

CURRICULUM VITAE

LLEWELYN J. RAO, MD

OFFICE ADDRESSES

Retina Associates of Cleveland, Inc.
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TELEPHONE

216-831-5700

EDUCATION

College

Saint Louis University
St. Louis, Missouri
1996–2000, BA (summa cum laude, Biology, Pre-professional Medical
Scholars Program)

Medical School

Saint Louis University School of Medicine
St. Louis, Missouri
2000–2004, MD (with Distinction in Research)

POSTGRADUATE TRAINING

Internship

Transitional year
Forest Park Hospital
St. Louis, Missouri
2004–2005

Residency

Ophthalmology
University Hospitals/Case Medical Center
Cleveland, Ohio
2005–2008

Administrative Chief Resident
2007–2008

Fellowship

The New York Eye & Ear Infirmary
New York, NY
Surgical and Medical Vitreoretinal Disease
2008–2010

LICENSURE AND BOARD CERTIFICATION

Licensed to practice medicine in Ohio and Pennsylvania

Diplomate, American Board of Ophthalmology, 2009

PROFESSIONAL POSITIONS

Retina Associates of Cleveland, 2012–

Private practice in vitreoretinal surgery and diseases. Associates: Lawrence J. Singerman, MD; Michael A. Novak, MD; Hernando Zegarra, MD; Z. Nicholas Zakov, MD; Scott D. Pendergast, MD; David G. Miller, MD; Joseph M. Coney, MD; Jerome P. Schartman, MD; Lili G. Kaplan, MD; Shawn A. Lewis, MD

Vitreo-Retinal Consultants, Inc.; Canton, Ohio; 2010–2011

ACADEMIC APPOINTMENTS

Assistant Clinical Professor, Department of Ophthalmology and Visual Sciences, Case Western Reserve University School of Medicine; Cleveland, Ohio; 2015–

Senior Clinical Instructor of Ophthalmology, Department of Ophthalmology and Visual Sciences, Case Western Reserve University School of Medicine; Cleveland, Ohio; 2010–2015

Instructor of Ophthalmology, New York Medical College; Valhalla, New York; 2009

OTHER ACADEMIC, SERVICE, AND ADMINISTRATIVE POSITIONS

President, Medical School Class of 2004, Saint Louis University School of Medicine, 2001–2004

Founder, Ophthalmology Interest Group. Saint Louis University School of Medicine, 2003–2004

Saint Louis University School of Medicine Admissions Committee, 2001–2004

Dean's Advisory Committee, Saint Louis University School of Medicine, 2002–2004

La Clinica – Volunteer at free clinic for Spanish-speaking patients, 2000–2002

Dean's Representative, Medical School Class of 2004, Saint Louis University School of Medicine, 2000–2001

President, Oriflamme – Effectively planned and orchestrated the new student orientation week for more than 1200 incoming Saint Louis University undergraduate students at Saint Louis University, 1999–2000

Pi Kappa Alpha Fraternity, Saint Louis University – Scholarship Chair and Executive Board member, 1997–2000

HONORS AND AWARDS

Best Doctors in America, 2015

The Samuel Chung-Hang Lo, MD, and Fiona Kin-Ping Lo Senior Fellow, Vitreoretinal Surgery, The New York Eye and Ear Infirmary, 2009

Best Resident Research Paper – University Hospitals/Case Medical Center Thirteenth Annual Faculty, Resident, and Alumni Research Day, 2007

First place, PGY-3 Level Basic and Clinical Science Course Examination Series, 2007

Distinction in Research, Saint Louis University School of Medicine, 2004

Alpha Omega Alpha, National Honor Medical Society, 2003

Saint Louis University Summer Research Fellowship, 2001

National Merit Scholarship, 1996–2000

Piano performance and theory – Level 8; Illinois State Music Teachers Association, 1996

MEMBERSHIPS

American Society of Retinal Specialists, 2009–

American Academy of Ophthalmology, 2005–

HOSPITAL & ASC AFFILIATIONS

Cleveland Eye and Laser Surgery Center; Cleveland, Ohio
Parma Community General Hospital; Parma, Ohio
Summa Health; Akron, Ohio

RESEARCH ACTIVITIES

NIH-funded Grants

DRCRnet Protocol AA. Short-term evaluation of combination corticosteroid + anti-VEGF treatment for persistent central-involved diabetic macular edema following anti-VEGF therapy in pseudophakic eyes

Co-investigator, 2014–

Study of COmparative Treatments for RETinal Vein Occlusion 2 (SCORE2)

Co-investigator, 2014–

DRCRnet Protocol V. Treatment for central involved diabetic macular edema in eyes with very good visual acuity

Co-investigator, 2014–

DRCRnet Protocol U. Short-term evaluation of combination corticosteroid+anti-VEGF treatment for persistent central-involved diabetic macular edema following anti-VEGF therapy in pseudophakic eyes

Co-investigator, 2014–

DRCRnet Protocol S. Prompt panretinal photocoagulation versus ranibizumab+deferred panretinal photocoagulation for proliferative diabetic retinopathy

Co-investigator, 2012–

DRCRnet Protocol M. Effect of diabetes education during retinal ophthalmology visits on diabetes control

Co-investigator, 2012–

DRCRnet: Genes in diabetic retinopathy project

Co-investigator, 2012–

DRCRnet Protocol R. Phase II evaluation of topical NSAIDs on eyes with non-central involved DME

Co-investigator, 2011–2013

Other National Clinical Trials

Efficacy and safety study of squalamine ophthalmic solution in subjects with neovascular AMD (MAKO)

Principal Investigator, 2016–

An 18-month Phase 2a open label, randomized study of Avastin, Lucentis, or Eylea (anti-VEGF therapy) administered in combination with Fovista (anti-PDGF BB pegylated aptamer)

Principal Investigator, 2015–

Phase 3, randomized, double-masked, controlled trial to establish the safety and efficacy of intravitreal administration of Fovista (anti PDGF-B pegylated aptamer) administered in combination with either Avastin or Eylea compared to Avastin or Eylea monotherapy in subjects with subfoveal neovascular age-related macular degeneration

Principal Investigator, 2015–

Phase 3, randomized, double-masked, controlled trial to establish the safety and efficacy of intravitreal administration of Fovista (anti PDGF-B pegylated aptamer) administered in combination with Lucentis compared to Lucentis monotherapy in subjects with subfoveal neovascular age-related macular degeneration (Ophthotech 1003)

Principal Investigator, 2013–

Efficacy and safety of squalamine lactate eye drops in subjects with neovascular (wet) age-related macular degeneration

Principal Investigator, 2013–

Phase II, multicenter, randomized, single-masked, sham-controlled study of safety, tolerability and evidence of activity of intravitreal APL-2 therapy in patients with geographic atrophy (GA)

Co-investigator, 2015–

Phase III double masked study of safety and efficacy of abicipar pegol in patients with neovascular age-related macular degeneration

Co-investigator, 2015–

LHA510 proof-of-concept study as a maintenance therapy for patients with wet age-related macular degeneration

Co-investigator, 2015–

Randomized, double-masked, multicenter, three-arm study comparing the efficacy and safety of RTH-258 versus aflibercept in subjects with neovascular age-related macular degeneration

Co-investigator, 2015–

A study of lampalizumab intravitreal injections administered every two weeks or every four weeks to patients with geographic atrophy (EXPOSURE)

Co-investigator, 2015–

Phase III, multicenter, randomized, double-masked, sham-controlled study to assess the efficacy and safety of lampalizumab administered intravitreally to patients with geographic atrophy secondary to age-related macular degeneration (PROXIMA)

Co-investigator, 2015–

Phase 2, multi-center study to compare the efficacy and safety of a chemokine CCR2/5 receptor antagonist with ranibizumab in adults with diabetic macular edema

Co-investigator, 2014–

A study investigating the efficacy and safety of lampalizumab intravitreal injections in patients with geographic atrophy secondary to age-related macular degeneration (CHROMA)

Co-investigator, 2014–

Phase 2 multicenter randomized clinical trial of ciliary neurotrophic factor (CNTF) for macular telangiectasia type 2 (MacTel)

Co-investigator, 2013–

Efficacy, safety and tolerability of cariprazine as an adjunctive treatment to antidepressant therapy (ADT) in patients with major depressive disorder (subcontractor for ophthalmological examinations)

Co-investigator, 2013–2014

A multicenter, randomized, sham-control, proof-of-concept study of intravitreal LFG316 in patients with geographic atrophy associated with age-related macular degeneration

Co-investigator, 2012–

Ocriplasmin for treatment for symptomatic vitreomacular adhesion including macular hole (OASIS)

Co-investigator, 2012–2014

Safety and tolerability of intravenous LFG316 in wet age-related macular degeneration

Co-investigator, 2012–2013

Safety and efficacy study of gevokizumab to treat active non-infectious uveitis (EYEGUARD™-A)

Co-investigator, 2012–

Safety and efficacy study of gevokizumab to treat non-infectious uveitis controlled with systemic treatment (EYEGUARD™-C)

Co-investigator, 2012–

SELECTED PRESENTATIONS AT MEETINGS AND SYMPOSIA

1. Interesting retinal cases. Optometric Retinal Update Seminar. Cleveland, Ohio, June 16, 2016.
2. Retinal surgery. Optometric Retinal Update Seminar. Akron, Ohio, November 4, 2015.
3. Fovista: A current Phase 3 clinical trial for wet AMD. Optometric Retinal Update Seminar. Cleveland, Ohio, March 12, 2015.
4. Vitrectomy for complications of diabetic retinopathy. Cleveland Ophthalmological Society Diabetes Symposium. Cleveland, Ohio, October 14, 2014.
5. Miller DG, Miller AG, Rao LJ, Rowland DY, Hornik JH The effect of patient specific prescriptions on selection of anti-VEGF agents. American Eye Study Club. Vail, Colorado, July 2014.
6. Retinal surgery. Optometric Retinal Update Seminar. Cleveland, Ohio, June 26, 2014.
7. Retinal surgery. Optometric Retinal Update Seminar. Beachwood, Ohio, March 20th, 2014.

8. Should we consult a retinal specialist? Continuing Education Program for Ophthalmic Allied Health Personnel. Cleveland, Ohio, July 20, 2013.
9. Surgical retinal cases: a month in the operating room. Optometric Retinal Update Seminar. Westlake, Ohio, June 18, 2013.
10. Retinal update on anti-VEGF therapy (with Drs. Coney, Miller, Novak, Schartman, and Zegarra). Ophthalmologists' Update Seminar. Vermilion, Ohio, December 20, 2012.
11. Retinal update on anti-VEGF therapy (with Drs. Coney, Miller, Novak, Schartman, and Zegarra). Ophthalmologists' Update Seminar. Vermilion, Ohio, August 12, 2012.
12. Retina cases from NYC. Optometric Retinal Update Seminar. Westlake, Ohio, June 5, 2012.
13. New drug therapies for age-related macular degeneration. Optometric Retinal Update Seminar. Lakewood, Ohio, April 19, 2012.
14. Mukkamala K, Spielberg L, Rao L, Rosen R. Macular and peripapillary retinal blood flow velocities in pseudoexfoliation syndrome using the retinal functional imager (RFI). The New York Eye and Ear Infirmary Residents and Fellows Research Day. New York, New York, May 21, 2010.
15. Rao L, Milman T, Ponce A, Walsh J. Facioscapulohumeral dystrophy and bilateral Coats-like retinopathy. Greater New York Retinal Club Meeting. New York, New York, April 22, 2010.
16. Rao L, Lima VC, Gentile RC, Rosen R. Reduction of macular drusen following anti-VEGF intravitreal injection in ARMD. Retina Congress 2009, Program #757. New York, New York, October 2, 2009.
17. Rao L. The retina: newest development in macular degeneration and other retinal problems. The Glaucoma Support and Education Group, New York City Chapter, Glaucoma Foundation Saturday Lecture Series. New York, New York, May 16, 2009.
18. Rao L, Lima VC, Gentile RC, Rosen R. Reduction of macular drusen following anti-VEGF intravitreal injection in ARMD. Association for Research in Vision and Ophthalmology Annual Meeting, Program #1881. Fort Lauderdale, Florida, May 4, 2009.
19. Reddy R, Huang S, Rao L, Ferrone P. Histopathologic analysis of transconjunctival sutureless vitrectomy wounds. Association for Research in Vision and Ophthalmology Annual Meeting Program #4818. Fort Lauderdale, Florida, May 6, 2009.
20. Mukkamala K, Rao L, Gentile RC, Doshi V. Hemolacria: a sign of scleral buckle infection. Association for Research in Vision and Ophthalmology Annual Meeting, Program #6055. Fort Lauderdale, Florida, May 7, 2009.

21. Ferrone P, Reddy R, Rao L, Huang S. Comparison of non-sutured 20-gauge MVR and 20-gauge trocar/cannula sclerotomy wounds. American Society of Retina Specialists Annual Meeting Annual Meeting. Maui, Hawaii, October 14, 2008.
22. Rao L. Intraocular foreign body presenting as sympathetic ophthalmia. The New York Eye and Ear Infirmary Department of Ophthalmology Grand Rounds. New York, New York, September 19, 2008.
23. Rao L, Huang S, Ferrone P. A histopathologic and endoscopic analysis of transconjunctival sutureless vitrectomy wounds. Case Western Reserve University Department of Ophthalmology Resident Research Day. Cleveland, Ohio, June 15, 2007.
24. Rao L, Huang S, Ferrone P. A histopathologic and endoscopic analysis of transconjunctival sutureless vitrectomy wounds. Association for Research in Vision and Ophthalmology Annual Meeting, Program #2240. Fort Lauderdale, Florida, May 7, 2007.
25. Rao L. Idiopathic big blind spot syndrome. Case Western Reserve University Department of Ophthalmology Grand Rounds. Cleveland, Ohio, March 28, 2007.
26. Ferrone P, Rao L, Huang S. Comparison of 23-gauge trocar/cannula wounds. Vail Vitrectomy Meeting. Vail, Colorado, March 2007.
27. Huang S, Rao L, Ferrone P. Translenticular endoscopic study of 23-gauge transconjunctival vitrectomy wounds. Vail Vitrectomy Meeting. Vail, Colorado, March 2007.
28. Rao L. Severe hypertensive retinopathy. Case Western Reserve University Department of Ophthalmology Grand Rounds. Cleveland, Ohio, September 20, 2006.
29. Huang S, Ward M, Alomram M, Rao L, Seffo F, Jamal K. Comparison of visual recovery time in patients undergoing 25-gauge vitreous surgery. American Society of Retina Specialists Annual Meeting. Cannes, France, September 12, 2006.
30. Jamal K, Rao L, Seffo F, Ward M, Huang S. Quality of life and cost-effectiveness in retinal disease. Case Western Reserve University Department of Ophthalmology Resident Research Day. Cleveland, Ohio, June 16, 2006.
31. Rao L, Ward M, Seffo F, Jamal K, Huang S. Complications of 25g vitrectomy surgery in a preliminary series: a comparative analysis of the learning curve effect. Case Western Reserve University Department of Ophthalmology Resident Research Day. Cleveland, Ohio, June 16, 2006.

32. Seffo F, Rao L, Ward M, Jamal K, Huang S. Smaller incision size decreases the risk of postoperative complications in intraocular surgery. Association for Research in Vision and Ophthalmology Annual Meeting, Program #5259. Fort Lauderdale, Florida, May 4, 2006.
33. Rao L, Ward M, Seffo F, Jamal K, Huang S. Complications of 25g vitrectomy surgery in a preliminary series: a comparative analysis of the learning curve effect Association for Research in Vision and Ophthalmology Annual Meeting, Program #4663. Fort Lauderdale, Florida, May 3, 2006.
34. Ward M, Rao L, Seffo F, Jamal K, Huang S. Visual recovery in patients undergoing 25g transconjunctival vitrectomy. Association for Research in Vision and Ophthalmology Annual Meeting, Program #4646. Fort Lauderdale, Florida, May 3, 2006.
35. Rao L, Tomsak R. Dominant optic atrophy. Case Western Reserve University Department of Ophthalmology Grand Rounds. Cleveland, Ohio, January 11, 2006.
36. Rao L, Tomsak R. Pituitary apoplexy. Case Western Reserve University Departments of Neurology and Ophthalmology Neuro-Ophthalmology Conference. Cleveland, Ohio, January 4, 2006.
37. Rao L. Pathologic myopia. Case Western Reserve University Department of Ophthalmology Grand Rounds. Cleveland, Ohio, September 14, 2005.
38. Rao L, Feman S. The evaluation of peripheral visual fields in diabetic patients with minimal or no evidence of clinical retinopathy. Alpha Omega Alpha (AOA) 39th Annual Student Research Forum. St. Louis, Missouri, January 21, 2004.
39. Rao L, Akduman L. Hypertensive retinopathy. O'Donnell Eye Institute Grand Rounds. St. Louis, Missouri, September 16, 2003.
40. Rao L, Daynes T, Davitt B. The management of traumatic hyphema. Saint Louis University Department of Ophthalmology Grand Rounds. St. Louis, Missouri, August 20, 2003.
41. Rao L, Chung S. A unique presentation of hypertensive retinopathy. Saint Louis University Department of Ophthalmology Grand Rounds. St. Louis, Missouri, February 26, 2003.

PUBLICATIONS

Book Chapters

1. Rao LJ, Singerman LJ. Thermal laser and photodynamic therapy. In Duker JS, Witkin AJ (eds.): *Age-related Macular Degeneration: Current Management*. Thorofare, New Jersey: Slack Inc., 2014. pp. 111-119.

Articles

1. Bressler SB, Ayala AR, Bressler NM, Melia M, Qin H, Ferris FL 3rd, Flaxel CJ, Friedman SM, Glassman AR, Jampol LM, Rauser ME; Diabetic Retinopathy Clinical Research Network. Persistent macular thickening after ranibizumab treatment. *JAMA Ophthalmol.* 2016 Mar 1;134:278-285.
2. Wells JA, Glassman AR, Jampol LM, Aiello LP, Antoszyk AN, Baker CW, Bressler NM, Browning DJ, Connor CG, Elman MJ, Ferris FL, Friedman SM, Melia M, Pieramici DJ, Sun JK, Beck RW; Diabetic Retinopathy Clinical Research Network. Association of baseline visual acuity and retinal thickness with 1-year efficacy of aflibercept, bevacizumab, and ranibizumab for diabetic macular edema. *JAMA Ophthalmol.* 2016;134:127-134.
3. Holfinger S, Miller AG, Rao LJ, Rowland DY, Hornik JH, Miller DG. Effect of regulatory requirement for patient-specific prescriptions for off-label medications on the use of intravitreal bevacizumab. *JAMA Ophthalmol.* 2016 Jan 1;134:45-48.
4. Writing Committee for the Diabetic Retinopathy Clinical Research Network, Gross JG, Glassman AR, Jampol LM, Inusah S, Aiello LP, Antoszyk AN, Baker CW, Berger BB, Bressler NM, Browning D, Elman MJ, Ferris FL 3rd, Friedman SM, Marcus DM, Melia M, Stockdale CR, Sun JK, Beck RW. Panretinal photocoagulation vs intravitreal ranibizumab for proliferative diabetic retinopathy: a randomized clinical trial. *JAMA.* 2015 Nov 13:1-11.
5. Aiello LP, Ayala AR, Antoszyk AN, Arnold-Bush B, Baker C, Bressler NM, Elman MJ, Glassman AR, Jampol LM, Melia M, Nielsen J, Wolpert HA; Diabetic Retinopathy Clinical Research Network. Assessing the effect of personalized diabetes risk assessments during ophthalmologic visits on glycemic control: a randomized clinical trial. *JAMA Ophthalmol.* 2015;133(8):888-896.
6. Diabetic Retinopathy Clinical Research Network, Wells JA, Glassman AR, Ayala AR, Jampol LM, Aiello LP, Antoszyk AN, Arnold-Bush B, Baker CW, Bressler NM, Browning DJ, Elman MJ, Ferris FL, Friedman SM, Melia M, Pieramici DJ, Sun JK, Beck RW. Aflibercept, bevacizumab, or ranibizumab for diabetic macular edema. *N Engl J Med* 2015 Mar 26;372:1193-1203.
7. Rao LJ, Coney JM, Schartman JP, Singerman LJ. Neovascular AMD: treatment beyond anti-VEGF. *Retinal Physician* 2014;11:23-28.
8. Rao LJ. Latest treatments for diabetic eye disease. *The Morning Journal.* <http://www.morningjournal.com/general-news/20130117/latest-treatments-for-diabetic-eye-disease>. Posted January 17, 2013.
9. Francis JH, Rao L, Rosen RB. Methylmalonic aciduria and homocystinuria-associated maculopathy. *Eye (Lond)* 2010;24:1731-1732. Epub 2010 Aug 27.

10. Mukkamala K, Gentile RC, Rao L, Sidoti PA. Recurrent hemolacria: a sign of scleral buckle infection. *Retina* 2010;30:1250-1253.

Posters

1. Rostamizadeh M, Abdelaziz M, Patel A, Moarefi M, Miller D, Coney J, Novak M, Rao L, Pendergast S, Singerman L. Incidence of endophthalmitis in various anti-VEGF treatments. Scientific Poster 5025/ B0231, Association for Research in Vision and Ophthalmology Annual Meeting, May 2016.
2. Miller AG, Rao L, Rowland DY, Hornik J. The effect of requiring patient-specific prescriptions on the utilization of intravitreal bevacizumab. Scientific Poster 5584/A0193, Association for Research in Vision and Ophthalmology Annual Meeting, May 2014.
3. Lee J, Mandiga R, Singerman LJ, Rao L. Long-term follow-up study on the natural progression of lamellar macular holes. Scientific Poster 317/B0295, Association for Research in Vision and Ophthalmology Annual Meeting, May 2014.