CURRICULUM VITAE

**Arthur J. Weber, PhD**

**AFFILIATION** Professor

Department of Physiology

Michigan State University

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**EDUCATION**

1974-1978 A.B., Biology, Princeton University, Princeton, NJ

1978-1979 Teaching/Research Assistant

Department of Zoology

University of Wisconsin-Milwaukee

1979-1984 Ph.D., Neuroscience, Neuroscience Training Program,

University of Wisconsin, Madison, WI

1984‑1985 Postdoctoral Fellow

Department of Molecular, Cellular and Developmental

Biology, University of Colorado, Boulder, CO.

1985‑1986 Postdoctoral Fellow

Department of Comparative Biosciences, University of

Wisconsin School of Veterinary Medicine, Madison, WI

**ACADEMIC POSITIONS**

1986-1990 Research Associate

Waisman Center on Mental Retardation and Human

Development, University of Wisconsin, Madison, WI

1990-1994 Assistant Scientist

Waisman Center on Mental Retardation and Human

Development, University of Wisconsin, Madison, WI

1994-1999 Assistant Professor

Department of Anatomy (Dept. closed 1999)

Michigan State University, East Lansing, MI

1999-2001 Assistant Professor

Department of Physiology

Michigan State University, East Lansing, MI

2001-2007 Associate Professor, Associate Chair

Director of Research and Graduate Studies

Department of Physiology

Michigan State University, East Lansing, MI

2007-2011 Professor, Associate Chair

Director of Research and Graduate Studies

Department of Physiology

Michigan State University, East Lansing, MI

2011-present Professor

Department of Physiology

Michigan State University, East Lansing, MI

**MAJOR RESEARCH INTERESTS**

1) Glaucoma-related cellular changes in the mammalian retina and lateral geniculate nucleus

2) Neuroprotectant-based strategies for promoting the functional survival of neurons in the

Mammalian visual system following trauma or disease.

3) Development of a contact lens-based intraocular pressure sensor

**PREVIOUS, CURRENT, and PENDING RESEARCH SUPPORT**

1) Structure/Function Correlations in Cat Retinal Ganglion Cells

NIH-NEI, Co-PI with Dr. Laurence Stanford 1988-1994.

2) Retinal Ganglion Cell Changes in Glaucomatous Monkeys.

National Glaucoma Research, American Health Assistance Foundation.

4/1/93-3/31/95; TDC: $50,000.

3) Glaucoma-related Neuronal Degeneration in the Primate Retina and Dorsal Lateral Geniculate Nucleus.

Alcon Laboratories

6/1/94-12/31/94; TDC: $39,674.

4) Structure/Function Relations of Ganglion Cells in the Glaucomatous Retina.

The Glaucoma Foundation.

9/1/94-8/31/96; TDC: $11,550.

5) Neuronal Changes in the Retina and Thalamus of Glaucomatous Monkeys.

NIH-NEI.

12/1/94-11/30/98; TDC: $607,545.

6) Neuroprotectant-based Rescue of Retinal Neurons Undergoing Retrograde Degeneration Due to Damage to the Optic Nerve.

MSU Foundation, Strategic Partnership Fund, Center for Clinical Neurosciences and

Ophthalmology, Michigan State University

7/1/97-6/30/00; TDC: $76,449.

7) Retinal Changes in Glaucoma and with Neuroprotection

NIH/NEI.

4/01/99-3/31/03; TDC: $629,580.

8) Development of a Microelectronic Device for Monitoring Intraocular Pressure of the Eye

MNEC/ Co-PI

7/1/2000-6/30/2001; $31,000

9) A Confocal Microscope for Neurobiology

NIH/NCRR Shared Instrumentation Grant

Co-PI

4/1/01-3/31/02; TDC: $183,065

10) Development of an Implantable MEMS Device for Continuous Monitoring of Intraocular

Pressure (Phase I)

Alcon Research Ltd, Fort Worth, TX

PI

1/1/03-12/31/05; TDC $49,680

11) Structure-Function of the Retina with Neuroprotection

NIH/NEI

PI

12/1/04-11/30/08; TDC: $1,000,000

12) Development of an Implantable MEMS Device for Continuous Monitoring of Intraocular

Pressure (Phase II)

Alcon Research Ltd, Fort Worth, TX

PI

7/1/06-12/31/06; TDC $62,455

13) Structural and Functional Characterization of a Novel Model for Glaucoma Research

NIH/NEI

Co-sponsor: Provide support concerning morphometric analysis of retina from glaucomatous cats

PI: Gillian McLellen (1K08EY018609-01A1)

09/15/2008-06/30/2013; TDC: $152,188

14) Structure-Function of the Retina with Neuroprotection

NIH/NEI. Recovery Act Funds - Administrative Supplement, submitted 6/1/2009

PI

12/1/2009-4/1/2011; $399,453 TDC

15) Development of New Models for Studying Glaucoma and Neuroprotection

CHM

PI

4/1/11 – 3/31/13; $20,000 TDC

17) Ultrasound Neuroprotection Preliminary Data Study

CHM

PI

8/1/13 – 7/31/14; $9,500 TDC

19) Application of Pulsed Ultrasound Toward Neuroprotection and Preservation of Vision

Following Optic Nerve Trauma

DoD/CDMRP

PI (Co-PI: Wen Li, Dept. of ECE

(revision needed)

20) Functional Mapping and Control of the Visual Cortex: Toward a Cortically-based Visual

Neuroprosthetic System

MSU Strategic Partnership Fund

7/1/2014 – 6/30/2017; $400,000 TDC

21) Implantable Three-dimensional Opto-uECoG Interface for Neuroprotection and Restoration of

Vision in Glaucoma.

NSF

Co-PI (PI: Dr. Wen Li)

5/16/13 – 5/15/17; $370,000 TDC

22) Implantable, Wireless, and Power-Efficient Trimodal Neural Interface for Electro-Optogenetic

Manipulation of Visual Cortex in Small Freely Behaving Animals.

NSF ECCS

Co-PI (PI: Dr. Wen Li)

8/16/14 – 8/15/20; TDC $400,000

25) Relationship between Optic Nerve Axon Counts and Clinical Assessments of Retinal Function

and Structure in Dogs.

ACVO Vision for Animals Foundation

Co-PI

Co-PI  (PI: Shin Park)

2/2/16-2/1/17; $5,000

26) Flexible Diamond-Polymer Thin Film electronics for Electrical and Chemical Sensing of Brain

Signals

NIH/NINDS

Co-PI (PI: Dr. Wen Li)

9/1/16-8/31/19; $364,704 TDC

27) Wireless, Wearable Smart Strain Sensor for Real-Time Monitoring of Intraocular Pressure.

Targeted Support Grants for Technology Development (TSGTD – MSU)

PI (Co-PI: Dr. Wen Li)

9/1/17 – 8/31/18, $50,000

28) Variable Inductor-Based Passive IOP Sensor I

Mi-Kickstart – Life Sciences

FastForward Medical Innovation

Michigan Economic Development Corporation

**PI** (Co-PI: Dr. Wen Li)

7/1/19 – 6/30/2020: $42,500 TDC

29) Variable Inductor-Based Passive IOP Sensor II

Targeted Support Grants for Technology Development (TSGTD – MSU Technologies)

**PI** (Co-PI: Dr. Wen Li)

7/1/19 – 6/30/20: $82,857 TDC

30) Variable Inductor Passive Contact Lens-Based IOP Sensor

MTRAC – Life Sciences

FastForward Medical Innovation

Michigan Economic Development Corporation

Spartan Innovations

**PI** (Co-PI: Dr. Wen Li)

2/1/21 – 1/31/2021: $95,207 TDC

NCE: 4/30/22

31) Flexible nitrogen ultrananocrystalline diamond microelectrode array for nongenetic, light driven

retinal prosthesis.

NIH/NEI

Co-I (PI: Dr. Wen Li)

4/1/22 – 3/31/24: $393,600 TDC **NOT FUNDED**

32) Acquisition of a Nanoscale 3D printer for medical device precision manufacturing at Michigan

State University

NSF/MRI (Major Research Instrument)

Submitted January 19, 2022

Collaborator (PI: Dr. Wen Li)

8/6/22 – 8/15/22: $589,100 (funds requested)

**TEACHING**

1978‑1979 Lecturer, Zoology 610, Experimental Neurophysiology, Department of Zoology,

University of Wisconsin‑Milwaukee

1982‑1984 Teaching Assistant, Medical Science 714, Neuroanatomy and Neurophysiology,

University of Wisconsin School of Medicine, Madison, WI

1986‑1989 Guest Lecturer, Veterinary Neuroanatomy-Neurophys­iology 934-505, University of

Wisconsin School of Veterinary Medicine, Madison, WI

1989-1990 Guest Lecturer, Neurobiology II, Structure and Function of the Mammalian Central

Visual System, Neuroscience Training Program, Univ. of Wisconsin, Madison, WI

1989-1991 Lecturer, Anatomy 637, Functional Neuroanatomy, Department of Kinesiology,

University of Wisconsin School of Education, Madison, WI

1995-1998 Lecturer/Lab Instructor, Anatomy 551, Human Gross Anatomy: Head and Neck,

Department of Anatomy, Michigan State University, East Lansing, MI

1997-present Lecturer, Radiology/Pharmacology/Physiology 839, Systems Neuroscience,

Neuroscience Program, Michigan State University, East Lansing, MI

(2019 changed to NEU 805)

1999-2016 Lecturer, Radiology/Physiology/Neurology-Ophthalmology 552, Medical

Neuroscience, Michigan State University, East Lansing, MI

2000 Lecturer, Physiology 910, Cellular and Molecular Physiology, Department of

Physiology, Michigan State University, East Lansing, MI

2001-present Lecturer, Physiology 828, Cellular and Integrated Physiology, Department of

Physiology, Michigan State University, East Lansing, MI

2002-2007 Preceptor, HM513 Neuromusculoskeletal Domain, Problem Based Learning,

College of Human Medicine, Michigan State University, East Lansing, MI

2002-2007 Preceptor, HM514 Major Mental Disorders Domain, Problem Based Learning,

College of Human Medicine, Michigan State University, East Lansing, MI

2002 Lecturer, Pharmacology/Physiology/Zoology 827, Physiology and Pharmacology of

Excitable Cells, Michigan State University, East Lansing, MI

2003-2015 Lecturer, PDI 514, Veterinary Neuroscience, Michigan State University, East

Lansing, MI

2003-2009 Lecturer, Physiology 950, Topics in Physiology, Michigan State University

2010 Physiology 475: Capstone Lab, Michigan State University, East Lansing, MI

2010 Pharmacology/Physiology 827: Physiology and Pharmacology of Excitable Cells,

Michigan State University, East Lansing, MI

2012-2020 Pharmacology/Physiology 827 (now NEU 805): Physiology and Pharmacology of

Excitable Cells, Michigan State University, East Lansing, MI

2012-2016 Course Director and Lecturer, HM513, Chair: Neurological Domain, CHM Block II

2013-present Lecturer, OST571, Medical Physiology

2013 Guest Lecture – LB 274, Lyman Briggs special lecture on optics of the eye.

2015-present Content Expert – CHM Shared Discovery Curriculum (SDC)

2016-2021 Course Director – HM 555 Clinically-related Neuroscience Intersession, SDC

2017-2019 Course Assistant – HM 552/553 - ECE Neuroanatomy Lab

2017-present Content/Instructor – HM 554 Large Group Activity, Neuro Sections 16-20, SDC

**COMMITTEE WORK**

# **Departmental**

1997-1999 Department of Anatomy: Advisory Committee (Past Faculty Secretary)

1996-1999 Department of Anatomy: Graduate Affairs Committee (Past Co-Chair)

1997-1999 Department of Anatomy: Space, Safety and Research (Past Chair)

1998 Department of Anatomy: Task Force on Undergraduate Education

1999 Department of Anatomy closed; Joined Department of Physiology

2001 Department of Physiology: Asthma/Pulmonary Faculty Search Committee

2001-2009 Department of Physiology: Animal Use Committee

2002-2010 Department of Physiology: Assoc. Chair/Dir. of Research and Graduate Studies

2002-2011 Dir. of Research and Graduate Studies/ Chair – Graduate Affairs Committee

2002-2012 Dir. of Research and Graduate Studies

2008 Department of Physiology: Webpage Re-design Committee

2007-2012 Coordinator – Annual Meites Seminar Series

2012-2015 Faculty Advisory Committee (FAC) member

2013-2015 Faculty Advisory Committee Chair

2015-2016 Professional Education Committee member

2016 Chair – Neuroscience Faculty Search Committee

2016 Veterinary Medicine – Vet. Ophthalmologist Faculty Search Committee (member)

2016 Neuroscience Faculty Search Committee (member)

2016 Physiology Awards Committee - member

2017- 2018 Faculty Advisory Committee – member

2018-2020 Faculty Advisory Committee – Chair

2018-2020 Physiology Awards Committee – Chair

2021 – present Graduate Affairs Committee

2021 – present BMS Admissions Committee

# **College**

1996 Department Representative: Basic Science Subcommittee for LCME Review

1997-2012 Interviewer: College of Human Medicine (CHM), Medical School Admissions

2001-2016 Curriculum Development Group: Neurological Domain - CHM Problem Based

Learning

2001-2007 CHM College Advisory Committee

2002-2007 Preceptor: CHM Problem Based Learning

2003 CAC-CHM Awards Committee

2003-2012 Van Andel Res. Institute Fellowship Reviewer - College of Natural Sciences

2004-2012 Rosenberg Fellowship Reviewer – College of Natural Sciences

2004-2012 Hensely Fellowship Reviewer - College of Natural Sciences

2004-2012 Zeits Fellowship Reviewer - College of Natural Sciences

2005 CHM Grievance Committee

2006 CHM LCME Self-Study: Research Subcommittee

2007-2012 Degree Completion Fellowship Committee - College of Natural Sciences

2007-2012 Summer Support Fellowship Committee - College of Natural Sciences

2007-2012 CHM Graduate Studies Committee

2007-2009 CHM MD/PhD Program Committee

2007-2009 CHM MD/PhD Candidate Selection Committee

2008-2012 CHM College Advisory Committee

2011 CHM Faculty Awards Committee

2012-2016 Chair, Curriculum Development Group – HM 513 - Neurological Domain, CHM

2012-2016 Course Director – HM 513 – Neurological Domain, Block II CHM

2013-2015 CHM Conflict of Interest Committee

2013-2014 CHM LCME Self-Study Institutional Setting Committee

2015 CHM Neuroanatomy position interviewer

2016 – 2020 CHM College Advisory Council

2017 CHM/COM Neuroanatomist Search Committee

2017 – 2020 CHM Awards Committee – Chair

# **University**

1997 Biomedical Future Search: Infrastructure-Animal Use Committee (Chair)

1996-1999 Advisory Board, Neuroscience Program

1995-1998 Advisory Board, Center for Clinical Neuroscience and Ophthalmology

1998 Advisory Board, Life Sciences Committee (Neuroscience), Michigan Health and Aging Research and Development Initiative (Life Sciences Corridor)

1996-1997 Spartan Speaker Program

2001 Frontiers in Science Program: Division of Science and Mathematics Education

2001-2005 Treasurer, Michigan Chapter of the Society for Neuroscience

2003-2012 University Distinguished Fellowship Reviewer

2003-2012 University Enhancement Fellowship Reviewer

2003 National Research Council Pilot Study

2004-2006 Life Sciences Task Force: Joint Recruitment Initiative

2006-2007 National Research Council Graduate Program 10 Year Assessment

2007 Comprehensive Exam Chair: Cellular Neurobiology Group, Neuroscience Program

2008-2012 Institutional Animal Care and Use Committee (IACUC)

**COMMUNITY SERVICE**

1996–present Member – East Lansing Knights of Columbus Catholic Fraternal Organization

2013-2015 Grand Knight – E. L. Knights of Columbus Catholic Fraternal Organization

2015-2017 Treasurer – E. L. Knights of Columbus Catholic Fraternal Organization

2017-2020 Trustee – E. L. Knights of Columbus Catholic Fraternal organization

1998-2005 Science Fair presenter – St Thomas Aquinas Elementary School

2012-2018 Department of Physiology “PhUn” Day – Impressions 5 Children’s Science Museum

2013 Bioengineering Symposium – Neuroscience Program, MSU

2013-2018 ‘Brain Bee’ Neuroscience Fair – Neuroscience Program, MSU

2020-present Treasurer – E. L. Knights of Columbus Catholic Fraternal Organization

**ADVISOR**

1996-2001 Hao Chen, Doctorate, Department of Anatomy (Primary Advisor)

1994-2000 Lee Lipsitz, Doctorate, Department of Anatomy,

(Committee Member, Primary Advisor)

1996-1998 Lisa Belt, Masters Degree, Department of Anatomy (Committee Member)

1999-2005 Nalinee Tuntivanich, Doctoral candidate, School of Veterinary Medicine

(Committee Member)

2002 Andrea Merchant, McNair/SROP Scholar Program advisor

2002 Yanny Lau, MD/PhD candidate, research rotation mentor

2002 Wen-hsin Ku, Doctoral candidate, Department of Physiology, research rotation

2002-2004 Lisa Bartner, Masters candidate, Department of Physiology (Committee Member)

2002-2005 Robert Cable, Masters Degree, Department of Mechanical Engineering

(Committee Member)

2003-2004 Magan Butler-Coleman, McNair/SROP Scholar Program mentor

2005-2007 Gillian Shaw, Masters candidate,School of Veterinary Medicine, (Committee

Member)

2005 Samuel Pappas, undergraduate research project mentor

2005-2006 Kofo Onaleye, undergraduate research project mentor

2005-2007 Jenna DenHouter, Masters candidate, School of Veterinary Medicine (Com. Member)

2006 Steven Agemy, undergraduate research project mentor

2006-2008 Onyinyechi Nweke, undergraduate research project mentor

2006-2007 Chidambaram Ramanathan, Visiting Scientist

2006 (summer) Nicholas Frecker, undergraduate research experience (Indiana Wesleyan Univ.)

2006-2009 Hui Wang, Doctoral candidate, Department of Physiology (Committee Member)

2007-2011 Lindsay Martin, Doctoral candidate, Department of Physiology (Committee Member)

2007-2010 Justin Lockwood, Medical Scholar, undergraduate research project mentor

2009-2012 Tim Houchin, Doctoral candidate, Department of Physiology, Committee Member)

2009-2011 Xu Gao, Master’s candidate, Department of Physiology (Committee Member)

2009-2012 Matthew Annear, Doctoral Candidate, Department of Veterinary Medicine

(Committee Member)

2011-2012 Hamant Patel, pre-med student, Human Biology Program

2011-2014 Ki Yong Kwon, Doctoral Candidate, Department of Electrical and Computer

Engineering, (Committee Member)

2012-2017 Bin Fan, Doctoral Candidate, Department of Electrical and Computer

Engineering, (Committee Member)

2012 Priyanka Pandey, Masters Candidate, Department of Physiology, (Committee

Member)

2012-2018 Marianna Silva, Doctoral Candidate, Comparative Medicine and Integrative Biology,

School of Veterinary Medicine, (Committee Member)

2012-2015 Brian Fischer, pre-med, Physiology Major, undergraduate research advisor

2012-2016 Ron Tsai, Masters Candidate, Dept. of Physiology (Committee Member)

2013-2016 Connie Yeh, DVM, ophthalmology resident and Master’s Candidate, Department of

Medicine and Integrative Biology, School of Veterinary Medicine, (Committee

Member)

2013-2016 Annie Oh, Masters Candidate, Department of Medicine and Integrative Biology,

School of Veterinary Medicine, (Committee Member)

2012-2013 Brian Crum, Masters Candidate, Department of Elect. Eng. (Committee Member)

2013-2014 Candace Igert, Masters Candidate, Department of Physiology (Committee Member)

2012-2016 Kathleen Louis, Doctoral Candidate, Neuroscience Program (Committee Member)

2015-2019 Wasif Afsari Khan, Masters Candidate, Electrical and Computer Engineering

2016-2018 Fatma Madi, Masters Candidate, Department of Physiology (Mentor)

2016-2020 Kristin Koehl, Masters Candidate, School of Vet. Medicine, (Committee Member)

2016-2020 Yue Guo, PhD Candidate, Electrical and Computer Engineering (Committee

Member)

2016-2020 M.H. Mazaherikouhani, PhD Candidate, Electrical and Computer Engineering

(Committee Member)

2017-2021 Jessica Burn Masters Candidate, School of Vet. Medicine, (Committee Member)

2019-2021 Nate Pasmanter, Masters Candidate, School of Vet. Med. (Committee Member) 2019 (summer) Kathryn Schwartz, HS Biology Teacher

2020-2021 Weiyang Yang, PhD Candidate, Electrical and Computer Engineering

(Committee Member)

**HONORS and AWARDS**

1978 High Honors, Senior Thesis, Princeton University

1981‑1984 National Institutes of Health Pre-doctoral Fellow

1984 Knapp Meeting Travel Fellowship

1986‑1989 U.S. Public Health Service National Research Service Award

1993-1995 National Glaucoma Research Award, American Health Assistance

Foundation

1994 Ruth Salta Junior Investigator Achievement Award, National Glaucoma

Research Award, American Health Assistance Foundation.

1995 Michigan M.D. Magazine, feature article: “Glaucoma Research Focuses on

Neuronal Degeneration in the Retina”

1998 Society for Neuroscience Annual Meeting Press Conference/News Release:

“Brain-derived neurotrophic factor (BDNF) prevents retinal ganglion cell death

in the cat retina after optic nerve crush.”

1999-present Scientific Advisory Committee, The Glaucoma Research Foundation, San

Francisco, CA.

2000-2001 NIH/NEI Visual A Study Section

2000 COM Communiqué: Neurology and Ophthalmology article on Building Broad

Research Programs.

2003 Golden Apple Teaching Award-Class of 2006, College of Osteopathic Medicine

2004 NIH/NEI Biology and Diseases of the Posterior Eye Study Section (ad hoc reviewer)

2005 NIH/NEI Anterior Eye Disease Study Section (ad hoc reviewer)

2005 Michigan M.D. Magazine: feature article: “Erasing the Boundary Between Medicine

and Engineering.

2006 Session co-Moderator: Association for Research in Vision and Ophthalmology

Annual Meeting 2007 Chapter Invitation: The Primate Model of Glaucoma, In:

Mechanisms and Therapeutics of Glaucoma, Humana Press.

2007 Invited Speaker: Symposia on Form and Function of Retinal Ganglion Cells in

Glaucoma, Association for Research in Vision and Ophthalmology.

2007 Session co-Moderator: Neuroprotection, Neurodegeneration and Blood Flow,

Association for Research in Vision and Ophthalmology Annual Meeting.

2007 Invited Speaker: The Retina and Neuroprotection, Annual Meeting of the American

Academy of Optometry

2008 Invited Speaker: Journal of Physiology Education Workshop: Retinal Ganglion Cells

in Model Organisms: Development, Function, and Disease, Association for Research

in Vision and Ophthalmology Annual Meeting, Ft. Lauderdale, FL

2009 NIH-NEI Study Section (Ad Hoc Reviewer)

2010 Invited Speaker: ARVO/Pfizer Ophthalmics Research Institute Conference, Current

Prospects in Optic Nerve Protection and Regeneration, Ft Lauderdale, FL

2010 Invited Speaker: Neural Degeneration in Glaucoma-New Insights, Pathological

changes in the structure and function of ganglion cells in glaucoma, International

Society for Eye Research Meeting, Montreal, Canada.

2010 Invited Speaker: Effects of Downstream Neuroprotection on Retinal Ganglion Cell

Survival and Function Following Optic Nerve Injury; Visiting Speakers Program, North

Texas Eye Research Institute, UNTHSC, Ft. Worth, TX.

2011 Invited Speaker: Looking Beyond the Eye for Retinal Neuroprotection, Association for

Ocular Pharmacology and Therapeutics, Ft. Worth, TX

2016 Co-Moderator – Mini symposium on Retinal Ganglion Cell Dendrite pathology and

Synapse Loss: Implications for Glaucoma. (ARVO Annual Meeting)

**PATENTS**

2005 J.R. Lloyd, T. Grotjohn, A. Weber, and F. Rosenbaum, “Implantable Micro-Scale Pressure

Sensor System for Glaucoma Monitoring and Management,” Full Patent awarded 2005.

2011 A. Weber, W. Li, “Development of a Wireless Passive Intraocular Pressure Sensor” Invention

Disclosure Submitted to MSU Technologies (62/474,750)

2018 IOP Sensor - US Provisional Patent, serial # US16/494,894 (filed 3/22/2017)

2018 Regional European Patent Application # 18772211.1 (filed 3/21/2018)

2018 Patent Cooperation Treaty, PCT/US2018/023502 (filed 3/22/2018)

2022 Intraocular pressure sensor – US Patent US11,484,202 B2 (issued 11/1/2022)

**MEMBERSHIPS**

Association for Research in Vision and Ophthalmology (ARVO)

International Brain Research Organization (IBRO)

**AD HOC REVIEWER**

Glaucoma Research Foundation - San Francisco

The Glaucoma Foundation-New York

MSU-Intramural Research Grants Program (IRGP)

Journal of Comparative Neurology

Journal of Neuroscience Research

Journal of Glaucoma

Brain Research

Neuroscience Research Communications

Visual Neuroscience

Alzheimer’s Association (cell death-related work)

Investigative Ophthalmology and Visual Science

Experimental Eye Research

Molecular Neurobiology

PLOS ONE

Molecular Vision

**CONSULTING/COLLABORATIONS**

Alcon Laboratories, Inc., Fort Worth TX

Sierra Biomedical, Inc., Sparks, NV

Regeneron Pharmaceuticals, Inc. Tarrytown, NY

Pfizer, Inc., Ann Arbor, MI

Ophthy-DS, Kalamazoo, MI

**INVITED PRESENTATIONS**

1989 Wenner-Gren Symposium on Brain Repair, Stockholm, Sweden

1991 Department of Anatomy, University of Wisconsin-Madison School of Medicine, "The

development and organization of synaptic connections in the retina and dorsal lateral

geniculate nucleus of the cat."

1993 University of Wisconsin Regional Primate Research Center, University of Wisconsin-

Madison, "Neuronal changes in the retina and thalamus of monkeys with experimentally-

induced glaucoma."

1993 Department of Ophthalmology, University of Wisconsin-Madison, "Glaucoma and the

single neuron: effects of elevated intraocular pressure on single retinal ganglion cells."

1993 Alcon Laboratories, Inc., "Pressure-induced neuronal degeneration in the

retinogeniculate pathway of the primate."

1994 Think Tank on Optic Nerve Regeneration, The Glaucoma Foundation, New York.

1994 Michigan Optometric Society, "Glaucoma-related changes in the primate central

visual pathway: neuronal degeneration in the retina and lateral geniculate

nucleus."

1995 Optic Nerve Restoration Think Tank, The Glaucoma Foundation, New York

1995 Neuroscience Training Program, Michigan State University, “Neuronal changes in the

retina and thalamus of monkeys with experimentally-induced glaucoma.”

1995 Department of Biological Sciences, Ferris State University, “Pressure-induced neuronal degeneration in the primate visual system.”

1996 Optic Nerve Rescue and Restoration Think Tank, The Glaucoma Foundation, New York

1996 Department of Biology, Siena Heights College, “Under pressure: neuronal changes in

the primate visual system induced by elevated pressure in the eye”.

1997 Optic Nerve Rescue and Restoration Think Tank, The Glaucoma Foundation, New York

1998 Clinical Neurosciences Research Program, Michigan State University, “Neuroprotection:

are we covering all of the bases?”

1998 Department of Ophthalmology and Visual Sciences, University of Louisville School of

Medicine, “Patterns of neuronal degeneration in the glaucomatous visual system”.

1998 Department of Physiology, Michigan State University, “Neuronal degeneration and neuroprotection in the mammalian visual system”.

1998 Department of Pharmacology and Toxicology, Michigan State University, “Neuronal

degeneration and strategies for neuroprotection following optic nerve damage”.

1999 Department of Physiology and Biophysics, Wright State University, “Neuronal changes in the retina and lateral geniculate nucleus in experimental glaucoma and following

optic nerve crush.

1999 Center for Clinical Neuroscience and Ophthalmology, Residents Program, Michigan State University, “Life and death in the glaucomatous retina: perspectives of the single

neuron"

1999 Department of Ophthalmology, Dalhousie University, Halifax, Nova Scotia, “Neuronal

changes in the visual system of primates with experimental glaucoma”.

2000 Alcon Laboratories, Fort Worth, TX, Glaucoma and the primate central visual pathway:

where have we come from, where are we going?”

2000 Department of Ophthalmology and Visual Sciences, University of Wisconsin-Madison, "Degenerative effects of elevated intraocular pressure on retinal ganglion cells and

their target neurons in the primate visual system".

2000 XIV International Congress of Eye Research, Santa Fe, New Mexico, “Latex microsphere-

induced experimental glaucoma and neuronal degeneration in primates.”

2001 Frontiers in Science and Mathematics Workshop, Division of Science and Mathematics

Education, Michigan State University, “Neuronal degeneration and neuroprotection in

glaucoma.”

2004 Eye Research Institute, Oakland University, Rochester, MI, “Retinal ganglion cell structure

and function following optic nerve injury and neuroprotection.”

2004 Indiana School of Optometry, Bloomington, IN, “Glaucomatous neuropathy: looking

beyond the retina.”

2004 XVI International Congress of Eye Research, Sydney Australia, “Effects of elevated

intraocular pressure on retinal ganglion cell structure and function.”

2007 Symposia on Form and Function of Retinal Ganglion Cells in Glaucoma, Association for

Research in Vision and Ophthalmology. Ft. Lauderdale, FL

2007 Michigan Chapter of the Association for Assessment of Laboratory Animal Care(AALAC), “Neuronal degeneration and neuroprotection in the cat and primate eye in glaucoma”.

2007 American Academy of Optometry Annual Meeting, Vision Science Section, Tampa, FL. “Neuroprotection within the mammalian retina following optic nerve injury”.

2008 Journal of Physiology Education Workshop-Retinal Ganglion Cells in Model Organisms:

Development, Function, and Disease, Association for Research in Vision and Ophthalmology

Annual Meeting, Ft Lauderdale, FL

2008 Michigan State University Physiological Society, Careers in Physiology, MSU

2008 Keynote Speaker, Distinguished Neuroscience Training Program Alumnus Lecture,

Neuroscience Program, University of Wisconsin-Madison. “Neuroprotection

in the Mammalian Retina Following Glaucoma-related Optic Nerve Injury”.

2010 ARVO/Pfizer Ophthalmic Research Institute Conference, Guest speaker, discussion leader:

Neuroprotective Effects of BDNF; Potential Retinal Therapeutic Agent? Ft. Lauderdale FL

April 2010.

2010 International Society for Eye Research (ISER). Pathological changes in the structure and

function of ganglion cells in glaucoma. Montreal, Canada. July 2010

2010 Effects of Downstream Neuroprotection on Retinal Ganglion Cell Survival and Function Following Optic Nerve Injury; Visiting Speakers Program, North Texas Eye Research Institute, UNTHSC, Ft. Worth, TX.

2011 Association for Ocular Pharmacology and Therapeutics (AOPT), Looking Beyond the Eye for

Retinal Neuroprotection, University of North Texas Health Science Center, Ft. Worth, TX

2012 Department of Biosciences, Novel Neuroprotection Strategies for Glaucoma and Other Optic

Neuropathies. Western Michigan University, Kalamazoo, MI

2013 Bioengineering Symposium, Neuroscience Program, MSU

2014 Ganglion cell dendritic structure in glaucoma. Glaucoma Research Society Meeting. Jackson

Lake Lodge, Grand Teton National Park

2015 Consortium of Osteopathic Residencies in Ophthalmology (CORO), Department of Neurology

and Ophthalmology, Michigan State University.

2016 Eye Research Institute, Oakland University, Rochester, MI, Glaucomatous Neuropathy:

Current and Novel Strategies for Assessing and Preventing.

2018 Consortium of Osteopathic Residencies in Ophthalmology (CORO), Department of Neurology

and Ophthalmology, Michigan State University.

2019 Innovation Cup – FastForward Medical Innovation, Michigan Economic Development

Corporation, Variable Inductor-based Passive IOP Sensor, University of Michigan

2020 MTRAC Research Program – FastForward Medical Innovation, Michigan Economic

Development Corporation, Variable Inductor-based Passive IOP Sensor, University of

Michigan

2022 MSU Innovation Celebration – IOP Sensor Presentation, MSU Technologies, Michigan State

University

**PUBLICATIONS**

Weber, A.J., and R.E. Kalil (1983) The percentage of interneurons in the dorsal lateral geniculate nucleus of the cat and observations on several variables that affect the sensitivity of horseradish peroxidase as a retrograde marker. J. Comp. Neurol. 220:336‑346.

Weber, A.J., R.E. Kalil, and T.L. Hickey (1986) Genesis of interneurons in the dorsal lateral geniculate nucleus of the cat. J. Comp. Neurol. 252:385‑391.

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