

COLLEGE OF MEDICINE CURRICULUM VITAE

Markus H. Kuehn

January 10, 2010

I. EDUCATIONAL AND PROFESSIONAL HISTORY

A. Institutions attended

Institution	Dates	Degree	Department
Goethe University (Frankfurt)	11/84 - 2/91	M.S.	Botany
St. Louis University	8/94 - 6/00	Ph.D.	Cell and Molecular Biology

B. Professional and academic positions held

Title of position	Dates	Location or Institution
Laboratory Technician	6/91 – 5/92	Abbott Laboratories, N. Chicago, IL
Research Assistant	6/92 – 7/94	Bethesda Eye Institute, St. Louis, MO
Postdoctoral Fellow	7/00 – 3/03	The University of Iowa, Iowa City, IA
Assoc. Research Scientist	4/03 – 7/07	The University of Iowa, Iowa City, IA
Assistant Professor	8/07 -	The University of Iowa, Iowa City, IA

C. Honors, Awards, Recognitions, Outstanding Achievements

Fulbright Scholarship, spent one year at the University of Wisconsin (1987-88)

National Institute of Health Travel Award Fellowship, received support to present findings at the annual meeting of the Association for Research in Vision and Ophthalmology (ARVO), 1995.

National Research Service Award “Effect of Aging and Age-related Macular Degeneration on Gene Expression Patterns in the Human Eye” 2000 and renewed in 2001

II. TEACHING

A. Teaching assignments on semester by semester basis

None

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B. Students supervised

06/99 - 06/00 David Wietecki
09/03 - 12/05 Theresa Horton
06/04 - 07/06 Chan Yun Kim, Postdoctoral Fellow
08/05 - 06/07 Adam Hedberg-Buenz,
10/05 - 05/06 Arielle Hardree
05/06 - 07/06 Paul Abrams, Medical Student, Summer Research Fellow
10/06 - 10/07 Bing Jiang, Postdoctoral Fellow
04/07 – 5/09 Randi Ryan
09/07 – 05/08 Jared Vincenti
09/07 - 05/08 Yury Maryan
11/07 – 07/09 Alina Dumitrescu, Postdoctoral Fellow
05/08 – 08/09 Michael Stefl
05/09 – 08/09 Chris Kirkpatrick, Medical Student, Summer Research Fellow
07/09 - Amanda Jagush, Alexander Pfleging, BenHenkle
07/09 - Juan Fernandez de Castro, Postdoctoral Fellow

C. Other contributions to institutional programs

2000 - 2003 Participated and presented at the journal club of the UI Center on Aging
1999 - Participated and presented twice a year at the Department of Ophthalmology Grand Rounds.
2006 - Participated in the "Eye Research Journal Club" for students from various departments with an interest in eye research
2009 Led organizational committee for the 2nd Annual Midwest Eye Research Symposium, hosted at The University of Iowa

III. SCHOLARSHIP/PROFESSIONAL PRODUCTIVITY

A. Publications (least to most recent)

Peer-reviewed papers

Kuehn, M. H. and Hageman, G. S. (1999) Molecular characterization and genomic mapping of human IPM 200, a second member of a novel family of proteoglycans. *Molec. Cell. Biol. Res. Commun* 2 : 103-110

Kuehn, M. H. and Hageman, G. S. (1999) Expression and characterization of the IPM 150 gene (IMPG1) product, a novel human photoreceptor cell-associated chondroitin-sulfate proteoglycan. *Matrix Biology* 18 : 509-518

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Kuehn, M. H., Wietecki, D. T., and Hageman, G. S. (2000) Molecular characterization of the murine orthologue of the human retinal proteoglycan IPM 150, *Mol. Vis.* 6:148-156.

Ruiz, A., **Kuehn, M.H.**, Stone, E.S., Hageman, G.S., and Bok, D. (2001) Characterization of the lecithin retinol acyltransferase (LRAT) gene structure and evaluation of it's involvement in ocular disease. *Invest. Ophthalmol. Vis. Sci.* 1 : 31-37

Alagramam, K.N., Yuan, H., **Kuehn, M.H.** et al. (2001) Mutations in the novel protocadherin PCDH15 cause Usher syndrome type 1F. *Hum. Mol. Genet.* 10: 1709-18.

Kuehn, M.H., Stone, E.S., and Hageman, G.S. (2001) Organization of the Human IPM 200 Gene (IMPG2) and its Evaluation as a Candidate Gene in Age-related Macular Degeneration, Retinitis Pigmentosa and Leber Congenital Amaurosis. *Invest. Ophthalmol. Vis. Sci.* 13: 3123-3129

Stone, E.M, Braun, T.A., Russell, S.R, **Kuehn, M.H.**, Lotery, A.J., Moore, P.A, Christopher G. Eastman, C.G, Casavant, T.C., and Sheffield, V.C. (2004) Missense Variations in the Fibulin 5 Gene and age-related macular degeneration. *N. Engl. J. Med.* 351(4): 346-53.

Ostojic J., Sakaguchi D. S., de Lathouder Y., Hargrove M. S., Trent III J. T., Kwon Y. H., Kardon R. H., **Kuehn M. H.**, Betts D. M., and Grozdanic S. D., (2006). Neuroglobin and Cytoglobin: Oxygen-Binding Proteins in Retinal Neurons. *Invest Ophthalmol Vis Sci* 47: (3) 1016-23

Mullins, R.F, Skeie, J.M., Malone, E.A, and **Kuehn, M.H.** (2006) Macular and Peripheral Distribution of ICAM-1 in the Human Choriocapillaris and Retina. *Mol Vis.* 12: 224-25

Kuehn, M.H, Kim, C.Y., Ostojic, J, Bellin, M, Alward, W.L.M, et al. (2006) Retinal Synthesis and Deposition of Complement Components Induced by Ocular Hypertension. *Exp. Eye Res.* 83 (3) 620-8
(This paper was nominated for the Rudin Glaucoma Award for the best glaucoma-related publication in 2006)

Kim, C.Y., **Kuehn, M.H.**, Anderson, M.G., and Kwon, Y.H. (2006) Intraocular Pressure Measurement in Mice: A Comparison between Goldmann and Rebound Tonometry. *Eye* 20: 1-8

Kim, C.Y., **Kuehn, M.H.**, Clark, A.F., and Kwon, Y.H. (2006) Gene Expression Profile of the Adult Human Retinal Ganglion Cell Layer. *Mol. Vision* 12: 1640-8

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Mullins, R.F, **Kuehn, M.H.**, Faidley, E.A., Syed, N.A., Stone, E.M. (2007): Differential Macular and Peripheral Expression of Bestrophin in Human Eyes and its Implication for Best Disease. *Invest Ophthalmol Vis Sci.* 48: 3372-3380

Kuehn, M.H., Kim, C.Y., Jiang, B., Dumitrescu, A.V., Kwon, Y.H. (2008) Disruption of the complement cascade delays retinal ganglion cell death following retinal ischemia-reperfusion. *Exp Eye Res* 87, 89-95.

Ostojic J., Grozdanic S. D., Syed, N.A., Hargrove M. S., Trent III J. T., **Kuehn M. H.**, Kwon Y. H., Kardon R. H., and Sakaguchi D.S. (2008): Neuroglobin and Cyoglobin Distribution in the Anterior Eye Segment: a Comparative Immunohistochemical Study. *J. Histochem. Cytochem.* 56: 863-872

Ostojic, J., Grozdanic, S. D., Syed, N.A., Hargrove M. S., Trent III J. T., **Kuehn M. H.**, Kwon Y. H., Kardon R. H., and Sakaguchi D.S. (2008): Patterns of Distribution of the Oxygen-Binding Globins, Neuroglobin and Cyoglobin, in Human Retina. *Arch. Ophthalmol.* 126(11): 1530-6

Kwon, Y.H., Fingert, J.H., **Kuehn, M.H.**, Alward, W.L.M (2009) Mechanism of Disease: Primary Open Angle Glaucoma. *N. Engl. J. Med.* 360(11): 1113-1124

Grozdanic, S. D., Kecova, H, Harper, M.M, Nilaweera, W, **Kuehn, M.H.**, Randy H. Kardon, R.H (2010) Functional and Structural Changes in a Canine Model of Hereditary Primary Angle-Closure Glaucoma *Invest Ophthalmol Vis Sci.* 51: 255-263

Lively, G.D, Jiang, B., Hedberg-Buenz, A., Chang, B., Petersen, G.E, **Kuehn, M.H.**, Anderson, M.G. (2010) Genetic Dependence of Central Corneal Thickness among Inbred Strains of Mice. *Invest Ophthalmol Vis Sci.* 51: 160-171

Tezel, G., Yang, X., Luo, C, Cai, J., Kain, A.D., Powell, D.W., **Kuehn, M.H.**, Pierce, W.M. (2010) Hemoglobin Expression and Regulation in Glaucoma: Insights into Retinal Ganglion Cell Oxygenation. *Invest. Ophth. Vis. Sci.* 51(2)907-917

Jiang, B., Grozdanic, S.D., Kardon, R.H., and **Kuehn, M.H.** "Gene Expression in the Canine Glaucomatous Retina" Submitted to *BMC Ophth.*

Grozdanic, S.G., Harper, M., Boll, A., Kecova, H, **Kuehn, M.H.**, Sakaguchi, D.S, Kardon, R.H.: Antibody mediated retinopathy-new mechanisms and treatment strategies. Submitted to *Invest Ophthalmol Vis Sci.*

Dumitrescu, A. V., **Kuehn, M. H.** "Increased retinal ganglion cell arborization is an early response to elevated intraocular pressure" Submitted to *Invest Ophthalmol Vis Sci.*

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Dumitrescu, A. V., Stauss, H. B., **Kuehn, M. H.** "Water drinking challenge test in mice"
Submitted to *Exp. Eye Res.*

Book chapters

Hageman, G. S., and **Kuehn, M. H.** (1998) Biology of the retina-IPM-RPE interface, in *The Pigmented Retinal Epithelium: Current Aspects of Function and Disease*, Marmor, M., and Wolfensberger, T., Eds., Oxford University Press, New York, pp. 417-454

Kuehn, M. H., Fingert, J. H., and Kwon, Y. H. (2005) Retinal ganglion cell death in glaucoma: Mechanisms and neuroprotective strategies. *Ophthalmol Clin North Am.* 18, 383-395

Abstracts

Kuehn M. H., Hageman G. S. (1992) Identification Of A cDNA Clone Encoding For An Interphotoreceptor Matrix Proteoglycan. *Invest Ophthalmol Vis Sci (suppl.)* 33: 814-814

Hageman G. S., Kirchoff-Rempe M. A., Rotramel J. R., **Kuehn M. H.** (1992) Molecular and compositional characterization of interphotoreceptor matrix proteoglycans. *Exp. Eye Res. Suppl.* 33: S55

Kuehn M. H., Mullins R. F., Hageman G. S. (1993) Retinal Interphotoreceptor Matrix Proteoglycan Core Protein Sequences Are Unique And Highly Conserved. *Invest Ophthalmol Vis Sci (suppl.)* 34: 1201-1201

Korn S., **Kuehn M. H.**, Schneider B., Lazarus H., Hageman G. S. (1993) Biochemical-Characterization Of Glycoproteins Bound By A Hyalocyte-Specific Antibody. *Invest Ophthalmol Vis Sci (suppl.)* 34: 1201-1201

Kuehn M. H., Hageman G. S. (1995) Characterization Of A cDNA-Encoding IPM-150, A Novel Human Interphotoreceptor Matrix Chondroitin 6-Sulfate Proteoglycan. *Invest Ophthalmol Vis Sci (suppl.)* 36: S510-S510

Kuehn M. H., Stone E. M., Hageman G. S. (1997) Molecular Analyses of IPM 150, A Photoreceptor Cell-Specific Proteoglycan. *Invest Ophthalmol Vis Sci (suppl.)* 38:2788

Franklin A., **Kuehn M. H.**, Warner R., Thompson J., Russell S. R., Rickman C., Hageman G. S. (1997) Evaluation of differentially-expressed RPE gene transcripts as

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candidates for age-related macular degeneration. *Invest Ophthalmol Vis Sci (suppl.)* 38: 1640

Felbor U., Gehrig A., Koehler M., Schmid M., Kelsell R., Hunt D. M., **Kuehn M. H.**, Hageman G. S., Maumenee-Husseini I. E., Weber, B. H. F. (1997). Mapping, genomic organization and mutational analyses of a novel interphotoreceptor matrix gene (IPM150): a candidate for 6q-linked maculopathies. *Am. J. Human Genetics Suppl.* A333: 1947.

Hageman, G. S., Mullins R. F., **Kuehn M. H.**, Stone E. M. (1998). Characterization of extracellular deposits associated with AMD. *VII International Symposium on Retinal Degeneration*, Schluchsee, Germany.

Kuehn M. H., Hageman G. S. (2000) IPM 150 and IPM 200 are members of a novel family of proteoglycans. *Invest Ophthalmol Vis Sci (suppl.)* 41: S594

Kuehn, M. H., Stone E. M., Hageman G. S. (2001). Organization of the Human IMPG2 Gene and Its Evaluation as a Candidate Gene in Age-Related Macular Degeneration and Other Retinal Degenerative Disorders. *Invest. Ophthalmol Vis. Sci. Suppl* **42**: S3123.

Hageman, G. S., Chong N. H. V., Keonin J., Amin S., Klaver C. W., Frennesson C. I., Russell S. R., Luthert P. J., Mullins R. F., **Kuehn M. H.** (2002). Topographical Differences in the Structure and Composition of Bruch's Membrane May Explain the Predilection of the Macula for Degeneration in Individuals with Age-Related Macular Degeneration. *Invest. Ophthalmol. Vis. Sci. Suppl.* **43**: S1988.

Mullins R., **Kuehn M. H.**, Aptsiauri N., Hageman G. S. (2003) Distribution of Terminal Complement Complexes at the RPE-Choriocapillaris Interface in Age-Related Macular Degeneration. *Invest Ophthalmol Vis Sci (suppl.)* 44: e507

Stone E. M., Russell S. R., Braun T. A., **Kuehn M. H.**, Lotery A. J., Moore P. A., Casavant T. L., Sheffield V. C. (2003) Missense Variations in the Fibulin 5 Gene are Associated with Age Related Macular Degeneration. *The Macula Society*

Kuehn M. H., Sheffield V. C., Stone E. M., Alward W. L., Kwon Y. H. (2004) Characterization of gene expression patterns in the developing retina of normal and NR2E3 mutant mice. *Invest. Ophthalmol. Vis. Sci (suppl.).* 45: E-abstract 676

Grozdanic S. D., Ostojic J., Syed N. A., Hargrove M. S., Trent J. T., Betts D. M., **Kuehn M. H.**, Kwon Y. H., Kardon R. H., Sakaguchi D. S. (2004) Neuroglobin and Histoglobin (cytoglobin) – New hexacoordinate globins in the human eye. *Invest Ophthalmol Vis Sci (suppl.)* 45: E-abstract 2586

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Sakaguchi D. S., Orasky J., Grozdanic S. D., Hildreth S. N., Lazic T., Lavik E., Betts D. M., Kwon Y. H., Kardon R. H., **Kuehn M. H.** (2004) Sustained Delivery Of Neurotrophic Growth Factors From Biodegradable Microspheres After Acute Elevation Of Intraocular Pressure In Rat Eyes. *Society for Neuroscience*, San Diego

Kuehn M. H., Kim C. Y., Kwon Y. H. (2005) Identification of Steroid-Responsive Genes in Organ Cultured Human Eyes. *Invest Ophthalmol Vis Sci (suppl.)* 46: e-abstract 3709

Kim C. Y., **Kuehn M. H.**, Grozdanic S. D., Ostojic J., Bellin M., Kwon Y. H. (2005) Comparative analysis of optic nerve head gene expression changes in human glaucoma and in rodent models of ocular hypertension. *Invest Ophthalmol Vis Sci (suppl.)* 46: e-abstract 44

Ostojic J., de Lathouder Y., Trent III J. T., Hargrove M. S., Betts D. M., Kwon Y. H., Kardon R. H., **Kuehn M. H.**, Sakaguchi D. S., Grozdanic S. D. (2005) Patterns of Expression of Neuroglobin and Cytoglobin in the Healthy and Glaucomatous Dog Retina *Invest Ophthalmol Vis Sci (suppl.)* 46: e-abstract 4724

Mullins R. F., Malone E. A., Olvera M., **Kuehn M. H.** (2005) Macular-Peripheral Variability of ICAM-1 in Retina and Choroid. *Invest Ophthalmol Vis Sci (suppl.)* 46: e-abstract 3347

Kim C. Y., **Kuehn M. H.** Clark A. F., Kwon Y. H., (2006) Laser capture microdissection and microarray analysis of the human retinal ganglion cell layer. *Invest Ophthalmol Vis Sci (suppl.)* 47

Kuehn M. H., Kim C. Y., Ostojic J., Bellin M., Sakaguchi D. S., Grozdanic S. D., Kwon Y. H. (2006) Complement Activation in Human and Experimental Glaucoma. *Invest Ophthalmol Vis Sci (suppl.)* 47

McLellan G. J., **Kuehn M. H.**, Ellinwood N. M., Kim C. Y., Jens J., Sigle K. J., Petersen C. (2006) A Feline Model of Primary Congenital Glaucoma - Histopathological And Genetic Characterization. *Invest Ophthalmol Vis Sci (suppl.)* 47

Ostojic J., Syed N. A., Hargrove M. S., **Kuehn M. H.**, Kardon R. H., Kwon Y. H., Grozdanic S. D., Sakaguchi D. S. (2006) Neuroglobin and Cytoglobin Distribution in the Anterior Segment: A Comparative Study of the Human and Dog Eye. *Invest Ophthalmol Vis Sci (suppl.)* 47

Sakaguchi D.S., Harper M.M., Grozdanic S.D., Blits B., **Kuehn M.H.**, Kim C.Y., Kwon Y.H., Reger R.L., Prockop D.J., Bunge M.B., Kardon R.H. (2007) Preservation of Visual Function After Intraocular Transplantation of BDNF Secreting Mesenchymal

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Stem Cells in Chronic Hypertensive Rat Eyes. *Invest Ophthalmol Vis Sci (suppl)* abstract 1303.

Mullins R.F., **Kuehn M.H.**, Faidley E.A., Olvera M.A., Syed N.A., Stone E.M. (2007) Macular and Peripheral Expression of Bestrophin in Human Eyes: Potential Significance to the Pathophysiology of Best Disease. *Invest Ophthalmol Vis Sci (suppl)* 48, abstract 3016.

Jiang B, Grozdanic S.D., Kardon R.H., **Kuehn M.H.** (2007) Gene Expression in the Canine Glaucomatous Retina. *Invest Ophthalmol Vis Sci (suppl)* 48, abstract# 5901.

Grozdanic S.D., Sakaguchi D.S., **Kuehn M.H.**, Lavik E, Kwon Y.H., Kardon R.H. (2007) Exogenous modulation of intrinsic optic nerve neuroprotective activity in rodent eyes exposed to elevated intraocular pressure. *Invest Ophthalmol Vis Sci (suppl)* 48, abstract 4378.

Kuehn M.H., Kim C.Y., Jiang B., Kwon Y.H. (2007) Complement Activation Accelerates Retinal Ganglion Cell Loss in Ocular Ischemia. *Invest Ophthalmol Vis Sci (suppl)* 48: abstract 4199.

Grozdanic, S.D., Harper, M.M., Kecova, H., Nilaweera, W., Boll, A.E., **Kuehn, M.H.**, Sakaguchi, D.S., Kardon, R.H. (2008) Antibody Mediated Retinopathy - New Mechanisms and Treatment Strategies. *Invest Ophthalmol Vis Sci (suppl.)* 49, abstract 198.

Harper, M.M., Eggers, L., Holland, E., Boll, A.E., Sterner, N., **Kuehn, M.H.**, Sakaguchi, D.S., Kardon, R.H., Grozdanic, S.D. (2008) Quantification of Neurotrophic Factor Expression in Human and Canine Glaucomatous and Normal Retinas. *Invest Ophthalmol Vis Sci (suppl.)* 49, Abstract 5491.

Lavik, E.B., Bertram, J., Saluja, S., McKain, J., Jiang, B., **Kuehn, M.H.**, Kwon, Y.H. (2008) Sustained Delivery of Timolol Maleate From Poly(Lactic-Co-Glycolic Acid)/Poly(Lactic Acid) Microspheres. *Invest Ophthalmol Vis Sci (suppl.)* 49, abstract 3192.

Skeie, J.M., **Kuehn, M.H.**, Fishbaugh, J.K., Mullins, R.F. (2008) Choroidal Endothelial Cell Responses to Elastin Fragments. *Invest Ophthalmol Vis Sci (suppl.)* 49, abstract 3422.

Kuehn, M.H. (2008) The Role of Complement in Glaucoma. International Congress of Eye Research, Beijing, China

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R. Mullins, R, Enriquez, S., Faidley, E., Schindler, E., **Kuehn, M.H.**, Stone, E. (2008) Anatomic and molecular changes in retinitis pigmentosa. Program # 2222, American Society of Cell Biology Annual Meeting, San Francisco, CA

Dumitrescu, A. V., Stefl, M. D., **Kuehn, M. H.** (2009) Increased Ganglion Cell Dendrite Branching is an Early Step in Experimental Glaucoma. *Invest Ophthalmol Vis Sci (suppl.)*, 50, Prog# 3086.

Ellinwood, N. M., Jens, J. K., Rutz, M. M., Faylon, M. P., Snella, E. M., **Kuehn, M. H.**, et al. (2009) Preliminary Characterization of the Genetics and Inheritance of Primary Congenital Glaucoma in a Spontaneous Feline Model *Invest Ophthalmol Vis Sci (suppl.)*, 50, Prog# 883.

Grozdanic, S. D., Kecova, H., Harper, M. M., Nilaweera, W., **Kuehn, M. H.**, Kardon, R. H. (2009) Cholinergic Drug Induced Reversal of Early Functional Deficits in Glaucoma. *Invest Ophthalmol Vis Sci (suppl.)*, 50, Prog# 2784.

Harper, M. M., Sakaguchi, D. S., **Kuehn, M. H.**, Kwon, Y. H., Kardon, R. H., Bemelmans, A., et al. (2009) Comparison of Visual Preservation After Transplantation of BDNF or GDNF Secreting Mesenchymal Stem Cells in Glaucomatous Rat Eyes. *Invest Ophthalmol Vis Sci (suppl.)*, 50, Prog# 2754.

Kuehn, M. H., Ryan, R. J., Dumitrescu, A. V. (2009). Accumulation of Complement Components in the Glaucomatous Human Optic Nerve. *Invest Ophthalmol Vis Sci (suppl.)*, 50, Prog# 4319

Lively, G. D., Hedberg-Buenz, A. A., Wang, A. K., **Kuehn, M. H.**, Anderson, M. G. (2009) Identification of a Locus Contributing to Murine Central Corneal Thickness. *Invest Ophthalmol Vis Sci (suppl.)*, 50, Prog# 879.

Mullins, R. F., Schindler, E. I., Enriquez, G. S., Faidley, E. A., **Kuehn, M. H.**, Stone, E. M. (2009) Morphology and Gene Expression Analysis of ABCA4-associated Retinitis Pigmentosa. *Invest Ophthalmol Vis Sci (suppl.)*, 50, Prog# 4490.

Tezel, G., Yang, X., Luo, C., Powell, D. W., Klein, J. B., Kaplan, H. J., **Kuehn, M. H.** (2009) Proteomics Supports Different Pathways of Complement Activity in Human Glaucoma. *Invest Ophthalmol Vis Sci (suppl.)*, 50.

Yang, X., Luo, C., Powell, D. W., Klein, J. B., **Kuehn, M. H.**, Tezel, G. (2009) Proteomic Analysis of TNF- α Signaling in Human Glaucoma. *Invest Ophthalmol Vis Sci (suppl.)*, 50.

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Reviews

Gorin, M. B., Breitner, J. C. S., De Jong, P. T. V. M., Hageman, G. S., Klaver, C. C. W., **Kuehn, M. H.** and Seddon, J. M. (1999) The genetics of age-related macular degeneration. *Mol. Vis.* 5 : 29

Kwon, Y.H, Fingert, J.H, **Kuehn, M.H**, Wallace L.M. Alward, W.L.M (2009) Mechanisms of Disease: Primary Open-Angle Glaucoma N. Engl. J. Med. 360(11)1113-24.

Tezel, G., **Fourth ARVO/Pfizer Ophthalmic Research Institute Conference Working Group** (2009). The role of glia, mitochondria, and the immune system in glaucoma. *Invest Ophthalmol Vis Sci*, 50(3), 1001-1012.

Patents

Hageman, G. S., **Kuehn, M. H.** (2007) Nucleic acids encoding interphotoreceptor matrix proteoglycans. United States Patent No. 7312050

B. Areas of Research Interest and Current Projects

- Cellular events occurring during the glaucomatous degeneration of the retina and optic nerve.
- Genetics of glaucoma
- Development of sustained release formulations of intraocular pressure lowering drugs

C. Published reviews of scholarship

"Molecular Characterization of a Novel Family of Extracellular Proteoglycans and Glycoproteins", a dissertation presented to the faculty of the graduate school of Saint Louis University

D. Grants received

"Effect of Aging and Age-related Macular Degeneration on Gene Expression Patterns in the Human Eye" National Research Service Award through the University of Iowa Center on Aging; 01/01/2000-12/31/2002; \$56,748 P.I: M.H. Kuehn, Senior Investigator G.S. Hageman

"Characterization of Gene Expression Patterns in the Retina Associated with the Development Of Enhanced S-Cone Syndrome and Identification of Candidate Genes for

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Leber's Congenital Amaurosis" Knights Templar Eye Foundation; 07/01/2003-12/31/2004; \$29,900; P.I.: M.H. Kuehn

"Molecular Mechanisms of Steroid-induced Glaucoma" American Health Assistance Foundation; 04/01/2004-03/31/2006; \$69,334; P.I. Y.H. Kwon; Role: Co-Investigator

"Molecular and Functional Characterization of a Novel, Spontaneously Occurring Animal Model of Congenital Glaucoma" Glaucoma Research Foundation; 01/01/2005-12/31/2005; \$32,000; P.I. M.H. Kuehn

"Treatment of Visual Loss in Glaucoma and Ischemia with Neurotrophic Growth Factors" Department of Veterans Affairs; 12/01/2005-11/31-2009; \$745,298; P.I. R.H. Kardon; Role: Collaborator

"Sustained Delivery of Timolol Maleate for Management of Elevated IOP for Glaucoma" The Coulter Foundation; 08/01/2006-07/31/2008; \$120,000; P.I. E. Lavik; Role: Collaborator

"Treatment of Laser-Induced Retinal Injury and Visual Loss Using Sustained Release of Intra-vitreal Neurotrophic Growth Factors" US Department of Defense; 10/01/2007-9/31/2010; \$521,450; P.I. R.H. Kardon Role: Collaborator

"Growth Factor Treatment of Visual Loss in Compressive Optic Nerve Injury" Department of Veterans Affairs; 6/01/2007-5/31/2011; \$745,298; P.I. R.H. Kardon; Role: Collaborator

"Genetic Characterization of a Novel Canine Model of Heritable Angle Closure Glaucoma" The Glaucoma Foundation; 01/01/2008-12/31/2008; \$ 37,450; P.I.: M.H. Kuehn

"Sustained Delivery of Timolol Maleate for Management of Elevated IOP for Glaucoma" The Coulter Foundation; 08/01/2008-07/31/2010; \$120,000
P.I. Erin Lavik, Role: Co-investigator

"Idiopathic Intracranial Hypertension Treatment Trial" NIH/NEI ; 4/1/2009 – 3/31/2012; \$749,206; P.I. M. Wall, Role: Co-investigator

"Center of Excellence for the Prevention and Treatment of Visual Loss" Department of Veterans Affairs; 8/1/2009 – 7/31/2014; \$4,748,000, PI: R. Kardon, Role: Collaborator

"The Role of Complement in Glaucoma" NIH/NEI R01EY017142, 08/01/2009-07/31/2013; \$1,500,000
Role: PI

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“Interdisciplinary Approach to Retinal Disease Gene Identification” NIH/NEI, 9/1/09 - 8/31/2011, \$ 660,300, PI: Val Sheffield, Role: Collaborator

E. Invited lectures

“Analyses of Differential Gene Expression in Age-Related Macular Degeneration”, Meeting: Pathogenesis and Treatment of Age-related Macular Degeneration, Johns Hopkins University, Baltimore, 7/1998

“Global Gene Expression Profile of the Retinal Ganglion Cell Layer”, Alcon Research, Ft. Worth 4/2004

“The Role of Complement in Glaucomatous Neurodegeneration” QLT, Inc; Vancouver, BC 4/2007

“Retinal Complement Activation in Glaucoma” 4th Annual ARVO/Pfizer Ophthalmics Research Institute Conference, Ft. Lauderdale, 2008

“The Role of Complement in Glaucoma” Yonsei University College of Medicine, Dept. Ophthalmology, Seoul, Korea. Sept. 2008

F. Pending decisions (grant proposals, book contracts)

“Sustained delivery of prostaglandin analogues using biodegradable microspheres” NIH/NEI, \$ 441,448, Role: PI

“Identification of a Novel Genetic Defect Causing Congenital Glaucoma” March of Dimes Foundation, \$94,000, Role: PI

“Characterization of Genes Causing Familial Glaucoma in the Basset Hound” Canine Health Foundation, \$78,624, Role: PI

IV. SERVICE

A.

Memberships in Professional Organizations

Association for Research in Vision and Ophthalmology (1993 – present)
International Congress for Eye Research (2008 – present)

Review panels

1998 - present Reviewer, Investigative Ophthalmology and Visual Science

COLLEGE OF MEDICINE CURRICULUM VITAE

Markus Kuehn
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2000 - present	Reviewer, Molecular Vision
2002 - present	Reviewer, Experimental Eye Research
2006 - present	Reviewer, FEBS Letters
2008 – present	Reviewer, Neurosci. Letters

Departmental, collegiate, university and national committees

- 2009- Chair of the Organizing Committee for the 2009 Midwest Eye Research Symposium.

Departmental, collegiate, university and national service positions

2004	Judge, Medical Student Research Day
2005	Judge, Medical Student Research Day
2006	Judge, Medical Student Research Day
2007	Judge, Medical Student Research Day
2008	Judge, CCOM Research Day Judge, Medical Student Research Day
	Medical School Admission Interviewer
2009	Medical School Admission Interviewer Judge, Medical Student Research Day

Relevant community involvement

- 3/2005 Presentation to UI Morticians and Iowa Funeral Directors “The use of Human Eye Donor Tissue at the University of Iowa”
10/2009 Presentation at the Annual Meeting of the Basset Hound Club of America “Glaucoma in the Basset Hound”, Shelton, WA

Other

- 2004 - Organized and managed the procurement, storage, and distribution of human eye tissue for research use within the Department of Ophthalmology

B. Clinical assignments since last promotion (if applicable)

Not applicable