

CURRICULUM VITAE

Naresh Mandava, M.D.

Department of Ophthalmology
University of Colorado School of Medicine
Rocky Mountain Lions Eye Institute
1675 Aurora Court
P.O. Box 6510, Mailstop F731
Aurora, CO 80045

PREDOCTORAL EDUCATION:

Pre-medical: Rensselaer Polytechnic Institute, Troy, NY, (1986-1990)
B.S., Summa Cum Laude

Medical: Albany Medical College, Albany, NY (1988-1992)
Summa Cum Laude

POSTDOCTORAL TRAINING:

Internship: St. Vincent's Medical Center, Yale University affiliate, Bridgeport, CT
(1992-1993)

Residency: Manhattan Eye, Ear and Throat Hospital, New York, NY (1993-1996)

Fellowships: Columbia University / Manhattan Eye, Ear and Throat Hospital, New York,
NY (1996-1998)

MEDICAL SCHOOL APPOINTMENTS:

1996 – 1998 Clinical Instructor, Department of Ophthalmology,
Harkness Eye Institute, Columbia University

1996 – 1998 Clinical Instructor, Manhattan Eye, Ear & Throat Hospital

1998 – 2004 Assistant Professor, Department of Ophthalmology,
University of Colorado School of Medicine

2004 - Associate Professor, Department of Ophthalmology,
University of Colorado School of Medicine

2004 - Interim Chair, Department of Ophthalmology,
University of Colorado School of Medicine

2007- Chair, Department of Ophthalmology
University of Colorado School of Medicine

HOSPITAL STAFF MEMBERSHIPS:

1998 - University of Colorado Hospital, Denver, CO

1998 - The Children's Hospital, Denver, CO

1998 - Denver Health Medical Center, Denver, CO

1998 - Veterans' Administration Hospital, Denver, CO

HONORS:

1991 Alpha Omega Alpha (elected junior year), Albany Medical College

1995 Chief Resident (elected), Manhattan Eye, Ear, & Throat Hospital

2004 - 2007 Top Ophthalmologists in America
2007 American Academy of Ophthalmology Honor Award
2008, 2009 5280 Top Doctors Listing
2009 Top Doctors Listing

PROFESSIONAL SOCIETIES:

1991 - Alpha Omega Alpha
1993 - Association for Research in Vision and Ophthalmology
1993 - American Academy of Ophthalmology
2000 - Pan American Association of Ophthalmology
2001 - American Society of Retina Specialists
2004 - Colorado Society of Eye Physicians and Surgeons
2004 - Colorado Medical Society
2004 - Association of University Professors of Ophthalmology
2005 - Retina Society
2007- Macula Society

ADMINISTRATIVE APPOINTMENTS/DEPARTMENT OF OPHTHALMOLOGY

2003 - Director, Vitreoretinal Fellowship
1998 - 2004 Chair, Annual Symposium Committee, Department of Ophthalmology, UCD
1998 - 2004 Chair, Resident, Fellow and Alumni Day Committee, Department of Ophthalmology, UCD
1999 - 2004 Chair, Grand Rounds Committee, Department of Ophthalmology, UCD
1998 - Clinical Committee, Department of Ophthalmology, UCD
1998 - Quality Assurance Committee, Department of Ophthalmology, UCD
1998 - Member, Residency Selection Committee, Department of Ophthalmology, UCD
1998 - Chair, Operating and Procedure Rooms Committee, Department of Ophthalmology, UCD
1998 - Clinical Faculty Promotions Committee, Department of Ophthalmology, UCD
1999 - 2004 Chair, Residency Selection Committee, Department of Ophthalmology

ADMINISTRATIVE APPOINTMENTS/UNIVERSITY OF COLORADO HOSPITAL

2000 - Operating Room Committee, University of Colorado Hospital
2004 - Member, University of Colorado Hospital Medical Board
2004 - Executive Director, Rocky Mountain Lions Eye Institute

ADMINISTRATIVE APPOINTMENTS/SCHOOL OF MEDICINE

2004 - Board Member, University Physicians Inc.
2004 - Member, Executive Committee, University of Colorado School of Medicine

PUBLIC SERVICE

2004 - Lions Club of Denver
2004 - Rocky Mountain Lions Eye Institute Foundation
2004 - Member, Rocky Mountain Lions Eye Institute Advisory Board

SPECIALTY BOARD CERTIFICATION:

1997

Diplomate, American Board of Ophthalmology

LICENSES:

1998- State of Colorado

1993- State of New York

REVIEWER:

Archives of Ophthalmology/JAMA

Ophthalmology

Investigative Ophthalmology and Visual Science

Ophthalmic Surgery and Lasers

British Journal of Ophthalmology

Retina

Grant Reviewer for Fight for Sight

RPB Advisory Council

GRANTS:

1. A phase III randomized, placebo controlled, double-masked, multicenter trial of microplasmin intravitreal injection for non-surgical treatment of focal vitreomacular adhesion. MIVI-TRUST study. (Co-investigator)
2. A phase I/II study assessing the safety and efficacy of ranibizumab for non-arteritic ischemic optic neuropathy (NAION).” Sponsor: UCDHSC/Genentech. (\$174,976) (Principal Investigator)
3. “A phase IV, open label, multi-center trial of maintenance intravitreal injections of Macugen® (Pegaptanib Sodium) given every 6 weeks for 48 weeks in subjects with subfoveal neovascular Age-Related Macular Degeneration (AMD) initially treated with a modality resulting in maculopathy improvement.” Sponsor: EyeTech Pharm. (\$119,246) (Co-investigator)
4. “A phase III, multicentered, randomized, active treatment-controlled study of the efficacy and safety of ranibizumab compared with laser in subjects with macular edema secondary to branch retinal vein occlusion (Protocol FVF4165g).” Sponsor: Genentech. (Principal Investigator)
5. “A phase III, multicentered, randomized, active treatment- controlled study of the efficacy and safety of ranibizumab compared with laser in subjects with macular edema secondary to central retinal vein occlusion (Protocol FVF4166g).” Sponsor: Genentech. (Principal Investigator)
6. “A randomized, double masked, active controlled phase III study of the efficacy, safety and tolerability of repeated doses of intravitreal VEGF trap in subjects with neovascular Age-Related Macular Degeneration.” Sponsor: Regeneron. (Co-Investigator)
7. A phase III, double masked, multicentered, randomized, sham-controlled study of the efficacy and safety of ranibizumab injection in subjects with clinically significant macular edema with center involvement secondary to diabetes mellitus.” Sponsor: Genentech. (Co-investigator)
8. “A multi-center, randomized, study to assess the efficacy and safety of standard care versus triamcinolone acetonide injection for the treatment of macular edema associated with central retinal vein occlusion (CRVO) and branch retinal vein occlusion (BRVO).” Sponsor: National Eye Institute (\$117,000) (Co-Investigator)

9. "A randomized trial comparing intravitreal triamcinolone acetonide and laser photocoagulation for diabetic macular edema," NEI U10EY14231. Sponsor: National Eye Institute (\$66,400) (Co-Investigator)
10. "Clinical evaluation of the safety of next generation intraocular irrigating solution compared to BSS plus for use during surgery for removal of idiopathic epimacular membrane with vitrectomy." Sponsor: Alcon Pharmaceuticals (\$37,800) (Co-Investigator)
11. "Motility molecule for treatment of proliferative vitreoretinopathy," National Institutes of Health, SBIR Phase I studies, grant to Motility, Inc., Principal Investigator - Eugene Levin, 3/1/06-10/1/06. UCHSC funded portion, \$68,000 in direct costs. (Collaborating Research Scientist)
12. "An evaluation of efficacy and safety of posterior juxtascleral administrations of anecortave acetate for depot suspension (15 mg or 30 mg) versus sham administration in patients at risk for developing sight-threatening choroidal neovascularization (CNV) due to exudative age-related macular degeneration (AMD)." Sponsor: Alcon Pharmaceuticals, Inc. (\$205,000) (Principal Investigator)
13. "Chimeric ribozyme for treatment of proliferative vitreoretinopathy," National Institutes of Health, SBIR Phase I studies, R43 EY12743 to Immusol, Inc., Principal Investigator – Joan Robbins, 07/01/99-12/31/99. UCHSC funded portion, \$27,737 in direct costs. (Collaborating Research Scientist)
14. "Rabbit PVR model studies," NIH SBIR Phase II, R44 EY12743 to Immusol, Inc., Principal Investigator - Joan Robbins, 12/01/01-11/30/02. UCHSC funded portion, \$44,199 in direct costs. (Collaborating Research Scientist)
15. "A multi-center, randomized, double-masked placebo controlled study of the safety and efficacy assessment of chimeric ribozyme to PCNA to prevent recurrence of proliferative vitreoretinopathy." Sponsor: Immusol Corp. (Chairman of Study Design, Medical monitor)
16. "A multi-center, randomized, double-masked, placebo-controlled parallel group study of tin ethyl etiopurpurin (SnET2) photodynamic therapy in the treatment of subfoveal choroidal neovascularization associated with age-related macular degeneration." Sponsor: Miravant/Pharmacia Corp Project (\$244,935) (Principal Investigator)
17. "A Safety and Efficacy Study of Vitrase (Hyaluronidase) for Ophthalmic Intravitreal Injection for Clearance of Severe Vitreous Hemorrhage". Sponsor: Advanced Corneal Systems Inc. (\$5,359) (Principal Investigator)
18. "A randomized, double-masked, controlled, dose-ranging, multi-center comparative trial, in parallel groups, to establish the safety and efficacy of intravitreal injections of EYE001 (anti-VEGF pegylated aptamer) given every 6 weeks for 54 weeks, in patients with exudative age-related macular degeneration (AMD)". Sponsor: Eyetech Pharmaceuticals, Inc. (\$81,500) (Principal Investigator)
19. "A comprehensive human atlas of the body: Human Atlas C," National Institutes of Health, NIH2530687. University of Colorado Health Sciences Center, PI: Victor M. Spitzer, Investigator for ophthalmic portion.
20. "Screening for diabetic retinopathy by primary care providers." American Diabetes Association grant to Salud Family Center, PI: Tillman Farley, 07/01/02-07/01/04. (Consultant)
21. "A multinational, multi-centre, randomized, double-blind, double-dummy, placebo-controlled study to assess the efficacy and safety of 20, 40, 80mg sildenafil in the treatment of pulmonary arterial hypertension in subjects aged 18 years and over." Pfizer, Inc. (Co-Investigator)

PUBLICATIONS:

Peer reviewed:

1. **Mandava N**, Simon JW, Jenkins PL. Preferential looking and recognition acuities in clinical amblyopia. *J Ped Ophthalmol Strab* 1991;28:323-6.
2. **Mandava N**, Donnenfeld ED, Owens PL, Kelly SE, Haight DH. Ocular deviation following excimer laser photorefractive keratectomy. *J Cat Ref Surg* 1996;22:504-5.
3. **Mandava N**, Guyer D, Yannuzzi LA, Slakter J, Sorenson J, Spaide RF, Freund KB, Orlock DA. Indocyanine green videoangiography-guided laser photocoagulation of occult choroidal neovascularization. *Ophthalmic Surg Lasers* 1997;28:844-52.
4. Fisher Y, Hanutsaha P, Tong S, Fenster A, Mazarin G, **Mandava N**. Three-dimensional ophthalmic contact B-scan ultrasonography of the posterior segment. *Retina* 1998;18:251-6.
5. Schiff W, Chang S, **Mandava N**, Barile GR. Pars plana vitrectomy for persistent, visually significant vitreous opacities. *Retina* 2000;20:591-6.
6. Bartlett H, Willoughby B, **Mandava N**. Polypoidal choroidal vasculopathy in a patient with melanocytoma of the optic nerve. *Retina* 2001;21:396-9.
7. Kouyomdjian G, Larkin T, Blackburn P, **Mandava N**. Optic disk edema as a presentation of Propionibacterium acnes endophthalmitis. *Am J Ophthalmol* 2001;132:259-61.
8. **Mandava N**, Blackburn P, Paul DB, Wilson MW, Read SB, Alspaugh E, Tritz R, Barber JR, Robbins JM, Kruse CA. Ribozyme to proliferating cell nuclear antigen to treat proliferative vitreoretinopathy. *Invest Ophthalmol Vis Sci* 2002;43:3338-48.
9. Maberley D, Morris A, Hay D, Chang A, Hall L, **Mandava N**. A comparison of digital retinal image quality among photographers with different levels of training using a non-mydratic fundus camera. *Ophthalmic Epidemiology* 2004; 11(3):191-7.
10. **Mandava N**, Costakos D, Bartlett HM. Chronic myelogenous leukemia manifested as bilateral proliferative retinopathy. *Arch Ophthalmol* 2005; 123(4):576-7.
11. Olson JL, **Mandava N**. Macular hole formation associated with idiopathic parafoveal telangiectasia. *Graefes Arch Clin Exp Ophthalmol* 2005; 20:1-2.
12. Kahook MY, **Mandava N**, Bateman JB, Thomas JA. Glycosylation type Ic disorder: idiopathic intracranial hypertension and retinal degeneration. *Br J Ophthalmol* 2006; 90(1):115-116.
13. Gelston CD, **Mandava N**, Durairaj VD. Orbital foreign body masquerading as conjunctival melanoma 60 years after injury. *Clinical and Experimental Ophthalmology* 2005;33(6):661-63.
14. Olson JL, On AV, **Mandava N**. Protecting the retinal pigment epithelium during macular hole surgery. *Clinical and Experimental Ophthalmology* 2005;33(6):576-77.
15. Kahook MY, Olson JL, **Mandava N**. Long term follow-up of intraocular pressure elevation in patients post intravitreal triamcinolone acetate injection. *Vision Pan-America* 2005;4:9-11.
16. Olson JL, **Mandava N**. Bilateral intraocular involvement in a patient with Lemierre's syndrome. *Br J Ophthalmol* 2006;90(2):249-50.
17. **Mandava N**, Kahook M, Mackenzie D, Olson JL. Anterior scleral buckling procedure for cyclodialysis cleft with chronic hypotony. *Ophthalmic Surgery Lasers Imaging*

- 2006;37(2):151-53.
18. Gelston CD, Olson JL, **Mandava N**. Macular oedema in central retinal vein occlusion treated with intravitreal triamcinolone. *Acta Ophthalmol Scand* 2006;84(3):314-18.
 19. **Mandava N**, Bartlett HM. Diagnostic and Therapeutic Challenges. *Retina* 2006;26(2):214-18.
 20. Levi ME, **Mandava N**, Chan LK, Weinberg A, Olson JL. Treatment of multi-drug resistant cytomegalovirus retinitis with systemically administered leflunomide. *Transplant Infectious Disease*. 2006;8(1):38-43.
 21. Rudometkin N, Deane K, Olson JL, **Mandava N**. Infliximab in uveitis treatment (Letter to the editor). *Archives of Ophthalmology*. 2006;124(8):1211.
 22. Prall RF, Drack A, Taylor M, Ku L, Olson JL, Gregory D, Mestroni L, **Mandava N**. Ophthalmic Manifestations of Danon Disease. *Ophthalmology*. 2006;113(6):1010-13.
 23. Oliver SC, **Mandava N**. Ultrasonographic signs in complete optic nerve avulsion. *Archives of Ophthalmology* 2007;125(5):716.
 24. Olson JL, Bennett J, **Mandava N**. Photo Essay: Cerebellar and retinal vascular lesions in a postpartum patient. *American Family Physician* 2007;75(3):393-4.
 25. Kullman G, **Mandava N**, Bennett JL, Kahook MY. Nutritional deficiencies: ocular side effects and visual field defects. *Glaucoma Today*.
 26. Olson J, Courtney RJ, **Mandava N**. Intravitreal infliximab and choroidal neovascularization in an animal model. *Arch Ophthalmol* 2007;125(9):1221-4.
 27. Curtis TH, **Mandava N**. Acute retinal necrosis as a late sequelae of herpes simplex type 1 encephalitis in a child. *J AAPOS* 2007;11(5):509-10.
 28. Schiff WM, Hwang JC, Ober MD, Olson JL, Dhrami-Gavazi E, Barile GR, Chang S, **Mandava N**. A safety and efficacy assessment of chimeric ribozyme to proliferating cell nuclear antigen to prevent recurrence of proliferative vitreoretinopathy. *Arch Ophthalmol* 2007;125(9):1161-7.
 29. Taylor MR, Ku L, Slavov D, Cavanaugh J, Boucek M, Zhu X, Graw S, Carniel E, Barnes C, Quan D, Prall R, Lovell MA, Mierau G, Ruegg P, **Mandava N**, Bristow MR, Towbin JA, Mestroni L; Familial Cardiomyopathy Registry. Danon disease presenting with dilated cardiomyopathy and a complex phenotype. *J Hum Genet* 2007;52(10):830-5.
 30. Bennett J, Thomas S, Olson JL, **Mandava N**. Treatment of nonarteritic anterior ischemic optic neuropathy with intravitreal bevacizumab. *Journal of Neuro-Ophthalmology*. 2007;27(3):238-40.
 31. Farley TF, **Mandava N**, Prall FR, Carsky C. Accuracy of primary care clinicians in screening for diabetic retinopathy using single-image retinal photography. *Ann Fam Med*. 2008;6(5):428–434
 32. Gohel PS, **Mandava N**, Olson JL, Durairaj VD. Age-related macular degeneration: an update on treatment. *Am J Med*. 2008;121(4):279-81.
 33. Prall RF, Ciardella A, Olson, JL, **Mandava N**. Natural history of macular hole associated with electrical injury: an OCT study. *Pan American*. 2008
 34. Athappilly G., Pelak V.S., **Mandava N.**, and Bennett J.L.: Ischemic optic neuropathy, *Neurol Res*, 30:794-800, 2008.
 35. Olson JL, Rouhani B., **Mandava N**. Sub-Tenon's Triamcinolone for Purtscher's-like Retinopathy. *Clinical Ophthalmology*. 2008;2(1) 195-198.
 36. Olson JL, Courtney RJ, Rouhani B, **Mandava N**, Dinarello CA. Intravitreal anakinra inhibits choroidal neovascular membrane growth in a rat model. *Ocul Immunol Inflamm*. 2009;17(3):195-200.

37. Dixon JA, Oliver SC, Olson JL, **Mandava N**. VEGF Trap-Eye for the treatment of neovascular age-related macular degeneration. *Expert Opin Investig Drugs*. 2009;18(10):1573-80. Review.
38. Kahook MY, Kimura AE, Wong LJ, Ammar DA, Maycotte MA, **Mandava N**. Sustained elevation in intraocular pressure associated with intravitreal bevacizumab injections. *Ophthalmic Surg Lasers Imaging*. 2009;40(3):293-5.
39. Tenku KE, Kahook MY, Barnett CJ, **Mandava N**, Oliver SC. An overview of the retina module of the Heidelberg Retina Tomograph 3. *Retina Today*. May-June. 2009;4(4)72-75.
40. Kunjukunju N, Navarro A, Oliver S, Olson J, Patel C, Garcia G, **Mandava N**, Quiroz-Mercado H. Bilateral macular hole formation secondary to scleroperetaria caused by shockwaves transmitted by a posterior vector: a case report. *BMC Ophthalmol*. 2010;19;10:6.
41. Kahook MY, Liu L, Ruzycski P, **Mandava N**, Carpenter JF, Petrash JM, Ammar DA. High molecular weight aggregates in repackaged bevacizumab. *Retina*. 2010;30(6)887-92.
42. Horsley MB, **Mandava N**, Maycotte MA, Kahook MY. Retinal nerve fiber layer thickness in patients receiving chronic anti-vascular endothelial growth factor therapy. *Am J Ophthalmol*. 2010 Jul 17. (Epub ahead of print)
43. Ratra D, Uparkar M, Bernstein PS, Simaraman K, Tabin G, **Mandava N**, Lipson BK. Diagnostic and therapeutic challenges. *Retina*. 2010 Jul 30. (Epub ahead of print)
44. Good TJ, Kimura AE, **Mandava N**, Kahook MY. Sustained elevation of intraocular pressure after intravitreal injections of anti-VEGF agents. *Br J Ophthalmol*. 2010 Aug 11. (Epub ahead of print)
45. Seibold LK, **Mandava N**, Kahook MY. Comparison of retinal nerve fiber layer thickness in normal eyes using time-domain and spectral-domain optical coherence tomography. *Am J Ophthalmol* 2010. (in press)

Publications (non-peer reviewed)

1. Olson JL, **Mandava N**. Pars Plana Vitrectomy for Delayed Postoperative Hemorrhagic Cystoid Macular Edema. *Digital Journal of Ophthalmology and Visual Science*, November, 2004.

Clinical trial group publications:

1. Gonzales CR; VEGF Inhibition Study in Ocular Neovascularization (V.I.S.I.O.N.) Clinical Trial Group. Enhanced efficacy associated with early treatment of neovascular age-related macular degeneration with pegaptanib sodium: an exploratory analysis. *Retina* 2005;25(7):815-27. **Mandava N** (Principal Investigator)
2. Larsen M, Sander B, Villumsen JE, Haamann PH, la Cour M, Lund-Andersen H; VEGF Inhibition Study in Ocular Neovascularization Clinical Trial Group. [Treatment of neovascular age-related macular degeneration with intravitreal vascular endothelial growth factor inhibitor--secondary publication] *Ugeskr Laeger* 2005;167(35):3301-5. **Mandava N** (Principal Investigator)
3. Gragoudas ES, Adamis AP, Cunningham ET Jr, Feinsod M, Guyer DR; VEGF

Inhibition Study in Ocular Neovascularization Clinical Trial Group. Pegaptanib for neovascular age-related macular degeneration. *N Engl J Med* 2004;351(27):2805-16.

Mandava N (Principal Investigator)

4. Kuppermann BD, Thomas EL, de Smet MD, Grillone LR; Vitrase for Vitreous Hemorrhage Study Groups. Safety results of two phase III trials of an intravitreal injection of highly purified ovine hyaluronidase (Vitrase) for the management of vitreous hemorrhage. *Am J Ophthalmol* 2005;140(4):585-97. **Mandava N** (Principal Investigator)

Kuppermann BD, Thomas EL, de Smet MD, Grillone LR; Vitrase for Vitreous Hemorrhage Study Groups. Pooled efficacy results from two multinational randomized controlled clinical trials of a single intravitreal injection of highly purified ovine hyaluronidase (Vitrase) for the management of vitreous hemorrhage. *Am J Ophthalmol* 2005;140(4):573-84. **Mandava N** (Principal Investigator)

Campochiaro PA, Heier JS, Feiner L, Gray S, Saroj N, Rundle AC, Murahashi WY, Rubio RG; BRAVO Investigators. Ranibizumab for macular edema following branch retinal vein occlusion: six month primary endpoint results of a phase III study. *Ophthalmology*. 2010;117(6):1102-1112.

Brown DM, Campochiaro PA, Singh RP, Li Z, Gray S, Saroj N, Rundle AC, Rubio RG, Murahashi WY; CRUISE Investigators. Ranibizumab for macular edema following central retinal vein occlusion: six month primary endpoint results of a phase III study. *Ophthalmology*. 2010;117(6):1124-1133.

CHAPTERS/REVIEWS:

(Invited)

1. **Mandava, N**, Guyer DR. Fluorescein angiography. In: M Yanoff, JS Duker, editors. *Ophthalmology*. London: Mosby, 1997.
2. **Mandava N**, Fisher Y. Surgical retina. In: Mandava S, Sweeney T, Guyer DR, editors. *MEETH Pocket Atlas*. New York: Thieme, 1997.
3. **Mandava N**, Guyer DR, Yannuzzi LA, Nichol J, Orlock D. Principles of fluorescein angiography. In: LA Yannuzzi, DR Guyer, S Chang, J Shields, WR Green, editors. *Retina, Vitreous, Macula: A Comprehensive Text*, 29-38. Philadelphia: WB Saunders, 1999.
4. **Mandava N**, Yannuzzi LA. Coats' disease. In: LA Yannuzzi, DR Guyer, S Chang, J Shields, WR Green, editors. *Retina, Vitreous, Macula: A Comprehensive Text*, 390-7. Philadelphia: WB Saunders, 1999.
5. Anagnoste S, **Mandava N**, Guyer DR, Yannuzzi LA. Fundus angiography. In: GC Brown, HW Flynn, CD Regillo, editors. *Essentials of Vitreoretinal Surgery*, 51-64. New York: Thieme, 1999.
6. **Mandava N**, Yannuzzi LA. Miscellaneous retinal vascular diseases. In: GC Brown, HW Flynn, CD Regillo, editors. *Essentials of Vitreoretinal Surgery*, 193-212. New York: Thieme, 1999.
7. **Mandava N**, Guyer DR, Yannuzzi LA, Reichel E. Fluorescein and ICG angiography. In: M Yanoff, JS Duker, editors. *Ophthalmology*. London: Mosby, 2002.
8. **Mandava N**. Pharmacologic treatment to inhibit proliferation in PVR. *Vitreoretinal Surgery and Technology* 2003;12:1-5.
9. **Mandava N**, Iranmanesh R, Olson J. Idiopathic perifoveal telangiectasis. In Huang D, Kaiser P, Lowder C, Traboulsi E, editors. *Atlas of posterior segment imaging*. London:

Mosby 2004.

10. **Mandava N**, Olson J. Fluorescein angiography. In: Huang D, Kaiser P, Lowder C, Traboulsi E, editors. Atlas of posterior segment imaging. London: Mosby 2004.
11. Olson J, **Mandava N**. Fluorescein and ICG angiography. In: M Yanoff, JS Duker, editors. Ophthalmology. London: Mosby, 2006.
12. Bennett J, **Mandava N**. Nonarteritic ischemic optic neuropathy, 2008.
13. Prall R, Olson JL, Barnett CJ, **Mandava N**. Fluorescein angiography, Indocyanine green angiography CT, and Optical coherence tomography. In: M Yanoff, JS Duker, editors. Ophthalmology. London: Mosby 2009.

RESEARCH PRESENTATIONS: (Competitive)

1. Preferential looking and recognition acuities in clinical amblyopia. **Mandava N**, Simon JW, Oral Presentation, Annual Meeting of the American Association for Pediatric Ophthalmology and Strabismus 1991.
2. A comparison of astigmatism after penetrating keratoplasty using two suction trephination techniques. **Mandava N**, Lazzaro D, Belmont SC, Yu J. ARVO, Ft. Lauderdale, FL May 1995.
3. Intravitreal and aqueous ofloxacin levels after cataract extraction in rabbits receiving preoperative ofloxacin. **Mandava N**, Grossman, G, Donnenfeld, E. Oral presentation, Grossman, G. Ocular Microbiology and Immunology Group Annual Meeting, Atlanta, GA October 1995.
4. Prophylactic topical antibiotics in cataract surgery: a rabbit endophthalmitis model. **Mandava N**, Donnenfeld E, Grossman G, Mandava S. Ocular Microbiology and Immunology Group at American Academy of Ophthalmology Annual Meeting, Atlanta, GA October 1995.
5. Surgical results and visual outcomes: following sulcus fixation of posterior chamber intraocular lenses. **Mandava N**, Chang S, Schiff W, Reppucci V. Vitreous Society Annual Meeting, New Orleans, LA September 1997.
6. Chimeric ribozyme targeting proliferating cell nuclear antigen (PCNA) prevents retinal detachment (RD) in the rabbit model of proliferative vitreoretinopathy (PVR). **Mandava N**, Blackburn P, Wilson MW, Paul DB, Alspaugh E, Whiting C, Barber JR, Robbins JM, Broswick BM, Kruse CA. Association for Research in Vision and Ophthalmology, Ft. Lauderdale, FL April 2000.
7. Ocular injuries sustained during paintball: A recreational war game. **Mandava N**, Schwartz SD, Stout JT, Napoli J, Boucher MC, Yannuzzi L, 5th International Symposium on Ocular Trauma. Montreal, Canada July 2000.
8. Chimeric ribozyme to PCNA as a treatment for the prevention of fibrous proliferation in ocular diseases such as retinal detachment and trabeculectomy, **Mandava N**, Robbins J. FDA, August 2000.
9. Vitrectomy and scleral band for pseudophakic retinal detachment. **Mandava N**, Rodriguez-Coleman H, Schiff W, Barile GR. Vitreous Society, 2001.
10. Screening for diabetic retinopathy by primary care providers. Farley T, Carsky C, **Mandava N**, Parnes B. North American Primary Care Research Group, October 2003.
11. New instrument for sclerotomy depression. **Mandava N**, Rudometkin N, Olson J,

- Ciardella A. Vail Vitrectomy, March 2007.
12. Self-reported perception of driving function following ranibizumab treatment in patients with neovascular AMD. **Mandava N**, Chang TS, Bressler NM. Macula Society. London, UK May 2007.
 13. **Mandava N**, Korotkin A, Bennett J, Olson J, Quiroz-Mercado H. New Indications for Anti-VEGF Therapy: Retinal Arterial Macroaneurysm (RAM) and Nonarteritic Ischemic Optic Neuropathy (NAION) 31st Annual Macula Society Meeting, Palm Beach, Florida, January 2008.

**COURSES/LECTURES:
(Invited)**

1. Wide angle viewing and liquid perfluorocarbons. Ophthalmology Grand Rounds, University of Colorado, Denver, CO November 2, 1998.
2. Current approaches to the treatment of ocular neovascularization. 3rd Annual Symposium, Department of Ophthalmology, University of Colorado, Denver, CO March 26-27, 1999.
3. Macular degeneration: Facts and future. Seniors' Association, Denver Art Museum, Denver, CO May 1999.
4. Diabetic retinopathy and age-related macular degeneration. Family Practice Symposium, Estes Park, CO June 15-21, 1999.
5. Current treatments for angiogenesis in the eye/photodynamic therapy. Ophthalmology Grand Rounds, Porter Hospital, Denver, CO June 1999.
6. Diabetic retinopathy: Current management and case studies. Endocrinology Ground Rounds, University of Colorado, Denver, CO September 29 1999.
7. Discussion of paper: Vitrectomy for ocular toxocariasis. Joint Meeting Pan American Association of Ophthalmology and American Academy of Ophthalmology, Orlando, FL October 24-27 1999.
8. Discussion of paper: Laser demarcation of subclinical retinal detachment. Joint Meeting Pan American Association of Ophthalmology and American Academy of Ophthalmology, Orlando, FL October 24-27 1999.
9. Diabetic vitrectomy. Mandava N, Petty S, Bauttle J, Instructional Course. Joint Meeting Pan American Association of Ophthalmology and American Academy of Ophthalmology, Orlando, FL October 24-27 1999.
10. Diabetic retinopathy and age-related macular degeneration. Family Practice Symposium, University of Colorado, Denver, CO November 4-9 1999.
11. Diabetic vitrectomy: Ophthalmology Grand Rounds, University of Colorado, Denver, CO November 3 1999.
12. Diabetic retinopathy: Update. 4th Annual Symposium, Department of Ophthalmology, University of Colorado, Denver, CO March 31-April 1 2000.
13. Experimental treatments for proliferative vitreoretinopathy. 4th Annual Symposium, Department of Ophthalmology, University of Colorado, Denver, CO March 31 – April 1 2000.
14. Decision making in the management of retinal detachment. Ophthalmology Grand Rounds, University of Colorado, Denver, CO November 1 2000.
15. Diabetic retinopathy. Endocrinology Grand Rounds, Naomi Berrie Diabetes Center, Columbia University, New York, NY January 2001.
16. Advanced vitreoretinal surgical techniques and complications after cataract surgery

- course. Participant, Pan American Academy of Ophthalmology, Buenos Aires, Argentina July 21-25 2001.
17. Evolving techniques in vitreoretinal surgery. Faculty, Pan American Academy of Ophthalmology, Buenos Aires, Argentina July 21-25 2001.
 18. New frontiers in the management of age-related macular degeneration. Faculty, Pan American Academy of Ophthalmology, Buenos Aires, Argentina July 21-25 2001.
 19. Updated treatment of macular diseases. Co-coordinator, Pan American Academy of Ophthalmology, Buenos Aires, Argentina July 21-25 2001.
 20. Current gene therapy in ophthalmology. 5th Annual Symposium, University of Colorado, Denver, CO September 21-22 2001.
 21. Management of proliferative vitreoretinopathy – what's on the horizon? 5th Annual Symposium, University of Colorado, Denver, CO September 21-22 2001.
 22. Age-related macular degeneration. Geriatric Grand Rounds, University of Colorado, Denver, CO December 6 2001.
 23. Pathobiology of proliferative vitreoretinopathy: Use of chimeric ribozyme for its treatment. Pathology Grand Rounds, University of Colorado, Denver, CO April 18 2002.
 24. Diabetic macular edema: Laser, surgery, pharmacotherapy. 6th Annual Symposium, University of Colorado, Denver, CO September 20-21, 2002.
 25. Molecular therapies for retinal diseases. 6th Annual Symposium, University of Colorado, Denver, CO September 20-21, 2002.
 26. New frontiers in the management of age-related macular degeneration. Participant, Pan American Academy of Ophthalmology, Orlando, FL October 20-23, 2002.
 27. Liquid perfluorocarbons course. Faculty, Stanley Chang, et al. American Academy of Ophthalmology, Orlando, FL October 20-23, 2002.
 28. Advances in vitreoretinal surgical techniques. Pan American Academy of Ophthalmology, San Juan, Puerto Rico March 28-April 1, 2003.
 29. Diabetic macular edema: Laser, surgery, pharmacotherapy. Pan American Academy of Ophthalmology, San Juan, Puerto Rico March 28-April 1, 2003.
 30. Diabetic macular edema and macular degeneration. JCAHPO meeting, Denver, CO May 4-9, 2003.
 31. Diabetic macular edema: Laser, surgery, pharmacotherapy. 6th International Advanced Vitreoretinal Surgery Course, (IAVRSC), Chennai, India July 24-26, 2003.
 32. Development of a chimeric ribozyme to treat PVR. Grand Rounds, LV Prasad Eye Institute, Hyderabad, India July 24-26, 2003.
 33. Molecular therapies for retinal disorders. Faculty, 6th International Advanced Vitreoretinal Surgery Course (6th IAVRSC), Chennai, India July 24-26, 2003.
 34. Gene therapy for proliferative vitreoretinopathy. Faculty, Retina Subspecialty Day, American Academy of Ophthalmology, Anaheim, CA November 15-17, 2003.
 35. The Immusol Oligonucleotide Study: A new treatment of proliferative vitreoretinopathy? Retina Subspecialty Day, American Academy of Ophthalmology, Anaheim, CA November 15-17, 2003.
 36. VIT100: for proliferative vitreoretinopathy. Faculty, 5th International Symposium on Ocular Pharmacology and Therapeutics (ISOPT), Monte Carlo, Monaco March 11-14, 2004.
 37. Pharmacotherapy for proliferative vitreoretinopathy. Faculty, 7th Annual Symposium. University of Colorado, Denver, CO September 22-23, 2004.
 38. Condiments in vitreoretinal surgery. Faculty, American Academy of Ophthalmology, New Orleans, LA October 23-26, 2004.
 39. Pharmacology of intravitreal steroids. Age-related Macular Degeneration Symposium.

- Faculty, Pan American Congress of Ophthalmology. Santiago, Chile March 18-25, 2005.
40. New Developments in Diabetic Retinopathy Screening. Faculty, Pan American Congress of Ophthalmology. Santiago, Chile March 18-25, 2005.
 41. Vitrectomy for Complex Diabetic Retinal Detachments. Faculty, Pan American Congress of Ophthalmology. Santiago, Chile March 18-25, 2005.
 42. Pharmacotherapy for proliferative vitreoretinopathy: VIT100 study results. Faculty, 8th Annual Symposium. University of Colorado, Denver, CO September 22-23, 2005.
 43. Condiments in vitreoretinal surgery. Faculty, American Academy of Ophthalmology, Chicago, IL October 15-18, 2005.
 44. Pharmacotherapy for proliferative vitreoretinopathy. Faculty, Grand Rounds, LV Prasad Eye Institute. Hyderabad, India December 28, 2005.
 45. VIT100 for proliferative vitreoretinopathy. Faculty, 6th Annual International Society for Ophthalmic Pharmaceuticals and Therapeutics, Berlin, Germany March 31-April 3, 2006.
 46. Translation research: A key to the survival of the modern department of ophthalmology. Ophthalmology Grand Rounds. University of Colorado, Denver, CO June 2006
 47. Clinical implications of Anti-VEGF therapy in age-related macular degeneration. Faculty, 9th Annual Symposium. University of Colorado, Denver, CO September 2006.
 48. New therapies in age-related macular degeneration. Faculty, Geriatrics Grand Rounds. University of Colorado, Denver, CO January 2007.
 49. Age-related macular degeneration. Faculty, 10th Annual Symposium. University of Colorado, Denver, CO September 2007.
 50. Anti-VEGF therapy for non-AMD retinal diseases. Faculty, Grand Rounds, University of Kentucky, Lexington, KY March 2008.
 51. Proliferative Vitreoretinopathy: Development of VIT100. Faculty, Grand Rounds, University of Kentucky, Lexington, KY March 2008.
 52. Update on Age-related macular degeneration. Faculty, Primary Care Physician Course, University of Colorado, Denver, CO June 2008.
 53. Anti-VEGF therapy for non-AMD retinal disease. Faculty, 11th Annual Symposium. University of Colorado, Denver, CO September 2008.
 54. Proliferative Vitreoretinopathy: Management in 2009. Faculty, Retina 2009, Mexico City, Mexico February 2009.
 55. Anti-VEGF therapy for non-AMD retinal disease. Faculty, Retina 2009, Mexico City, Mexico February 2009.
 56. Proliferative Vitreoretinopathy: Can we improve on outcomes? Faculty, 12th Annual Symposium. University of Colorado, Denver, CO October 2009.
 57. Vitrectomy for epiretinal membrane: enzymatic vitreous digestion. Faculty, American Academy of Ophthalmology, San Francisco, CA October 2009.
 58. Proliferative Vitreoretinopathy: A comprehensive review. Columbia University Ophthalmology Basic Science Course. Columbia University, College of Physician and Surgeons, New York, NY January 2010.
 59. Anti-VEGF agents can cause glaucoma: Why? Ophthalmology Grand Rounds, Department of Ophthalmology, Columbia University, College of Physician and Surgeons, New York, NY January 2010.

**ABSTRACTS/POSTERS:
(Competitive)**

1. **Mandava N**, Donnenfeld ED, Grossman G, Mandava S. Topical antibiotic prophylaxis in cataract surgery: A rabbit endophthalmitis model. Association for Research in Vision and Ophthalmology Invest Ophthalmol Vis Sci 1996. (poster)
2. **Mandava N**, Chang S, Maberley D, Schiff W. Ciliary body damage as a predictive factor for outcomes after open-globe injury. American Academy of Ophthalmology November 1998. (poster)
3. **Mandava N**. Infrared optical properties of eye components and blood. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci May 2001 (poster)
4. Carlson IA, Manchester D, **Mandava N**, Bateman JB. Progressive Chorioretinal Degeneration and Cataracts in Seckel Syndrome. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci May 2004 (poster)
5. Morrissey M, **Mandava N**, Elias E, Bateman JB. Report of ocular features including retinal photoreceptor degeneration associated with a novel unbalanced chromosome translocation (6:12)(p21.1;p13) in an infant. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci May 2004 (poster)
6. Nguyen LT, Ciardella A, Braverman J, Taravella M, Davidson R, **Mandava N**. Microscope-induced retinal phototoxicity after cataract surgery measured by optical coherence tomography (OCT). Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci May 2004 (poster)
7. Kahook M, Olson JL, **Mandava N**. Incidence of increased intraocular pressure after intravitreal triamcinolone acetonide injection. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci May 2005 (poster)
8. Doherty RS, Olson JL, **Mandava N**, Ciardella A. Clinical detection of macular edema in diabetic patients using the Automated Retinal Imaging System (ARIS). Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci May 2005 (poster)
9. Prall RF, **Mandava N**, Drack AV, Taylor M, Ku L. Ophthalmic manifestations of Danon Disease. American Academy of Ophthalmology October 2005. (poster)
10. Mackenzie D, Kahook MY, Olson J, **Mandava N**. Biometric and intraocular pressure evaluation of eyes post intravitreal triamcinolone acetonide and intravitreal pegaptanib injection. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci April 2006 (poster)
11. **Mandava N**, Prall R, Carsky C, Parnes B, Farley T. Screening for diabetic retinopathy in primary care using a non-mydratic camera. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci April 2006 (poster)
12. Shah A, **Mandava N**, Olson JL. Three-way comparison of photodynamic therapy with and without adjunctive subtenon's or intravitreal triamcinolone acetonide in the treatment of choroidal neovascularization associated with age-related macular degeneration. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci April 2006 (poster)
13. Zimski L, Olson J, **Mandava N**. Immune recovery uveitis associated with FK 506 (Tacrolimus) use after renal transplantation. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci April 2006 (poster)
14. Prall R, Drack A, Gregory D, Olson J, Taylor M, **Mandava N**. Ophthalmic manifestations of Danon disease. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci April 2006 (poster)

15. Rudometkin NJ, Olson J, Ciardella A, **Mandava N**. Initial fellow surgical efficiency and complications rates comparing 20 vs. 25 gauge vitrectomy. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci April 2006 (poster)
16. Gohel P, **Mandava N**, Olson J. Vitreous hemorrhage after vitrectomy for proliferative diabetic retinopathy. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci April 2006 (poster)
17. Olson J, Courtney RJ, **Mandava N**. Intravitreal Anakinra Inhibits Growth of Choroidal Neovascular Membranes in an Animal Model. Combined Meeting of the Club Jules Gonin and The Retina Society, Cape Town, South Africa, October 2006 (poster)
18. **Mandava N**, Courtney RJ, Olson J. Intravitreal Infliximab Inhibits Growth of Choroidal Neovascular Membranes in an Animal Model. Combined Meeting of the Club Jules Gonin and The Retina Society, Cape Town, South Africa, October 2006 (poster)
19. Kahook MY, Mackenzie DL, Faberowski N, Durairaj VD, **Mandava N**. Effect of Corneal Drying on Corneal Hysteresis Measurements Using the Ocular Response Analyzer. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci May 2007 (poster)
20. Rouhani B, **Mandava N**, Olson J. Central retinal vein occlusion after intense exercise in five healthy patients. Association for Research in Vision and Ophthalmology, Invest Ophthalmol Vis Sci May 2007 (poster)
21. Olson J, Courtney RJ, **Mandava N**. Intravitreal Anti-Fibroblast Agent in an Animal Model of Choroidal Neovascularization. American Society of Retinal Specialists, Maui, Hawaii, October 2008.
22. Pan CK, **Mandava N**, Oliver S, Quiroz-Mercado H, Olson JL. Comparison of Concentration and Dosage of Intravitreal Recombinant IL-1 Receptor Antagonist in the Treatment of Choroidal Neovascular Membranes in a Rat Model. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2009.
23. Hendrick AM, **Mandava N**, Quiroz-Mercado H, Oliver SC, Pelak V, Olson JL. Bevacizumab for Parry-Romberg Syndrome (PRS) Associated Optic Nerve Edema: An Optical Coherence Tomography (OCT) Case Report. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2009.
24. Courtney RJ, **Mandava N**, Oliver S, Quiroz-Mercado H, Olson JL. Intravitreal Inhibition of CNV in an Animal Model: A Comparison of Infliximab, Anakinra and LD22-4. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2009.
25. Korotkin A, Quiroz-Mercado H, **Mandava N**, Olson JL, Oliver SC, Garcia G, Grinblat A. Vitreo-Retinal Dissector (VRD) for Pars Plana Vitrectomy. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2009.
26. Dixon JA, Olson JL, Durairaj VD, **Mandava N**. The Rate of Ptosis Following Subtenons Corticosteroid Injection. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2009.
27. Kupperman B, **Mandava N**. Vitreosolve for Enzymatic Vitreous Digestion. International Symposium on Ocular Pharmacology and Therapeutics (ISOPT), Rome, Italy, December 2009.
28. L. Seibold, **N. Mandava**, M.Y. Kahook. Comparison of Spectral Domain Retinal Nerve Fiber Layer Thickness and Agreement with Time Domain Optical Coherence Tomography. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2010.

29. K. Stafeeva, C. Pan, C. Patel, J. Olson¹, **N. Mandava**, S. Oliver, H. Quiroz-Mercado. Importance of Fundus Autofluorescence (FAF) in a Series of Misdiagnosed Cases Involving Choroidal, RPE, and Retinal Pathology. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2010.
30. H. Quiroz-Mercado, C.C. Patel, S.C. Oliver, J. Olson, **N. Mandava**. Gauge Plus Vitrector in Lieu of Vitreoretinal Forceps for Epiretinal Membrane and Internal Limiting Membrane Peeling. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2010.
31. C.K. Pan, Durairaj, U.B. Kompella, O. Agwu, S.C. Oliver, H. Quiroz-Mercado, **N. Mandava**, J. Olson. Comparison of Long-Acting Bevacizumab Formulations in the Treatment of Choroidal Neovascularization in a Rat Model. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2010.
32. D.A. Ammar, L. Liu, P. Ruzycki, **N. Mandava**, J. Carpenter, J. Petrash, M.Y. Kahook. High Molecular Weight Aggregates in Repackaged Bevacizumab. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2010.
33. M.T. Mathias, S. Oliver, J. Olson, **N. Mandava**, H. Quiroz-Mercado, F. Pichi, C. Torrazza, A. Ciardella. Retinal Phototoxicity Caused by Chandelier Endoillumination. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2010.
34. J. Olson, **N. Mandava**. Intraocular Photoactive Quantum Dots in a Rodent Model of Progressive Photoreceptor Degeneration. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2010.
35. E.A. McCourt, E.M. Hink, J. Olson, **N. Mandava**, V.D. Durairaj, S.C. Oliver. Isolated Group B Streptococcal Endogenous Endophthalmitis Simulating Retinoblastoma in a Healthy Full Term Infant. Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2010.
36. C.C. Patel, **N. Mandava**, H. Quiroz-Mercado, S.C. Oliver, R. Braverman, J. Olson. Treatment of Intractable Posterior Uveitis in Pediatric Patients with the Fluocinolone Acetonide Intravitreal Implant (Retisert). Association for Research in Vision and Ophthalmology, Annual Meeting Fort Lauderdale, May 2010.

SCIENTIFIC ADVISORY BOARDS/CONSULTING:

1998 - 2004	Immusol, Inc., San Diego, CA. Medical monitor and advisor for studies using ribozyme to prevent recurrent retinal detachment secondary to PVR.
1998 - 2004	Cardio-optics Inc., Boulder, CO. Infrared optical devices used to image through blood.
2004 -	Vitreoretinal Technologies, Inc., Irvine, CA. Enzymatic degradation of vitreous with pharmacologic agent
2008-	2C Tech Corp., cofounder, Denver, CO. Artificial vision technologies.
2009-	Shape Ophthalmics LLC, cofounder, Denver, CO.