Anubhuti Goel, Ph.D.

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EDUCATION

2003-2008	Ph.D. in Neuroscience and Cognitive Science, University of Maryland.
2000-2002	M.S. in Biochemistry, M.S.U, India.
1997-2000	B.S. in Chemistry, Zoology and Microbiology.

RESEARCH EXPERIENCE

2014-current	Assistant Project Scientist, Department of Neurology, UCLA with Carlos Portera-Cailliau
2008-2014	Postdoctoral researcher, Department of Neurobiology, UCLA with Dean Buonomano
2002-2003	Rajiv Gandhi Science Talent Research Scholar, Jawaharlal Nehru Center for Advanced Scientific Research (JNCASR), India.
1999 (summer)	Internship, Department of Biochemistry, Indian Institute of Science (IISC), India.

COMPETITIVE FUNDING

2010-2013	NINDS T32NS58280 Neural Microcircuits Training Grant**.**

TEACHING EXPERIENCE

2003-2004	Teaching Assistant for Neurophysiology, Mammalian Physiology and Cell Biology, University of Maryland.
2016	Teaching K-12 students during Neuroscience Outreach events associated with Project Synapse.
2017	Conducting review sessions and teaching student to prepare for Los Angles/Irvine Brain Bee competition.

MENTORING

2010-2011	Ramin Morshed, Neuroscience Won an award for his research at UCLA Neuroscience Poster Day. Present Position: Medical Resident at University of Chicago.
2015-2017	Aditi Newadkar, Neuroscience Present Position: Medical student at USC.

AWARDS/SCHOLARSHIPS

2017	STAT Wunderkinds Award in Biomedical Science
2017	Dr. Arnold Scheibel Postdoctoral Award
2016	FENS Brain Prize Stipend
2011	BRI Fine Science Tools Postdoctoral Travel Award to attend 2011 SFN meeting.
2007	Awarded the College of Life Sciences Travel award
2001-2002	Jawaharlal Nehru Center for Advanced Scientific Research (JNCASR) scholarship.

PEER-REVIEWED PUBLICATIONS

Goel A, Cantu D, Guilfoyle J, Chaudhari G, Newadkar A, Todisco B, Alba D, Pedapati E, Erickson C, and Portera-Cailliau C. Impaired perceptual learning in Fragile X syndrome is mediated by parvalbumin neuron dysfunction in V1 and is reversible. ***Nature Neuroscience, 2018,*** **21**:1404–1411

He C, Arroyo E, Cantu D, **Goel A**, Portera-Cailliau C. A versatile method for viral transfection of calcium indicators in the neonatal mouse brain. *Frontiers in Neural Circuits*, 2018, July 23

He C, Cantu D, Mantri S, Zeiger W, **Goel A**, and Portera-Calliau C. Tactile defensiveness and impaired adaptation of neuronal activity in the *Fmr1* knockout mouse model of autism. *Journal of Neuroscience*, 2017, July 37(27) : 6475-6487

Goel A, Buonomano, DV. Temporal Interval Learning in Cortical Cultures is Encoded in Intrinsic Network Dynamics. *Neuron* 2016, 91(2): 320-327.

Goel A, Buonomano DV. Chronic electrical activity homeostatically decreases spontaneous activity but paradoxically increases evoked network activity. *Journal of Neurophysiology*, 2013, Apr 109(7): 1824-1836.

He K, **Goel A**, Ciarkowski CE, Song L, Lee HK. Brain area specific regulation of synaptic AMPA receptors by phosphorylation. *Commun Integr Biol*. 2011 Sep; 4(5):569-72.

Goel A, Xu LW, Snyder K, Song L, Goenaga-Vazquez Y, Megill A, Takamiya K, Huganir RL, Lee HK. Phosphorylation of AMPA receptors is required for sensory deprivation-induced homeostatic plasticity. *PLoS ONE,* 2011, 6(3): e18264.

Johnson HA, **Goel A**, Buonomano DV. Neural Dynamics of in vitro cortical networks reflects experienced temporal patterns. *Nature Neuroscience,* 2010, 13: 917-919.

Kreczko A, **Goel A**, Song L and Lee HK. Visual deprivation decreases somatic GAD65 puncta number on layer 2/3 pyramidal neurons in mouse visual cortex. *Neural Plasticity,* 2009, 415135.

Goel A and Lee HK. Persistence of experience induced homeostatic synaptic plasticity through adulthood in superficial layers of mouse visual cortex. *Journal of Neuroscience*, 2007, 27(25): 6692-6700.

Goel A*, Jiang B*, Xu LW, Song L , Kirkwood A , and Lee HK. Cross-modal regulation of synaptic AMPA receptors in primary sensory cortices by visual experience. *Nature Neuroscience*, 2006, 9 (8): 1001-1003.

Sharma VK, Lone SR, **Goel A**, Chandrashekaran MK. Circadian consequences of social organisation in the ant species Camponotus compressus. *Naturwissenschaften*, 2004, 91(8):386-90.

Sharma VK, Lone SR, **Goel A.** Clocks for sex: loss of circadian rhythms in ants after mating? *Naturwissenschaften*, 2004, 91(7):334.

Sharma VK, Lone SR, Mathew D, **Goel A**, Chandrashekaran MK. Possible evidence for shift work schedules in the Media Workers of the ant species *Camponotus compressus*. *Chronobiol Int*., 2004, Mar 21(2): 297-308.

REVIEWS

Goel A, Buonomano DV. Timing as an intrinsic property of neural networks: Evidence from *in vitro* and *in vivo* experiments. *Phil.Trans.R.Soc.B,* 369 (1637), Jan 2014.

PREVIEWS

Goel A, Portera-Cailliau C. Autism in the Balance: Elevated E-I ratio as a Homeostatic Stabilization of Synaptic Drive. *Neuron,* in press.

ABSTRACTS

Goel A, Daniel C**,** Cohen S, Newadkar A, Chaudhari G, Todisco B, Portera-Cailliau C. Impaired sensory discrimination in Fragile X Syndrome mice is mediated by abnormal interneuron dynamics. 2018 SFN Abstract Viewer/Itinerary planner (725.02/A21)

Goel A, Cantu D, Guilfoyle J, Chaudhari G, Newadkar A, Todisco B, Alba D, Pedapati E, Erickson C, and Portera-Cailliau C. Perceptual learning deficits in Fragile X Syndrome. 2018. Optogenetic approaches to understanding Neural circuits and Behavior GRC.

Goel A, Daniel C**,** Cohen S, Newadkar A, Chaudhari G, Todisco B, Portera-Cailliau C. Network level deficits in primary visual cortex underlie perceptual learning deficits in Fragile X mice. 2017 SFN Abstract Viewer/Itinerary planner

Goel A, Daniel C**,** Cohen S, Newadkar A, Chaudhari G, Todisco B, Portera-Cailliau C. Network level deficits in primary visual cortex underlie perceptual learning deficits in Fragile X mice. 2017 Excitatory Synapses and Brain Function Gordon Research Conference.

Goel A, Cohen S, Cohan K, Cantu D, Portera-Cailliau C. Role of Vasoactive Intestinal Peptide (VIP) interneurons in perceptual learning deficits of Fragile X mice. 2016 FENS Brain Conference.

Goel A, Buonomano DVB. Interval-Induced plasticity of Neural Dynamics in cortical networks *in vitro* 2013 SFN Abstract Viewer/Itinerary planner.

Goel A, Buonomano DVB. Interval learning in cortical networks *in vitro*. 2011 SFN Abstract Viewer/Itinerary planner.

Goel A, Buonomano DVB. Parallel homeostatic changes in evoked and spontaneous activity in cortical organotypic slice cultures. 2010 SFN Abstract Viewer/Itinerary planner.

Goel A, Xu L, Snyder K, Song L, Lee HK. Experience- induced homeostatic synaptic plasticity in visual cortex requires AMPA Receptor phosphorylation .2007 SFN Abstract Viewer/Itinerary planner.

Goel A, Jiang B, Xu L, Song L, Kirkwood A and Lee HK. Cross-modal regulation of synaptic AMPA receptors in primary sensory cortices by visual experience. FENS 2006.

Lee HK, Jiang B, Xu L, **Goel A,** Huganir RL, Kirkwood A. Changes in Synaptic AMPA Receptors mediate homeostatic synaptic Plasticity in the visual cortex. 2005 Abstract Viewer/ Itinerary planner. Washington, DC: Society for Neuroscience, 2005. Online.

Goel A, Lee HK. Developmental Profile of Homeostatic synaptic plasticity in the Visual Cortex by Brief periods of Visual Deprivation. 2005 Abstract Viewer/ Itinerary planner. Washington, DC: Society for Neuroscience, 2005. Online.

INVITED TALKS

2017 Dr. Arnold Scheibel Postdoctoral Lecture
Title: *Network level deficits in primary visual cortex underlie perceptual learning deficits in Fragile X mice.*

2016 Synapse to Circuits, UCLA.
Title: *Deficits in visual discrimination task in Fmr1$^{-/-}$ mice and the underlying network dynamics.*

2014 Nerd Nite, The Mint, Los Angeles.
Title: *Can brain cells grown in a petri dish learn to tell time?*

2013 ICLM Junior Scientist Lecture Series, UCLA.
Title: *Experience-dependent plasticity of Network Dynamics*

2012 Dynamics of Neural Microcircuits, UCLA.
Title: Temporal Interval learning in cortical networks.

2012 Neural Coding of the 4th Dimension: Circuits for Time and Timing, SFN Nanosymposium, New Orleans.
Title: *Interval Learning in cortical networks in vitro*

PROFESSIONAL MEMBERSHIPS

2009-2013 Member of Postdoctoral Scholars Union
2009-2011 Organizer in Postdoctoral Scholars Union
2004-2018 Member of Society For Neuroscience

COLLABORATIONS

2016 Dr. Craig A. Erickson,
Associate Professor of Psychiatry
Director, Fragile X Research and Treatment Center
Medical Director, P3SW Developmental Disabilities Inpatient Unit
Director of Research, The Kelly O'Leary Center for Autism Spectrum Disorders
Cincinnati Children's Hospital Medical Center
University of Cincinnati College of Medicine -Affiliated

- *Implementation of visual discrimination task (that I developed for mice) in Fragile X Syndrome (FXS) patients.*