

BIOGRAPHICAL SKETCH

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NAME Jonathan E. Sears	POSITION TITLE Associate Professor
eRA COMMONS USER NAME searsj	

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Yale College, New Haven, CT	B.S.	1984-1988	Chemistry
Yale Univ. School of Medicine, New Haven, CT	M.D.	1988-1992	Medicine
Yale New Haven Hospital, New Haven, CT	Internship	1992-1993	Internal Medicine
Yale Univ. School of Medicine, New Haven, CT	Residency	1993-1996	Ophthalmology
Emory Univ. School of Medicine, Atlanta, GA	Fellowship	1996-1998	Vitreoretinal surgery

A. Personal Statement

I became interested in Retinopathy of Prematurity as a medical student and was a certified examiner for STOP-ROP as a resident in ophthalmology and further pursued the diagnosis and management of ROP during a surgical fellowship at the Emory Eye Center with Thomas Aaberg, Sr. and Antonio Capone. I share two passions- the first is preventing blindness in these severely premature infants and the second is making a basic science contribution that will translate into better care for these infants. I was trained in molecular biology over a four year period in medical school under the direction of Richard Flavell in the Immunobiology Department at Yale University School of Medicine.

At the Cleveland Clinic, my lab is specifically interested in *preventing* ischemia, or the lack of blood flow, in order to reduce the need to provide thermal destructive treatment of the retina or specific anti-VEGF therapy in this population at risk. We believe that addressing the primary insult in the disease state- ischemia- is a viable alternative to reacting to ischemia once it occurs. The idea of stimulating retinovascular development/repair during the causative phase of ischemia came from a clinical study we published that showed how decreasing the oxygen saturation in severely premature infants early in corrected gestational age to a level slightly higher than what they experience *in utero* not only reduced the incidence of pathologic disease, known as threshold ROP, but also induced the normal developmental sequence of retinal maturation. It occurred to me that if the reduced oxygen saturation stimulated retinovascular development early in gestational age, then this "hypoxic" preconditioning could be recapitulated pharmaceutically by gently stimulating hypoxia responsive genes. We then proved this in the mouse using the oxygen induced retinopathy model. These early studies also revealed a fascinating paradox to our new paradigm because our experiments showed that the liver may be central to the protection of retinal blood vessels. I am drawn to the possibility that many diseases with the common theme of ischemia could be addressed by the coordinated protection of capillary beds by gentle induction of vascular protective genes through stimulation of a key transcription factor. It is a real possibility that just as thermal destructive treatments (cryotherapy, laser photocoagulation) are gradually giving way to anti-VEGF therapies, the future will have a place for the primary prevention of the ischemic disease states. Hyperoxia of the preterm infant, hyperglycemia of the diabetic, and senescence all share a common theme of ischemia that one day may be prevented by stimulating the normal, sequential development and repair of capillaries. ROP stands at the nexus of a progressive understanding of how to harness the normal developmental and reparative processes of tissues in response to pathologic stimuli.

B. Positions and Honors.

Hospital Staff Appointments:

1998-present Associate Professor, Department of Ophthalmology, Cleveland Clinic
 1998-present Associate Professor, Department of Cell Biology, Lerner Research Institute, Cleveland Clinic

Honors/Awards

Distinction in Chemistry, Department of Chemistry, Yale University	1988
Cum Laude, Yale University	1988
Yale Medical Student Research Fellowship, sponsored by National Institute of Health; Howard Hughes Medical Institute, Section of Immunobiology, Yale School of Medicine	1990-1992
Harold J. Lampport Prize, awarded for the most creative Biomedical research by a Yale medical student, Department of Biochemistry, Yale School of Medicine	1992
Yale Resident Research Prize, Department of Ophthalmology	1995 and 1996
Heed Ophthalmic Fellowship, in support of clinical research	1997
Emory Medical Care Fellowship, in support of basic science Research, Emory University School of Medicine	1997
Association of University Professors of Ophthalmology, Fellow Research Competition, Finalist	1998
Clinical Teacher of the Year Award, Department of Ophthalmology, Emory University School of Medicine	1998
Clinical Investigator Development Award, CCF	2003
Best Doctors in America	2005-2010
Best Doctors in Cleveland Innovation Award, Cleveland Clinic	2006-2010 2007
American Academy of Ophthalmology Achievement Award	2008
European Society of Pediatric Research, Best Poster	2008

Membership in Professional Societies

Association for Research in Vision and Ophthalmology	1992-present
American Academy of Ophthalmology	1992-present
International Congress of Eye Research	1996-present
RNA Society	2004-present
Association of Pediatric Retinal Surgeons	2004-present
Heed Ophthalmic Society	1997-present
Pine Ridge Eye Society	1999-present
American Ophthalmic Society	2013-present

C. Peer-reviewed Publications (Selected from 76 peer-reviewed publications)

- 1: Xu D, Yuan A, Kaiser PK, Srivastava SK, Singh RP, Sears JE, Martin DF, Ehlers JP. A novel segmentation algorithm for volumetric analysis of macular hole boundaries identified with optical coherence tomography. *Invest Ophthalmol Vis Sci.* 2013 Jan 7;54(1):163-9. doi: 10.1167/iovs.12-10246. PubMed PMID: 23221077.
- 2: Nicholson BP, Singh RP, Sears JE, Lowder CY, Kaiser PK. Evaluation of fluocinolone acetonide sustained release implant (Retisert) dissociation during implant removal and exchange surgery. *Am J Ophthalmol.* 2012 Dec;154(6):969-973.e1. doi: 10.1016/j.ajo.2012.06.004. Epub 2012 Sep 13. PubMed PMID: 22981365.
- 3: Gotoh H, Sears JE, Eschenmoser A, Boger DL. New insights into the mechanism and an expanded scope of the Fe(III)-mediated vinblastine coupling reaction. *J Am Chem Soc.* 2012 Aug 15;134(32):13240-3. doi: 10.1021/ja306229x. Epub 2012 Aug 7. PubMed PMID: 22856867; PubMed Central PMCID: PMC3430138.
- 4: Ebrahem Q, Qi JH, Sugimoto M, Ali M, Sears JE, Cutler A, Khokha R, Vasanji A, Anand-Apte B. Increased neovascularization in mice lacking tissue inhibitor of metalloproteinases-3. *Invest Ophthalmol Vis Sci.* 2011 Aug 3;52(9):6117-23. doi: 10.1167/iovs.10-5899. PubMed PMID: 21282576; PubMed Central PMCID: PMC3175998.
- 5: Nicholson B, Ahmad B, Sears JE. Congenital optic nerve malformations. *Int Ophthalmol Clin.* 2011 Winter;51(1):49-76. doi: 10.1097/IIO.0b013e3182009809. Review. PubMed PMID: 21139477.
- 6: Sears NC, Sears JE. Oxygen and retinopathy of prematurity. *Int Ophthalmol Clin.* 2011 Winter;51(1):17-31. doi: 10.1097/IIO.0b013e3182009916. Review. PubMed PMID: 21139475.
- 7: Sachdeva R, Dadgostar H, Kaiser PK, Sears JE, Singh AD. Verteporfin photodynamic therapy of six eyes with retinal capillary haemangioma. *Acta Ophthalmol.* 2010 Dec;88(8):e334-40. doi: 10.1111/j.1755-3768.2010.02008.x. Epub 2010 Oct 14. PubMed PMID: 20946329.
- 8: Sachdeva R, Sears JE, Rychwalski PJ. A novel case of bilateral high myopia, cataract, and total retinal detachment associated with interstitial 11q deletion. *Ophthalmic Genet.* 2010 Jun;31(2):84-8. doi: 10.3109/13816811003628833. PubMed PMID: 20450311.
- 9: Pauer GJ, Sturgill GM, Peachey NS, Hagstrom SA; Clinical Genomic And Proteomic AMD Study Group. Protective effect of paraoxonase 1 gene variant Gln192Arg in age-related macular degeneration. *Am J Ophthalmol.* 2010 Mar;149(3):513-22. doi: 10.1016/j.ajo.2009.09.024. Epub 2009 Dec 30. PubMed PMID: 20042177; PubMed Central PMCID: PMC3026437.
- 10: Sears JE. Stimulating angiogenesis to prevent ischemic retinopathy. *Ophthalmology.* 2009 Sep;116(9):1597-8. doi: 10.1016/j.ophtha.2009.04.024. PubMed PMID: 19729095.
- 11: Ni J, Yuan X, Gu J, Yue X, Gu X, Nagaraj RH, Crabb JW; Clinical Genomic and Proteomic AMD Study Group. Plasma protein pentosidine and carboxymethyllysine, biomarkers for age-related macular degeneration. *Mol Cell Proteomics.* 2009 Aug;8(8):1921-33. doi: 10.1074/mcp.M900127-MCP200. Epub 2009 May 11. PubMed PMID: 19435712; PubMed Central PMCID: PMC2722770.
- 12: Barakat MR, Traboulsi EI, Sears JE. Coats' disease, megalopapilla and Cornelia de Lange syndrome. *Ophthalmic Genet.* 2009 Jun;30(2):106-8. doi: 10.1080/13816810902744613. PubMed PMID: 19373684.
- 13: Vickerman MB, Keith PA, McKay TL, Gedeon DJ, Watanabe M, Montano M, Karunamuni G, Kaiser PK, Sears JE, Ebrahem Q, Ribita D, Hylton AG, Parsons-Wingenter P. VESGEN 2D: automated, user-interactive software for quantification and mapping of angiogenic and lymphangiogenic trees and networks. *Anat Rec (Hoboken).* 2009 Mar;292(3):320-32. doi: 10.1002/ar.20862. PubMed PMID: 19248164; PubMed Central PMCID: PMC2880175.
- 14: Gu J, Pauer GJ, Yue X, Narendra U, Sturgill GM, Bena J, Gu X, Peachey NS, Salomon RG, Hagstrom SA, Crabb JW; Clinical Genomic and Proteomic AMD Study Group. Assessing susceptibility to age-related macular degeneration with proteomic and genomic biomarkers. *Mol Cell Proteomics.* 2009 Jun;8(6):1338-49. doi: 10.1074/mcp.M800453-MCP200. Epub 2009 Feb 6. PubMed PMID: 19202148; PubMed Central PMCID: PMC2690477.
- 15: Sears JE, Pietz J, Sonnie C, Dolcini D, Hoppe G. A change in oxygen supplementation can decrease the incidence of retinopathy of prematurity. *Ophthalmology.* 2009 Mar;116(3):513-8. doi: 10.1016/j.ophtha.2008.09.051. Epub 2009 Jan 20. PubMed PMID: 19157560.

- 16: Bakri SJ, Sears JE, Procop GW, Shrestha R, Gordon SM. Excellent visual outcome following *Aspergillus flavus* endogenous endophthalmitis-farmer's lung disease. *Int Ophthalmol*. 2010 Feb;30(1):99-101. doi: 10.1007/s10792-008-9289-0. Epub 2009 Jan 9. PubMed PMID: 19132296.
- 17: Sears JE, Hoppe G, Ebrahim Q, Anand-Apte B. Prolyl hydroxylase inhibition during hyperoxia prevents oxygen-induced retinopathy. *Proc Natl Acad Sci U S A*. 2008 Dec 16;105(50):19898-903. doi: 10.1073/pnas.0805817105. Epub 2008 Dec 4. PubMed PMID: 19057008; PubMed Central PMCID: PMC2604934.
- 18: Sears JE. Anti-vascular endothelial growth factor and retinopathy of prematurity. *Br J Ophthalmol*. 2008 Nov;92(11):1437-8. doi: 10.1136/bjo.2008.141481. PubMed PMID: 18952651.
- 19: Galor A, Lowder CY, Kaiser PK, Perez VL, Sears JE. Surgical drainage of chronic serous retinal detachment associated with uveitis. *Retina*. 2008 Feb;28(2):282-8. doi: 10.1097/IAE.0b013e3181237d14. PubMed PMID: 18301034.
- 20: Galor A, Margolis R, Brasil OM, Perez VL, Kaiser PK, Sears JE, Lowder CY, Smith SD. Adverse events after intravitreal triamcinolone in patients with and without uveitis. *Ophthalmology*. 2007 Oct;114(10):1912-8. PubMed PMID: 17908594.
- 21: Senanayake Pd, Drazba J, Shadrach K, Milsted A, Rungger-Brandle E, Nishiyama K, Miura S, Karnik S, Sears JE, Hollyfield JG. Angiotensin II and its receptor subtypes in the human retina. *Invest Ophthalmol Vis Sci*. 2007 Jul;48(7):3301-11. PubMed PMID: 17591902.
- 22: Margolis R, Lowder CY, Sears JE, Kaiser PK. Intravitreal bevacizumab for macular edema due to occlusive vasculitis. *Semin Ophthalmol*. 2007 Apr-Jun;22(2):105-8. PubMed PMID: 17564933.
- 23: Bhatnagar P, Kaiser PK, Smith SD, Meisler DM, Lewis H, Sears JE. Reopening of previously closed macular holes after cataract extraction. *Am J Ophthalmol*. 2007 Aug;144(2):252-9. Epub 2007 Jun 4. PubMed PMID: 17543876.
- 24: Margolis R, Brasil OF, Lowder CY, Singh RP, Kaiser PK, Smith SD, Perez VL, Sonnie C, Sears JE. Vitrectomy for the diagnosis and management of uveitis of unknown cause. *Ophthalmology*. 2007 Oct;114(10):1893-7. Epub 2007 May 23. PubMed PMID: 17509687.
- 25: Margolis R, Brasil OF, Lowder CY, Smith SD, Moshfeghi DM, Sears JE, Kaiser PK. Multifocal posterior necrotizing retinitis. *Am J Ophthalmol*. 2007 Jun;143(6):1003-1008. Epub 2007 Apr 16. PubMed PMID: 17434436.
- 26: Taban M, Taban M, Sears JE. Ocular findings following trauma from paintball sports. *Eye (Lond)*. 2008 Jul;22(7):930-4. Epub 2007 Mar 16. PubMed PMID: 17363926.
- 27: Sears JE, Sonnie C. Anatomic success of lens-sparing vitrectomy with and without scleral buckle for stage 4 retinopathy of prematurity. *Am J Ophthalmol*. 2007 May;143(5):810-3. Epub 2007 Feb 28. PubMed PMID: 17335766.
- 28: Taban M, Sears JE, Crouch E, Schachat AP, Traboulsi EI. Acute idiopathic frosted branch angiitis. *J AAPOS*. 2007 Jun;11(3):286-7. Epub 2007 Jan 25. PubMed PMID: 17257872.
- 29: Hoppe G, Rayborn ME, Sears JE. Diurnal rhythm of the chromatin protein Hmgb1 in rat photoreceptors is under circadian regulation. *J Comp Neurol*. 2007 Mar 10;501(2):219-30. PubMed PMID: 17226794.
- 30: Taban M, Chand D, Sears JE. Ocular findings in IgA nephropathy with renal failure and hypertension. *J Pediatr Ophthalmol Strabismus*. 2006 Nov-Dec;43(6):378-80. PubMed PMID: 17162979.
- 31: Brasil OF, Smith SD, Galor A, Lowder CY, Sears JE, Kaiser PK. Predictive factors for short-term visual outcome after intravitreal triamcinolone acetate injection for diabetic macular oedema: an optical coherence tomography study. *Br J Ophthalmol*. 2007 Jun;91(6):761-5. Epub 2006 Nov 15. PubMed PMID: 17108013; PubMed Central PMCID: PMC1955611.
- 32: Ebrahim Q, Minamoto A, Hoppe G, Anand-Apte B, Sears JE. Triamcinolone acetate inhibits IL-6- and VEGF-induced angiogenesis downstream of the IL-6 and VEGF receptors. *Invest Ophthalmol Vis Sci*. 2006 Nov;47(11):4935-41. PubMed PMID: 17065510.
- 33: Taban M, Sears JE, Singh AD. Ciliary body naevus. *Eye (Lond)*. 2007 Dec;21(12):1528-30. Epub 2006 Oct 20. PubMed PMID: 17041573.
- 34: Taban M, Ufret-Vincenty RL, Sears JE. Endophthalmitis after 25-gauge transconjunctival sutureless vitrectomy. *Retina*. 2006 Sep;26(7):830-1. PubMed PMID: 16963862.
- 35: Hoppe G, Talcott KE, Bhattacharya SK, Crabb JW, Sears JE. Molecular basis for the redox control of nuclear transport of the structural chromatin protein Hmgb1. *Exp Cell Res*. 2006 Nov 1;312(18):3526-38. Epub 2006 Aug 2. PubMed PMID: 16962095.
- 36: Bakri SJ, Sears JE, Lewis H. Management of macular hole and submacular hemorrhage in the same eye. *Graefes Arch Clin Exp Ophthalmol*. 2007 Apr;245(4):609-11. Epub 2006 Jul 27. PubMed PMID: 16871381.
- 37: Singh RP, Sears JE. Retinal pigment epithelial tears after pegaptanib injection for exudative age-related macular degeneration. *Am J Ophthalmol*. 2006 Jul;142(1):160-2. PubMed PMID: 16815269.
- 38: Taban M, Kosmorsky GS, Singh AD, Sears JE. Choroidal folds secondary to parasellar meningioma. *Eye (Lond)*. 2007 Jan;21(1):147-50. Epub 2006 Jun 16. PubMed PMID: 16778822.
- 39: Ou JI, Moshfeghi DM, Tawansy K, Sears JE. Macular hole in the shaken baby syndrome. *Arch Ophthalmol*. 2006 Jun;124(6):913-5. PubMed PMID: 16769851.

40: Yokoyama T, Yamane K, Minamoto A, Tsukamoto H, Yamashita H, Izumi S, Hoppe G, Sears JE, Mishima HK. High glucose concentration induces elevated expression of anti-oxidant and proteolytic enzymes in cultured human retinal pigment epithelial cells. *Exp Eye Res.* 2006 Sep;83(3):602-9. Epub 2006 May 11. PubMed PMID: 16697369.

41: Singh RP, Patel C, Sears JE. Management of subretinal macular haemorrhage by direct administration of tissue plasminogen activator. *Br J Ophthalmol.* 2006 Apr;90(4):429-31. PubMed PMID: 16547320; PubMed Central PMCID: PMC1856980.

42: Saavedra E, Singh AD, Sears JE, Ratliff NB. Plexiform pigmented schwannoma of the uvea. *Surv Ophthalmol.* 2006 Mar-Apr;51(2):162-8. PubMed PMID: 16500216.

43: Bakri SJ, Sears JE, Singh AD. Transient closure of a retinal capillary hemangioma with verteporfin photodynamic therapy. *Retina.* 2005 Dec;25(8):1103-4. PubMed PMID: 16340546.

44: Sears JE, Hoppe G. Triamcinolone acetonide destabilizes VEGF mRNA in Müller cells under continuous cobalt stimulation. *Invest Ophthalmol Vis Sci.* 2005 Nov;46(11):4336-41. PubMed PMID: 16249516.

45: Singh AD, Kaiser PK, Sears JE. Choroidal hemangioma. *Ophthalmol Clin North Am.* 2005 Mar;18(1):151-61, ix. Review. PubMed PMID: 15763200.

46: Moshfeghi DM, Kaiser PK, Bakri SJ, Kaiser RS, Maturi RK, Sears JE, Scott IU, Belmont J, Beer PM, Quiroz-Mercado H, Mieler WF. Presumed sterile endophthalmitis following intravitreal triamcinolone acetonide injection. *Ophthalmic Surg Lasers Imaging.* 2005 Jan-Feb;36(1):24-9. PubMed PMID: 15688968.

47: Moshfeghi DM, Kim BY, Kaiser PK, Sears JE, Smith SD. Appositional suprachoroidal hemorrhage: a case-control study. *Am J Ophthalmol.* 2004 Dec;138(6):959-63. Review. PubMed PMID: 15629286.

48: Singh AD, Kaiser PK, Sears JE, Gupta M, Rundle PA, Rennie IG. Photodynamic therapy of circumscribed choroidal haemangioma. *Br J Ophthalmol.* 2004 Nov;88(11):1414-8. Review. PubMed PMID: 15489484; PubMed Central PMCID: PMC1772380.

49: Roth DB, Sears JE, Lewis H. Removal of retained subfoveal perfluoro-n-octane liquid. *Am J Ophthalmol.* 2004 Aug;138(2):287-9. PubMed PMID: 15289141.

50: Moshfeghi DM, Sears JE, Lewis H. Submacular surgery for choroidal neovascularization following nocardial endophthalmitis. *Retina.* 2004 Feb;24(1):161-4. PubMed PMID: 15076962.

51: Cahill MT, Kaiser PK, Sears JE, Fekrat S. The effect of arteriovenous sheathotomy on cystoid macular oedema secondary to branch retinal vein occlusion. *Br J Ophthalmol.* 2003 Nov;87(11):1329-32. PubMed PMID: 14609825; PubMed Central PMCID: PMC1771912.

52: Moshfeghi DM, Kaiser PK, Scott IU, Sears JE, Benz M, Sinesterra JP, Kaiser RS, Bakri SJ, Maturi RK, Belmont J, Beer PM, Murray TG, Quiroz-Mercado H, Mieler WF. Acute endophthalmitis following intravitreal triamcinolone acetonide injection. *Am J Ophthalmol.* 2003 Nov;136(5):791-6. PubMed PMID: 14597028.

53: Moshfeghi DM, Kaiser PK, Grossniklaus HE, Sternberg P Jr, Sears JE, Johnson MW, Ratliff N, Branco A, Blumenkranz MS, Lewis H. Clinicopathologic study after submacular removal of choroidal neovascular membranes treated with verteporfin ocular photodynamic therapy. *Am J Ophthalmol.* 2003 Mar;135(3):343-50. PubMed PMID: 12614752.

54: Sears JE, Aaberg TA Sr, Daiger SP, Moshfeghi DM. Splice site mutation in the peripherin/RDS gene associated with pattern dystrophy of the retina. *Am J Ophthalmol.* 2001 Nov;132(5):693-9. PubMed PMID: 11704030.

55: Kaiser PK, Riemann CD, Sears JE, Lewis H. Macular traction detachment and diabetic macular edema associated with posterior hyaloidal traction. *Am J Ophthalmol.* 2001 Jan;131(1):44-9. PubMed PMID: 11162978.

56: Sears JE, Capone A Jr, Aaberg TM Sr, January B. Ciliary body endophotocoagulation during pars plana vitrectomy for pediatric patients with vitreoretinal disorders and glaucoma. *Am J Ophthalmol.* 1998 Nov;126(5):723-5. PubMed PMID: 9822240.

57: Miles DG, Hoffman BW, Rogers KC, Sears JE. Diagnosis of digestive deaths. *J Anim Sci.* 1998 Jan;76(1):320-2. Review. PubMed PMID: 9464914.

58: Sears JE. Are AVMA guidelines too permissive? *J Am Vet Med Assoc.* 1994 Jul 15;205(2):237-8. PubMed PMID: 7928586.

59: Nakagawa TY, Von Grafenstein H, Sears JE, Williams J, Janeway CA, Flavell RA. The use of the polymerase chain reaction to map CD4+ T cell epitopes. *Eur J Immunol.* 1991 Nov;21(11):2851-5. PubMed PMID: 1718762.

60: Sears JE, Fikrig E, Nakagawa TY, Deponte K, Marcantonio N, Kantor FS, Flavell RA. Molecular mapping of Osp-A mediated immunity against *Borrelia burgdorferi*, the agent of Lyme disease. *J Immunol.* 1991 Sep 15;147(6):1995-2000. PubMed PMID: 1716290.

61: Sears J, Bena J, Singh AD. CATT: Into the eye of a tiger. *Br J Ophthalmol.* 2011 Jun;95(6):761. doi: 10.1136/bjophthalmol-2011-300406. PubMed PMID: 21602481.

62: Loddenkemper T, Friedman NR, Ruggieri PM, Marcotty A, Sears J, Traboulsi EI. Pituitary stalk duplication in association with moya moya disease and bilateral morning glory disc anomaly - broadening the clinical spectrum of midline defects. *J Neurol.* 2008 Jun;255(6):885-90. doi: 10.1007/s00415-008-0799-5. Epub 2008 Mar 20. PubMed PMID: 18350354.

- 63: Traboulsi EI, Ellison J, Sears J, Maumenee IH, Avallone J, Mohny BG. Aniridia with preserved visual function: a report of four cases with no mutations in PAX6. *Am J Ophthalmol.* 2008 Apr;145(4):760-4. doi: 10.1016/j.ajo.2007.12.012. Epub 2008 Feb 19. PubMed PMID: 18243151.
- 64: Renganathan K, Ebrahim Q, VasANJI A, Gu X, Lu L, Sears J, Salomon RG, Anand-Apte B, Crabb JW. Carboxyethylpyrrole adducts, age-related macular degeneration and neovascularization. *Adv Exp Med Biol.* 2008;613:261-7. doi: 10.1007/978-0-387-74904-4_30. Review. PubMed PMID: 18188953.
- 65: Ebrahim Q, Renganathan K, Sears J, VasANJI A, Gu X, Lu L, Salomon RG, Crabb JW, Anand-Apte B. Carboxyethylpyrrole oxidative protein modifications stimulate neovascularization: Implications for age-related macular degeneration. *Proc Natl Acad Sci U S A.* 2006 Sep 5;103(36):13480-4. Epub 2006 Aug 25. Erratum in: *Proc Natl Acad Sci U S A.* 2006 Oct 17;103(42):15722. PubMed PMID: 16938854; PubMed Central PMCID: PMC1569188.
- 66: Hoppe G, O'Neil J, Hoff HF, Sears J. Accumulation of oxidized lipid-protein complexes alters phagosome maturation in retinal pigment epithelium. *Cell Mol Life Sci.* 2004 Jul;61(13):1664-74. PubMed PMID: 15224189.
- 67: Hoppe G, O'Neil J, Hoff HF, Sears J. Products of lipid peroxidation induce missorting of the principal lysosomal protease in retinal pigment epithelium. *Biochim Biophys Acta.* 2004 May 24;1689(1):33-41. PubMed PMID: 15158911.
- 68: Hoppe G, Chai YC, Crabb JW, Sears J. Protein s-glutathionylation in retinal pigment epithelium converts heat shock protein 70 to an active chaperone. *Exp Eye Res.* 2004 Jun;78(6):1085-92. PubMed PMID: 15109915.
- 69: Al-Khayer K, Hagstrom S, Pauer G, Zegarra H, Sears J, Traboulsi EI. Thirty-year follow-up of a patient with leber congenital amaurosis and novel RPE65 mutations. *Am J Ophthalmol.* 2004 Feb;137(2):375-7. PubMed PMID: 14962443.
- 70: Hoppe G, Chai YC, Sears J. Endogenous oxidoreductase expression is induced by aminoglycosides. *Arch Biochem Biophys.* 2003 Jun 1;414(1):19-23. PubMed PMID: 12745250.
- 71: Chai YC, Hoppe G, Sears J. Reversal of protein S-glutathiolation by glutaredoxin in the retinal pigment epithelium. *Exp Eye Res.* 2003 Feb;76(2):155-9. PubMed PMID: 12565802.
- 72: Sullivan P, Filsecker L, Sears J. Limited macular translocation with scleral retraction suture. *Br J Ophthalmol.* 2002 Apr;86(4):434-9. PubMed PMID: 11914214; PubMed Central PMCID: PMC1771107.
- 73: Sears J, Capone A Jr, Aaberg T Sr, Lewis H, Grossniklaus H, Sternberg P Jr, DeJuan E. Surgical management of subfoveal neovascularization in children. *Ophthalmology.* 1999 May;106(5):920-4. PubMed PMID: 10328390.
- 74: Sears J, Gilman J, Sternberg P Jr. Inherited retinal arteriolar tortuosity with retinal hemorrhages. *Arch Ophthalmol.* 1998 Sep;116(9):1185-8. PubMed PMID: 9747676.
- 75: Sears J, Nakano T, Sears M. Adrenergic-mediated connexin43 phosphorylation in the ocular ciliary epithelium. *Curr Eye Res.* 1998 Jan;17(1):104-7. PubMed PMID: 9472478.
- 76: Wan XL, Sears J, Chen S, Sears M. Circadian aqueous flow mediated by beta-arrestin induced homologous desensitization. *Exp Eye Res.* 1997 Jun;64(6):1005-11. PubMed PMID: 9301482.
- 77: Mead A, Sears J, Sears M. Transepithelial transport of ascorbic acid by the isolated intact ciliary epithelial bilayer of the rabbit eye. *J Ocul Pharmacol Ther.* 1996 Fall;12(3):253-8. PubMed PMID: 8875331.

Administrative

Section Editor British Journal of Ophthalmology

Editorial Board Member O.N.E. American Academy of Ophthalmology

Medical School Admissions Committee Cleveland Clinic Lerner College of Medicine at Case Western Reserve University.

Operating Room Committee Cleveland Clinic, Cole Eye Institute

E. Research Support

Ongoing Research Support

1. E. Matilda Zeigler Foundation, Sears (PI) 02/11/2012- 01/11/2015
Preventing ROP
Annual direct costs: \$80,000
2. The Hartwell Foundation, Sears (PI)
Preventing ROP
Annual Direct Costs: \$100,000 06/1/12-06/1/15
3. OneSight, Sears (PI)
Developing Animal Model for Diabetic Retinopathy

Annual Costs: \$50,000

10/1/12-10/1/13