

## **CONTACT INFORMATION**

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## **ACADEMIC TRAINING**

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2005-2011. Doctor of Philosophy, Department of Biological Sciences, Columbia University  
2005-2008. Master of Philosophy, Department of Biological Sciences, Columbia University  
2001-2004. Bachelor Degree (Chemistry/Biochemistry major), Department of Chemistry,  
University of Sao Paulo

## **PROFESSIONAL EXPERIENCE**

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2017-present. Assistant Professor of Behavioral Neuroscience, Department of Psychology,  
University of California, Los Angeles (UCLA).

2011-2017. Post doctoral Researcher at Stanford University with Prof. Karl Deisseroth.

2005-2010. PhD student in the Department of Biological Sciences, Columbia University, advised by  
Prof. Joshua A. Gordon and Prof. Rene Hen.

2002-2004. Undergraduate research student in the Department of Chemistry, University of Sao  
Paulo, under the supervision of Professor Etelvino J.H. Bechara.

## **AWARDS and FUNDING**

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2019-2024. R01 award, National Institute of Mental Health

2017. R00 award, National Institute of Mental Health

2016. American College of Neuropsychopharmacology (ACNP) Travel Award, ACNP, Hollywood,  
Florida.

2015. Best poster award, 5<sup>th</sup> Amygdala in Health and Diseases Gordon Research Conference, Easton,  
MA

2015-2017 K99 award, National Institute of Mental Health

2015-2017. NARSAD Young Investigator Award, Brain and Behavior Research Foundation, New York, NY

2012-2015. Walter V. and Idun Berry postdoctoral fellowship, Stanford University, Stanford, CA

2010. Thesis committee unanimously voted for PhD degree to be awarded "with distinction".

2010. Kavli graduate student travel award, Columbia University, New York, NY

2008. 2<sup>nd</sup> place on the University-wide Annual Neuroscience poster show, Columbia University, New York, NY

2004. Meeting fellowship at the XII Biennial Meeting of the Society for Free Radical Research International, Buenos Aires, Argentina.

2004. Antoine Lavoisier award for the highest grade point average among the undergraduates in the Department of Chemistry, University of Sao Paulo- Sao Paulo, Brazil.

2004-2005. Fellowship for graduate research in biological sciences, Brazilian federal government funding agency "National Council for Research and Development (CNPq)".

2003. Prof. Dr. Roberto Vicente Santelli award at the III Symposium of Undergraduate Research- Sao Paulo, Brazil.

2002-2004. Fellowship for undergraduate research in biological sciences, Brazilian "National Council for Research and Development (CNPq)"

2001. 1<sup>st</sup> place in the University of Sao Paulo undergraduate entrance examination for the Chemistry Department among 660 applicants- Sao Paulo, Brazil

## **PUBLICATIONS**

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1. Kim CK\*, Adhikari A\*, Deisseroth K. Integration of optogenetics with complementary methodologies in systems neuroscience. *Nat Rev Neurosci*. 2017;18(4):222-235

### **\*equal contributions**

2. Ye L, Allen WE, Thompson KR, Tian Q, Hsueh B, Ramakrishnan C, Wang AC, Jennings JH, **Adhikari A**, Halpern CH, Witten IB, Barth AL, Luo L, McNab JA, Deisseroth K - Wiring and Molecular Features of Prefrontal Ensembles Representing Distinct Experiences. *Cell*. 2016; 165(7):1776-88.

3. **Adhikari A\***, Lerner TN\*, Finkelstein J\*, Ferenczi E, Guanydin LA, Mirzabekov JJ, Ye L, Kim SY, Pak S, Lei A, Deisseroth K - Basomedial amygdala: deep brain target of prefrontal cortex for top-down control of anxiety and fear. *Nature*. 2015; 527(7577):179-85

### **\*equal contributions**

4. Gunaydin LA, Grosenick L, Finkelstein JC, Kauvar IV, Fenno LE, **Adhikari A**, Lammel S, Mirzabekov JJ, Airan RD, Tye KM, Anikeeva P, Malenka RC, Deisseroth K- Natural neural projection dynamics underlying social behavior modulation. *Cell*. 2014; 157(7):1535-51

5. **Adhikari A**. Distributed circuits underlying anxiety. *Front Behav Neurosci*. 2014; 1;8:112

6. Kim SY\*, **Adhikari A\***, Lee SY, Marshel JH, Kim CK, Mallory CS, Lo M, Pak S, Mattis J, Lim BK, Malenka RC, Warden MR, Neve R, Tye KM, Deisseroth K-Diverging neural pathways assemble a behavioural state from separable features in anxiety. *Nature*. 2013;496(7444):219-223

#### **\*equal contributions**

7. Tye TM, Mirzabekov J, Warden MR, Tsai H, Finkelstein J, Kim SY, Ferenczi E, **Adhikari A**, Thompson K, Andalman A, Gunaydin LA, Witten IB, Deisseroth K- Dopamine neurons modulate neural encoding and expression of depression-related behavior. *Nature*. 2013;493(7433):537-41

8. Warden MR, Selimbeyoglu A, Tye KM, Mirzabekov JJ, Lo M, Kim SY, **Adhikari A**, Frank LM and Deisseroth K- Role of a prefrontal cortex to brainstem projection in responding to behavioral challenge. *Nature*. 2012; 492(7429):428-32

9. **Adhikari A**, Topiwala MA, Gordon JA - Single units in the medial prefrontal cortex with anxiety-related firing patterns are preferentially influenced by ventral hippocampal activity- *Neuron*. 2011; 71(5):898-910

10. Nason Jr MW, **Adhikari A**, Bozinoski M, Gordon JA, Role LW- Disrupted activity in the hippocampal-accumbens circuit in Type-III neuregulin 1 mutant mice- *Neuropsychopharm*. 2011;36(2):488-96.

11. **Adhikari A**, Sigurdsson T, Topiwala MA, Gordon JA- Cross-correlation of instantaneous amplitudes of field potential oscillations: a straightforward method to estimate the directionality and lag between brain areas - *J Neurosci. Methods*, 2010; 191(2):191-200.

12. **Adhikari A**, Topiwala MA and Gordon JA- Synchronized activity between the ventral hippocampus and the medial prefrontal cortex during anxiety - *Neuron*. 2010; 65(2):257-269

13. Resende RR, da Costa JL, Kihara AH, **Adhikari A**, Lorençon E, Britto LR- Intracellular Ca<sup>2+</sup> Regulation During Neuronal Differentiation of Murine Embryonal Carcinoma and Mesenchymal Stem Cells - *Stem Cells Dev*. 2010; 19(3): 379-394

14. Resende RR, **Adhikari A**, da Costa JL, Lorençon E, Ladeira MS, Guatimosim S, Kihara AH, Ladeira LO- Influence of spontaneous calcium events on cell-cycle progression in embryonal carcinoma and adult stem cells - *Biochim Biophys Acta*. 2010; 1803(2):246-260

15. Resende RR, **Adhikari A**- Cholinergic receptor pathways involved in apoptosis, cell proliferation and neuronal differentiation - *Cell Commun Signal*. 2009; 7:7-20

16. Resende RR, Gomes KN, **Adhikari A**, Britto LR, Ulrich H- Mechanism of acetylcholine-induced calcium signaling during neuronal differentiation of P19 embryonal carcinoma cells in vitro - *Cell Calcium*. 2008; 43(2):107-21

17. Bechara EJ, Dutra F, Cardoso VE, Sartori A, Olympio KP, Penatti CA, **Adhikari A**, Assunção NA- The dual face of endogenous alpha-aminoketones: pro-oxidizing metabolic weapons - *Comp Biochem Physiol C Toxicol Pharmacol*. 2007; 146(1-2):88-110

18. **Adhikari A**, Penatti CA, Resende RR, Ulrich H, Britto LR, Bechara EJ- 5-Aminolevulinate and 4,5-dioxoalate ions decrease GABAA receptor density in neuronal cells, synaptosomes and rat brain - *Brain Res*. 2006; 1093(1):95-104

## **BOOK CHAPTERS**

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Gordon JA and **Adhikari A**, "Learned fear and innate anxiety in rodents and their relevance to human anxiety disorders, " in Simpson HB, Neria Y, Lewis-Fernandez R, and Schneier F, eds., *Anxiety Disorders: Theory, Research and Clinical Perspectives*," Cambridge University Press, Cambridge, England, 2010.

## **PATENTS**

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Kim SY, **Adhikari A** and Deisseroth K. "Optogenetic control of behavioral state". International Publication number WO 2014/144409 A1

## **INVITED TALKS**

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- 2018            University of California, Los Angeles. Southern California Learning and Memory Meeting. Los Angeles, CA
- 2016.            Temple University, Dept. of Neuroscience, Philadelphia, USA
- 2016.            University of Maryland, Dept. of Pharmacology, Baltimore, USA
- 2016.            Washington University, Dept. of Neuroscience, St. Louis, USA
- 2016.            UC Santa Barbara, Santa Barbara, USA
- 2016.            UCLA, Dept. of Psychology, Los Angeles, USA
- 2016.            Northwestern University, Dept. of Neuroscience, Evanston, USA
- 2016.            Yale University, Dept. of Neuroscience, New Haven, USA
- 2016.            Baylor College of Medicine, Dept. of Neuroscience, Houston, USA
- 2015.            University of Pennsylvania, Dept. of Neuroscience, Philadelphia, USA
- 2015.            University of Minnesota, Dept. of Psychology, Minneapolis, USA

2015. UCLA, Dept. of Physiology, Los Angeles, USA
2015. Texas A&M University, Dept. of Psychology, College Station, USA
2015. University of Michigan, Dept. of Psychology, Ann Arbor, USA
2015. Stanford University, Dept. of Bioengineering. "How to apply for external funding" - Stanford, USA
2015. University of Pennsylvania, Dept. of Biology, Philadelphia, USA
2013. Society for Neuroscience 2013. Minisymposium. "Optogenetic dissection of the role of the BNST in anxiety" - San Diego, USA
2010. 43rd Winter Conference on Brain Research, "Functional relevance of hippocampal-prefrontal synchrony" - Breckenridge, USA

## **ABSTRACTS**

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1. **Adhikari A**, Finkelstein J, Lerner T, Gunaydin LA, Pak S, Lei A, Deisseroth K - " Top-Down Bidirectional Control of Learned Fear Responses", *Society for Neuroscience Abstracts*, 2014
  2. Kim SY\*, **Adhikari A\***, Lee SY, Lo M, Warden MR, Tye KM, Deisseroth K- "Optogenetic dissection of the function of the amygdala-BNST circuitry in anxiety", *Society for Neuroscience Abstracts*, 2012
- \*equal contributions
3. **Adhikari A**, MA Topiwala and Gordon JA - " Single units in the medial prefrontal cortex with anxiety-related firing patterns are preferentially influenced by ventral hippocampal activity", *Society for Neuroscience Abstracts*, 2011
  4. **Adhikari A**, MA Topiwala, R Hen and Gordon JA - "Neural correlates of conflict anxiety in the medial prefrontal cortex", *Society for Neuroscience Abstracts*, 2010
  5. **Adhikari A**, R Hen and Gordon JA - "Neural correlates of conflict anxiety in the medial prefrontal cortex", *Society for Neuroscience Abstracts*, 2009
  6. Marshall SP, **Adhikari A**, Nason MW, Role LW, Gordon JA- "Altered theta and gamma activity profiles in the ventral hippocampal-accumbal pathway of Type III neuregulin1 heterozygous mice", *Society for Neuroscience Abstracts*, 2009
  7. **Adhikari A**, R Hen and Gordon JA - " Single units in the medial prefrontal cortex with anxiety-related firing patterns are preferentially influenced by ventral hippocampal activity ", *Society for Neuroscience Abstracts*, 2008
  8. Audero E, Coppi E, Mlinar B, Rossetti T, Caprioli A, Al Banchaabouchi, AL, **Adhikari A**, Gordon J, Corradetti R, Gross CT - "Sporadic autonomic dysregulation and death associated with excessive serotonergic auto-inhibition", *Society for Neuroscience Abstracts*, 2007

9. **Adhikari A**, R Hen and Gordon JA - "Theta-frequency synchronization of ventral hippocampus and infralimbic cortex during anxiety-related behavior", *Society for Neuroscience Abstracts*, 2007

10. **Adhikari A**, Penatti CAA, Britto LRG and Bechara EJH- "Oxidative Damage of GABA<sub>A</sub> Receptors by 5-Aminolevulinate" - *Free Radical Biology and Medicine*, 36, Suppl. 1, S89 (2004).