

Young H. Kwon - Biographical Sketch**BIOGRAPHICAL SKETCH**

Provide the following information for the key personnel in the order listed for Form Page 2
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Young H. Kwon, M.D, Ph.D.	Clifford M. & Ruth M. Altermatt Professor of Ophthalmology

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

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Massachusetts Institute of Technology, Cambridge, MA	B.S.	1984	Biology
Yale University, New Haven, CT	M.D.	1991	Medicine
Massachusetts Institute of Technology, Cambridge, MA	Ph.D.	1991	Neuroscience
Mt. Auburn Hos., Harvard Med. School, Cambridge, MA	Internship	1991-1992	Internal Medicine
Massachusetts Eye & Ear Infirm., Harvard Medical School, Boston, MA	Residency	1992-1995	Ophthalmology
Yale University, New Haven, CT	Fellowship	1995-1996	Glaucoma

NOTE: The Biographical Sketch may not exceed four pages. Items A and B (together) may not exceed two of the four-page limit. Follow the format and instructions on the attached sample.

A. Positions and Honors. List in chronological order previous positions, concluding with your present position. List any honors. Include present membership on any Federal Government public advisory committee.

1995 – 1996	Clinical Instructor, Department of Ophthalmology, Yale University, New Haven, CT
1996 – 2002	Assistant Professor, Department of Ophthalmology, University of Iowa, Iowa City, IA
2002 – present	Associate Professor, Department of Ophthalmology, University of Iowa, Iowa City, IA
2002 – 2007	Director of Ophthalmology Fellowship Program, University of Iowa
2007- 2008	Clifford M. & Ruth M. Altermatt Associate Professor of Ophthalmology, University of Iowa
2008-	Clifford M. & Ruth M. Altermatt Professor of Ophthalmology, University of Iowa

Honors and Awards

1983	John L. Asinari Award for Outstanding Undergraduate Research in Life Sciences Massachusetts Institute of Technology
1984	Medical Scientist Training Program Fellowship Award Yale University School of Medicine
1987	National Institute of General Medicine Sciences Graduate Fellowship Award, Massachusetts Institute of Technology
1997	College of Medicine Research Award, University of Iowa
1998	Otsuka Research Award, American Glaucoma Society
2001	Above and Beyond the Call of Duty Award Nominated by Ms. Huff, University of Iowa Hospital and Clinics
2002	Above and Beyond the Call of Duty Award Nominated by Ms. Berry, University of Iowa Hospital and Clinics
2005	Achievement Award, American Academy of Ophthalmology
2005	Charles D. Phelps Memorial Award Dept of Ophthalmology and Visual Sciences, University of Iowa
2006	Teacher of the Year Award Presented by the residents at the University of Iowa Dept of Ophthalmology to a faculty member exhibiting a leadership, dedication to resident education, and friendship.

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- 2007- Clifford M. and Ruth M. Altermatt Endowed Professorship in Glaucoma
Dept of Ophthalmology & Visual Sciences, Univ of Iowa
- 2007-10 Listed in "Best Doctors in America"

Professional membership and other experiences

- 2002-present Preferred Practice Patterns Glaucoma Panel, American Academy of Ophthalmology
- 2005 - 2009 Ophthalmic Devices Panel Committee Member, Food and Drug Administration, Dept of Health & Human Services, Rockville, MD
- 2007-present Examiner & Special Examiner, Oral Board Examination
American Board of Ophthalmology
- 2006-2009 Glaucoma Section Editor (2007) & Associate Editor (2008-9), *Eye*, The Scientific Journal of the Royal College of Ophthalmologists, UK

B. Selected peer-reviewed publications (out of 71 total). Do not include publications submitted or in preparation.

1. Nordheim A, Tesser P, Azorin F, **Kwon YH**, Möller A, Rich A: Isolation of Drosophila proteins that bind selectively to left-handed Z-DNA. *Proc. Natl. Acad. Sci. USA*; 79:7729-7733, 1982
2. **Kwon YH**, Esguerra M, Sur M: N-methyl-D-aspartate and non-NMDA receptors mediate visual responses of neurons in the cat dorsal lateral geniculate nucleus. *J. Neurophysiol.*; 66:414-428, 1991
3. **Kwon YH**, Nelson SB, Toth LJ, Sur M: Effect of stimulus contrast and size on NMDA receptor activity in the cat lateral geniculate nucleus. *J. Neurophysiol.*; 68:182-196, 1992
4. Esguerra M, **Kwon YH**, Sur M: Retinogeniculate EPSPs recorded intracellularly in the ferret lateral geniculate nucleus in vitro: role of NMDA receptors. *Vis. Neurosci.*; 8:545-555, 1992
5. Roe AW, Pallas SL, **Kwon YH**, Sur M: Visual projections routed to the auditory pathway in ferrets: receptive fields of visual neurons in primary auditory cortex. *J. Neurosci.*; 12:3651-3664, 1992
7. Caprioli J, Park HJ, **Kwon YH**, Weitzman M: Temporal corneal phacoemulsification in patients with filtered glaucoma. *Trans. Am. Ophthal. Soc.* 95:153-170, 1997
8. **Kwon YH**, Park HJ, Jap A, Ugurlu S, Caprioli J. Test re-test variability of blue-on-yellow perimetry is greater than white-on-white perimetry in normal subjects. *Am. J. Ophthalmol.* 126:29-36, 1998
9. **Kwon YH**, Hong S, Honkanen RA, Alward WLM. Correlation of automated visual field parameters and peripapillary nerve fiber layer thickness as measured by scanning laser polarimetry. *J. Glaucoma* 9:281-288, 2000
10. **Kwon YH**, Taylor JM, Hong S, Honkanen RA, Zimmerman MB, Alward WLM, Sutphin JE. Long-term results of eyes with penetrating keratoplasty and glaucoma drainage tube implant. *Ophthalmology* 108:272-278, 2001
11. **Kwon YH**, Kim C, Zimmerman MB, Alward WLM, Hayreh SS. Rate of visual field loss and long-term visual outcome in primary open angle glaucoma. *Am. J. Ophthalmology* 132:47-56, 2001 – *Picked for "Editors Selection" by International Glaucoma Review, Senior Ed: Shields MB, Kitazawa Y, 2002, and Reviewed by Ocular Surgery News 20:41, 2002*
13. Kardon R, **Kwon YH**, Truit P, Nemeth SC, Ts'o D, Soliz P. Optical Imaging Device of Retinal Function. *Proceedings of SPIE, Vol 4611: 230-238, 2002.*
14. Honkanen RA, Baruah S, Zimmerman MB, Khanna CL, Weaver YK, Narkiewicz J, Waziri R, Gehrs KM, Weingeist TA, Boldt HC, Folk JC, Russell SR, **Kwon YH**. Vitreous amino acid concentrations in patients with glaucoma undergoing vitrectomy. *Arch Ophthalmol*, 121: 183-188, 2003.
15. Pereira MLM, Kim CS, Zimmerman MB, Alward WLM, Hayreh SS, **Kwon YH**. Rate and pattern of visual field decline in primary open-angle glaucoma. *Ophthalmology* 109: 2232-2240, 2002.
16. Alward WLM, **Kwon YH**, Khanna CL, Johnson AT, Hayreh SS, Zimmerman MB, Narkiewicz J, Andorf, JL, Moore PA, Fingert JH, Sheffield VC, Stone EM. Variations in the Myocilin Gene in Patients with Open Angle Glaucoma. *Arch Ophthalmol* 120:1189-1197, 2002.
17. Graul TA, **Kwon YH**, Zimmerman MB, Kim CS, Sheffield VC, Stone EM, Alward WLM. A Case-Control Comparison of the Clinical Characteristics of Glaucoma and Ocular Hypertensive Patients With and Without the Myocilin Gln368 Stop Mutation. *Am J Ophthalmol*, 134: 884-90, 2002.
18. Honkanen RA, Nishimura DY, Swiderski RE, Bennett SR, Hong S, **Kwon YH**, Stone EM, Sheffield VC, Alward WLM. A family with Axenfeld-Rieger syndrome and Peters anomaly caused by a point mutation (Phe112Ser) in the FOXC1 gene. *Am J Ophthalmol* , 135: 368- 375, 2003.
20. Grozdanic SD, Betts DM, Sakaguchi DS, **Kwon YH**, Kardon RH, Sonea IM. Temporary elevation of the intraocular pressure by cauterization of vortex and episcleral veins in rats causes functional deficits in the retina and optic nerve. *Exp Eye Res*, 77(1): 27-33, 2003

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21. **Kwon YH**, Kim YI, Pereira MLM, Montague PR, Zimmerman MB, Alward WLM. Rate of optic disc cup progression in treated primary open-angle glaucoma. *J Glaucoma*, 12:409-416, 2003.
22. Grozdanic SD, Betts DM, Sakaguchi DS, Allbaugh RA, **Kwon YH**, Kardon RH. Laser-induced mouse model of chronic ocular hypertension. *Invest Ophthalmol Vis Sci*, 44: 4337-4346, 2003.
24. **Kwon YH**, Pereira MLM, Anderson SC, Kim YI, Kardon RH. Quantitative correlation of elevated intraocular pressure with relative afferent pupillary defect change in unilateral glaucoma. *Acta Ophthalmol Scand*, 83(1): 127, 2005.
25. **Kwon YH**, Rickman DW, Baruah S, Zimmerman MB, Kim CS, Boldt HC, Russell SR, Hayreh SS. Vitreous and retinal amino acid concentrations in experimental central retinal artery occlusion in the primate. *Eye*, 19: 455-463, 2005 (with accompanying editorial on the article by Lotery AJ, *Eye* 19: 369-370, 2005).
26. Sakaguchi DS, Van Hoffelen SJ, Grozdanic SD, **Kwon YH**, Kardon RH and Young MJ. Neural Progenitor Cell Transplants into the Developing and Mature CNS. *Proceedings of Annals of the New York Academy of Sciences*, 1049:118-134, 2005.
27. Grozdanic SD, Ast AM, Lazik T, **Kwon YH**, Kardon RH, Sonea IM, Sakaguchi DS. Morphologic integration and functional assessment of transplanted neural progenitor cells in healthy and acute ischemic rat eyes. *Exp Eye Res* 82:597-607, 2006.
28. Abramoff MD, **Kwon YH**, Ts'o D, Soliz P, Pokorny J, Kardon RH. Functional Imaging of the Intrinsic Signal in the Retina of Awake Humans, *Invest Ophthalmol Vis Sci*, 47:715-721, 2006.
29. Ostojic J, Sakaguchi DS, de Lathouder Y, Hargrove MS, Trent III JH, **Kwon YH**, Kardon RH, Kuehn MH, Betts DM, and Grozdanic SD. Neuroglobin and Cytochrome: Oxygen Binding Proteins in Retinal Neurons, *Invest Ophthalmol Vis Sci*, 47:1016-1023, 2006.
30. Kuehn MH, Kim CY, Ostojic J, Bellin M, Alward WLM, Stone EM, Sakaguchi DS, Grozdanic SD, **Kwon YH**. Retinal Synthesis and Deposition of Complement Components induced by ocular hypertension. *Exp Eye Res*, 83:620-628, 2006.
31. Fingert JH, Alward WLM, **Kwon YH**, Shankar SP, Andorf JL, Mackey DA, Sheffield VC, Stone EM. No association between variations in the WDR-36 gene and primary open-angle glaucoma. *Arch Ophthalmol*, 125:434-6, 2007.
32. Shuba, LM, Doan AP, Maley MK, Zimmerman MB, Dinn RB, Greenlee EC, Alward WLM, **Kwon YH**. Diurnal Fluctuation and Concordance of Intraocular Pressure in Glaucoma Suspects and Normal Tension Glaucoma Patients. *J Glaucoma*, 16:307-312, 2007.
33. Abramoff MD, Alward WLM, Greenlee EC, Shuba L, Kim CY, Fingert JH, **Kwon YH**. Automated segmentation of the optic nerve head from stereo color photographs using biologically plausible feature detectors. *Invest Ophthalmol Vis Sci*, 48:1665-1673, 2007.
34. Dinn RB, Zimmerman MB, Shuba LM, Doan AP, Maley MK, Greenlee EC, Alward WLM, **Kwon YH**. Concordance of Diurnal Intraocular Pressure between Fellow Eyes in Primary Open Angle Glaucoma. *Ophthalmol*, 114:915-920, 2007.
35. Greenlee EC, **Kwon YH**. Glaucoma escalation after keratoplasty. *International Ophthalmology*, 28: 191-207, 2008.
36. Fingert JH, Alward WLM, **Kwon YH**, Wang K, Streb LM, Sheffield VC, Stone EM. LOXL1 mutations are associated with exfoliation syndrome in patients from Iowa. *Am J Ophthalmology*, 144(6):974-5, 2007.
37. Ostojic J, Sakaguchi DS, Syed NA, Hargrove MS, Trent III JT, Kuehn MH, **Kwon YH**, Kardon RH, and Grozdanic SD. Pattern of distribution of the oxygen-binding globins, neuroglobin and cytochrome in the human retina. *Arch Ophthalmol*, 2008, in press.
38. Kuehn MH, Kim CY, Jiang B, Dumitrescu AV, **Kwon YH**. Disruption of the complement cascade delays retinal ganglion cell death following retinal ischemia-reperfusion. *Exp Eye Res*, in press 2008.
39. **Kwon YH**, Adix M, Zimmerman MB, Piette S, Greenlee EC, Alward WLM, Abramoff MD. Variance due to observer, repeat imaging, and fundus camera type on cup-to-disc ratio estimates by stereo planimetry. *J Glaucoma*, In press, 2008
40. Ostojic J, Grozdanic S, Syed NA, Gargrove MS, Trent III JT, Kuehn MH, Kardon RH, **Kwon YH**, Betts DM, Sakaguchi DS. Neuroglobin and cytochrome distribution in the anterior eye segment: a comparative immunohistochemical study. *J Histochemistry & Cytochemistry*, in press 2008.
41. **Kwon YH**, Fingert JH, Kuehn MH, Alward WLM. Mechanisms of Disease: Primary Open-Angle Glaucoma. *New Engl J Med*, 360:1113-24, 2009.
42. Schallek J, Kardon RH, **Kwon YH**, Abramoff M, Soliz P, Ts'o D. Stimulus-evoked intrinsic optical signals in the retina: Pharmacologic dissection reveals outer retinal origins. *Invest Ophthalmol Vis Sci*, 2009 in press.

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43. Abramoff MD, Lee K, Alward WLM, Greenlee EC, Garvin MK, Sonka M, **Kwon YH**. Automated segmentation of the cup and rim from spectral domain OCT of the optic nerve head. Invest Ophthalmol Vis Sci, 2009 in press.
44. Parikh, M, **Kwon, YH**. Vision loss after inadvertent corneal perforation during lid anesthesia. Ophthalmic Plastic and Reconstructive Surgery, 2009 in press.
45. Lee K, Niemeijer M, Garvin MK, **Kwon YH**, Sonka M, Abramoff MD. Segmentation of the optic disc in 3D-OCT scans of the optic nerve head. IEEE Transactions on Medical Imaging, 2009 in press.

Research Support. List selected ongoing or completed (during the last three years) research projects (federal and non-federal support). Begin with the projects that are most relevant to the research proposed in this application. Briefly indicate the overall goals of the projects and your role (e.g. PI, Co-Investigator, Consultant) in the research project. **Do not list award amounts or percent effort in projects.**

Completed or ongoing Research (selected out of 27 total):

- 2001-2003 *Optical Imaging Device of the Retinal Function*
Small Business Innovation Research Grant (Phase II), National Eye Institute
PI: P Soliz, Kestrel Corp., Co-I: **YH Kwon**, R Kardon, D Ts'o
- 2003-2004 Characterization of gene expression patterns in the retina associated with the development of enhanced S-cone syndrome and identification of candidate genes for Leber's Congenital Amaurosis
The Knights Templar Foundation
PI: M Kuehn (Univ of Iowa), Senior investigator: **YH Kwon**
Co-investigators: WLM Alward, EM Stone, VC Sheffield, RF Mullins
- 2004-2005 *Optic Nerve Head Analyzed for Glaucoma*
Small Business Innovation Research Grant (Phase I), National Eye Institute
PI: G Zamora, Kestrel Corp., Co-I: **YH Kwon**, P Soliz
- 2004-2006 Molecular mechanisms of steroid-induced glaucoma
American Health Assistance Foundation, National Glaucoma Research
PI: **YH Kwon**, Co-I: M Kuehn, A Clark, EM Stone
- 2005-2006 Genetic and Functional Characterization of a Novel, Spontaneously Occurring Animal Model of Congenital Glaucoma.
Glaucoma Research Foundation
PI: M Kuehn, Co-I: **YH Kwon**, G McLellan, S Grozdanic
- 2006-2008 Sustained delivery of timolol maleate for management of elevated intraocular pressure in glaucoma.
Wallace H. Coulter Foundation
PI: E Lavik (Yale U), **YH Kwon** (UI), Co-PI: MH Kuehn
- 2008-2010 Sustained delivery of timolol maleate for management of elevated intraocular pressure in glaucoma.
Wallace H. Coulter Foundation, Phase 2
PI: E Lavik (Yale U), **YH Kwon** (UI)
Co-PI: MH Kuehn
- 2008-2013 The Role of the Complement System in Glaucoma
RO1, National Eye Institute
PI: M. Kuehn
Consultant: **YH Kwon**
- 2008-2013 Focal Structure-Function relationships in macular layers from 3D Spectral OCT
National Eye Institute R01
PI: M Sonka
Co-PI: MD Abramoff, RH Kardon
Co-I: **YH Kwon**
- 2009-2010 Automated, objective, and reproducible method to determine cup and disc boundaries in 3D OCT images of optic nerve head in glaucoma subjects.
Mid-Career Physician Scientist Award
American Glaucoma Society
PI: **YH Kwon**, Co-PI: MD Abramoff
- 2009-2014 Center for Excellence for Prevention and Treatment of Visual Loss
Veteran's Administration Rehabilitation Center of Excellence Grant
PI: RH Kardon and MD Abramoff
Collaborators: **YH Kwon**, M. Sonka, M Garvin, D. Sakaguchi, S Grozdanic, M Wall, CA Johnson