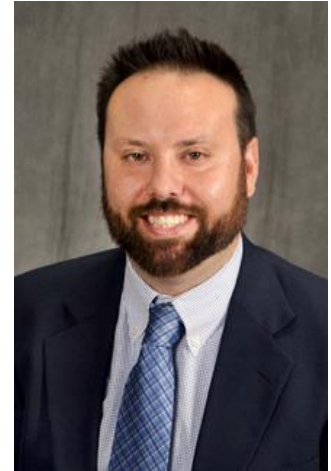


Jesse B. Schallek, Ph.D.

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Assistant Professor, Neuroscience
Assistant Professor, Center for Visual Science
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Schallek Lab: www.urmc.rochester.edu/eye-institute/research/labs/schallek



Appointments

Assistant Professor, Dept. Ophthalmology, University of Rochester	2015-present
Assistant Professor, Dept. Neuroscience, University of Rochester	2015-present
Assistant Professor, Center for Visual Science, University of Rochester	2015-present

Education

Postdoctoral Fellow -University of Rochester - Project: <i>Functional imaging of the retina using adaptive optics</i> Advisor: David R. Williams, Ph.D.	2010-2015
Ph.D. Neuroscience -SUNY Upstate Medical University- Thesis: <i>Elucidating the Origins of Stimulus-Evoked Intrinsic Optical Signals in the Retina</i> Advisor: Daniel Ts'o, Ph.D.	2010
B.S. Bioengineering -Syracuse University- Thesis: <i>Ultrastructural Study of Shedding Mechanisms in the Ventral Eye of <i>Limulus polyphemus</i></i> Advisor: Steven Chamberlain, Ph.D.	2003

Predoctoral & Undergraduate Research Experience

Predoctoral Graduate Student SUNY Upstate Medical University <u>Advisor:</u> Daniel Ts'o, Ph.D. Project: Primate & feline neocortical and retinal physiology research	2004-2010
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Research Rotations **2003-2004**

SUNY Upstate Medical University

Advisor: Dennis Stelzner, Ph.D.

Project: Drug loaded nanosphere injection in spinal cord injury model in rats

Advisor: Charles Hodge, M.D.

Project: Imaging and electrophysiology of whisker-barrel field somatopy in rats

Maybel E. Lewis Summer Research Fellow **Summer 2002**

Institute for Sensory Research, Syracuse NY

Advisor: Steven C. Chamberlain, Ph.D.

Project: Quantification of rhabdom shedding in ventral eye of *Limulus polyphemus*

Summer Research Fellow **Summer 2001**

Institute for Sensory Research, Syracuse, NY.

Advisor: Steven C. Chamberlain, Ph.D.

Project: Rhabdom shedding in the lateral eye of *Limulus polyphemus*

Awards and Honors

The Dana Foundation- David Mahoney Neuroimaging Award - **2016-2019**

Title: Imaging single blood cell rheology and flux within the smallest vessels in human diabetic retinopathy

Research to Prevent Blindness Career Development Award **2016-2020**

Title: Imaging microscopic changes in retinal capillary structure and function associated with hyperglycemia in a mouse model of diabetes

Ruth Kirschstein National Research Service Award (NRSA) **2013-2015**

NIH, National Eye Institute grant -1F32EY023496-01

Title: High-resolution imaging of pericytes and capillary blood flow in diabetic mice

Edmund Optics Higher Education Grant Program Finalist **2013**

Schmitt Program on Integrative Brain Research Postdoctoral Fellowship **2012**

Title: Dynamic regulation of capillary blood flow

ARVO Member in Training (MIT) Outstanding Poster Award **2012**

Association for Research in Vision and Ophthalmology (ARVO) meeting

Retina Research Foundation/J.M. and E.C. Lawrence Travel Award **2012**

ARVO meeting, Ft Lauderdale, FL -RRF 7350-70

Center for Visual Science Training Fellowship -5T32EY007125-22 **2012-2013**

University of Rochester, Center for Visual Science

Maybel E. Lewis Summer Research Fellow **Summer 2002**

Institute for Sensory Research, Syracuse, NY

Patents

US Patent #9,844,320

Issued: **12/19/2017**

“System and Method for Observing an Object in a Blood Vessel” [PDF LINK](#)

Inventor: Jesse Schallek (Assignee: University of Rochester)

Patents Filed: Provisional status

U.S. Provisional Patent application (University of Rochester) Filed: **2018**
Blood cell identification using comparisons of scatter in single and double pass light in the living retina

U.S. Patent application US20190114790A1 (University of Rochester) Filed: **2017**
Rapid assessment and visual reporting of local particle velocity using an optimized radon transform based on a rotational look up table [PDF LINK](#)

U.S. Patent application US20190167094A1 (University of Rochester) Filed: **2017**
Label-free contrast enhancement for translucent cell imaging by purposefully displacing the detector [PDF LINK](#)

U.S. Provisional Patent application (University of Rochester) Filed: **2014**
New imaging modalities using a reflective aperture array in the imaging plane to dynamically image and compare components of the diffraction pattern [PDF LINK](#)

*more information on filed IP and licensing may be addressed to: John Fahner-Vihtelic
UR Ventures: email: John_fahnervihhtelic@urmc.rochester.edu phone: 585.276.6604

National Service

- Research to Prevent Blindness Career Development Award Advisory Committee **2019**
- NEI Study Section: ZRG1 ETTN-P (81) S **2019**
Special Topics: Vision Imaging, Bioengineering and Low Vision Technology Development
- NEI Study Section CSR Study section: **2019**
Vision Imaging, Bioengineering and Low Vision Technology Development (VIBT) – ZRG1 ETTN-P81
- NSF Study Section **2018**
Medical Imaging Technologies SBIR/STTR Phase I review panel
- NSF Study Section **2018**
Diagnostic Assays and Platforms SBIR/STTR Phase I review panel
- Fall Vision Meeting Planning Committee: **2018-2020**
Chair-elect: *Applications*

Professional Society Membership

- Association for Research in Vision and Ophthalmology **2010 - present**
- International Ocular Circulation Society (founding member) **2019 - present**

- The Optical Society 2013 - present
- International Society for Eye Research 2016 –present
- Society for Neuroscience 2004-2012; 2019-present
- ARVO Blood flow session moderator 2014 – 2017
- ARVO Novel imaging techniques and applications session moderator 2018-2019
- Biomedical Engineering Society 2001 - 2002
- Reviewer for:
 Proceedings of the National Academy of Science (PNAS), eLife, Nature-Communications
 Biology, Journal of Vision, Investigative Ophthalmology and Visual Science, Biomedical
 Optics Express, Journal of Biomedical Optics, Optometry and Vision Science

Teaching Experience

Developed a self-paced internet course on adaptive optics operation and theory 2019
 Web assistance from Sara Peterson

Course Director (with Farran Briggs, PhD) 2017-2018
Neuroscience Student Seminar (NSC 503)

Co-Course Director (with Ruchira Singh, PhD) 2016-2017
Neuroscience Student Seminar (NSC 503)

Instructor (with Geunyoung Yoon, PhD) Fall 2015
Adaptive Optics for Vision Science (OPT 591)

Lectures

Cell Biology of Disease (PTH 510) 2019-2020
 1) *Anatomy and physiology of the eye*
 2) *Pathophysiology of eye disease*
 3) *Innovation in retinal imaging laboratory*
Director: Cheryl Ackert-Bicknell, PhD)

Vision and the Eye (Optics 248/448/BCS 223) Spring 2012-2020
 1) *Single photon response and photoreceptor sensitivity*
 2) *Ganglion cell structure and function*
 3) *Visual cortex: motion, form and color*
Director: Jennifer J. Hunter, Ph.D.

Integrative and Systems Neuroscience (NSC 531) Spring 2016-2019
 Visual System: Retina and retinal projections
Director: Tatiana Pasternak, PhD., Ed Freedman, PhD

Academic Preceptor (undergraduate TA) 2001
Bioengineering Analysis of Living Systems (BEN 305/605)
 Dept. of Bioengineering and Neuroscience, Syracuse University, NY.
Directors: Steven C. Chamberlain, Ph.D. and Gustav Engbretson, Ph.D.

Mentored Students

Fei Shang , PhD Candidate-Neuroscience-University of Rochester	2019-present
Guanping Feng , PhD Candidate-Biomedical Engineering-University of Rochester	2018-present
Aby Joseph , PhD Candidate-Optics-University of Rochester	2014-present
R. Andrés Guevara-Torres , PhD Candidate-Optics-University of Rochester	2013-present
Emmanuel Alabi , PhD. Postdoctoral Fellow-University of Rochester	2017-2019
Josie Lorenzo , MS Candidate-Optics-University of Rochester	2018
Joon-Bom (Albert) Kim , MD. Ophthalmology Resident -University of Rochester	2015-2018
Nicholas Sorabella . Undergrad -Stonehill College, Rochester REU summer program	2018
Jake Rudlong , BS. 1 st year Neuroscience student- University of Rochester	2018-2019
Berke Karaahmet , BS. 1 st year Neuroscience student- University of Rochester	2017-2018
Sana Idrees , MD. Ophthalmology Resident -University of Rochester	2016-2017
Neal Shah , BS. 1 st year Neuroscience student- University of Rochester	2016-2017
Gilbert Smolyak , Harley High School Senior research project.	2016
Vigneshwar Subramanian , Undergrad.- Chemistry, Cornell University University of Rochester, Center for Visual Science summer fellow	2015
Andrew Stidwill , Undergrad.- Motion Picture Science, RIT Summer Co-op student	2015
Zhenlin Xu , Masters Student.- Imaging Science, RIT Summer Co-op student	2015
Gwen Musial , Undergrad. -, Biomedical Engineering, University of Rochester	2013
Geetika Baghel , Undergrad.- Neuroscience, Rutgers University University of Rochester, Center for Visual Science summer fellow	summer 2013
Christina Schwarz , PhD Candidate, visiting scholar Laboratorio de Óptica, Centro de Investigación en Óptica y Nanofísica	summer 2012
HoanVu Nguyen , Undergrad. -Biology, University of Denver, CO University of Rochester,Center for Visual Science summer fellow (National Eye Institute travel grant recipient to ARVO 2013 for mentored project) -co-authorship on IOVS publication (Schallek et al 2013)	2012

Host to Visiting Scientists

Fulbright Faculty Associate <i>Fulbright-Nehru program, host to Earu Banoth, PhD</i> <i>Award number 2531/FNPDR/2019</i>	2019-2021
Colin Chu, MD (University of Bristol, UK)	2019
Luis Alarcon-Martinez, PhD (Hacettepe University, Ankara, Turkey)	2014

University of Rochester Service

Society for Neuroscience: Rochester Chapter Role: Councilor. President: J. Chris Holt, PhD	2019-2020
Center for Visual Science Executive Committee Role: Associate Director Computing *composition of NEI Core grant awarded to CVS: P30EY001319-44	2017-present
Thesis Proposal and Thesis Committee: R. Andrés Guevara-Torres , PhD Candidate - Optics, University of Rochester 2017 Kathleen Gates , PhD Candidate – Neuroscience, University of Rochester 2018-2019	
Reading Exam Chair: Kathleen Gates , PhD Candidate – Neuroscience, University of Rochester	2017
Neuroscience Graduate Program Student Interviews	2016-2020
Cell and Biology of Disease Program Student Interviews	2020

Peer Reviewed Publications

1. Guevara-Torres, A., Williams, D.R., and **Schallek, J.B.** (2020). Origin of cell contrast in offset aperture adaptive optics ophthalmoscopy. *Opt. Lett.*, OL 45, 840–843.
[PMID: 32058484](https://pubmed.ncbi.nlm.nih.gov/32058484/)
2. Canavesi, C., Cogliati, A., Mietus, A., Qi, Y., **Schallek, J.**, Rolland, J.P., and Hindman, H.B. (2020). In vivo imaging of corneal nerves and cellular structures in mice with Gabor-domain optical coherence microscopy. *Biomed. Opt. Express*, BOE 11, 711–724. <https://doi.org/10.1364/BOE.379809>
3. Hunter, J.J., Merigan, W.H., and **Schallek, J.** (2019). Imaging Retinal Activity in the Living Eye. *Annual Review of Vision Science* 5, 15–45. [PMID- 31525142](https://pubmed.ncbi.nlm.nih.gov/31525142/)

4. Joseph, A., Guevara-Torres, A., and **Schallek, J.** (2019). Imaging single-cell blood flow in the smallest to largest vessels in the living retina. *eLife* 8, e45077. [PMID- 31084705](#)
***eLife Digest:** [“Twinkle Twinkle Little blood cell”](#)
***NakedScientist Podcast:** [Podcast Link](#)
5. Alarcon-Martinez, L., Yilmaz-Ozcan, S., Yemisci, M., **Schallek, J.**, Kılıç, K., Villafranca-Baughman, D., Can, A., Di Polo, A., and Dalkara, T. (2019). Retinal ischemia induces α -SMA-mediated capillary pericyte contraction coincident with perivascular glycogen depletion. *Acta Neuropathologica Communications* 7, 134. [PMID- 31429795](#)
6. Alarcon-Martinez, L., Yilmaz-Ozcan, S., Yemisci, M., **Schallek, J.**, Kılıç, K., Can, A., Polo, A. D. & Dalkara, T. Capillary pericytes express α -smooth muscle actin, which requires prevention of filamentous-actin depolymerization for detection. *eLife Sciences* 7, e34861 (2018). [PMID- 29561727](#)
7. Marcos, S., Werner, J. S., Burns, S. A., Merigan, W. H., Artal, P., Atchison, D. A., Hampson, K. M., Legras, R., Lundstrom, L., Yoon, G., Carroll, J., Choi, S. S., Doble, N., Dubis, A. M., Dubra, A., Elsner, A., Jonnal, R., Miller, D. T., Paques, M., Smithson, H. E., Young, L. K., Zhang, Y., Campbell, M., Hunter, J., Metha, A., Palczewska, G., **Schallek, J.** & Sincich, L. C. (2017) Vision science and adaptive optics, the state of the field. *Vision Research* doi:10.1016/j.visres.2017.01.006 [PMID- 28212982](#)
8. Guevara-Torres, A., Joseph, A. & **Schallek, J.** (2016) Label free measurement of retinal blood cell flux, velocity, hematocrit and capillary width in the living mouse eye. *Biomed. Opt. Express*, BOE 7, 4228–4249 (2016). [PMID- 27867728](#)
***Editor’s Pick designation:** [Link](#)
9. Guevara-Torres A, Williams DR, **Schallek J.** (2015) Imaging translucent cell bodies in the living mouse retina without contrast agents. *Biomedical Optics Express*.6(6):2106-2119. doi:10.1364/BOE.6.002106. [PMID- 26114032](#)
***Spotlight on Optics designation:** [Link](#)
10. **Schallek J.**, Geng, Y., Nguyen, H., and Williams, D.R.(2013) Morphology and topography of retinal pericytes in the living mouse retina using in vivo adaptive optics imaging and ex vivo characterization. *Invest Ophthalmol Vis Sci.* **54**,(13):8237–8250 [PMID- 24150762](#)
11. **Schallek J**, McLellan G, Viswanathan S, Ts’o D (2012) Retinal Intrinsic Optical Signals in a Cat Model of Primary Congenital Glaucoma. *Invest Ophthalmol Vis Sci* **53**, 1971 –1981 [PMID- 22395886](#)

12. **Schallek, J.** and Ts'o, D. (2011) Blood Contrast Agents Enhance Intrinsic Signals in the Retina: Evidence for an Underlying Blood Volume Component. *Invest Ophthalmol Vis Sci* **52**, 1325 -1335. [PMID- 21051719](#)
13. **Schallek J,** Li H, Kardon R, Kwon Y, Abramoff M, Soliz P, Ts'o D (2009a) Stimulus-Evoked Intrinsic Optical Signals in the Retina: Spatial and Temporal Characteristics. *Invest Ophthalmol Vis Sci* 50:4865-4872. [PMID-19420337](#)
14. **Schallek J,** Kardon R, Kwon Y, Abramoff M, Soliz P, Ts'o D (2009b) Stimulus-Evoked Intrinsic Optical Signals in the Retina: Pharmacologic Dissection Reveals Outer Retinal Origins. *Invest Ophthalmol Vis Sci* 50:4873-4880. [PMID-19420331](#)
15. Ts'o D, **Schallek J,** Kwon Y, Kardon R, Abramoff M, Soliz P (2009) Noninvasive Functional Imaging of the Retina Reveals Outer Retinal and Hemodynamic Intrinsic Optical Signal Origins. *Jap Journ of Ophthalmol* 53:334-344. [PMID-19763750](#)
16. Soliz, P. Barriga, E.S. **Schallek, J.** Ts'o, D. Davis, H. (2009) Intrinsic signal detection of an evoked response with a low-cost scanning laser ophthalmoscope. *IEEE Computer-Based Medical Systems*: 1-5.

Published Abstracts and Conference Presentations

1. Joseph, A., Chu, C., Dholakia, K., Feng, G., Guevara-Torres, A., and **Schallek, J.** (2019). Label-free tracking of single blood cells in the retinal immune response. *Journal of Vision* 19, 20–20.
2. Feng, G., and **Schallek, J.B.** Retinal thickness increases in anesthetized but not awake-behaving mice *Invest. Ophthalmol. Vis. Sci.* TBD (2019).-ARVO-
3. Guevara-Torres, A., Dholakia, K., Joseph, A., Schallek, **J.B.** Red blood cell flux measured in the same retinal capillaries from seconds to months *Invest. Ophthalmol. Vis. Sci.* TBD (2019).-ARVO Talk-
4. **Schallek, J.B.** Imaging single cell blood flow in the living mouse retina. *Microcirculation Research* TBD World Congress for Microcirculation, Vancouver, BC. 2018 –Talk-
5. **Schallek, J.B.** Imaging single cell blood flow in the anesthetized and awake, behaving mouse retina. *Microcirculation Research* TBD World Congress for Microcirculation, Vancouver, BC. 2018 – Poster-
6. **Schallek, J. B.,** Joseph, A., Yang, Q., Padmanabhan, K. & Pfeifer, C. Adaptive optics ophthalmoscopy in the awake, behaving mouse. *Invest. Ophthalmol. Vis. Sci.* 59, 732–732 (2018). –Talk-
7. Joseph, A., Parkins, K., Yang, Q., Guevara-Torres, A. & **Schallek, J.** Real-time quantification of single blood-cell velocity in living human and mouse eye using adaptive optics. *Invest. Ophthalmol. Vis. Sci.* 59, 1973–1973 (2018).-ARVO Talk-
8. Guevara-Torres, A., Schwarz, C., Williams, D. R. & **Schallek, J. B.** Retinal cell refractive model describes the source of the contrast in split-detector ophthalmoscopy. *Invest. Ophthalmol. Vis. Sci.* 58, 3435–3435 (2017).

9. **Schallek, J. B.** & Joseph, A. Time-lapse imaging of retinal microglia in vivo show dynamic process motility at rest. *Invest. Ophthalmol. Vis. Sci.* **58**, 316–316 (2017).
10. **Schallek, J.,** Joseph, A., Subramanian, V. & Guevara-Torres, A. Imaging invisible cells: new advances in adaptive optics reveal structure of the translucent retinal cells of the inner retina. *Journal of Vision* **17**, 2–2 (2017). –Talk- OSA Fall Vision Meeting, Rochester NY
11. **Schallek, J,** Joseph, A. & Guevara-Torres, A. (2016) Label Free Imaging of Ganglion Cells in the Living Mouse Eye. *Invest. Ophthalmol. Vis. Sci.* **57**, (2016).
12. Joseph, A., Guevara-Torres, A. & **Schallek, J.** (2016). In vivo flow cytometry measures red to white blood cell ratio in the living mouse eye. *Invest. Ophthalmol. Vis. Sci.* **57**, 4616–4616 (2016).
13. Guevara-Torres, A., Joseph, A. & **Schallek, J.** (2016). Population analysis of red blood cell flux in retinal capillaries of mice. *Invest. Ophthalmol. Vis. Sci.* **57**, 5109–5109 (2016).
14. Joseph A, Guevara-Torres A, Williams DR, **Schallek J.** (2015) Measurement of blood flow in the largest vessels and smallest capillaries in the living mouse retina using an adaptive optics scanning light ophthalmoscope. *Invest Ophthalmol Vis Sci.* 2015;56(7):3323-3323.
15. Guevara-Torres A, Williams DR, **Schallek J.** (2015) Split-detector imaging reveals photoreceptors, outer nuclear layer somata and horizontal cells without contrast agents in the living mouse retina. *Invest Ophthalmol Vis Sci.* 2015;56(7):4371-4371.
16. **Schallek J,** Guevara-Torres A, Williams DR. (2015). Imaging the morphology, rheology and flux of single red blood cells in the living mouse eye without contrast agents. *Invest Ophthalmol Vis Sci.* 2015;56(7):3363-3363.
17. **Schallek, J,** *In vivo* retinal blood cell velocimetry and erythrocyte flux imaged with adaptive optics. Association for Ocular Circulation 2014 –Poster-
18. **Schallek J,** Parkins K, Williams DR. In vivo retinal blood flow cytometry and velocimetry. *Invest Ophthalmol Vis Sci E-Abstract* 2014; 55(5):4325.
19. Ts'o, D, **Schallek, J.** Kardon, R and Q. Du, Q.(2013) Intrinsic Signal Functional Imaging of the Retina: Outer Retinal Origins. *Frontiers in Optics*, I. Kang, D. Reitze, N. Alic, and D. Hagan, eds., Optical Society of America. [Paper FTu5L.1](#) -conference paper-
20. **Schallek J,** Schwarz C, Williams DR (2013) Rapid, automated measurements of single cell blood velocity in the living eye. *Invest Ophthalmol Vis Sci E-Abstract:* **54(6):398** -Paper/talk-
21. Nguyen, HN, Williams DR **Schallek J,** (2013) Density and distribution of NG2+ pericytes in the living mouse retina. *Invest Ophthalmol Vis Sci E-Abstract:*TBA 2013-Poster-
22. **Schallek J,** Nguyen HN, Schwarz C, Williams DR (2012) Non-invasive Adaptive Optics Imaging of Retinal Pericytes and Capillary Blood Velocity in Mice. *Journal of Vision* **12**: 50–50. doi:10.1167/12.14.50 - OSA Fall vision meeting poster
23. **Schallek J,** Geng Y, Williams, D.R. (2012) *In vivo* adaptive optics imaging of retinal pericytes and capillary blood velocity in mice. *Invest Ophthalmol Vis Sci A6271: E-Abstract:*2012. **-MIT Outstanding Poster Award -Retina Research Foundation Travel Award**
24. **Schallek J,** Masella B. Hunter, J. and Williams, D.R. (2011) Dynamics of capillary blood flow revealed with adaptive optics scanning laser ophthalmoscopy. *Engineering the Eye III*, Benasque, Spain. –Poster-

25. **Schallek J**, Masella B, Hunter, J. and Williams, D.R. (2011) Stimulus-dependent Changes In Capillary Blood Velocity Revealed With Adaptive Optics Scanning Laser Ophthalmoscopy. Invest Ophthalmol Vis Sci. E-Abstract 6029/A240. –Poster-
26. **Schallek J**, Ts'o DY (2010). The scotopic action spectra of intrinsic signals of the retina reveal a rod-driven mechanism. Society for Neuroscience Abstracts. –Poster-
27. Ts'o DY, **Schallek J** (2010) Chromatic Bleaching Reveals A Rod-driven Component In Retinal Intrinsic Optical Signals. Invest Ophthalmol Vis Sci. E-Abstract 1068/D713.
28. **Schallek J**, Ts'o DY (2009) Intrinsic signals of the retina reveal a rod-driven component consistent with dark adaptation time course. Society for Neuroscience Abstracts, #403.1. –**Nanosymposium Talk-**
29. Ts'o DY, **Schallek J**, Kardon R, Kwon Y, Abramoff M, Soliz P (2009) Hemodynamic Components Contribute to Intrinsic Signals of the Retina and Optic Disc. Invest Ophthalmol Vis Sci. 2009 50: E-Abstract 4322.
30. Soliz, P, Barriga, S, **Schallek J**, Ts'o DY, Davis, H. (2009) Intrinsic Signal Detection of an Evoked Response with a Low-cost Scanning Laser Ophthalmoscope. IEEE CBMS Albuquerque, NM
31. **Schallek J**, Ts'o D (2008) Pharmacological vasodilation reveals hemodynamic components of the intrinsic optical signals in the retina in vivo. Society for Neuroscience Abstracts, #567.18/JJ32.
32. Ts'o DY, **Schallek J**, McLellan G, Viswanathan S (2008) Functional Retinal Imaging of Intrinsic Optical Signals in a Cat Model of Glaucoma. Invest Ophthalmol Vis Sci 49: E-Abstract:2006.
33. **Schallek J**, Zarella M, Kwon Y, Abramoff M, Kardon R, Pokorny J, Soliz P, Ts'o D (2007) Stimulus/response characteristics of functional intrinsic optical signals recorded in the retina in vivo. Society for Neuroscience Abstracts, #121.13. –**Slide Talk-**
34. Ts'o DY, **Schallek J**, Kwon Y, Kardon R, Abramoff M, Soliz P, Pokorny J (2007) Blood Flow Dynamics Contribute to Functional Intrinsic Optical Signals in the Cat Retina in vivo. Invest Ophthalmol Vis Sci 48: E-Abstract:1951.
35. **Schallek J**, Zarella M, Kwon Y, Kardon R, Abramoff M, Pokorny J, Soliz P, Ts'o D (2006) The spatial and temporal characteristics of negative and positive intrinsic optical signals recorded in the cat retina in vivo. Society for Neuroscience Abstracts,#210.3. –**Slide Talk-**
36. Ts'o DY, **Schallek J**, Zarella M, Ghim M, Abramoff M, Kwon Y, Kardon R, Pokorny J, Soliz P (2006) Pharmacological Dissection of Laminar Contributions to Intrinsic Optical Signals in the Retina. Invest Ophthalmol Vis Sci 47: E-Abstract:5899.
37. **Schallek J**, Zarella M, Kwon Y, Kardon R, Abramoff M, Soliz P, Pokorny J, Ts'o D (2005) Stimulus-dependent intrinsic optical signals of the retina do not arise from ganglion cells. Society for Neuroscience Abstracts, #246.7. –**Slide Talk-**
38. Zarella M, **Schallek J**, Ts'o D (2005) Optical imaging of orientation surround effects in V2 suggests a role in surface segmentation. Society for Neuroscience Abstracts, #820.6.
39. Ts'o DY, Zarella M, **Schallek J**, Kwon Y, Kardon R, Abramoff M, Soliz P, Pokorny J (2005) The Origins of Stimulus Dependent Intrinsic Optical Signals of the Retina. Invest Ophthalmol Vis Sci 46: E-Abstract:2258.
40. Ts'o DY, Zarella M, **Schallek J**, Kwon Y, Kardon R, Soliz P (2004) The origins of stimulus dependent intrinsic optical signals of the retina. Journal of Vision 4: E-Abstract:39-39.
41. Chamberlain S, **Schallek J**, Herloski B, Michaud B, Sacunas R (2002) *In Vivo* Rhabdom

Invited Talks and Colloquia

Schallek, J. (September 2019) Imaging that twinkle in your eye: adaptive optics imaging of single blood cells in the living retina (The Ophthalmic Laser Surgical & Imaging Society, NYC) –**invited talk-**

Schallek, J. (April 2019) Cellular and Molecular Imaging of the Retina in Health and Disease – SIG (ARVO, Vancouver, BC) –**invited talk-**

Schallek, J. (April 2019) Rutgers Mechanical and Aerospace Engineering Colloquium Series
Seeing the invisible: adaptive optics imaging of single cell blood flow in the living eye
–**invited talk-**

Schallek, J. (October 2018) Ophthalmic Innovation Summit, American Academy of Ophthalmology
(OIS AAO) Chicago, IL –**invited talk-**

Schallek, J. (September 2018) *Objective measures of single blood cell flux, flow and velocity in living eye*
Loris and David Rich Lecture Series in Visual Science, University of Alabama at Birmingham.
–**invited talk-**

Schallek, J. (May 2018) *Adaptive optics imaging of leukocytes and microglia in the living mouse retina*
Session: “*In Galileo's Footsteps: visualizing immunity*” ARVO Symposium. Honolulu, Hawaii
–**invited talk-**

Schallek, J. (May 2018) *High resolution imaging of the retinal vasculature of the living mouse eye*
Special Interest Group (SIG) ARVO. Honolulu, Hawaii –**invited talk-**

Schallek, J. (October 2017) *Milliseconds-to-months: functional imaging of the living retina across temporal epochs.* Center for Adaptive Optics Fall Retreat. Lake Arrowhead, CA. –**invited Talk-**

Schallek, J., Joseph, A. Guevara, R. (September 2016) *Blood velocity, flux and flow: Objective measurements of single cell hemodynamics in the living retina.* International Society for Eye Research *ISER* Tokyo, Japan –**invited talk-**

Schallek J (March 2016) Seeing Stars: How Astronomy has Enabled New Visions of the Living Eye
University of Rochester Phelps Colloquia Series. Rochester NY. –**invited talk**

Schallek J (October 2015) Longitudinal imaging in the mouse retina with cellular resolution: dynamic insights in models of retinal disease *Frontiers in Optics.* San Jose, CA. Optical Society of America. -
invited talk/conference paper- declined due to paternity

Schallek J (2013) Measuring Single-cell Blood Velocity in the Living Eye: Adaptive Optics Reveals Micro- and Macrovascular Function. *Frontiers in Optics*, I. Kang, D. Reitze, N. Alic, and D. Hagan, eds., Orlando, FL. Optical Society of America. [Paper FTu5L.3](#) –**invited talk/conference paper-**

Research Support

Active:

2017/09/30 – 2022/06/30

NIH NEI R01 EY028293-01

Title: *Non-invasive, living histology of capillary structure and single cell blood flow in*

mouse model of diabetic retinopathy
Schallek, Jesse (PI)

2017/09/30 – 2019/9/29

Hoffman-LaRoche (Roche pRED)

***Roche Academy of Distinguished Scholars**

Title: *Imaging Intrinsic and extrinsic biomarkers of vascular dysfunction and hypoxia in the living mouse eye*

Schallek, Jesse (PI)

2017/10/01 - 2018/10/01

Flaum Eye Institute Pilot Grant

Title: *Imaging microscopic changes in the human retina before and after anti-VEGF therapy for diabetic macular edema*

Schallek, Jesse; Kuriyan, Ajay (co-PIs)

2016/01/01 – 2020/01/01

Research to Prevent Blindness Career Development Award

Title: *Imaging single blood cell rheology and flux within the smallest vessels in human diabetic retinopathy*

Schallek, Jesse (PI)

2016/09/08 – 2019/09/08

Dana Foundation- David Mahoney Neuroimaging Award

Title: *Imaging microscopic changes in retinal capillary structure and function associated with hyperglycemia in a mouse model of diabetes*

Schallek, Jesse (PI)

2018- 6 months

NIH SBIR (Phase-I)

Title: *High-definition, wide field of view corneal imaging*

Collaboration with LighTopTech

(Cristina Canavesi, PI, Jesse Schallek UofR subcontract)

2015/07/07 - 2016/07/07

Flaum Eye Institute Pilot Grant

Title: *Imaging optic nerve head and peripapillary vasculature in normal pressure glaucoma*

Schallek, Jesse; Hunter, Jennifer; and Smolyak, Regina. (co-PIs)

Completed:

2013/03/01-2015/02/28

National Research Service Award (Individual Fellowship)

F32 EY023496-02, National Eye Institute (NEI)

Schallek, Jesse Barrett (PI)

High-resolution imaging of pericytes and capillary blood flow in diabetic mice

2012/01/01-2012/12/31

National Service Research Award (Training Fellowship)

T32 EY007125-22, National Eye Institute (NEI)

Knill, David C (PI)

Training Grant in Vision Science

2012/05/01-2013/05/01

Schmitt Program on Integrative Brain Research

Schallek, Jesse (PI-trainee status)

Dynamic regulation of capillary blood flow

References

Provided upon request