

## Onkar S. Dhande

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### Education

- 2004 – 2011     **Ph.D. in Developmental Biology**  
*Baylor College of Medicine, Houston, TX*  
Thesis: “Molecular and activity-dependent mechanisms governing maturation of visual maps”  
Advisor: Michael C. Crair, Ph.D.
- 2007 – 2011     **Visiting Graduate Student**  
*Department of Neurobiology, Yale University, New Haven, CT*  
Advisor: Michael C. Crair, Ph.D.
- 2004             **B.S. Biomedical Engineering**  
*Case Western Reserve University, Cleveland, OH*

### Research Experience

- 2011 – present   **Postdoctoral Scholar**  
*Department of Neurobiology, Stanford University School of Medicine*  
Advisor: Andrew D. Huberman, Ph.D.

### Research Publications (*In progress*)

1. **Dhande O.S.**, Seabrook, T.A., Phan A.H., Nguyen P.L., Wang, J.T., Evans, S. and Huberman A.D. (2017) Transcriptional control of an optic pathway driving unique features of the pupillary light reflex (*In revision*).
2. **Dhande O.S.**, Stafford B.K., Franke K., Percival, K.A., Phan A.H., Nguyen P.L., Taylor, W.R., Euler, T., Callaway E.M., and Huberman, A.D. (2017) Genetic dissection of evolutionary adaptations to parallel optic-pathways. (*Manuscript in preparation for Cell*).

### Research Publications (*Peer reviewed, in reverse chronological order*)

1. Seabrook, T.A., **Dhande O.S.**, Ishiko I., Wooley V.P., Nguyen P.L., and –Huberman A.D. (2017) Strict independence of parallel and poly-synaptic axon-target matching during visual reflex circuit assembly. **Cell Reports** 21:3049-3069.
2. Tang J.C.Y., Rudolph S., **Dhande O.S.**, Lapan S., Drohkylansky E., Huberman A.D., Regehr W.G. and Cepko C.L. (2015) Cell type-specific manipulation with GFP-dependent Cre recombinase. **Nature Neuroscience** 18:1334-41.
3. Sun L.O., Brady C.M., Cahill H., Sakuta H., **Dhande O.S.**, Noda M., Huberman A.D., Nathans J. and Kolodkin A.L. (2015) Functional assembly of accessory optic system circuitry critical for compensatory eye movements. **Neuron** 86:971-84.

4. Cruz-Martin A., El-Danaf R.N., Osakada F., Sriram B., **Dhande O.S.**, Nguyen P.L., Callaway E.M., Ghosh A. and Huberman A.D. (2014) A dedicated circuit linking direction selective retinal ganglion cells to primary visual cortex. **Nature** 507:358-61.
  - “Recommended” on Faculty of 1000
  - Cover
5. **Dhande O.S.\***, Estevez M.E.\*, Quattrochi L.E., El-Danaf R.N., Nguyen P.L., Berson D.M. and Huberman A.D. (2013) Genetic dissection of retinal inputs to brainstem nuclei controlling image stabilization. **Journal of Neuroscience** 33: 17797-813.
  - Featured in “This Week in the Journal”
6. **Dhande O.S.**, Bhatt S., Anishchenko A., Elstrott J., Iwasato T., Swindell E., Xu H.P., Jamrich M., Itohara S., Feller M.B. and Crair M.C. (2012) Role of adenylate cyclase 1 in retinofugal map development. **Journal of Comparative Neurology** 520:1562-83.
  - “Recommended” on Faculty of 1000
7. **Dhande O.S.** and Crair M.C. (2011) Transfection of murine retinal ganglion cells by *in vivo* electroporation. **Journal of Visualized Experiments** 50.
8. **Dhande O.S.**, Hua E.W., Guh E., Yeh J., Bhatt S., Zhang Y., Ruthazer E.S., Feller M.B. and Crair M.C. (2011) Development of single retinofugal axon arbors in normal and  $\beta 2$  knockout mice. **Journal of Neuroscience** 31: 3384-99.
  - “Recommended” on Faculty of 1000
9. Plas D.T.\*, **Dhande O.S.\***, Lopez J.E., Murali D., Thaller C., Furuta Y., Overbeek P. and Crair M.C. (2008) Bone morphogenetic proteins, eye patterning, and retinocollicular map formation in the mouse. **Journal of Neuroscience** 28: 7057-67.

### **Review Articles**

1. **Dhande O.S.**, Stafford B.K., Lim J.H.A., Huberman A.D. (2015) Contributions of retinal ganglion cells to subcortical visual processing and behaviors. **Annual Review of Vision Science** 1: 291-328.
2. **Dhande O.S.**, and Huberman A.D. (2014) Visual circuits: mouse retina no longer a level playing field. **Current Biology** 24: R155-6.
3. **Dhande O.S.** and Huberman A.D. (2014) Retinal ganglion cell maps in the brain: implications for visual processing. **Current Opinion in Neurobiology** 24: 33-142.
4. Zhang J., Ackman J., **Dhande O.S.** and Crair M.C. (2011) Visualization and manipulation of neural activity in the developing vertebrate nervous system. **Frontiers in Molecular Neuroscience** 17:50.

### **Grants**

Knights Templar Eye Foundation Pediatric Ophthalmology Career Starter Grant 2012-14

## **Awards**

Ramon Dacheux II Memorial Travel Grant, ARVO Foundation (2017)

Allison Doupe Fellowship, McKnight Foundation (2016)

National Eye Institute Audacious Goals Initiative Panel Discussion Travel Award (2015)

International Society for Eye Research Travel Fellowship (2014)

Whitaker Foundation Undergraduate Research Fellowship (2003)

## **Grant and Manuscript review**

*Grants:* Fight for Sight Foundation, French National Research Agency, and Italian Ministry of Health

*Manuscripts:* Cell Reports, Journal of Comparative Neurology, Investigative Ophthalmology & Visual Science, Behavioral Brain Research, Protein & Cell, and Frontiers of Information Technology & Electronic Engineering

*Ad Hoc Reviewer:* Journal of Neuroscience, Neuron, Nature Neuroscience, Current Biology, Cell, Nature, and Elife

## **Invited and Conference Talks**

*As Postdoc:*

1. “Developmental mechanisms for establishing functional non-image-forming visual circuits”, Association for Research in Vision and Ophthalmology, May 2017.
2. “Evolution of visual circuits for detecting directional motion”, Neuroscience Club, University of California, Santa Cruz, February 2017 (*Invited*).
3. “Molecular and Functional Approaches to Understanding Visual Circuit Evolution”, FASEB meeting on Retinal Neurobiology and Visual Processing, Keystone, July 2016 (*Invited*).
4. “Parsing parallel optic pathways in the primates: a molecular approach”, Centre for Integrative Neuroscience, University of Tübingen, Germany, April 2016 (*Invited*).
5. “Genetic parsing of cells and circuits for image stabilization”, International Society for Eye Research, San Francisco, July 2014 (*Invited*).
6. “What are the neural circuits required for ensuring stable images during self-motion?” Center for Neurobiology of Vision Dinner, Salk Institute, San Diego, May 2014.

*As Graduate Student:*

1. “Activity-dependent mechanisms governing retinotopic map refinement” Department of Molecular and Cellular Biology, Harvard University, March 2011. (*Invited*).
2. “Adenylate Cyclase 1 is required for activity-dependent retinocollicular map

refinement”, Gordon Research Conference on Visual System Development, Lucca, Italy, May 2010.

3. “Activity-dependent mechanisms of retinotopic map refinement”, Department of Neurobiology Seminar Series, Yale University School of Medicine, June 2009.

### **Teaching Experience**

1. Co-Instructor (2017) and Teaching Assistant (2015, 2013): Cold Spring Harbor Laboratory course on “Vision: a platform for linking circuits, perception and behavior” 2017

2. Designed and taught the following classes for the *Splash!* Stanford high school outreach program

- What is sex? Biology, sex and gender (Spring 2017, Fall 2017)
- The Eye in Illusions (Fall 2017)

3. Co-Instructor: Neuroanatomy Module, UCSD Neuroscience Graduate Program Boot Camp, 2014

4. Research mentor for Undergraduate Senior Theses & Fellowships:

Edmond Yaghoubian, UCSD '16

Ann Pham, UCSD '15

Shivani Bhatt, Yale '13

Jonathan Yeh, Yale '12

Maggie Chun, Mount Holyoke College '09

Emily Guh, Yale '09

### **Professional Memberships**

2005 – present Society for Neuroscience

### **References**

#### **1. Andrew D. Huberman**

Associate Professor  
Dept. of Neurobiology  
Stanford University School of Medicine  
Email: [adh1@stanford.edu](mailto:adh1@stanford.edu)  
Phone: 415-515-0585

#### **2. Michael C. Crair**

Professor & Deputy Dean Scientific Affairs  
Dept. of Neuroscience  
Yale University School of Medicine  
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Phone: 203-668-2220

#### **3. David M. Berson**

Professor & Chair  
Dept. of Neuroscience  
Brown University  
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Phone: 401-863-2555

#### **4. Alex L. Kolodkin**

Professor  
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Johns Hopkins School of Medicine  
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