Curriculum Vitae

Peter Fritz Kador, Ph.D.
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Citizenship: United States

Education:

1968-1972	B.A. (Chemistry) Capital University, Columbus, OH
1972-1976	Ph.D. (Medicinal Chemistry) Ohio State University, Columbus, OH (Thesis: "Selected tetrahydroisoquinoline analogs and their fragmented derivatives as beta-adrenergic agonists" Advisor Prof. Duane D. Miller)

Brief Chronology of Employment:

Summers 1967-69	Laboratory technician, Ohio State University Bee Laboratory
Summer 1970	Laboratory technician, Ohio State University, Department of Physiological Chemistry
Summers 1971-72	Chemical Abstract Service, Selection and Assignment Section, American Chemical Society, Columbus, OH
1971-1972	Laboratory Instructor, Freshman Chemistry, Capital University, Columbus, OH
1972-1973	Recitation Teaching Assistant, Medicinal Chemistry, Ohio State University College of Pharmacy
1973-1976	Tutor, Ohio State University College of Pharmacy
1976-1979	Staff Fellow, Laboratory of Vision Research, National Eye Institute, National Institutes of Health, Bethesda, MD, Advisor Jin H. Kinoshita, Ph.D.
1979-1983	Research Chemist, GS 13, Laboratory of Vision Research, National Eye Institute, National Institutes of Health, Bethesda, MD
1983-1985	Research Chemist, GS 14, Laboratory of Vision Research, National Eye Institute, National Institutes of Health, Bethesda, MD.
1985-1989	Head, Section of Molecular Pharmacology, Laboratory of Mechanisms of Ocular Disease, National Eye Institute, National Institutes of Health, Bethesda, MD
1989-1991	Research Chemist, GS 15, Molecular Pharmacology Section, Laboratory of Mechanisms of Ocular Disease, National Eye Institute, National Institutes of Health, Bethesda, MD.
1991-2002	Chief, Laboratory of Ocular Therapeutics, National Eye Institute, National Institutes of Health
2002-2003	Professor and Chair, Department of Pharmaceutical Sciences, College of Pharmacy, University of Nebraska Medical Center, Omaha, NE
2003-present	Professor, Department of Pharmaceutical Sciences, College of Pharmacy, University of Nebraska Medical Center, Omaha, NE

Other Appointments

1999 – 2002	Courtesy Professor, Department of Veterinary and Biomedical Sciences, University of Nebraska, Lincoln, NE
2003 – Present	Adjunct Professor, School of Veterinary Medicine and Biomedical Sciences, University of Nebraska, Lincoln, NE
2003 – Present	Adjunct Professor, Department Ophthalmology, College of Medicine, University of Nebraska Medical Center, Omaha, NE

2003 – 2006	Adjunct Professor, Department of Pharmacology and Neurosciences, College of Medicine, University of Nebraska Medical Center, Omaha, NE
2004- Present	President and C.E.O. Therapeutic Vision, Inc., Omaha, NE.
2010-2015	Guest Professor, Department of Ophthalmology, Xijing Hospital, Fourth Military Medical University, Xi'an, People's Republic of China.

Research Interests

- Diabetic complications, retinopathies, cataract development, neurodegeneration, macular degeneration
- Design and synthesis of multifunctional antioxidants and enzyme inhibitors
- Mechanism of action of neuroprotective drugs and for the treatment of age related degenerative diseases in the eye and neural tissues
- Development of animal models for ophthalmic complications
- Translational studies for applying drugs to the veterinary companion pet market.

Major Accomplishments

Drug Development

- Synthesized new class of multifunctional antioxidants that possess a novel 2-amino-4-hydroxylpyrimidine ring system. These are orally active compounds that demonstrate selective chelation of transition metals associated with Fenton's reaction and possess free radical scavenger activity. Preliminary studies indicate that they are good candidates for the treatment of cataract, macular degeneration, and Alzheimer's and Parkinson's disease.
- Developed the topical formulation Kinostat™ and demonstrated clinical efficacy of this drug for the prevention of cataracts in diabetic dogs. Obtained SBIR Phase 1 and 2 funding and FDA MUMS designation for commercial development.
- Invented topical nutraceutical Optixcare EH for the reduction of ocular oxidative stress and treatment of dry eye.

Lens Studies

- Expert on conducting *in vitro* lens culture studies using rat, rabbit, dog and human lenses to elucidate the cataractogenic mechanism of select drugs.
- Discovered a choline transport system in the lens that is a sensitive measure of lens biochemical viability.
- Demonstrated sugar cataracts in dogs are osmotic in nature, and that these cataracts can be inhibited by aldose reductase inhibitors.
- Demonstrated the feasibility of utilizing MTC-MRI to investigate osmotic changes in human sugar cataracts.
- Demonstrated that altered redox changes associated with sorbitol dehydrogenase inhibitors, and non-enzymatic glycosylation and advanced glycosylation endproducts (AGEs) form sugar cataracts that are secondary to aldose reductase initiated cataract formation.
- Discovered that a group of compounds derived from a known sorbitol dehydrogenase inhibitor delay advanced sugar cataracts through a mechanism independent of the polyol pathway.
- Synthesized novel multifunctional antioxidants and demonstrated that they accumulate in the lens and retina and delay cataract formation.

Enzyme Studies

- Purified and characterized aldose reductase from human placenta, rat, and dog lenses. Developed antibodies against these enzymes and then localized the enzyme in various tissues by immuno-histochemistry.
- Purified and characterized aldehyde reductase in rat and dog lenses.

- Purified and characterized a separate NADPH-dependent reductase not related to aldose or aldehyde reductase in dog thyroid.
- Confirmed that the production of sorbitol, galactitol and xylitol is enzymatic in nature and not due to "auto-oxidation".
- Defined flux changes in the metabolism of glucose by aldose reductase, sorbitol dehydrogenase and glucose, galactose and xylose oxidase in tissues and cells associated with diabetic complications.

Aldose Reductase Inhibitors

- Defined mechanisms of action and pharmacophore requirements of aldose reductase inhibitors.
- Demonstrated feasibility of utilizing affinity labeled analogs of aldose reductase inhibitors to identify reactive regions on the enzyme.
- Using affinity labels, demonstrated the feasibility of an alternate inhibitor site on the enzyme.
- Using molecular modeling and quantum mechanical calculations, defined binding and potential mechanism of action of inhibitors in the substrate binding site.
- Defined differences in the susceptibility to inhibition of aldose reductase inhibitors with aldose versus aldehyde reductase.
- Discovered an intrinsic inhibitor of aldose reductase in mammalian tissues.

Retina

- Defined the progression of retinal lesions in the galactose-fed dog model and demonstrated that it begins with the selective degeneration of retinal capillary pericytes.
- Developed computer assisted method for quantifying retinal capillary changes and demonstrated that inhibition of aldose reductase in the early stages can arrest the development of retinal lesions.
- Demonstrated aldose reductase inhibitors prevent the onset of retinopathy in a dose-dependent manner and demonstrated that removal of galactose diet (equivalent to inhibition of aldose reductase) at the early stages of retinopathy where pericyte ghosts and microaneurysms occur also prevents the further progression of retinopathy.
- Demonstrated that aldose reductase inhibitors can inhibit capillary basement membrane thickening associated with diabetes.
- Demonstrated that retinal capillaries with thickened basement membranes do not increase in permeability as commonly believed.

Other Ocular Tissues:

- Demonstrated that corneal epithelium and endothelium changes are associated with aldose reductase in the rat and dog, respectively.
- Demonstrated that aldose reductase inhibitors prevent delayed pupil dilation changes associated with neuropathy and histological changes of the iris that results in fibrosis.
- Demonstrated that galactose-fed dogs undergo autoimmune thyroid changes similar to those clinically observed in diabetics and that these are linked to aldose reductase.
- Determined structure of asteroid hyalosis in vitreous

Animal Models:

- Developed two strains of a Philly mouse cataract model, one that developed early hereditary cataracts at approximately 3 weeks and one that developed hereditary cataracts at approximately 8 weeks after birth.
- Refined and extensively investigated the galactose-fed dog model. Demonstrated that this dog develops retinal lesions that are clinically and histochemically similar to human diabetic retinopathy from the background stage of dot and blot microaneurysms to the proliferative end stage. Also demonstrated that the dog develops the ocular changes of iris vessel leakage, cataract, keratopathy and asteroid hyalosis. In addition, demonstrated that neuropathy and nephropathy does not develop in galactose-fed dogs while nephropathy and cardiac myopathy does develop in the latter stages.

- Developed a mouse models that contains green fluorescent protein and human aldose reductase in vascular cells containing smooth muscles, including retinal capillary pericytes.
- Developed natural diabetic mouse models that containing green fluorescent protein and human aldose reductase in vascular cells containing smooth muscles, including retinal capillary pericytes.

Other Tissues:

- Demonstrated that aldose reductase inhibitors prevent alveolar bone loss in periodontal disease.
- In diabetic rats, verified that motor nerve conduction is normalized by a number of aldose reductase inhibitors and demonstrated that MNC reduction was directly linked to sorbitol formation.
- Demonstrated that both diabetic and galactosemic rats produced proteinuria that can be prevented by aldose reductase inhibitors. Also demonstrated that aldehyde reductase rather than aldose reductase was primarily involved in proteinuria.
- Demonstrated that unlike man or rat, neuropathy is absent in galactose-fed dogs. MNC remains normal despite that fact that galactitol levels are elevated, myoinositol levels are decreased and the lactate/pyruvate levels, indicative of redox changes are abnormal. Moreover, no morphological changes occur in the dog nerve, suggesting that an unknown preventative factor is present in dog nerve.
- Demonstrated that aldose reductase was involved in norepinephrine metabolism.

Professional Societies:

American Chemical Society
Medicinal Chemical Division, American Chemical Society
Association for Ocular Pharmacology and Therapeutics
Association for Research in Vision and Ophthalmology
American Association of Pharmaceutical Scientists
American Diabetes Association
European Association for the Study of Diabetes
European Vision and Eye Research
International Diabetes Federation
International Society for Eye Research
Sigma Xi Research Society
European Vision and Eye Research

Awards Received

Vision Research Related (chronological)

Rohto Foundation Cataract Research Award, recipient, May, 1981
Foundation for the Advancement of Science Fellow sponsored by Ayerst Research Laboratories, Inc., 1983-1984; 1984-1985.
Alcon Foundation Research Award, recipient April, 1986
Juvenile Diabetes Foundation Research Award, 1986
Juvenile Diabetes Foundation Research Award, 1987
Kinoshita Lectureship, National Foundation for Eye Research, Kona, Hawaii, November, 1995.
Foundation for the Advancement of Science Research Award sponsored by Pfizer Pharmaceuticals, 1998.
Fellow, American Association of Pharmaceutical Scientists, November 2004
Japanese Cataract Cooperative Research Group Award, November 2005
Fellow, Association for Research in Vision and Ophthalmology, 2010
Distinguished Scientist, University of Nebraska Medical Center, 2010
Ernst H. Bárány Prize, International Society of Eye Research, Berlin, Germany, 2012.

Other (chronological)

Columbus Technical Council Science Student of the Year, 1968
International Science Fair, Detroit MI, Fourth Award, 1968
Ford-Future Scientists of America Regional Award, 1968
Central Ohio Heart Association Undergraduate Research Scholarship
"Effect of Various Honeybee Extracts on Black Bee Disease", 1970-71
Central Ohio Heart Association Undergraduate Research Scholarship
"O-Alkyldiglyceride Analysis in Rat Adipose Tissue", 1971-72
National Institutes of Health Pre-doctoral Trainee in Medicinal Chemistry, 1972-76
Alumni Achievement Award of Capital University, May 1990
Jack Beal Postbaccalaureate Alumni Achievement Award, Ohio State University College of Pharmacy, Columbus, Ohio, May, 1992
Bundesverdienstkreuz (Federal Cross of Merit) from the German Government, German Embassy, Washington, DC. November, 1994

Other Professional Activities

Executive Vice-President of the National Foundation for Eye Research, January, 1996 - present.
Trustee of the Association for Ocular Pharmacology and Therapeutics (AOPT), 1995 – 2001; 2011-present
President of Ocular Pharmacology and Therapeutics (AOPT), 2004-2011.
Member, U.S. Cataract Cooperative Research Group Planning Board, 1994 - present
Consultant on cataract drug development, Shojin Research Associates, Studio City, CA 1990-2001
Expert Committee Member, US Pharmacopeia, 2000-2006
Consultant on ocular toxicology, Merck & Co., Inc. 2001- 2006
Consultant, MedVet Columbus 2007-2008.
Consultant on ocular toxicology, Eli Lilly and Company 2007-2009.
Consultant on ocular toxicology, Johnson and Johnson Company 2009-2010.
Scientific Advisory Board, Encore Vision 2007-2010.
Scientific Advisor, Aventix Animal Health 2010-present
Scientific Advisory Board, Merz Pharmaceuticals GmbH 2011-present.
Consultant and Expert Witness, Rakoczy Molino Mazzochi Siwik LLP Patent Attorneys 2012-present.
Consultant, IPExperts, LLC, 2014- present
Consultant on ocular toxicology, Vertex Pharmaceutical Company 2014-present

Continuing Education Courses

Using Molecular Biology for Drug Discovery; American Chemical Society, 2001
Bioinformatics, Rensselaer Polytechnical Institute, 2000
Managing Government Employees, Brookings Institute 1998

Requested Editing

Editorial Board Member, Journal Ocular Pharmacology and Therapeutics, 1997 – 2000; 2008 - current
Co-editor Polyol Pathway and its Role in Diabetic Complications, Excerpta Medica, International Congress Series 760
Co-editor Current Concepts of Aldose Reductase and its Inhibitors Excerpta Medica, International Congress Series 913

Journal Reviews

American Journal of Physiology, Biochemical Pharmacology, Bioorganic and Medicinal Chemistry, Diabetologia, Endocrinology, Journal of Diabetes and its Complications, Current Eye Research, European Journal of Physiology, Experimental Eye Research, Investigative Ophthalmology and Visual Sciences, Journal of Clinical Investigation, Journal of Medicinal Chemistry, Journal European Medicinal Chemistry, Journal Ocular

Pharmacology and Therapeutics, Ophthalmologia, British J. Ophthalmology, Vision Research, Expert Opinion on Drugs, Toxicology.

Grant Reviews

NIH Study Sections Visual C (1991), Diabetic Complications (1995-1998); Environmental Health (2008); NIST grants (1996); Veterans Administration (1998); Consultant, FDA Federal Drug Administration, 1987. Welcomb Trust 1998, 1999

Committee Memberships

N.I.H. Advisory Committee of Computer Users, 1982-86; 1988-1991.
Central Facilities Advisory Committee to Veterinary Resources Program, NCRR 1993-1998
In Vivo NMR Center Steering Committee, 1994- 2002
N.E.I. Promotions Committee 1990 - 2002
N.E.I. Animal Care and Use Committee, 1997 - 2002.
UNMC College of Pharmacy Executive Committee 2002-2003
UNMC College of Pharmacy Educational Technology Committee 2002-
UNMC College of Pharmacy Strategic Planning Committee 2002-2003
UNMC College of Pharmacy Faculty Development Committee 2002-2003
UNMC College of Pharmacy Educational Technology Committee 2003-2004
UNMC College of Pharmacy Recruitment Committee 2003-2005
UNMC College of Pharmacy Student Discipline 2005-2006
UNMC College of Pharmacy Research Faculty Appointment 2005-2009
UNMC College of Pharmacy Grade Appeals 2007-2014
UNMC College of Pharmacy Curriculum Committee 2008-present
UNMC College of Pharmacy Faculty Development 2015- present
UNMC College of Pharmacy Rho Chi Faculty Advisor 2014 present

Meetings Chaired or Organized

Chairman, NEI Aldose Reductase Workshop, Bethesda, MD, March, 1982.
Chairman, US-Japan Aldose Reductase Workshop, Honolulu, Hawaii, December, 1984.
Scientific Secretary, International Symposium on Polyol Pathway and its Role in Diabetic Complications, Kashikojima, Japan, October, 1986.
Chairman, International Aldose Reductase Workshop, Honolulu, Hawaii, December, 1987.
Co-Organizer, University of München Augenklinik - National Eye Institute Aldose Reductase Inhibitor Workshop, Munich, Germany, October, 1988.
Co-Organizer, Japan-US Aldose Reductase Workshop, Nagoya, Japan, November. 1989.
Co-Organizer, United States-Japan Aldose Reductase Workshop, Kona, Hawaii, February, 1991.
Co-Organizer, International Cataract Cooperative Research Group Workshop, Bethesda, MD November, 1993.
Co-Organizer, United States-Japan Aldose Reductase Workshop, Kona, Hawaii, February, 1994.
Co-Organizer, United States-Japan Cataract Cooperative Research Group Meeting, Kona, Hawaii, Nov., 1995.
Co-Organizer, United States-Japan Aldose Reductase Workshop, Kona, Hawaii, February, 1997.
Organizer, 3rd Annual Ocular Pharmacology and Therapeutics Meeting, Bethesda, MD October, 1997.
Co-Organizer, Venkat Reddy International Symposium, Warrenton, VA, October 1998.
Co-Organizer, United States-Japan Cataract Cooperative Research Group Meeting, Kona, Hawaii, November, 1999.
Co-Organizer, United States-Japan Aldose Reductase Workshop, Kona, Hawaii, January, 2000.
Co-Organizer, United States-Japan Cataract Cooperative Research Group Meeting, Kona, Hawaii, Nov. 2001.
Co-Organizer and Chair, Association for Ocular Pharmacology and Therapeutics, Kona, Hawaii, February 2003.
Organizer and Chair, Abraham Spector International Symposium, Montauk, NY October 2003.
Co-Organizer, United States-Japan Cataract Cooperative Research Group Meeting, Kona, Hawaii,

February, 2004.
Co-Organizer, International Polyol Pathway Conference, Kona, Hawaii, March, 2004.
Organizing Committee, Association for Ocular Pharmacology and Therapeutics, Catania, Italy, February 2005.
Organizing Committee, United States-Japan Cataract Cooperative Research Group Meeting, Kona, Hawaii, October, 2005.
Organizing Committee, Association for Ocular Pharmacology and Therapeutics, San Diego, CA February 2007.
Co-Organizer, and Co-Chairmen, Diabetes Complications 2007: Role of Aldose Reductase and Related Pathways. Kona, Hawaii, March, 2007.
Organizing Committee, United States-Japan Cataract Cooperative Research Group Meeting, Kona, Hawaii, December 2007.
Organizing Committee, Association for Ocular Pharmacology and Therapeutics, Salzburg, Austria, February 2009.
Organizing Committee, United States-Japan Cataract Cooperative Research Group Meeting, Kona, Hawaii, December 2009
Organizing Committee, Association for Ocular Pharmacology and Therapeutics, Ft. Worth, TX, February 2011
Organizing Committee, International Conference on the Lens, Kona, Hawaii, January 2011
Organizing Committee, Association for Ocular Pharmacology and Therapeutics, Alicante, Spain, February 2013
Organizing Committee, International Conference on the Lens, Kona, Hawaii, January 2014
Organizing Committee, Association for Ocular Pharmacology and Therapeutics, Charleston, SC, March 2015
Organizing Committee, International Conference on the Lens, Kona, Hawaii, December 2015
Organizing Committee, Association for Ocular Pharmacology and Therapeutics, Florence Italy, February 2017

Invited Lectures

Ocular Pharmacology Update, Irvine, CA, October, 1982
American Chemical Society Division of Medicinal Chemistry National Meeting, Washington D.C., August 1983
Ciba Foundation Symposium 106 on Human Cataract Formation, London, England, October, 1983
Gordon Research Conference on Medicinal Chemistry, New London, NH, July, 1984
American Chemical Society Division of Medicinal Chemistry National Meeting, Philadelphia, PA, August. 1984
National Eye Institute Symposium on Experimental Eye Pathology, February, 1985.
Pfizer Aldose Reductase Symposium, Dorado, Puerto Rico, May, 1985.
American Diabetes Society Aldose Reductase Workshop, Baltimore, MD, June, 1985.
Centennial Speaker, the Ohio State University College of Pharmacy, May, 1986.
Helen Keller International-National Eye Institute Meeting to Develop Worldwide Plan for Cataract Intervention, Bethesda, MD, June, 1986.
Ninth National Research To Prevent Blindness Science Writers Seminar in Ophthalmology, Bethesda, MD, October, 1986.
Tohoku Medical Society, Sendai, Japan, November, 1986.
Interdisciplinary meeting on Diabetic Retinopathy, Florence, Italy, September, 1987.
Juvenile Diabetes Foundation International Second World Congress on Diabetes Research, Monaco, Monte Carlo, March, 1988.
Third International Symposium on Diabetes Mellitus, Nagoya, Japan, July, 1988.
Thirteenth International Diabetes Federation Congress, Sydney, Australia, November, 1988.
1989 Plenary Session of the Medical Advisory Council (MEDAC) of Merck Sharp and Dohme, Copenhagen, Denmark, September, 1989.
US-China Cataract Cooperative Research Workshop, Beijing, China, May, 1990.
Ninth International Congress of Eye Research, Helsinki, Finland, July, 1990.
Ukrainian Kiev Institute of Endocrinology and Metabolism, August, 1990.

National Eye Institute - Juvenile Diabetes Foundation Aldose Reductase Workshop, Bethesda, MD, September, 1990.
Moderator, 25th International Research Symposium of the American Diabetes Association, Woods Hole, MA, September, 1990.
General Assembly of the International Federation of Pharmaceutical Manufacturers Associations, London, England, September, 1990.
Fourteenth International Diabetes Federation Congress, Washington D.C. June, 1991.
International Congress on Current Therapy and Research in Diabetic Eye Disease, Nijmegen, the Netherlands, September, 1991.
Sixth Congress of the U.S.-Japan Cooperative Cataract Research Group Congress, Kona, Hawaii, November 20-December 5, 1991.
German Diabetes Society Congress, Hannover, Germany, May, 1992.
Seventy-fourth Annual Endocrine Society Meeting, San Antonio, Texas, June, 1992.
Symposium on Imaging in Ophthalmology, University of Texas Health Science Center at San Antonio, San Antonio, Texas, June, 1992.
William Harvey Research Conference on Diabetic Complications as Drug Targets, London, U.K., March, 1993.
Research to Prevent Blindness Science Writers' Seminar, Studio City, CA, April, 1993.
Disease Prevention Research at NIH: An Agenda for All, Bethesda, MD, October, 1993.
International Diabetes Federation, Kobe, Japan, November, 1994.
Kinki University, Osaka, Japan, November, 1994.
Kinki Branch of the Pharmaceutical Society of Japan, Osaka University, Osaka, Japan, November, 1994.
Japanese Ministry of Education Lectureship, Osaka University, Osaka, Japan, November, 1994.
International Forum on Advanced Techniques in Lens and Cataract Research, Kanazawa, Japan, June, 1995.
Korean Ophthalmological Society Meeting, Seoul, Korea, October, 1996.
Research to Prevent Blindness Cataract Symposium, Washington, D.C., April, 1997.
Japanese Society for Cataract Research 36th Meeting, Yokohama, Japan, June, 1997.
Second Asian Cataract Research Conference, Pusan, Korea, June 1998.
28th International Congress of Ophthalmology, Amsterdam, The Netherlands, June, 1998.
25th Japanese Society for Crystalline Lens Research, Fukui, Japan, January, 1999.
23rd International Conference of the Great Lakes College of Clinical Medicine, Baltimore, MD, September, 1999.
Diabetic Complications 2000. Yokohama, Japan, February, 2000.
International Society for Eye Research Meeting, October, 2000.
5th Diabetic Neuropathy Satellite Conference, San Jose, Costa Rica, November, 2000.
Conference on Developments for Retinal Diseases and Glaucoma, Knowledge Foundation, San Francisco, CA, March 2001.
American Diabetes Association, National Meeting, June, 2003.
6th Asian Cataract Research Conference, Beijing China, June 2006.
International Society of Eye Research, Buenos Aires, Argentina, November 2006
Pennington Scientific Symposium on Diabetic Complications, Baton Rouge, LA, January 29-30, 2007
13th Conference of Japanese Society of Ophthalmic Diabetology Kyoto, Japan March 2007
37th Cambridge Ophthalmological Symposium on the Vitreous. St John's College, Cambridge, UK, September, 2007.
International Society for Eye Research, Beijing, China, September 2008.
Ehrlich II – 2nd World Conference on Magic Bullets, Nürnberg, Germany October 2008.
Department of Ophthalmology, Xijing Hospital, Fourth Military Medical University, Xi'an, People's Republic of China. June 2010.
American Chemical Society Annual Meeting, Boston, MA, August 2010.
University of Miami Bascom Palmer Eye Institute Resident Research Day, June 2012
International Society for Eye Research, Berlin, Germany, July 2012.
13th International Conference on Alzheimer's Drug Discovery, Jersey City, NJ, September, 2012.
Retina International Scientific and Medical Advisory Board Meeting, Seattle, Washington May, 2013.

Wilmer Eye Institute, Johns Hopkins University, Baltimore, Maryland June, 2013.
UC Berkeley School of Optometry, Berkeley, California, April, 2014
13th Congress of International Society for Ocular Toxicology, Kanazawa, Japan, October, 2014.
University of Rostock, Rostock Germany July 2015.

Additional Research Funding: (Not from NEI Intramural Funds)

Ayerst Research Laboratories, Inc., (1983-1984; 1984-1985). 2 post-doctoral fellows
Juvenile Diabetes Foundation Research Award, (1986) post-doctoral fellow
Juvenile Diabetes Foundation Research Award, (1987) post-doctoral fellow
Juvenile Diabetes Foundation – NEI Research Award, 1991-92 $50,000
Fujisawa Pharmaceutical Company – NEI Collaborative Agreement (1990-1993) evaluate an aldose reductase inhibitor on retinopathy $300,000.
Pfizer Pharmaceutical Company for evaluation of the role of sorbitol dehydrogenase in diabetic complications (1998) $30,000.
Material Collaborative Research Agreement with Oxigene 2001 ($88,000) for the evaluation of the anticancer agent Combretastatin A-4 prodrug (CA4P) on retinal neovascularization
NEI Intramural Laboratory of Ocular Therapeutics Funding for FY2000-2001 was $1,554,856 including labor and benefits.

Academic Funding

1. Biochemical Evaluation of Lens Metabolism Contract with Merck Pharmaceutical Company 2002-2003 Kador (PI).

2. Pharmacological Approaches to Treat Diabetic Retinopathy NIH R01 2003 – 2006 Direct Cost $525,000 Total Kompella (PI), Kador Co-Investigator

3. Multifunctional Antioxidants as Anti-Cataract Agents NIH 1R21EY016460-01 2006-2008 Direct Costs $ 250,000 Kador (PI)

4. Investigating the Molecular Mechanism of Hexose-induced Stress in Lens and Retina 1R01EY016730-01 NIH/NEI Kador (PI), Shinohara (Co-PI) 2006-2011

5. Treatment for Canine Diabetic Cataracts Agency: Therapeutic Vision Inc. Subcontract of SBIR Grant 1R43EY018013-01A1 9/1/07-8/31/08 Wyman (PI)

6. Evaluation of Fidarestat for the Treatment of Periodontal Disease Agency: Therapeutic Vision Inc. Contract with Sanwa Pharmaceutical Company 1/2/2008.

7. Treatment of Diabetic Periodontal Disease American Diabetes Society. 1-09-RA-82 2/15/2009 - 2/14/2012 Kador (PI) 7/2009 – 6/30/2011.

8. Evaluating the mechanism of cataract formation in the rat and dog lens. Agency: Therapeutic Vision Inc. Contract with Johnson and Johnson Pharmaceutical Company 1/2/2010.

9. Treatment of Canine Diabetic Cataracts, Therapeutic Vision Inc. 2 R44 EY018013-02A1 9/17/2010 – 9/16/2013 Direct Costs $ 1,222,560. Wyman (PI) Subcontract to Kador.

10. Orally Active Bioavailable Metal Attenuating Compounds for Alzheimer's Disease Alzheimer's Drug Discovery Foundation 13-2471R2. Kador, P.F PI. 10/1/11 – 9/30/12.

11. Evaluating Optixcare EH and Optixcare Hyaluronic Acid in Animal Models. Therapeutic Vision, Inc. contract with Aventix Animal Health 2/1/13-7/1/13.

12. FDA MUMS Designation for Kinostat™ to Therapeutic Vision, Inc. Waives all FDA user fees as well as provides 7 year exclusive license to sell Kinostat™ in the US

13. Using Molecular Attributes to Predict Ocular Drug Distribution 1R21EY023679-01A1 Kador, P. (P.I.) 4/1/14-3/30/16.

14. Evaluating the mechanism of cataract formation in the rat lens. Agency: Therapeutic Vision Inc. sponsored by Vertex Pharmaceutical Company 1/2/2014.

15. Treatment of Traumatic Retinal Damage With Multifunctional Antioxidants. PI Fliesler, S, University of Buffalo Veterans Hospital. DOD , P. Kador Contract

16. Treatment of Canine Diabetic Cataracts, Therapeutic Vision Inc. 2 R44 EY018013-2b 9/1/15 8/31/2017 Wyman (PI) P Kador contract

17. Nebraska Small Business Innovation Research Initiative (SBIR) Matching Grant P. Kador

BIBLIOGRAPHY

1. Miller, D.D., Merritt, W.V.P., Kador, P.F. and Feller, D.R.: Synthesis and biological actions of fragmented derivatives of tetrahydroisoquinolines. **J. Med. Chem.** 18: 99-102, 1975. PMCID: 1109581

2. Miller, D.D., Kador, P.F., Venkatraman, R. and Feller, D.R.: Synthesis and biological evaluation of fragmented derivatives of tetrahydroisoquinolines 3. Trimetoquinol studies. **J. Med. Chem.** 19: 763-766, 1976. PMCID: 950642

3. Kador, P.F., Venkatraman, R., Feller, D.R. and Miller, D.D.: Synthesis and biological evaluation of a tetrahydroisoquinoline derivative possessing selective $beta_2$-adrenergic agonist activity. **J. Med. Chem.** 20: 891-894, 1977. PMCID: 17750

4. Kador, P.F. and Kinoshita, J.H.: Phospholipid effects on the rat lens transport systems. **Exp. Eye Res.** 26: 657-665, 1978. PMCID: 680023

5. Kador, P.F. and Sharpless, N.E.: Structure-activity studies of aldose reductase inhibitors containing the 4-oxo-4H chromen ring system. **Biophys. Chem.** 8: 81-85, 1978. PMCID: 417745

6. Kador, P.F., Merola, L.O. and Kinoshita, J.H.: Differences in the susceptibility of various aldose reductases to inhibition. **Doc. Ophthalmol. Proc. Series** 18: 117-124, 1979.

7. Kador, P.F., Zigler, J.S. and Kinoshita, J.H.: Alterations of lens protein synthesis in galactosemic rats. **Invest. Ophthalmol. Vis. Sci.** 18: 696-702. PMCID: 6773903

8. Kinoshita, J.H., Fukushi, S., Kador, P. and Merola, L.O.: Aldose reductase in diabetic complications of the eye. **Metabolism** 28: 462-469, 1979. PMCID: 45423

9. Kador, P.F., Jernigan, H.M., Jr. and Kinoshita, J.H.: Accumulation and incorporation of radiolabeled choline into cultured rabbit lenses: Evidence for a choline transport system. **Exp. Eye Res.** 30: 1-12, 1980. PMCID: 7363961

10 Kador, P.F., Fukui, H.N., Fukushi, S., Jernigan, H.M. and Kinoshita, J.H. : Philly mouse: a new model of hereditary cataract. **Exp. Eye Res.** 30: 59-68, 1980. PMCID: 7363969

11. Piatigorsky, J., Kador, P.F. and Kinoshita, J.H.: Differential synthesis and degradation of protein in the hereditary Philly mouse cataract. **Exp. Eye Res.** 30: 69-78, 1980. PMCID: 6767618

12. Uga, S., Kador, P.F. and Kuwabara, T.K.: Cytological study of Philly mouse cataract. **Exp. Eye Res.** 30: 79-92, 1980. PMCID: 7363970

13. Kador, P.F., Uga, S. and Piatigorsky, J.: The Philly mouse hereditary cataract. In F. Regnaultd, O. Hockwin and Y. Courtois; **Ageing of the Lens** pp. 157-169, Biomedical Press, Elsevier/North Holland, 1980.

14. Kador, P.F., Kinoshita, J.H., Tung, W.H. and Chylack, L.T., Jr.: Differences in the susceptibility of various aldose reductases to inhibition II, **Invest Ophthalmol. Vis. Sci.** 19: 980-982, 1980. PMCID: 6773903

15. Kador, P.F., Goosey, J.D., Sharpless, N.E., Kolish, J. and Miller, D.D.: Stereospecific inhibition of aldose reductase. **European J. Med. Chem.** 16: 293-298, 1981.

16. Jernigan, H.M., Kador, P.F. and Kinoshita, J.H.: Carrier mediated transport of choline in rat lens. **Exp. Eye Res.** 32: 709-718, 1981. PMCID: 7250222

17. Kador, P.F., Carper, D. and Kinoshita, J.H.: Rapid purification of human placental aldose reductase. **Anal. Biochem.** 114: 53-58, 1981.PMCID: 6792949

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3. Kador, P.F., Takahashi, Y., Terada, T., Rodriguez, L, and Schaffhauser, M. Method of inhibiting aldose reductase in vivo with intrinsic inhibitors of aldose reductase **US Patent 5,928,670** July 27, 1999.
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5. Kador, P.F., Jin, H-X.. Multifunctional Compounds and Methods of Use Thereof **US Patent 8268849 B2.** Sept. 18, 2012.
6. Kador, P.F. Periodontitis Treatment **U S Patent Application 20100292287**
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8. Kador, P.F. Antioxidant Eye Drops **US Patent 9,173,915:** November 3, 2015.

ABSTRACTS

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