

Supplementary Online Content

The Age-Related Eye Disease Study 2 (AREDS2) Research Group. Lutein + zeaxanthin and omega-3 fatty acids for age-related macular degeneration: the Age-Related Eye Disease Study 2 (AREDS2) randomized clinical trial. *JAMA*. doi:10.1001/jama.2013.4997

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This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Comparison of Participating and Nonparticipating AREDS2 Subjects in the Secondary Randomization of the Variations of the AREDS Supplement

Comparison of Participating and Non-participating AREDS2 Subjects in the Secondary Randomization		Agree to Second Randomization?		p-value
		No N (%)	Yes N (%)	
Baseline Characteristics		N=1167	N=3036	
Race	White	1122 (96.1)	2936 (96.7)	
	Black or African American	16 (1.4)	38 (1.3)	
	Asian	13 (1.1)	21 (0.7)	
	American Indian	0 (0.0)	6 (0.2)	
	Native Hawaiian or other Pacific Islander	0 (0.0)	3 (0.1)	
	Other	16 (1.4)	32 (1.1)	
	Ethnicity	Hispanic Origin	19 (1.6)	62 (2.1)
Age at Randomization (in years)	Median (Inter-Quartile Range)	74 (68, 79)	74 (68, 79)	
Female Gender*		708 (60.7)	1680 (55.3)	0.002
Age-related Macular Degeneration (AMD) Status	Large Drusen bilateral	765 (65.5)	1959 (64.5)	
	Advanced AMD ¹ one eye, Large Drusen fellow eye	399 (34.2)	1069 (35.2)	
	Bilateral Advanced AMD	3 (0.3)	8 (0.3)	
Education*	Grade 11 or Less	92 (7.9)	182 (6.0)	<0.001
	High School Graduate	271 (23.2)	792 (26.1)	
	Some College or Associate's Degree	279 (23.9)	862 (28.4)	
	Bachelor's Degree	230 (19.7)	553 (18.2)	
	Post-graduate Work	275 (23.6)	589 (19.4)	
	Refused to Answer	20 (1.7)	58 (1.9)	
Diabetes Mellitus		134 (11.5)	412 (13.6)	

Smoking Status*	Never Smoked	580 (49.7)	1244 (41.0)	<0.00 1
	Former Smoker	582 (49.9)	1515 (49.9)	
	Current Smoker	5 (0.4)	277 (9.1)	

*P<.05

eTable 2. Serum and Plasma Values Collected at Baseline, Year 1, Year 3, and Year 5, by Study Treatment Group in the Primary Analyses of Lutein + Zeaxanthin and DHA + EPA

Nutrient		Placebo	Lutein + zeaxanthin	DHA + EPA	Lutein + zeaxanthin and DHA + EPA	p-value (treated vs. untreated)*
Lutein + zeaxanthin (ug/dL)						
Baseline:	N	147	133	125	140	P<.0001
	Median (IQR)	17.8 (11.8-25.9)	18.3 (12.7-25.4)	17.7 (12.8-24.8)	19.1 (12.9-28.4)	
Year 1	N	147	131	124	138	
	Median (IQR)	16.9 (12.5-23.6)	57.6 (41.6-74.2)	16.8 (12.9-25.9)	50.8 (37.1-68.7)	
Year 3	N	136	120	108	124	
	Median (IQR)	17.15 (12.4-22.5)	59.6 (44.1-78.0)	17.3 (12.7-24.2)	56.8 (38.3-78.3)	
Year 5	N	91	82	78	83	
	Median (IQR)	18.4 (11.6-24.6)	48.3 (38.3-75.3)	15.8 (12.9-26.9)	47.3 (35.6-63.2)	
DHA (mmol/L)						
Baseline	N	147	132	125	140	P<.0001
	Median (IQR)	152 (119-206)	156 (121-191)	171 (132-220)	156 (126-210)	
Year 1	N	144	127	118	133	
	Median (IQR)	140 (109-191)	143 (112-193)	227 (170-284)	198 (162-252)	
Year	N	133	117	103	120	
	Median (IQR)	154 (128-212)	161 (125-212)	246 (207-304)	240 (190-297)	
Year 5	N	85	76	71	77	
	Median (IQR)	174 (127-221)	162 (127-211)	265 (206-313)	249 (189-292)	
EPA (mmol/L)						
Baseline	N	147	132	125	140	P<.0001
	Median (IQR)	59 (47-85)	62 (44-88)	72 (46-104)	68 (44-94)	
Year 1	N	144	127	117	132	
	Median (IQR)	57 (42-79)	59 (38-88)	146 (104-206)	129 (89-179)	
Year 3	N	133	117	103	120	
	Median (IQR)	60 (46-86)	65 (47-93)	153 (116-220)	152 (109-221)	
Year 5	N	85	76	71	77	
	Median (IQR)	61 (44-97)	65 (47-98)	163 (110-281)	134 (96-222)	

- * P-value from mixed models of main treatment effect over time (lutein + zeaxanthin vs. no lutein + zeaxanthin for lutein + zeaxanthin serum values; DHA + EPA vs. no DHA + EPA for DHA and EPA serum values).

IQR: Interquartile range

eTable 3. Serum Zinc Collected at Baseline, Year 1, Year 3, and Year 5, by Zinc Treatment Group

Nutrient		Zinc (80 mg)	Low Zinc (25 mg)	p-value*
Serum zinc (ug/dL)				
Baseline	N	186	189	0.87
	Median	95.7	95.5	
	(IQR)	(82.9-110.0)	(84.4-113.0)	
Year 1	N	179	181	<0.0001
	Median	101.0	86.2	
	(IQR)	(86.1-117.0)	(77.1-96.5)	
Year 3	N	159	162	<0.0001
	Median	99.3	90.3	
	(IQR)	(89.1-118.3)	(79.0-102.0)	
Year 5	N	122	118	<0.0001
	Median	95.0	85.3	
	(IQR)	(83.9-112.0)	(77.0-94.2)	

IQR: Interquartile range

eTable 4. Serum Beta Carotene Collected at Baseline, Year 1, Year 3, and Year 5, by Beta Carotene Treatment Group

Nutrient	N	Beta-carotene	No Beta-carotene	p-value*
Serum trans beta-carotene (ug/dL)				
Baseline	N Median (IQR)	182 66.3 (38.3-103.1)	193 54.3 (32.0-95.2)	0.11
Year 1	N Median (IQR)	177 83.8 (54.8-127.6)	182 23.0 (13.4-36.4)	<0.0001
Year 3	N Median (IQR)	152 85.8 (48.6-120.2)	173 20.9 (12.4-32.8)	<0.0001
Year 5	N Median (IQR)	113 73.9 (38.7-117.2)	125 20.9 (12.6-33.3)	<0.0001

IQR: Interquartile range

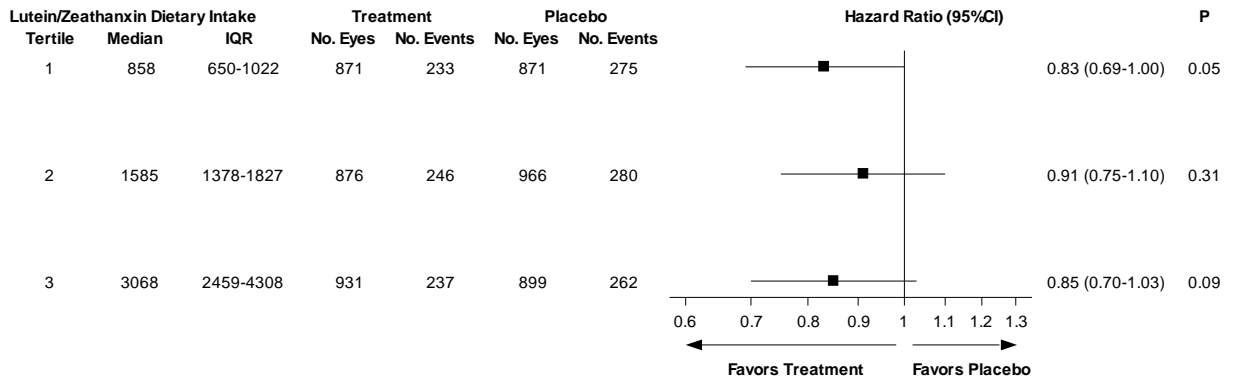
eTable 5. Comparison of Serum Levels of Lutein + Zeaxanthin and DHA + EPA in the Age-Related Eye Disease Study 2 (AREDS2) Participants and the National Health and Nutrition Examination Survey (NHANES) Participants

Nutrients	Serum Levels of Study Cohorts Geometric Mean (95% Confidence Intervals)		P-Value
	NHANES	AREDS2	
Lutein + zeaxanthin µg/dL	15.0 (14.4-15.7)	17.9 (17.1-18.8)	<0.001
DHA (mmol/L)	142 (131-155)	161 (155-168)	<0.01
EPA (mmol/L)	49.0 (42.5-56.5)	65.1 (61.9-68.4)	<0.001

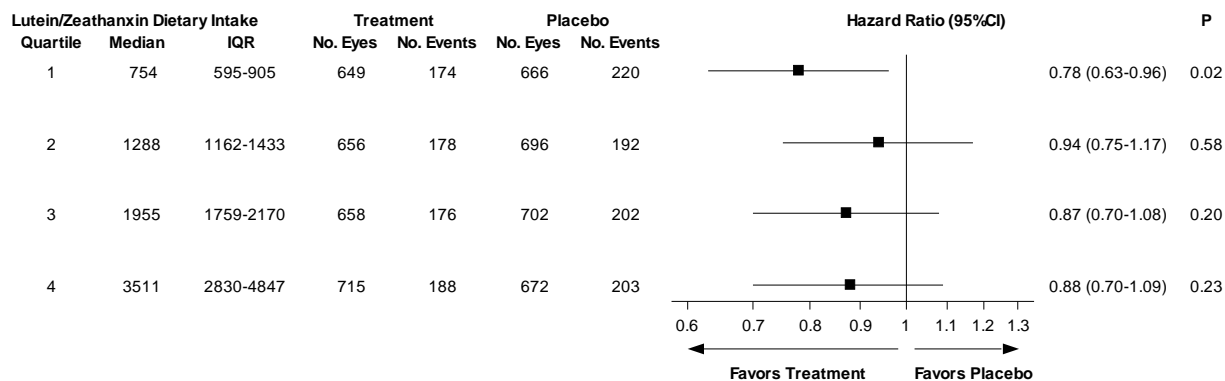
DHA: Docosahexanoic acid
EPA: Eicosapentanoic acid

eFigure 1. Comparison of the Main Effects of Lutein + Zeaxanthin vs No Lutein + Zeaxanthin on Progression to Advanced AMD, Stratified by Various Groupings of Dietary Intake of Lutein + Zeaxanthin (A, Tertiles; B, Quartiles; C, Deciles)

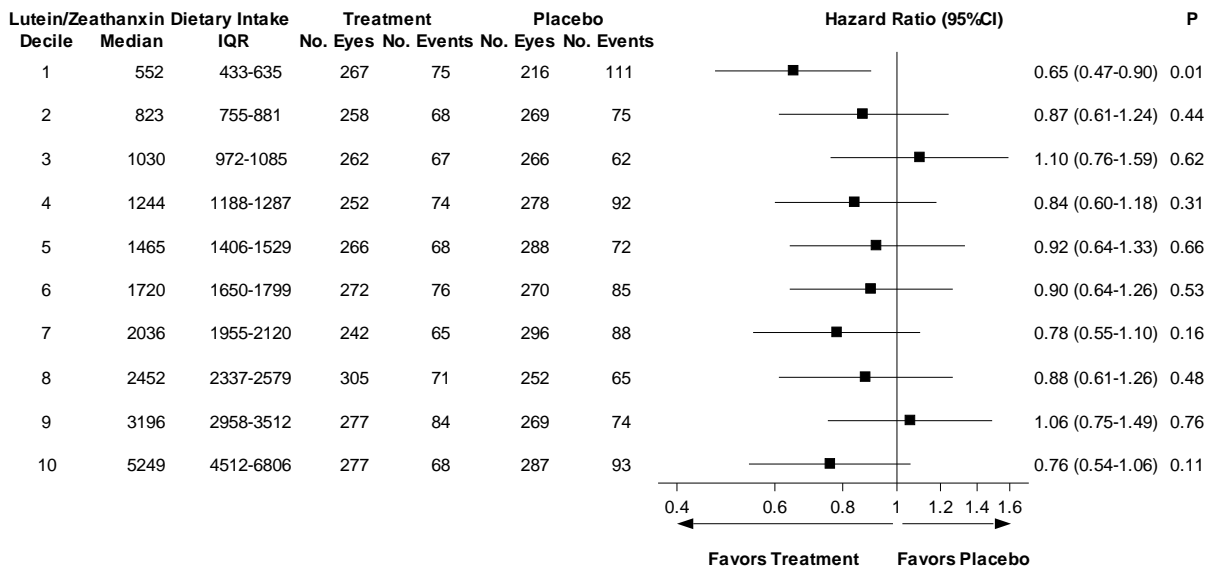
eFigure 1A. Comparison of the Main Effects of Lutein + Zeaxanthin vs No Lutein + Zeaxanthin, Stratified by Various Groupings of Tertiles Intake of Lutein + Zeaxanthin for the Development of Advanced AMD



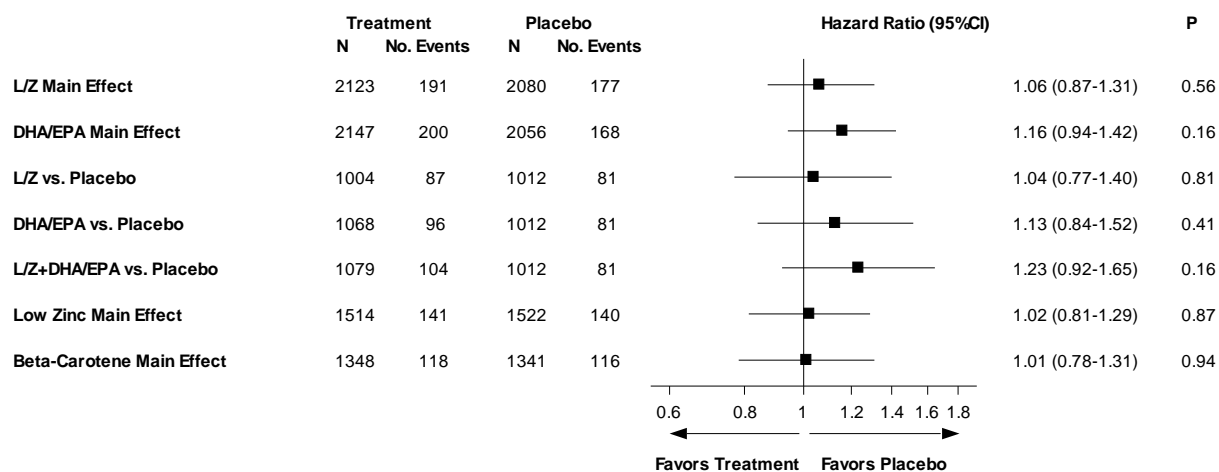
eFigure 1B. Comparison of the Main Effects of Lutein + Zeaxanthin vs No Lutein + Zeaxanthin, Stratified by Various Groupings of Quartiles Intake of Lutein + Zeaxanthin



eFigure 1C. Comparison of the Main Effects of Lutein + Zeaxanthin vs No Lutein + Zeaxanthin, Stratified by Various Groupings of Deciles Intake of Lutein + Zeaxanthin



eFigure 2. Hazard Ratios of Mortality for Each of the Nutrients Evaluated in AREDS2



eAppendix. The Age-Related Eye Disease Study 2 (AREDS2) Research Group

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Lisa Hogue (Ophthalmic Technician)
Mary Ilc (Ophthalmic Technician)
Connie Keller (Ophthalmic Technician)
Elizabeth McNamara (Ophthalmic Technician)
Vivian Tanner (Ophthalmic Technician)
Tamara Cunningham (Photographer)
John DuBois (Photographer)
Gregg Greanoff (Photographer)
Trina Nietzsche (Photographer)
Sheila Smith-Brewer (Photographer)

(027) Retina Associates of Kentucky

Ricky D. Isernhagen, MD, (Site PI)
John W. Kitchens, MD, (Ophthalmologist)
Thomas W. Stone, MD, (Ophthalmologist)
William J. Wood, MD, (Ophthalmologist)
Diana Holcomb (Clinic Coordinator)
Virginia Therrien (Office Manager)
Michelle Buck, COT, (Ophthalmic Technician)
Jeanne Van Arsdall (Ophthalmic Technician)
Edward Slade, CRA,COA, (Photographer)

(029) Retina Center Northwest

Todd E. Schneiderman, MD, (Site PI)
David J. Spinak, MD, (Ophthalmologist)
Jackie Gaedke (Clinic Coordinator)
Heather Davis Brown (Assistant Coordinator)
Dan Helgren (Assistant Coordinator)
Jennifer Garrison Pangelinan (Photographer)

(030) Retina Group of Florida

Lawrence Halperin, MD, (Site PI)
Scott Anagnoste, MD, (Ophthalmologist)
Mandeep Dhalla, MD, (Ophthalmologist)
Krista Rosenberg, MD, (Ophthalmologist)
Barry Taney, MD, (Ophthalmologist)
W. Scott Thompson, MD, (Ophthalmologist)
Jaclyn Lopez (Clinic Coordinator)
Monica Hamlin (Assistant Coordinator)
Monica Lopez (Assistant Coordinator)
Jamie Mariano, COA, (Ophthalmic Technician)
Evelyn Quinchia (Ophthalmic Technician)
Patricia Aramayo (Photographer)
Rita Veksler (Photographer)

(031) Retina Northwest, PC

Michael Lee, MD, (Site PI)
Richard Dreyer, MD, (Ophthalmologist)
Irvin Handelman, MD, (Ophthalmologist)
Colin Ma, MD, (Ophthalmologist)
Mark Peters, MD, (Ophthalmologist)
Stephen Hobbs III (Clinic Coordinator)
Amanda Milliron (Assistant Coordinator)
Marcia Kopfer (Ophthalmic Technician)
Michele Connaughton (Photographer)
A. Christine Hoerner (Photographer)
R. Joseph Logan (Photographer)
Harry J. Wohlsein (Photographer)

(032) Retina-Vitreous Associates Medical Group

David Boyer, MD, (Site PI)
Thomas G. Chu, MD, PhD, (Ophthalmologist)
Pouya Dayani, MD, (Ophthalmologist)
David Liao, MD, (Ophthalmologist)
Roger L. Novack, MD, PhD, (Ophthalmologist)
Firas M. Rahhal, MD, (Ophthalmologist)
Richard Roe, MD, (Ophthalmologist)
Homayoun Tabandeh, MD, (Ophthalmologist)
Janet Bayramyan (Clinic Coordinator)
Tammy Gasparyan (Assistant Coordinator)
Connie Hoang (Assistant Coordinator)
Janet Kurokouchi (Assistant Coordinator)
Tammy Eileen Lo (Assistant Coordinator)
Richard Ngo (Assistant Coordinator)
Mary Ann Nguyen (Assistant Coordinator)
Michael Peyton (Assistant Coordinator)
Charles Yoon (Assistant Coordinator)
Julio Sierra (Ophthalmic Technician)
Adam Zamboni (Ophthalmic Technician)
Jeff Kessinger (Photographer)
Eric Protacio (Photographer)
Adam Smucker (Photographer)

(033) Retina Vitreous Consultants

Pamela Rath, MD, (Site PI)
Robert Bergren, MD, (Ophthalmologist)
Bernard Doft, MD, (Ophthalmologist)
Judy Liu, MD, (Ophthalmologist)
Karl Olsen, MD, (Ophthalmologist)
Lori Merlotti (Clinic Coordinator)
Willia Ingram (Assistant Coordinator)

Kellianne Marfisi (Ophthalmic Technician)
Kimberly Yeckel (Ophthalmic Technician)
Heather Schultz Carmelo (Photographer)
Amanda Fec (Photographer)
Keith McBroom (Photographer)
David Steinberg (Photographer)

(034) Sarasota Retina Institute

Marc Levy, MD, (Site PI)
Jody Abrams, MD, (Ophthalmologist)
Melvin Chen, MD, (Ophthalmologist)
Waldemar Torres, MD, (Ophthalmologist)
Peggy Jelemensky (Clinic Coordinator)
Mark Prybylski (Ophthalmic Technician)
Tara Raphael (Ophthalmic Technician)
Diana Appleby (Photographer)
Charlotte Rodman (Photographer)
Mark Sneath, COA, (Photographer)

(035) Scott and White Memorial Hospital

Robert H. Rosa, Jr., MD, (Site PI)
Vanessa Hoelscher (Clinic Coordinator)
Adelia Castano (Ophthalmic Technician)
Jocelyn Parker (Photographer)

(036) Southeastern Retina Associates, PC

John Hoskins, MD, (Site PI)
Nicholas Anderson, MD, (Ophthalmologist)
Joseph Googe, Jr., MD, (Ophthalmologist)
Tod A McMillan, MD, (Ophthalmologist)
James Miller Jr., MD, (Ophthalmologist)
Stephen Perkins, MD, (Ophthalmologist)
Kristina Oliver (Clinic Coordinator)
Jennifer Beerbower (Ophthalmic Technician)
Bruce Gilliland, OD, (Ophthalmic Technician)
Cecile Hunt (Ophthalmic Technician)
Mike Jacobus (Photographer)
Raul Lince (Photographer)
Christopher Morris (Photographer)
Sarah Oelrich (Photographer)
Jerry Whetstone (Photographer)

(037) Southern California Desert Retina Consultants, MC

Clement K. Chan, MD, (Site PI)
Steven Lin, MD, (Ophthalmologist)
Kim Walther (Clinic Coordinator)
Tiana Gonzales (Assistant Coordinator)
Lenise Myers (Ophthalmic Technician)
Kenneth Huff, COA, (Photographer)

(038) Retina Consultants of Houston

David M. Brown, MD, (Site PI)
Eric Chen, MD (Ophthalmologist)
Matthew S. Benz, MD, (Ophthalmologist)
Richard H. Fish, MD, FACS, (Ophthalmologist)
Rosa Y. Kim, MD, (Ophthalmologist)
James Major Jr, MD, (Ophthalmologist)
Tien Pei Wong, MD, (Ophthalmologist)
Charles Wycoff, MD, PhD, (Ophthalmologist)
Cassandra Cone (Clinic Coordinator)
Debbie Goates Gilaspia (Assistant Coordinator)
Nubia Landaverde (Assistant Coordinator)

Robert Smith (Assistant Coordinator)
Deneva Zamora (Assistant Coordinator)
Veronica Sneed (Ophthalmic Technician)
Melina Vela (Ophthalmic Technician)
Eric Kegley (Photographer)

(039) Wake Forest University Eye Center

Craig Greven, MD, (Site PI)
Shree Kurup, MD, (Ophthalmologist)
Charles Richards, MD, (Ophthalmologist)
Madison Slusher, MD, (Ophthalmologist)
Cara Everhart (Clinic Coordinator)
Joan Fish, RN, CCRC, (Assistant Coordinator)
Mark Clark (Photographer)
David Miller (Photographer)
Marshall Tyler, CRA, FOPS, (Photographer)

(040) West Coast Retina Medical Group, Inc.

J. Michael Jumper, MD, (Site PI)
Arthur D. Fu, MD, (Ophthalmologist)
Robert N. Johnson, MD, (Ophthalmologist)
Brandon Lujan, MD, (Ophthalmologist)
H. Richard McDonald, MD, (Ophthalmologist)
Rosa Rodriguez (Clinic Coordinator)
Nina Ansari (Ophthalmic Technician)
Jeanifer Joaquin (Ophthalmic Technician)
Silvia Linares (Ophthalmic Technician)
Lizette Lopez (Ophthalmic Technician)
Jessica Sabio (Ophthalmic Technician)
Sean Grout (Photographer)
Chad Indermill (Photographer)
Yesmin Urias (Photographer)
Roberto Zimmerman (Photographer)

(041) Veterans Affairs - Northern California Health Care System

Linda Margulies, MD, (Site PI)
Sara J. Schmidt, PharmD, (Clinic Coordinator)
Joy L. Meier, PharmD, (Assistant Coordinator)
Sherry L. Hadley COT(Ophthalmic Technician)

(042) Mid-America Retina Consultants, PA

William Rosenthal, MD, (Site PI)
Barbara Johnson, RN, (Clinic Coordinator)
Lois Swafford (Office Manager)
Richard Shields, RN, (Ophthalmic Technician)
R. Scott Varner (Photographer)

(043) New York Eye and Ear Infirmary

Richard Rosen, MD, (Site PI)
Ronald Gentile, MD, (Ophthalmologist)
Melissa Rivas (Clinic Coordinator)
Katy W. Tai, CRC, (Assistant Coordinator)
Wanda Carrasquillo-Boyd (Photographer)
Robert Masini (Photographer)

(044) Ophthalmic Consultants of Long Island

Glenn Stoller, MD, (Site PI)
Ken Carnevale, MD, (Ophthalmologist)
Diane M. LaRosa, CRNO, (Clinic Coordinator)
Barbara Burger, RN, CCRC, (Assistant Coordinator)
Tereza Conway (Assistant Coordinator)
Carla Del Castillo (Assistant Coordinator)

Julissa Diaz (Assistant Coordinator)
Susan Jones (Assistant Coordinator)
Nina Mondoc (Assistant Coordinator)
Charlene Balfour (Ophthalmic Technician)
CH Vitha (Ophthalmic Technician)
Jennifer Lutz (Photographer)
Barbara McGinley (Photographer)

(045) The Research Foundation of SUNY/SB

Fadi El Baba, MD, (Site PI)
Ann Marie Lavorna (Clinic Coordinator)
Renee Jones (Assistant Coordinator)
Jean Lewis (Assistant Coordinator)
Ruth Tenzler, RN, BSN, (Assistant Coordinator)
Mary Salvas-Mladek, CRA, (Ophthalmic Technician)
Diane Van Kesteren, COA, (Ophthalmic Technician)

(046) Western Carolina Retinal Associates

W. Copley McLean, Jr., MD, (Site PI)
W. Zachery Bridges, Jr., MD, (Ophthalmologist)
Cameron Stone, MD, (Ophthalmologist)
Denise Ammons (Clinic Coordinator)
Mary Lamy (Assistant Coordinator)
Andrea Menzel (Assistant Coordinator)
Lea Doll Raymer (Assistant Coordinator)
Barbara Campbell (Ophthalmic Technician)
Lisa Hawkins (Ophthalmic Technician)
Leslie Rickman (Ophthalmic Technician)
Lorraine Sherlin (Ophthalmic Technician)
Paula Price (Photographer)
Albert Sinyai (Photographer)

(047) Dean McGee Eye Institute

Ronald Kingsley, MD, (Site PI)
Reagan H. Bradford, Jr., MD, (Ophthalmologist)
Robert E. Leonard II, MD, (Ophthalmologist)
Sonny Icks (Clinic Coordinator)
Vanessa Bergman (Ophthalmic Technician)
Brittany Ross (Ophthalmic Technician)
Russ Burris (Photographer)
Amanda Butt (Photographer)
Rob Richmond (Photographer)

(048) Northwestern University, Ophthalmology

Alice Lyon, MD, (Site PI)
Manjot Gill, MD, (Ophthalmologist)
Lee Jampol, MD, (Ophthalmologist)
Rukhsana Mizra, MD, (Ophthalmologist)
Zuzanna Rozenbajgier (Clinic Coordinator)
Jeremy Chapman (Assistant Coordinator)
Lori Kaminski (Assistant Coordinator)
Andrea Degillio (Photographer)
Evica Simjanoski, CRA, (Photographer)

(049) Ophthalmic Consultants of Boston

Jeffrey Heier, MD, (Site PI)
Hyung Cho, MD, (Ophthalmologist)
Tina Scheufele Cleary, MD, (Ophthalmologist)
Darin Goldman, MD, (Ophthalmologist)
Chirag Shah, MD, (Ophthalmologist)
Trexler Topping, MD, (Ophthalmologist)
Marissa Weber, MD, (Ophthalmologist)

Torsten Wiegand, MD,PhD, (Ophthalmologist)
Jeremy Schindelheim (Clinic Coordinator)
Joy Bankert (Assistant Coordinator)
Jennifer Stone (Assistant Coordinator)
Alison Nowak (Office Manager)
Sandy Chong (Ophthalmic Technician)
Lindsay Williams (Ophthalmic Technician)
Steven Bennett (Photographer)
Dennis Donovan (Photographer)
Margaret Graham (Photographer)
Cullen Jones (Photographer)

(050) Pacific Eye Associates

Anne Fung, MD, (Site PI)
Jan-Kristine Bayabo (Clinic Coordinator)
Razelda Bosch (Assistant Coordinator)
Esperanza Cruz (Assistant Coordinator)
Ashley Emerson (Assistant Coordinator)
Alycia Fleming (Ophthalmic Technician)
Denice Barsness (Photographer)
Jorge Rodriguez (Photographer)
Marina Soboleva (Photographer)

(051) Penn State M.S. Hershey Medical Center

Ingrid U. Scott, MD,MPH, (Site PI)
Esther Bowie, MD, (Ophthalmologist)
Kimberly A Neely, MD, PhD, (Ophthalmologist)
David A. Quillen, MD, (Ophthalmologist)
Laura Walter (Clinic Coordinator)
Timothy Bennett (Photographer)
James Strong (Photographer)

(052) Palmetto Retina Center

John Wells, III, MD, (Site PI)
Lloyd Clark, MD, (Ophthalmologist)
David Johnson, MD, (Ophthalmologist)
Peggy Miller (Clinic Coordinator)
Mallie Taylor (Assistant Coordinator)
Tiffany Swinford (Ophthalmic Technician)
Robbin Spivey (Photographer)

(053) Pennsylvania Retina Specialists, PC

Michael Banach, MD, (Site PI)
Lawrence Ho, MD, (Ophthalmologist)
Richard Lanning, MD, (Ophthalmologist)
Thomas R Pheasant, MD, (Ophthalmologist)
Jay G Prensky, MD, (Ophthalmologist)
Steven Truong, MD, (Ophthalmologist)
Julia Teatsworth, COT, (Clinic Coordinator)
Michelle Dietrich (Assistant Coordinator)
Ann Wasilus (Phlebotomist)
Ann Miller (Ophthalmic Technician)
Megan Rakes (Ophthalmic Technician)
Teresa Slagle (Ophthalmic Technician)
Michelle Richards (Photographer)
Patricia Schuessler (Photographer)
Lacy Stover (Photographer)

(054) Retina Consultants, PLLC

Paul Beer, MD, (Site PI)
Naomi S. Falk, MD, (Ophthalmologist)
Mary Beth Shannon (Clinic Coordinator)

Jeannie Olmeda (Ophthalmic Technician)
Don Berdeen (Photographer)
Joseph F. Fisher, Jr. (Photographer)

(055) University of Iowa

James Folk, MD, (Site PI)
Stephen Russell, MD, (Ophthalmologist)
Barbara Taylor (Clinic Coordinator)
Connie Hinz (Assistant Coordinator)
Jean Walshire (Assistant Coordinator)
Heather Stockman (Ophthalmic Technician)
Bruce Critser (Photographer)
Stefani Karakas (Photographer)
Cindy Montague (Photographer)
Randy Verdick (Photographer)

(056) Wills Eye Hospital/Mid Atlantic Retina

Omesh Gupta, MD, (Site PI)
Joseph Maguire, MD, (Site PI)
Christopher Brady, MD, (Ophthalmologist)
Francis Char DeCroos, MD, (Ophthalmologist)
Michael Dollin, MD, (Ophthalmologist)
Sunir Garg, MD, (Ophthalmologist)
Adam Gerstenblith, MD, (Ophthalmologist)
Julia Haller, MD, (Ophthalmologist)
Allen C. Ho, MD, (Ophthalmologist)
Jason Hsu, MD, (Ophthalmologist)
Richard Kaiser, MD, (Ophthalmologist)
John Pitcher, MD, (Ophthalmologist)
Carl Regillo, MD, (Ophthalmologist)
Rajiv Shah, MD, (Ophthalmologist)
Marc Spirn, MD, (Ophthalmologist)
William Tasman, MD, (Ophthalmologist)
James Vander, MD, (Ophthalmologist)
Noga Senderowitsch (Clinic Coordinator)
Michele Formoso (Assistant Coordinator)
Michelle Markun (Assistant Coordinator)
Cedric George
Christina Centinaro (Ophthalmic Technician)
Lisa Grande (Ophthalmic Technician)
Stefanie Carey (Photographer)
Elaine Liebenbaum (Photographer)

(057) Doheny Eye Institute USC

SriniVas Satta, MD, (Site PI)
Mark Humayun, MD, PhD, (Ophthalmologist)
Rachel Sierra (Clinic Coordinator)
Elizabeth Corona (Assistant Coordinator)
Margaret Padilla (Assistant Coordinator)
Moonseok Nu (Office Manager)
Sylvia Ramos (Ophthalmic Technician)
Cullen Barnett (Photographer)
Glenn Currie (Photographer)
Cornelia Gottlieb (Photographer)

(058) The Retina Group of Washington

Richard Garfinkel, MD, (Site PI)
Daniel Berinstein, MD, (Ophthalmologist)
Marcus Colyer, MD, (Ophthalmologist)
William Deegan, III, MD, (Ophthalmologist)
Michael Min-Shyue Lai, MD, (Ophthalmologist)
Robert Murphy, MD, (Ophthalmologist)

Michael Osman, MD, (Ophthalmologist)
Michael Rivers, MD, (Ophthalmologist)
Reginald Sanders, MD, (Ophthalmologist)
Manfred A. von Fricken, MD, (Ophthalmologist)
Debbie Oliver (Clinic Coordinator)
Jeanne Kirshon (Assistant Coordinator)
Tanya Alexander Snowden (Assistant Coordinator)
Thomas Blondo (Ophthalmic Technician)
Alysia Cronise (Ophthalmic Technician)
Vanessa Denny (Ophthalmic Technician)
Kylie Mendez (Ophthalmic Technician)
Janine Newgen (Ophthalmic Technician)
Justin Davis (Photographer)
Mike Flory (Photographer)
Robert Frantz (Photographer)
Bryan Murphy (Photographer)
Steve Rauch (Photographer)

(060) The Medical College of Wisconsin

Judy E. Kim, MD, (Site PI)
Jane Bachman, OD, (Ophthalmologist)
Thomas B. Connor, Jr., MD, (Ophthalmologist)
Dennis P. Han, MD, (Ophthalmologist)
Kimberly Stepien, MD, (Ophthalmologist)
David V. Weinberg, MD, (Ophthalmologist)
William J. Wirostko, MD, (Ophthalmologist)
Krissa Packard (Clinic Coordinator)
Tracy Kaczanowski (Assistant Coordinator)
Vesper Williams (Assistant Coordinator)
Vicki Barwick (Ophthalmic Technician)
Judy Flanders (Ophthalmic Technician)
Dennis Backes (Photographer)
Joe Beringer (Photographer)
Kristy Keller (Photographer)
Kathy Selchert (Photographer)

(061) John Moran Eye Center

Paul Bernstein, MD, PhD, (Site PI)
Michael Teske, MD, (Ophthalmologist)
Albert Vitale, MD, (Ophthalmologist)
Susan Allman, COA, (Clinic Coordinator)
Bonnie Carlstrom COA (Assistant Coordinator)
Kimberley Wegner (Assistant Coordinator)
Anne Haroldsen (Office Manager)
Deborah Harrison, MS, (Office Manager)
Cyrie Fry (Photographer)
James Gilman, CRA, (Photographer)
Glen Jenkins (Photographer)
Paula Morris, CRA, (Photographer)

(063) Loma Linda University

Michael Rauser, MD, (Site PI)
Joseph Fan, MD, (Ophthalmologist)
Mukesh Suthar, MD, (Ophthalmologist)
Gisela Santiago (Clinic Coordinator)
Kara Rollins Halsey (Assistant Coordinator)
Christy Quesada (Assistant Coordinator)
William Kiernan, OD, (Ophthalmic Technician)
Jesse Knabb (Photographer)

(064) Baylor College of Medicine

Richard Alan Lewis, MD, MS, (Site PI)

Cindy Dorenbach, COT, (Clinic Coordinator)
Steven Spencer, COMT, (Ophthalmic Technician)
Dana Barnett (Photographer)
Joseph Morales, CRA, (Photographer)

(066) Carolina Retina Center

Barron C. Fishburne, MD, (Site PI)
Jeffrey G. Gross, MD, (Ophthalmologist)
Michael A. Magee, MD, (Ophthalmologist)
Amy Flowers (Clinic Coordinator)
Angie McDowell (Ophthalmic Technician)
Randall Price (Photographer)

(067) Case Western Reserve University

Suber Huang, MD, MBA, (Site PI)
Johnny Tang, MD, (Ophthalmologist)
Shawn Wilker, MD, (Ophthalmologist)
Cherie Hornsby (Clinic Coordinator)
Lisa Ferguson (Assistant Coordinator)
Kirk Krogstad (Assistant Coordinator)
Riva Adamovsky (Ophthalmic Technician)
Peggy Allchin (Ophthalmic Technician)
Kathleen Carlton (Ophthalmic Technician)
Claudia Clow (Ophthalmic Technician)
Kelly Sholtis (Ophthalmic Technician)
Stephanie Burke (Photographer)
Mark Harrod (Photographer)
Stacie Hrvatin (Photographer)
Geoffrey Pankhurst (Photographer)

(069) Eye Foundation of Kansas City

Nelson R. Sabates, MD, (Site PI)
Michael Cassell, MD, (Ophthalmologist)
Komal Desai, MD, (Ophthalmologist)
Abraham Poulouse, MD, (Ophthalmologist)
Felix Sabates, MD, (Ophthalmologist)
Yin Chen (Clinic Coordinator)
Gary Gallimore, COMT, (Photographer)
Yolanda Konior (Photographer)

(070) Jones Eye Institute - UAMS

Nicola Kim, MD, (Site PI)
Sami Uwaydat (Ophthalmologist)
Deborah Troillett (Clinic Coordinator)
Karen Aletter (Photographer)

(071) Kresge Eye Institute

Robert N. Frank, MD, (Site PI)
Gary Abrams, MD, (Ophthalmologist)
James Puklin, MD, (Ophthalmologist)
Asheesh Tewari, MD, (Ophthalmologist)
Cheryl Milanovic (Clinic Coordinator)
Melanie Bailey (Photographer)
David Griffith (Photographer)
Dena McDonald (Photographer)
Kit Morehead (Photographer)
Zlatan Sadikovic (Photographer)
Lisa Schillace (Photographer)
Elizabeth Silvis (Photographer)

(072) Colorado Retina Associates PC

Brian Joondeph, MD, (Site PI)

Nancy Christmas, MD, (Ophthalmologist)
David Johnson, MD, (Ophthalmologist)
Alan Kimura, MD, (Ophthalmologist)
Mimi Liu, MD, (Ophthalmologist)
Stephen Petty, MD, (Ophthalmologist)
John Zilis, MD, (Ophthalmologist)
Jenny Benitez (Clinic Coordinator)
Cassandra Berryman Catlett (Assistant Coordinator)
Eric Fluegel, RN, (Assistant Coordinator)
Shane Mowry (Photographer)
Hoang Nguyen (Photographer)
David Reflow (Photographer)

(074) UNC Department of Ophthalmology

Odette M. Houghton, MD, (Site PI)
Seema Garg, MD, PhD, (Ophthalmologist)
Maurice B. Landers, MD, (Ophthalmologist)
Travis Meredith, MD, (Ophthalmologist)
Sandy Barnhart, MPH, (Clinic Coordinator)
Megha Karmalkar (Assistant Coordinator)
Debra Cantrell (Photographer)
Rona Lyn Esquejo-Leon (Photographer)
Linda Manor (Pharmacist)
Sue Pope (Pharmacist)
David Stines (Pharmacist)
Amelia Stokely (Pharmacist)

(075) University Health Care - Mason Eye Institute

Dean Hainsworth, MD, (Site PI)
Dyann Helming (Clinic Coordinator)
Debbie Eichelberger (Office Manager)
Mary Paige Leaton (Ophthalmic Technician)
Chuck Hamm (Photographer)

(076) University of Tennessee HSC

Edward Chaum, MD, PhD, (Site PI)
Alessandro Iannaccone, MD, (Ophthalmologist)
Barbara Jennings, MA, OD, (Clinic Coordinator)
Tracy Murray (Ophthalmic Technician)
Joe Mastellone (Photographer)

(077) Fletcher Allen Health Care

Robert Millay, MD, (Site PI)
Brian Kim, MD, (Ophthalmologist)
Theresa Goddard (Clinic Coordinator)
Liza Jarrett Beaudette (Ophthalmic Technician)
Nina Changelian-Aitken (Ophthalmic Technician)
Fernando Corrada (Photographer)
Jason Dubuque (Photographer)

(078) Mayo Clinic

Raymond Iezzi, MD, (Site PI)
Sophie J. Bakri, MD, (Ophthalmologist)
Jose S. Pulido, MD, (Ophthalmologist)
Diane Vogen (Clinic Coordinator)
Rebecca Nielsen, LPN, (Assistant Coordinator)
Karin Berg (Ophthalmic Technician)
Jean Burrington, COA, (Ophthalmic Technician)
Shannon Howard, COA, (Ophthalmic Technician)
Joan Overend (Ophthalmic Technician)
Zbigniew Krason (Photographer)
Denise Lewison (Photographer)

Thomas Link, CRA, (Photographer)

(079) The Retina Institute

Kevin J. Blinder, MD, (Site PI)
Nicholas E. Engelbrecht, MD, (Ophthalmologist)
M. Gilbert Grand, MD, (Ophthalmologist)
Daniel P. Joseph, MD, PhD, (Ophthalmologist)
Gaurav K. Shah, MD, (Ophthalmologist)
Bradley Smith, MD, (Ophthalmologist)
Matthew Thomas, MD, (Ophthalmologist)
Rhonda Weeks (Clinic Coordinator)
Lynda Boyd (Ophthalmic Technician)
Dana Gabel (Photographer)

(080) Yale University Eye Center

Ron Adelman, MD, (Site PI)
John Huang, MD, (Ophthalmologist)
James Kempton, MD, (Ophthalmologist)
Aaron Parnes, MD, (Ophthalmologist)
Jennifer Dupont (Clinic Coordinator)
Elizabeth Perotti (Assistant Coordinator)
Victoria Donaldson (Ophthalmic Technician)
Kenneth Fong (Photographer)
Pamela Ossorio (Photographer)

(081) Vanderbilt Eye Institute

Anita Agarwal, MD, (Site PI)
Paul Sternberg, MD, (Ophthalmologist)
Sandy Owings (Clinic Coordinator)
Tony Adkins (Photographer)
Elaine Lok (Photographer)
Garvin Munn (Photographer)
Buddy Skellie (Photographer)

(082) UMDNJ

Neelakshi Bhagat, MD, MPH, (Site PI)
Monique S. Roy, MD, (Ophthalmologist)
Marco Zarbin, MD, PhD, (Ophthalmologist)
Catherine Fay (Clinic Coordinator)
Michael Lazar (Photographer)
Beth Malpica (Photographer)
Tatiana Mikheyav (Photographer)

(084) The University of Illinois

Lawrence Ulanski II, MD, (Site PI)
Jennifer Lim, MD, (Ophthalmologist)
Marcia Niec, BS CCRP, (Clinic Coordinator)
Tametha Johnson (Ophthalmic Technician)
Yesenia Ovando (Ophthalmic Technician)
Catherine Nail Carroll (Photographer)
Mark Janowicz (Photographer)

(085) Jules Stein Eye Institute

Steven Schwartz, MD, (Site PI)
David Cupp, MD, (Ophthalmologist)
Michael Gorin, MD, PhD, (Ophthalmologist)
Gad Heilweil, MD, (Ophthalmologist)
Hamid Hosseini, MD, (Ophthalmologist)
Jean-Pierre Hubschman, MD, (Ophthalmologist)
Allan Kreiger, MD, (Ophthalmologist)
Tara Young McCannel, MD, (Ophthalmologist)
Carolyn Pan, MD, (Ophthalmologist)

David Sarraf, MD, (Ophthalmologist)
Irena Tsui, MD, (Ophthalmologist)
Joshua Udoetek MD(Ophthalmologist)
Vinad Voleti, MD, (Ophthalmologist)
Logan Hitchcock (Clinic Coordinator)
Rosaleen Ostrick (Assistant Coordinator)
Melissa Chun, OD, (Ophthalmic Technician)
Jennie Kageyama, OD, (Ophthalmic Technician)
Nilo Davila (Photographer)
Kristin Lipka (Photographer)
Christina Shin (Pharmacist)

(086) Univ. of Alabama at Birmingham

Cynthia Owsley, PhD, (Site PI)
Michael Albert, Jr., MD, (Ophthalmologist)
Richard Feist, MD, (Ophthalmologist)
John Mason, MD, (Ophthalmologist)
Martin Thomley, MD, (Ophthalmologist)
Angelia Johnson (Clinic Coordinator)
Mark Clark (Assistant Coordinator)
Tracy Emond (Assistant Coordinator)
Joanna Hamela (Assistant Coordinator)
Angela Marsh (Office Manager)
Karen Searcey (Office Manager)
Kia Rookard (Ophthalmic Technician)

(087) UT Southwestern Medical Center

Yu-Guang He, MD, (Site PI)
Rafael L. Ufret-Vincenty, MD, (Ophthalmologist)
Mike Molai (Clinic Coordinator)
William Anderson (Photographer)
John Horna (Photographer)

(088) Ohio State University

Alan Letson, MD, (Site PI)
Colleen Cebulla, MD, PhD, (Ophthalmologist)
Susie Chang, MD, (Ophthalmologist)
Fred Davidorf, MD, (Ophthalmologist)
Jill Salerno (Clinic Coordinator)
Laura Sladoje (Office Manager)
Christina Stetson (Office Manager)
Jeri Perry (Ophthalmic Technician)
Scott Savage (Photographer)

(089) Duke University

Cynthia Toth, MD, (Site PI)
Glenn Jaffe, MD, (Ophthalmologist)
Stefanie Schuman, MD, (Ophthalmologist)
Neeru Sarin, MBBS, (Clinic Coordinator)
Jim Crowell (Photographer)
Tiffanie Keaton (Photographer)
Michael Kelly (Photographer)
Brian Lutman (Photographer)
Marriner Skelly (Photographer)
Lauren Welch (Photographer)

(090) University of California, Davis

Lawrence Morse, MD, PhD, (Site PI)
Allan Hunter, MD, (Ophthalmologist)
Susanna Soon-Chun Park MD, PhD (Ophthalmologist)
Cynthia Wallace (Clinic Coordinator)
Ember Dhillon (Assistant Coordinator)

Marisa Salvador (Assistant Coordinator)
Barbara Holderreed (Office Manager)
Karishma Chandra (Photographer)
Sashi Kaur (Photographer)
Ellen Redenbo (Photographer)
Smiley Hom (Pharmacist)

(091) Manhattan Eye, Ear and Throat Hospital

Michael Cooney, MD, (Site PI)
Irene Barbazetto, MD, (Ophthalmologist)
James M. Klancnik, Jr., MD, (Ophthalmologist)
John A. Sorenson, MD, (Ophthalmologist)
Lawrence Yannuzzi, MD, (Ophthalmologist)
Maria Scolaro (Clinic Coordinator)
Eugene Agresta (Photographer)
Nancy Gonzalez (Photographer)

(092) University of Florida

Sandeep Grover, MD, (Site PI)
K.V. Chalam, MD, PhD, (Ophthalmologist)
Shailesh Gupta, MD, (Ophthalmologist)
Christopher Lyons (Clinic Coordinator)
Wenhua Li (Assistant Coordinator)
Chirag Patel, MD, (Assistant Coordinator)
Jose Carrion (Photographer)

(093) Shiley Eye Center - UCSD

Henry Ferreyra, MD, (Site PI)
Amberly Rodriguez (Clinic Coordinator)
Iliana Molina (Assistant Coordinator)
Gabriel Balea (Photographer)
Pam Emory (Photographer)
Marlene Rico (Photographer)
Giorgio Siqueiros (Photographer)

(094) Scheie Eye Institute

Alexander J. Brucker, MD, (Site PI)
Joshua Dunaief, MD, (Ophthalmologist)
Juan Grunwald, MD, (Ophthalmologist)
Benjamin Kim, MD, (Ophthalmologist)
Albert M. Maguire, MD, (Ophthalmologist)
Brian VanderBeek, MD, (Ophthalmologist)
Sheri Drossner, MSW, (Clinic Coordinator)
Joan DuPont (Assistant Coordinator)
Rebecca Salvo (Assistant Coordinator)
Jim Berger (Photographer)
Cheryl Devine (Photographer)
Bill Nyberg (Photographer)
Laurel Weeney (Photographer)

(095) University of Rochester Eye Institute

David DiLoreto, MD, (Site PI)
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Valerie Davis (Clinic Coordinator)
Peter MacDowell (Assistant Coordinator)
George O Gara (Assistant Coordinator)
Daniel Castillo (Ophthalmic Technician)
Andrea Czubinski (Ophthalmic Technician)
Melissa Keim (Ophthalmic Technician)
Brandi Hardy (Photographer)
Rachel Grunhaus Hollar (Photographer)
Lynn Schueckler (Photographer)

(148) NorthShore University HealthSystems

Alice T. Lyon, MD, (Site PI)
Aaron Weinberg, MD, Site Co-PI
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Qin Zhou (Ophthalmic Technician)
Laura McPoland (Photographer)

(179) Washington University School of Medicine

Rajendra Apte, MD, PhD, (Site PI)
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Jamie Kambarian (Assistant Coordinator)
Eve Adcock (Ophthalmic Technician)
Sarah Gould (Ophthalmic Technician)
Melanie Quinn (Ophthalmic Technician)
Rhonda Curtis (Photographer)
Amy Frost (Photographer)
Charla Meyer (Photographer)
Greg Rathert (Photographer)

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