Harvard Medical School Curriculum Vitae

Date Prepared: July 2, 2015
Name: Jason Comander

Education

09/1993–06/1997	A.B.	Biology	Harvard College
09/1997–06/2006	M.D	Medicine	Harvard Medical School
09/1999–06/2005	Ph.D	Experimental Pathology	Harvard Medical School

Postdoctoral Training

07/2006–06/2007	Intern	Medicine	Brigham & Women's Hospital
07/2007–06/2010	Resident	Ophthalmology	Massachusetts Eye and Ear Infirmary, Harvard Medical School
07/2010–06/2012	Clinical Fellow	Ophthalmology	Vitreoretinal Surgery, Massachusetts Eye and Ear Infirmary

Faculty Academic Appointments

07/2012–	Instructor	Ophthalmology	Harvard Medical School

Appointments at Hospitals/Affiliated Institutions

07/2012-	Assistant Surgeon in Ophthalmology	Ophthalmology	Massachusetts Eye and Ear Infirmary

Professional Societies

1999-	Member	Massachusetts Medical Society
1999-	Member	American Association for the Advancement of Science
2002-2006	Member	National Association for Vascular Biology
2007-	Member	American Academy of Ophthalmology

Honors and Prizes

1993	Finalist	Presidential Scholars
1997	Scholarship	John Harvard Scholarship
1998	Scholarship	Harvard Medical School Medical Scientist Training Program Scholarship for M.D./Ph.D.
2005	Awardee	Massachusetts Medical Society Information Technology
2009	Attendee	Heed Foundation Retreat for Academic Ophthalmology
2014	Awardee	Research to Prevent Blindness (RPB) Career Development Award

Report of Funded and Unfunded Projects

Funding Information

Current

2012- Clinical Scientist Development Program
K12, NEI/NIH
Awardee
The goal of this research is to expand our knowledge regarding the molecular genetics of inherited retinal diseases such as retinitis pigmentosa.

2014- Career Development Award
Research to Prevent Blindness (RPB)
PI
The goal of this research is to use advanced genomic technologies to study a genetically diverse group of retinal diseases.

Report of Local Teaching and Training

Teaching of Students in Courses

2012-2013,2015	"Color Vision"	Harvard Medical School
	HMS Quarter Course	Lecturer, 1 Lectures per year

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs)

2012-	Introductory to Slit lamp Ophthalmoscopy	Harvard Medical School
	Junior Ophthalmology Residents	Lecture and Practical Session

Clinical Supervisory and Training Responsibilities

2012-	Attending, Ophthalmology Clinic and Operating Room	Harvard Medical School
	Medical students, ophthalmology residents and residents	1-2 days a week

Laboratory and Other Research Supervisory and Training Responsibilities

2013-	Laboratory Research	Supervision, management, and training of full-time laboratory technician and lab manager
	Ocular Genomics Institute	
	Mentorship, Harvard Medical School	

Local Invited Presentations

06/2013 "Diagnostics and therapeutics for retinitis pigmentosa"
Research Faculty Meeting, Massachusetts Eye and Ear and Harvard Medical School
Boston, Massachusetts

06/2013 "Diagnostics and treatments for retinitis pigmentosa"
Massachusetts Eye and Ear Alumni Meeting, MEEI and Harvard Medical School
Boston, Massachusetts

Report of Clinical Activities and Innovations

Current Licensure and Certification

2012- American Board of Ophthalmology

2012- Massachusetts Medical License

Practice Activities

2012-	Ophthalmology	Massachusetts Eye and Ear Infirmary	Ambulatory care and surgery, 2-4 sessions per week

Report of Technological and Other Scientific Innovations

January 1997 Fiber-Optic Delivery System for Laser Transscleral Treatment of Ocular Tumor Parel, Manns, Comander, Rol, Murray, Gonzalez-Cirre Invention Disclosure #UM97-12

June 2015 Method for improved viral transduction of the retina. Jason Comander, Dean Eliott, Leo Kim, Luk Vandenberghe

Report of Scholarship

Peer reviewed publications in print or other media

Research investigations

Sasoh M, Parel J-M, Fabrice Manns, Nose I, **Comander J**, Smiddy WE. Quantification of Holmium: YAG and Thulium: YAG Laser-Induced Scleral Shrinkage for Buckling Procedures. Ophthalmic Surg Lasers 1998; 29(5):410-421.

Robinson DS, Parel J-M, Denham DB, Gonzales-Cirre X, Manns F, Milne PJ, Schachner RD, Herron AJ, **Comander J**, Hauptman G. Interstitial Laser Hyperthermia Model Development for Minimally Invasive Therapy of Breast Carcinoma. J Am Coll Surg 1998: 186:284-292.

Parel JM, **Comander J.** Mathematical modeling of gel injection adjustable keratoplasty (GIAK). An Inst Barraquer 1995; 25:271-279.

Garcia-Cardena G, **Comander J**, Anderson KR, Blackman BR, Gimbrone MA Jr. Biomechanical activation of vascular endothelium as a determinant of its functional phenotype. Proc Natl Acad Sci U S A. 2001 Apr 10;98(8):4478-85.

Comander J, Weber GM, Gimbrone MA, Jr. and Garcia-Cardena G "Argus--a new database system for Web-based analysis of multiple microarray data sets." Genome Res. 2001 11(9): 1603-10.

Aach J, Bulyk ML, Church GM, **Comander J**, Derti A, Shendure J. Computational comparison of two draft sequences of the human genome. Nature. 2001 Feb 15;409(6822):856-9.

Garcia-Cardena G, **Comander JI**, Blackman BR Anderson KR and Gimbrone MA. "Mechanosensitive endothelial gene expression profiles: scripts for the role of hemodynamics in atherogenesis?" Ann N Y Acad Sci. 2001 947: 1-6.

Takayama K, Garcia-Cardena G, Sukhova GK, **Comander J**, Gimbrone MA, Jr. and Libby P. "Prostaglandin E2 suppresses chemokine production in human macrophages through the EP4 receptor." J Biol Chem. 2002 277(46): 44147-54.

Natarajan S* **Comander J***, Gimbrone MA, Jr. and Garcia-Cardena G. "Improving the statistical detection of regulated genes from microarray data using intensity-based variance estimation." BMC Genomics. 2004 5(1): 17. *Equal contributions

Comander J, Pineda R 2nd. Accommodating intraocular lenses: theory and practice. Int Ophthalmol Clin. 2010 Winter;50(1):107-17.

Comander J, Gardiner M, Loewenstein J. High-Resolution Optical Coherence Tomography Findings in Solar Maculopathy and the Differential Diagnosis of Outer Retinal Holes. Am J Ophthalmol. 2011 Sep;152(3):413-419.e6.

Comander J, Loewenstein J, Sobrin L. Diagnostic testing and disease monitoring in birdshot chorioretinopathy. Semin Ophthalmol. 2011 Jul-Sep;26(4-5):329-36.

Mantopoulos D, Murakami Y, **Comander J**, Thanos A, Roh M, Miller JW, Vavvas DG. Tauroursodeoxycholic acid (TUDCA) protects photoreceptors from cell death after experimental retinal detachment. PLoS One. 2011;6 (9):e24245.

Comander J, Weigel-DiFranco C, Sandberg MA, Berson EL. Visual Function in Carriers of X-Linked

Retinitis Pigmentosa. Ophthalmology. 2015; in press.

Non-peer reviewed scientific or medical publications/materials in print or other media

Proceedings of meetings

Parel J-M, **Comander J**, Simon G, Takesue Y, Villain F. Mathematical model of annular keratophakia: intracorneal ring (ICR) and gel adjustable keratoplasty (GIAK). In: J-M Parel, Q Ren (eds), Ophthalmic Technologies IV, SPIE Publishers, Bellingham WA 1994, Proc. 2126:366-375.

Sasoh M, Parel JM, Shen JH, Nose I, **Comander J,** Smiddy W. Laser scleral buckling: In vitro quantification for Ho: YAG and Tm: YAG lasers. In: J-M Parel, Q Ren, K Joos, (eds), Ophthalmic Technologies V, SPIE Publishers, Bellingham WA, 1995, Proc. 2393:299-305.

Comander J, Simon G, Takesue Y, Villain F, Parel J-M: Measuring ocular characteristics after gel injection adjustable keratoplasty (GIAK) in the rabbit. In: J-M Parel, Q Ren, K Joos, (eds). Ophthalmic Technologies V, SPIE Publishers, Bellingham WA, 1995, Proc. 2393:85-91.

Comander J, Parel J-M, Robinson DS, Manns F, Denham DB, Rol PO. Mathematical modeling of laser induced hyperthermia. In: J-M Parel, PO Rol, KM Joos (eds), Ophthalmic Technologies VI, SPIE Publishers, Bellingham WA, 1996, Proc. 2673:102-107.

Robinson DS, Parel J-M, Gonzalez-Cirre X, Denham BD, Manns F, Milne PJ, Schachner RD, Herron AJ, **Comander J**, Hauptmann G. Update of Laser Hyperthermic Treatment for Primary Breast Cancers: *Ex vivo* and *In vivo* models. In RR Anderson et al., *Lasers in Surgery: Advanced Characterization, Therapeutics and Systems VII*, SPIE 1997. Proc. #2970:605-608.

Robinson DS, Parel J-M, Denham DB, Manns F, Gonzalez-Cirre X, **Comander J**, Schachner R, Herron A. Interstitial hyperthermia endoablation of breast tissues: results of an experimental in-vivo pilot study. In: Rox Anderson (ed), Lasers in Surgery: Advanced Characterization, Therapeutics, and Systems VI. SPIE Publishers, Bellingham WA, 1996;Proc. 2671:142-144.

Comander J, Chen CS, Mannix C, Wei C. Non-invasive, continuous toxin detection in mammalian cells. Annual meeting of the Defense Advanced Research Projects Agency's MicroFluidic Molecular Systems (DARPA's MicroFlumes), 1998 (Proc.).

Theses

Comander J. "Transcriptional and Functional Modulation of the Endothelial Cell Inflammatory Response by a Biomechanical Stimulus." [dissertation] Harvard Medical School, Division of Medical Sciences

Abstracts, Poster Presentations and Exhibits Presented at Professional Meetings

(past 3 years)

Comander J, Gardiner M, Loewenstein J. High Resolution Optical Coherence Tomography Findings in Solar Maculopathy and the Differential Diagnosis of Outer Retinal Holes. ARVO 2011

Mantopoulos D, **Comander J**, Murakami Y, Roh M, Miller J, Vavvas D. Tauroursodeoxycholic Acid (TUDCA) Protects Photoreceptors From Cell Death During Experimental Retinal Detachment.ARVO 2011

Comander J, Langsdorf A, Harper S, Weigel C, Consugar M, Sandberg M, Gai X, White J, Berson E, Pierce E. Genetic Heterogeneity Among Patients with Pericentral Retinitis Pigmentosa. ARVO 2013.

Narrative Report:

The goal of my research is to expand our knowledge regarding the molecular genetics of inherited retinal diseases such as retinitis pigmentosa (RP). I have an active research program in this area. My experience in molecular genetics began by participating in the analysis of the first draft of the human genome in 2001. Since that time, I have also acquired extensive experience analyzing, manipulating, and managing large volumes of numerical biological data in databases. Currently, we are pursuing a gene discovery effort for pericentral retinitis pigmentosa using next generation sequencing and copy number variant analysis. Initial results are revealing the genetic heterogeneity of pericentral RP. Furthermore, a significant bottleneck in the interpretation of data from such gene discovery projects is the ability to characterize novel sequence variants as benign or pathogenic. I am currently developing new techniques to speed such characterization in the mammalian retina *in vivo*.

As these projects mature into late-stage animal experiments, I have experience performing subretinal injections (i.e. for gene therapy) in mice, rats, and macaques. I am a fully credentialed vitreoretinal surgeon, and I perform vitreoretinal surgery in humans. Furthermore, as a clinical ophthalmologist I have taken special interest and training in retinal degenerations, and participate in a dedicated retinal degenerations clinic every week. This practical experience will help guide the design, implementation and interpretation of the proposed project.