professor of Molecular Biology
Princeton University, Princeton, NJ
E-mail: toettcher@princeton.edu

[Rebecca D. Burdine](#)

Associate Professor of Molecular Biology
Princeton University, Princeton, NJ
E-mail: rburdine@princeton.edu

[Daryl E. Klein](#)

Assistant Professor of Pharmacology
Yale University School of Medicine, West Haven, CT
E-mail: daryl.klein@yale.edu

[Arjun Raj](#)

Associate Professor of Bioengineering
University of Pennsylvania, Philadelphia, PA
E-mail: arjunraj@seas.upenn.edu