

Brian C. Toy, MD

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ACADEMIC POSITIONS

Assistant Professor of Ophthalmology	2018-present
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Retina and Uveitis Services

Administrative Roles: Fellowship Committee Member, EMR Physician Champion
University of Southern California Roski Eye Institute; Los Angeles, CA

EDUCATION

Vitreoretinal Surgery and Uveitis Fellowship	2016-2018
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University of Southern California/LA County Medical Center; Los Angeles, CA

Ophthalmology Residency	2013-2016
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Stanford University; Palo Alto, CA

Transitional Year Internship	2012-2013
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Santa Clara Valley Medical Center; San Jose, CA

Doctorate of Medicine (Honors)	2007-2012
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University of California, San Francisco

Bachelor of Science, Bioengineering (High Honors)	2003-2007
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University of California, Berkeley

Biotechnology Certificate	2002-2003
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Ohlone College; Fremont, CA (completed during high school)

PROFESSIONAL LICENSES

California State Medical License	2013-present
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Board Certified, American Board of Ophthalmology	2018-present
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HONORS/AWARDS

Stanford Society of Physician Scholars Research Grant (2016), UCSF-PUMC Medical Exchange Program (2012), NIH Clinical Research Training Fellowship (2011), Retina Research Foundation ARVO Grant (2010), NSF IEEE ISBI Grant (2010), Vital Imaging IEEE ISBI Grant (2010), UCSF Ralston Scholarship (2008), UCSF Dean's Summer Research Fellowship (2007), Brain Research Fellowship (2006), UCB Chancellor's Scholar (2003-2007), Wells Fargo Scholarship (2003), South Bay Chinese Service Club Award (2003)

PROFESSIONAL EXPERIENCE

Clinical Research Fellow	Jul 2010-Jul 2011
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Mentors: Emily Chew, MD; Wai Wong, MD, PhD

National Eye Institute, National Institutes of Health; Bethesda, MD

- Performed a longitudinal cohort study of patients with von Hippel-Lindau disease
- Completed a Phase 2 clinical trial of patients with macular telangiectasia type 2 (IMT2) treated with intravitreal ranibizumab

- Developed image processing algorithms to segment and analyze color fundus and autofluorescence images of macular pigment in patients with IMT2 and drusen regression in patients with age-related macular degeneration (AMD)
- Processed and compared fluorescein and indocyanine green angiography in patients with neovascular AMD treated with intravitreal ranibizumab
- Research funded by the NIH Clinical Research Training Program

International Research Scholar

Summer 2008

Prince of Wales Hospital, Chinese University of Hong Kong; Hong Kong

- Developed a quantitative scale for clinical differentiation of seizure and non-seizure events
- Project funded by the UCSF Ralston Scholarship for Research in the Neurosciences

Research Associate

Summer 2007

Mentors: Adam Gazzaley, MD, PhD; Ted Zanto, PhD

Neuroscience Imaging Center, UCSF; San Francisco, CA

- Correlated behavioral and EEG measures of working memory performance in aging
- Project funded by the UCSF Dean's Summer Research Fellowship

Research Associate

2006-2007

Mentors: Howard Fields, MD, PhD; Elyssa Margolis, PhD

Ernest Gallo Clinic and Research Center, UCSF; Emeryville, CA

- Quantified and characterized the distribution, connectivity, and function of opioid-sensitive neurons within the rat ventral tegmentum
- Project funded by the Irene and Eric Simon Brain Research Foundation Fellowship

Research Associate

2004-2007

Mentors: John Flannery, PhD; Karen Guerin, PhD

Vision Science Department, UCB; Berkeley, CA

- Evaluated the efficacy of gene therapies for retinitis pigmentosa using function-rescue assays in a rat model

Biology Discovery Intern

Summer 2005

Threshold Pharmaceuticals; Redwood City, CA

- Performed functional proteomics screening for pipeline drug candidates

Protein Chemistry Intern

Summer 2004

Protein Design Labs; Fremont, CA

- Developed a high throughput mass spectrometry-based method for the purity analysis of therapeutic humanized monoclonal antibodies

Functional Genomics Intern

Summer 2003

Mendel Biotechnology; Hayward, CA

- Evaluated cold promoter gene expression in transgenic plant models

Desktop Administrator

2004-2007

Residential Computing, University of California; Berkeley, CA

- Managed team-based technical support for Debian & FreeBSD servers and PC/Mac clients

VOLUNTEER EXPERIENCE

Ophthalmology Preceptor Stanford Arbor and Pacific Free Clinics	2013-2016
Pediatric Vision Screener Prevent Blindness Northern California; San Francisco, CA	2007-2010
Chronic HBV Patient Treatment Coordinator UCSF Hepatitis B Collaborative; San Francisco, CA	2007-2009
Medical Mission Team Volunteer American Medical and Dental Services; Yunnan, China	Summer 2008
Comprehensive Cancer Center Volunteer Alta Bates Medical Center; Berkeley, CA	2005-2007

PUBLICATIONS/ABSTRACTS

1. Lee M, Toy B, Manche E. "Astigmatic outcomes in myopic wavefront-guided laser in situ keratomileusis versus wavefront-guided photorefractive keratectomy using vector analysis." J Cataract Refract Surg. 2018 Sep.
2. Toy B, Kashani A, Berry J. "Optical Coherence Tomography Angiographic (OCTA) Changes in Retinal Vasculature after Radioactive Plaque Brachytherapy for Choroidal Melanoma." Presented at the 2017 American Society of Retina Specialists Annual Meeting.
3. Mustafi D, Toy B, Berry J. "Evaluating retinal sequelae of radioactive scleral plaque brachytherapy using optical coherence tomography angiography." Advances in Ophthalmology and Optometry. 2017 Jul.
4. Moussa K, Bloomer M, Schwartz D, Pan C, Toy B, Crawford J, Afshar A. "Polypoidal Choroidal Vasculopathy: A Clinicopathologic Study." Retina Cases Brief Rep. 2017 Jan.
5. Leung L, Zarbin M, Rosenfeld P, Toy B, Martin D, Blumenkranz M. "Home Monitoring for AMD." Ryan's Retina, Chapter 70 (Pharmacotherapy for Age-Related Macular Degeneration). 2017.
6. Toy B, Manche E. "Vector Analysis of One-Year Astigmatic Outcomes from a Prospective, Randomized, Fellow Eye Comparison of Wavefront-Guided and Wavefront-Optimized PRK in Myopes." Eye Contact Lens. 2016 Dec.
7. Toy B, Schachar I, Tan SW, Moshfeghi D. "Vascular Arrest as a Predictor of Bevacizumab Treatment Failure in Retinopathy of Prematurity." Ophthalmology. 2016 Oct.
8. Toy B, Aguinaldo T, Eliason J, Egbert J. "Non-mydriatic Fundus Camera Screening for Diabetic Retinopathy in a Northern California Safety-net Setting." Ophthalmic Surg Lasers Imaging Retina. 2016 July.
9. Toy B, He L, Myung J, Polkinhorne A, Merrell D, Foster D, Blumenkranz M. "Smartphone-based Dilated Fundus Photography and Near Visual Acuity Screening for Diabetic Eye Disease." Retina. 2016 May.
10. Mercado C, Toy B, Kistler H, Moshfeghi D. "Choroidal Metastases from Cutaneous Melanoma." Ophthalmic Surg Lasers Imaging Retina. 2016 May.
11. Toy B, Manche E. "Vector Analysis of One-Year Astigmatic Outcomes from a Prospective, Randomized, Fellow Eye Comparison of Wavefront-Guided and Wavefront-Optimized LASIK in Myopes." J Refract Surg. 2015 May.
12. Mukhtar N, Toy B, Burman B, Yu A, Chen A, Berman P, Nguyen T, Chan D, Hammer H, McCulloch C, Khalili M. "Assessment of Hepatitis B Preventive Services in a Medically

Underserved Asian and Pacific Islander Population using Provider and Patient Data." J Gen Intern Med. 2015 Jan.

13. Nicholson B, Nigam D, Toy B, Stetson P, Agrón E, Jacobs-El N, Cunningham D, Cukras C, Wong W, Wiley H, Chew E, Ferris F, Meyerle C. "Effect of Ranibizumab on High-speed Indocyanine Green Angiography and Minimum Intensity Projection Optical Coherence Tomography Findings in Neovascular Age-related Macular Degeneration." Retina. 2014 Jul.
14. Burman B, Mukhtar N, Toy B, Nguyen T, Chen A, Yu A, Berman P, Hammer H, Chan D, McCulloch C, Khalili M. "Hepatitis B Management in Vulnerable Populations: Gaps in Disease Monitoring and Opportunities for Improved Care." Dig Dis Sci. 2014 Jan.
15. Meleth A, Toy B, Nigam D, Agron E, Murphy R, Chew E, Wong W. "Prevalence and Progression of Pigment Clumping Associated with Idiopathic Macular Telangiectasia Type 2 (IMT2)." Retina. 2013 Apr.
16. Toy B, Krishnadev N, Indaram M, Cunningham D, Chew E, Wong W. "Drusen Regression is Associated with Local Changes in Fundus Autofluorescence in Intermediate Age-related Macular Degeneration." Am J Ophthalmol. 2013 Sep and presented at the 2011 Association of Research in Vision and Ophthalmology Annual Meeting.
17. Decoste-Lopez J, Toy B, Polesky A, Shu C-T. "An Uncommon Presentation of Tuberculosis: Deep Venous Thrombosis Secondary to Iliopsoas Abscess." Presented at the 2012 American College of Physicians Annual Meeting.
18. Toy B, Koo E, Cukras C, Meyerle C, Chew E, Wong W. "Treatment of Non-neovascular Idiopathic Macular Telangiectasia Type 2 with Intravitreal Ranibizumab: Results of a Phase II Clinical Trial." Retina. 2012 May.
19. Toy B, Agron E, Nigam D, Chew E, Wong W. "Longitudinal Study of Retinal Angiomas and Visual Function in Patients with Ocular von Hippel-Lindau Disease." Ophthalmology. 2012 Dec and presented at the 2011 Association of Research in Vision and Ophthalmology Annual Meeting.
20. Margolis EB, Toy B, Himmels P, Morales M, Fields HL. "Identification of rat ventral tegmental area GABAergic neurons." PLoS One. 2012 July.
21. Toy B, Smith W, English J, Halbach V, Hetts S. "Endovascular Intervention for Acute Cerebral Ischemia: A 17 Year Single-Institution Experience." Presented at the 2011 Society for Neurointerventional Surgery Annual Meeting.
22. Sheu L, Toy B, Kwahk E, Adler J, Yu A, Lai C. "A Model for Interprofessional Health Disparities Education: Student-Led Curriculum on Chronic Hepatitis B Infection." J Gen Intern Med. 2010 Apr and presented at the 2009 CDC National Immunization Conference.
23. Zanto T, Toy B, Gazzaley A. "Delays in neural processing during working memory encoding in normal aging." Neuropsychologia. 2010 Jan.
24. Toy B, Leung H, Kwan P, Lowenstein D. "Development of a Scoring System to Evaluate First Seizures, Epilepsy, and Non-epileptic Events." Presented at the 2009 UCSF Medical Student Research Symposium.
25. Toy B, Alvarez M, Sera R, Schmidt B, Sweeney M. "The Use of In-Gel Digest Methods in mAb Development." Presented at the 2004 Symposium on Practical Applications of Mass Spectrometry in the Biotechnology and Pharmaceutical Industries.

SKILLS & INTERESTS

- Languages: Medical Cantonese and Mandarin, Conversational French, Limited Spanish
- Technology: MatLab, Stata; ImageJ, i2kRetina; SQL, Microsoft Access, REDcap; Adobe Illustrator, InDesign; Windows, Mac OS, UNIX; telemedicine
- Electronic Medical Records (EMR): Epic, Cerner, CPRS, EyeMD, 4D
- Interests: hiking, alpine skiing, classical guitar, personal finance

PROFESSIONAL SOCIETY MEMBERSHIPS

American Academy of Ophthalmology, American Society of Retina Specialists, Association for Research in Vision and Ophthalmology, American Uveitis Society