

## **.CURRICULUM VITAE**

### PERSONAL INFORMATION:

Name: **Michael Kerry O'Banion**

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|------------|---|---|
| Addresses: | <i>Work</i>   | <i>Home</i>                                     |
|            | Department of Neurobiology & Anatomy<br>School of Medicine and Dentistry<br>University of Rochester<br>601 Elmwood Avenue, Box 603<br>Rochester, New York 14642 | 3613 Clover Street<br>Pittsford, New York 14534 |

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| Fax:         | (585) 756-5334                   | Cell: (585) 314-5284 |
| E-Mail:      | Kerry_OBanion@urmc.rochester.edu |                      |
| Citizenship: | United States                    |                      |

### EDUCATION:

1976 – 1980 University of Illinois, College of Liberal Arts and Sciences - B.S. with honors in Biology (Summa Cum Laude). Research training with Dr. Sue Carter-Porges, Department of Neural and Behavioral Biology.

1980 – 1987 University of Illinois, College of Liberal Arts and Sciences - M.S., Ph.D. in Microbiology. Trained with Drs. M. E. Reichmann and J. P. Sundberg. Thesis: Isolation and Molecular Characterization of Novel Animal Papillomaviruses.

1980 – 1987 University of Illinois, School of Medicine, Urbana, Illinois - M.D. with honors.

### POSTDOCTORAL TRAINING:

1987 – 1990 Postdoctoral Fellow, Departments of Medicine and Biochemistry, University of Rochester School of Medicine. Trained with Dr. D. A. Young.

### FACULTY APPOINTMENTS:

1990 – 1991 Instructor and Fellow, Departments of Medicine and Biochemistry, University of Rochester School of Medicine

1991 – 1997 Assistant Professor, Departments of Neurology and of Neurobiology and Anatomy, University of Rochester School of Medicine

1997 – 2000 Associate Professor, Departments of Neurology and of Neurobiology and Anatomy, University of Rochester School of Medicine

2000 – Present Associate Professor (Tenured in 2002), Departments of Neurobiology and Anatomy and of Neurology, University of Rochester School of Medicine

## HONORS, AWARDS AND FELLOWSHIPS:

- 1977 – 1980 Edmund J. James Scholar
- 1980 Phi Kappa Phi (Honorary Society)
- 1980 B.S. with honors (summa cum laude); Bronze Tablet Recipient
- 1980 University of Illinois Life Sciences Predoctoral Fellowship
- 1982 Excellence in Undergraduate Teaching Award
- 1984 Otto Saphir Memorial Award in Pathology
- 1984 Alpha Omega Alpha (Honorary Medical Society)
- 1986 University of Illinois College of Medicine Predoctoral Fellowship
- 1987 M.D. with honors; Valedictorian Address, Medical School Commencement
- 1987 Lange Book Award
- 1988 Proficiency in Pediatrics Book Award
- 1987 – 1989 NIH Postdoctoral Training Fellow in Endocrinology and Metabolism, University of Rochester
- 1988 – 1991 Wilmot Cancer Research Postdoctoral Fellowship, University of Rochester
- 1990 – 1991 New York State Health Research Council Postdoctoral Fellowship for Diabetes Research
- 1996 – 1999 George W. Corner Dean's Teaching Scholar
- 1998 Graduate Student Society Faculty Teaching Award

## MEMBERSHIPS:

- 1991 – Present Society for Neuroscience
- 1994 – Present American Association for the Advancement of Science
- 2000 – Present National Association of MD/PhD Programs
- 2005 – Present MD-PhD Section, Graduate Research, Education, and Training (GREAT) Group, American Association of Medical Colleges
- 2005 – Present American Society for Neurochemistry
- 2006 – Present Radiation Research Society

Completion Date of CV: March 18, 2008

## EDUCATIONAL CONTRIBUTIONS:

### Major Medical and Graduate Course Responsibilities:

- 2006 – Present Disease Processes & Therapeutics II (DPT2), Rheumatology Section, Lecturer on Anti-inflammatory therapeutics; 3 contact hours
- 2005 Case Seminars, Pharmacology Section, Lecturer; 2 contact hours
- 2004 – Present Neuroinflammation (ANA/MBI 513), University of Rochester, Lecturer and Class Co-Director; 60 contact hours.
- 2002 – Present Scientific Reasoning in Medicine, University of Rochester, Course Director, Journal Club for MD/PhD Students; about 32 total contact hours.
- 2001 – Present Mind, Brain and Behavior II (Neurology and Psychiatry Clerkship), University of Rochester, Co-Director and Basic Science Advisor; Laboratory Instructor, Problem-Based Learning (PBL) Instructor, and Lecturer; about 90 total contact hours.
- 2000 – Present Mind, Brain and Behavior I, University of Rochester, Co-Director and Member, Course Design Team (Basic Neuroscience), Laboratory Director and Instructor, and Lecturer; about 30 total contact hours. PBL tutor from 2000 until 2004, 60 additional contact hours.
- 1997 – 1999 Medical Neural Sciences Course (ANA 505), University of Rochester, Course Co-Director and Laboratory Instructor; about 160 total contact hours, including 85 hours of laboratory contact and 10 formal lectures
- 1998 – 2003 Integrative and Systems Neuroscience (NSC 531), University of Rochester, Lecturer and Laboratory Instructor; 20 contact hours
- 1997 Experimental Basis for Systemic Neuroscience (NSC 506), University of Rochester, Course Director; 35 contact hours
- 1994 – 1998 Graduate Student Seminars (NSC 592), Program in Neuroscience, University of Rochester, Faculty Director; 20 contact hours
- 1993 – Present Cellular Neurosciences (NSC 512), Program in Neuroscience, University of Rochester, Lecturer; 8 contact hours (1993 – 2002); Neuroanatomy Laboratory Director; 14 contact hours (2003 – Present)

### Postdoctoral Education

|             |                                   |  |
|-------------|-----------------------------------|--|
| 2002 – 2006 | Mary Maida, Ph.D.                 | Ph.D. Neuroscience, University of Rochester                        |
| 2000 – 2003 | Amy Moore, Ph.D.                  | Ph.D. Neuroscience, UCLA;<br>B.A. Cognitive Science, Johns Hopkins |
| 1999 – 2004 | Sean Hurley, Ph.D.<br>(Co-mentor) | Ph.D. and B.S. Neuroscience,<br>University of Florida              |

## Graduate Education

### Thesis Students

|                |                              |  |
|----------------|------------------------------|--|
| 2007 – Present | Michael Wu                   | M.D./Ph.D. in Neurobiology & Anatomy     |
| 2007 – Present | Simantini Ghosh              | Interdepartmental Neuroscience Program   |
| 2005 – Present | Sarah Bliss                  | Neurobiology & Anatomy                   |
| 2005 – 2006    | Joanne Daeschner, M.S.       | Neurobiology & Anatomy                   |
| 2004 – Present | Michael Moravan              | M.D./Ph.D. in Neurobiology & Anatomy     |
| 2003 – 2007    | Sol Shaffel, Ph.D.           | M.D./Ph.D. in Neurobiology and Anatomy   |
| 2000 – Present | Yuriy Shapovalov, M.D.       | Interdepartmental Neuroscience Program   |
| 1998 – 2002    | Mary Maida, Ph.D.            | Interdepartmental Neuroscience Program   |
| 1997 – 2000    | Anna Yermakova, Ph.D.        | Neurobiology and Anatomy                 |
| 1997 – 1999    | S. Kyrkanides, DDS/Ph.D.     | Neurobiology and Anatomy                 |
| 1996 – 2001    | Tina Huang, Ph.D.            | Interdepartmental Neuroscience Program   |
| 1994 – 2000    | Mitchell Kaplan, DDS/Ph.D.   | Dental Research Fellow in Neuroscience   |
| 1992 – 1996    | Colin Combs, Ph.D.           | Neurobiology and Anatomy                 |
| 1992 – 1995    | Julia W. Chang, Ph.D.        | Neurobiology and Anatomy                 |
| 1991 – 1994    | Virginia D. Winn, M.D./Ph.D. | Biochemistry; Co-Mentor with D. A. Young |

### Laboratory Rotation Students

|      |                           |   |
|------|---------------------------|---|
| 2008 | Sarah Aillen              | Interdepartmental Neuroscience Program  |
| 2007 | Michael Wu                | M.D./Ph.D. student                      |
| 2007 | Simantini Ghosh           | Interdepartmental Neuroscience Program  |
| 2005 | Sarah Bliss               | Interdepartmental Neuroscience Program  |
| 2004 | Michael Moravan           | Neurobiology & Anatomy (MD/PhD student) |
| 2004 | Viktoriya Rybalko         | Microbiology & Immunology               |
| 2002 | Sol Shaffel               | Neurobiology & Anatomy (MD/PhD student) |
| 2001 | Tara Sweet                | Interdepartmental Neuroscience Program  |
| 2000 | Yuriy Shapovalov          | Interdepartmental Neuroscience Program  |
| 1998 | Joanne Macoretta          | Neurobiology and Anatomy                |
| 1997 | Mary Maida                | Interdepartmental Neuroscience Program  |
| 1996 | Anna Yermakova            | Neurobiology and Anatomy                |
| 1996 | Stephanos Kyrkanides, DDS | Neurobiology and Anatomy                |
| 1995 | Tina Huang                | Interdepartmental Neuroscience Program  |
| 1994 | Richard Bailey, DDS       | Dental Research Fellow in Neuroscience  |
| 1994 | Mitchell Kaplan, DDS      | Dental Research Fellow in Neuroscience  |

### Thesis Advisory Committee Member

|                |                              |  |
|----------------|------------------------------|--|
| 2007 – Present | I-Chen Yu                    | Interdepartmental Neuroscience Program |
| 2005 – 2008    | Christine Clark, Ph.D.       | Pathology                              |
| 2005 – 2007    | Xiaoyan Lin, Ph.D.           | Interdepartmental Neuroscience Program |
| 2004 – 2007    | Matthew Bellizzi, M.D./Ph.D. | Interdepartmental Neuroscience Program |
| 2004 – 2006    | Roberto Fernandez, MD/PhD    | Neurobiology and Anatomy               |
| 2003 – 2006    | Elizabeth Ryan, Ph.D.        | Environmental Toxicology               |
| 2003 – 2005    | Mary Williamson, Ph.D.       | Environmental Toxicology               |
| 2003 – 2006    | Ziye Sui, Ph.D.              | Interdepartmental Neuroscience Program |
| 2003 – Present | Ibro Ambeskovic              | Biomedical Genetics                    |
| 2002 – 2004    | Toni Essyllene, M.D./Ph.D.   | Pathology                              |

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|----------------|------------------------------|--|
| 2002 – Present | Shireesha Reddy, M.D./Ph.D   | Immunology                             |
| 2002 – 2005    | Kuei Lim, M.D./Ph.D.         | Interdepartmental Neuroscience Program |
| 2001 – 2003    | Seth Perry, Ph.D.            | Interdepartmental Neuroscience Program |
| 2001 – 2002    | Marc Dubin, M.D./Ph.D.       | Neurobiology and Anatomy               |
| 2000 – 2001    | Kathy Barrett, M.S.          | Neurobiology and Anatomy               |
| 2000 – 2004    | Denise Armstrong, Ph.D.      | Microbiology/Immunology                |
| 1999 – 2004    | James Roussie, Ph.D.         | Biochemistry                           |
| 1998 – Present | Surat Attaphitaya            | Neurobiology and Anatomy               |
| 1997 – 2000    | Timothy Myhre, Ph.D.         | Neurobiology and Anatomy               |
| 1997 – 2001    | Sarah Harris, Ph.D.          | Microbiology/Immunology                |
| 1996 – 1998    | Xinping Zhang, Ph.D.         | Biochemistry                           |
| 1995 – 1998    | Kirsty Lapan, Ph.D.          | Biochemistry                           |
| 1995 – 1998    | Andrew Wallace, Ph.D.        | Environmental Toxicology               |
| 1995 – 1998    | Chris Huggins, M.S.          | Biochemistry                           |
| 1995 – 1997    | Laura Madrid, Ph.D.          | Environmental Toxicology               |
| 1993 – 1996    | Cathy Unczer, M.S.           | Biochemistry                           |
| 1993 – 1995    | Lisa Kale-Feulner, M.D./Ph.D | Neurobiology and Anatomy               |
| 1992 – 1994    | Lisa Opanashuk, Ph.D.        | Environmental Toxicology               |

Preliminary Examination Committee Member

|             |                       |  |
|-------------|-----------------------|--|
| 2007        | I-Chen Yu             | Interdepartmental Neuroscience Program |
| 2006, Chair | Jun Wang              | Biomedical Genetics                    |
| 2006        | Grace Vangeison       | Interdepartmental Neuroscience Program |
| 2005, Chair | Christine Clark       | Pathology                              |
| 2004        | Tim Carlson           | Interdepartmental Neuroscience Program |
| 2004        | Roberto Fernandez, MD | Neurobiology and Anatomy               |
| 2003, Chair | Elizabeth Ryan        | Environmental Toxicology               |
| 2003        | Ibro Ambeskovic       | Biomedical Genetics                    |
| 2002        | Shireesha Reddy, MD   | Immunology                             |
| 2002, Chair | Eileen Yoshida        | Interdepartmental Neuroscience Program |
| 2001        | Seth Perry            | Interdepartmental Neuroscience Program |
| 2000        | Patricia Sheridan     | Interdepartmental Neuroscience Program |
| 1999        | Kathy Barrett         | Neurobiology and Anatomy               |
| 1997        | Surat Attaphitaya     | Neurobiology and Anatomy               |
| 1997        | Sarah Harris          | Microbiology/Immunology                |
| 1996        | Xinping Zhang         | Biochemistry                           |
| 1995, Chair | Andrew Wallace        | Environmental Toxicology               |
| 1995        | Chris Huggins         | Biochemistry                           |
| 1995        | Laura Madrid          | Environmental Toxicology               |
| 1994        | Jason Peck            | Neurobiology and Anatomy               |
| 1994        | Derek Choi-Lundberg   | Neurobiology and Anatomy               |
| 1994        | Pat Martin            | Neurobiology and Anatomy               |
| 1994        | Kirsty Lapan          | Biochemistry                           |
| 1993        | Cathy Unczer          | Biochemistry                           |

House Staff Education:

|      |  |
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| 2008 | Psychiatry Grand Rounds “Neuroinflammation in Alzheimer’s Disease: Friend or Foe?” |
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- 2006 Experimental Therapeutics Discussion Group (Neurology) “Immunotherapy for Alzheimer’s Disease”
- 2004 Neurology Grand Rounds “NSAIDs as Therapeutic Agents for Neuroinflammation and Neurodegeneration”
- 2002 Neurology Grand Rounds “NSAIDs in Neurodegenerative Diseases: A Current Appraisal”
- 2000 Pathobiology, Oncology and Molecular Medicine Seminar “Cyclooxygenases in Neuroinflammation and Neurodegeneration”
- 1999 Neurology Grand Rounds “Super Aspirins: Rationale for Therapeutic Trials of New Cyclooxygenase Inhibitors in Alzheimer’s Disease”
- 1997 – 1998 Lectures on Molecular Medicine and Genetics in “Neuroscience Course” for Psychiatry Residents
- 1997 Medicine Grand Rounds “Alzheimer’s Disease: Genetics and New Therapeutic Interventions”
- 1996 Neurology Grand Rounds “Rationale for Anti-inflammatory Therapy in Alzheimer’s Disease”

Undergraduate Education:

- 2007 – Present Courtney Grayson, GEBS Summer Research Program (Clarkson University)
- 2006 – 2007 JamieLynn Poletto Independent Research, University of Rochester
- 2005 – 2006 Erin Miller Visiting Student from Duke University
- 2004 Steph Weber GEBS Summer Research Scholar Program
- 2004 – 2005 J’Mir Cousar McNair Summer Research Program, Independent Research
- 2002 – 2005 Sharon Paige Independent Research, University of Rochester
- 2000 – 2002 Yana Yaks Independent Research, University of Rochester
- 1994 Anissa Stopka Independent Research, University of Rochester
- 1993 Harsha Jakar Supervised summer research project. Stockton State College

Other Educational Services (Local and National):

- 2004 Chair, Conference Symposium entitled “Role of Cyclooxygenases and Prostaglandins in Neurodegeneration and Neuroprotection” (selected from over 150 applications), Society for Neuroscience Annual Meeting, San Diego, CA, October, 2004.
- 2004 Co-Organizer, Schmitt Symposium on Neuroinflammation, Department of Neurobiology and Anatomy, Rochester, NY, April, 2004
- 2002 – Present Co-Chair, Joint AMSNDC/AAN Working Group on Basic Neuroscience Curriculum Guidelines for US Medical Schools
- 1997 – 1998 Participant in Rochester TAPS program for introducing middle school age children from Rochester City schools to science

1994 – 1997 Director, Molecular Biology Section; Summer Science Camp for Fifth and Sixth graders; University of Rochester

ADMINISTRATIVE RESPONSIBILITIES OF LAST FIVE YEARS:

2008 – Present Member, Medical Student Research Faculty Advisory Committee

2007 – Present Director, MD/PhD Program and University of Rochester MSTP

2006 – 2007 Member, Strategic Planning Committees for Neuromedicine and Dental Research

2006 – Present Member, Directorate, University of Rochester Clinical and Translational Science Award (CTSA)

2006 – 2007 Member, Committee on Educational Program for the MD Degree and Subcommittee on Joint Degree Programs, LCME Self Study Process

2005 – Present Member, Center for Biophysical Assessment and Risk Management Following Irradiation Internal Pilot Project Review Committee

2005 – Present Member, Scientific Advisory Committee for Transgenic Facility

2005 – Present Member, Academic Research Track (ART) in Medicine Executive Committee

2004 – Present Scientific Research Review Committee for the Dean of Basic Research

2003 – 2006 Advisory Director, MD/PhD Program Physician-Scientist Advisory Panel

2003 – Present Member, Medical School Promotions and Review Board (MSPRB)

2003 – 2005 Member, Strategic Planning Committees for Medical School Education

2003 – 2005 Member, Strategic Planning Committees for Medical School Research

2002 – 2006 Member, Neurobiology and Anatomy Curriculum Committee

2002 – Present Member, Dean's Teaching Fellow Advisory Board

2001 – Present Member, Third and Fourth Year Medical Instruction Committee

2000 – 2006 Co-Director, MD/PhD Program

2000 – 2003 Chair, MD/PhD Executive Committee

2000 – Present Chair, MD/PhD Selection Committee

1999 – 2001 Member, Neuroscience Program Executive Committee

1998 – Present Member, Double Helix Medical Curriculum Design Team

(Mind, Brain and Behavior I and II)

1997 – 2005 Member, Neuroscience Program Curriculum Committee (Chair 1997 – 2001; 2005)

1992 – 2002 Interviewer for Medical School Admissions Committee

#### RESEARCH ACTIVITIES:

##### Current Research Grants:

Neuroinflammation in CNS Radiation Injury: IL-1 and COX-2. PHS RO1 CA114587. 2/01/05 – 01/30/10. \$197,500 ADC. Role – Principal Investigator.

Interleukin-1: A Mediator of Neuroinflammation and Alzheimer's Neuropathogenesis. PHS RO1 AG030149. 4/01/07 – 3/31/12. \$205,000 ADC. Role – Principal Investigator.

Effects of HZE Radiation on Neuroinflammation. NASA Space Radiation Biology Program. 6/01/04 – 5/31/08. \$135,000 ADC. Role – Principal Investigator.

Low Dose Ionizing Radiation and HZE Particle Effects on Adult Hippocampal Neurogenesis: A Sensitive Indicator of CNS Microenvironmental Changes. DOE-NASA Low Dose Radiation Biology Program. 7/01/07 – 6/30/10. \$172,000 ADC. Role – Principal Investigator.

Does peripheral localized chronic inflammation predispose to neurodegeneration? (Kyrkanides, PI) PHS R21 AG028325. 7/01/06 – 6/30/08. \$125,000 ADC. Role – Co-investigator.

Joint degeneration: Somatic mosaic analysis in a transgenic mouse. (Kyrkanides, PI) PHS R21 DE017765. 7/15/06 – 7/14/08. \$103,831 ADC. Role – Co-investigator.

##### Pending Research Grants:

CNS and Systemic Effects of Radiation Combined with Traumatic Brain Injury. PHS R21/33 AI080550. Role: Principal Investigator with John Olschowka (Multiple PI Application)

Neuroinflammation and Glial ROS in Methamphetamine Neurotoxicity. PHS RO1 DA026009. Role: Principal Investigator with Lisa Opanashuk (Multiple PI Application)

##### Current Training Grants:

Medical Scientist Training Program, University of Rochester. PHS 2 T32 GM07356. 7/01/04 – 6/30/09. Role – Principal Investigator.

Training in Neuroinflammation and Glial Cell Biology. T32 NS051152 7/01/05 – 6/30/10. Role – Principal Investigator.

The University of Rochester Clinical and Translational Science Institute (Guzick, PI) UL1 RR024160; 1 KL2 RR024136; 1 TL1 RR024135. 9/30/06 – 06/30/11. Role – Member of the Directorate for Research Education, Training and Career Development

##### Other Pending Grants:

American Physician Scientist Association Annual Meeting. PHS R13 CA136301. Role: Principal Investigator.

Collaborations with Industry:

Role of COX-2 in Seizure Behavior and Neuronal Plasticity. Monsanto, St. Louis, MO. 1/99 – 1/01. \$17,500 ADC. M.K.O. and Craig Applegate – Co-investigators.

Age Associated Alterations in CNS Prostanoid Production and Gliosis. Roche Bioscience, Palo Alto, CA. 1/97 - 12/99. M.K.O. and John Olschowka – Co-Investigators.

Patents Awarded:

US Patent 5,807,733. Mammalian Prostaglandin H Synthase-2 Fusion Proteins. M.K.O., Donald A. Young, and Virginia D. Winn – Co-Inventors.

US Patent 5,837,479. Screening Assays for Inhibitors of Mammalian Prostaglandin H Synthase-2. M.K.O., Donald A. Young, and Virginia D. Winn – Co-Inventors.

US Patent 6,048,850. Method of Inhibiting Prostaglandin Synthesis in a Human Host. M.K.O., Donald A. Young, and Virginia D. Winn – Co-Inventors.

Provisional Patent Applications:

60/627,604 (2005) Inflammation models in neurodegeneration and arthritis. M.K.O., Ross Tallents and Stephanos Kyrkanides – Co-inventors.

60/646,099 (2005) FIV vectors expressing IL1RA for arthritis therapy. M.K.O., Ross Tallents and Stephanos Kyrkanides – Co-inventors.

Technology Transfer:

Licensing of Stable Cell Lines Expressing Human Cyclooxygenase-1 and -2 to Pharmaceutical Firms. Role of M.K.O. – Co-Developer.

Previous Grant Support:

Collaborative Multiple Sclerosis Center Award. (Segal, PI) National Multiple Sclerosis Society. 4/01/06 – 3/31/07. \$165,000 ADC. Role – Co-investigator.

IL-1 Induced Mediators of CNS Inflammation and AD: PGE<sub>2</sub>. PHS RO1 NS33553. 9/30/03 – 6/30/07. \$233,000 ADC. Role – Principal Investigator.

IL-1 in Neurodegeneration: Development of a New Model. PHS R21 NS048522. 4/01/04 – 3/31/06. \$125,000 ADC. Role – Principal Investigator.

Dopamine System Plasticity After a Partial Lesion. PHS RO1 MH/DA63324. (Haber, S., P.I.) 12/01/01-11/30/04. \$250,000 ADC. Role – Investigator.

Medical Scientist Training Program, University of Rochester. PHS 2 T32 GM07356. 08/01/01 – 06/30/04. \$434,071 Total Budget. Role – Principal Investigator.

IL-1 Induced Mediators of CNS Inflammation and AD: COX-2. PHS RO1 NS33553. 4/28/00 – 3/31/03. \$225,000 ADC. Role – Principal Investigator

Clinical/Experimental Radiation Research Interface Study. PHS PO1 CA11051 (Okunieff, P., P.I.). Project B: Molecular Basis for CNS Late Effects Following Radiation Treatment. 7/1/98 – 7/31/02. \$142,315 ADC, project B. Role – Co-investigator.

Inflammatory Processes in Motor Neuron Degeneration. Muscular Dystrophy Association. 1/01/01 – 12/31/03. \$76,000 ADC. Role – Principal Investigator.

Cyclooxygenase-2 in Schizophrenia. Stanley Foundation. 8/01/99 – 2/28/02. \$48,000 ADC. Role – Principal Investigator.

Glucocorticoid & Cytokine Regulation of Glutamine Synthetase. PHS 1 F31 NS10910. 8/01/99 – 7/31/01. \$33,468 ADC. Role – Mentor to Tina Huang, Grant Recipient

Does Neuronal Cyclooxygenase-2 Mediate Apoptosis and Expression of Cell Cycle Related Genes? Pilot Project from Alzheimer's Association. 9/01/99 – 8/31/01. \$36,000 ADC. Role – Mentor to Anna Yermakova, grant recipient.

Downstream Mediators of IL-1 $\beta$  Action in CNS Injury and AD. PHS R29 NS33553. 8/01/95 - 5/31/00. \$72,668 ADC. Role - Principal Investigator.

#### INVITED PRESENTATIONS:

1. Regulation of prostanoid production by prostaglandin synthase I and II: implications for inflammation. American Association of Allergy and Immunology (AAAI)/European Association of Allergists and Clinical Immunologists (EAACI) Joint Symposium on Lipid Mediators of Inflammation. Anaheim, California, March, 1994.
2. Regulation of prostanoid production by prostaglandin synthase I and II: implications for inflammation, drug development, and CNS injury. Keynote Address, University of Illinois College of Medicine at Urbana-Champaign Medical Scholars Allerton Conference, Monticello, Illinois, August, 1994.
3. Proinflammatory cytokine modulation of gene expression in astrocytes and Alzheimer's disease. University of Rochester, Department of Neurobiology and Anatomy Seminar Series, Rochester, New York, March, 1996.
4. Alzheimer's disease: molecular genetics and potential interventions. University of Illinois College of Medicine at Urbana-Champaign All-Alumni Conference, Beckman Center, Urbana, Illinois, May, 1996.
5. Cyclooxygenase-2, a therapeutic target in Alzheimer's disease. Roche Bioscience, Palo Alto, California, June, 1996.
6. Cyclooxygenase-2, a therapeutic target in Alzheimer's disease. Pfizer Pharmaceuticals, Nagoya, Japan, August, 1996.

7. Cytokine regulation of cyclooxygenase-2 in glial cells and decreased expression in Alzheimer's disease brain. Invited Panel Presenter, Tenth International Conference on Prostaglandins and Related Compounds, Vienna, Austria, September, 1996.
8. CNS expression of cyclooxygenase-2: a potential therapeutic target in Alzheimer's disease. Invited Panel Presenter, American College of Neuropsychopharmacology Annual Meeting, San Juan, Puerto Rico, December, 1996.
9. Cyclooxygenase-2, a potential therapeutic target in Alzheimer's disease. Monsanto/Searle Pharmaceuticals, St. Louis, Missouri, February 1997.
10. Alzheimer's disease: genetics and novel therapeutic interventions. University of Rochester, Medical Grand Rounds, Department of Medicine, Rochester, New York, April, 1997.
11. Of neurons and glia: potential roles of cyclooxygenase in Alzheimer's disease and neurodegeneration. Invited Speaker, Eighth International Symposium on Stroke, Neurotrauma, and Other Neurological Diseases, New Orleans, Louisiana, July, 1997.
12. Cyclooxygenase-2 in Alzheimer's disease. Invited Speaker. "Selective COX-2 Inhibitors", Twenty-third William Harvey Research Conference, Phuket, Thailand, September, 1997.
13. Cyclooxygenases in Alzheimer's disease. Invited Speaker. "COX-2 Inhibitors and other Prostaglandin Antagonists", IBC USA Conference, San Diego, California, August, 1998.
14. Alzheimer's Disease and COX-2. Invited Speaker. "COX-2: New Perspectives in Inflammatory Disease Therapy", Satellite Symposium of the Japanese Inflammation Society Annual Conference, Tokyo, Japan, September, 1998.
15. Cyclooxygenase in AD: Roles in brain inflammation and neurodegeneration. Invited Speaker. "First Kuopio Alzheimer Symposium", Kuopio, Finland, January, 1999.
16. Cyclooxygenase in CNS inflammation, neurodegeneration, and Alzheimer's disease. Invited Speaker. University of New Mexico, Albuquerque, March, 1999.
17. Selective inhibition of cyclooxygenase-2 attenuates expression of inflammation-related genes in CNS injury models. Invited Speaker. Keystone Symposium on Effectors of Inflammation in the CNS, Taos, New Mexico, March, 1999.
18. Cyclooxygenases in Alzheimer's disease. Invited Speaker. "Second Annual Conference on COX-2 Inhibitors", IBC USA Conference, San Diego, California, April, 1999.
19. Cyclooxygenase-2 in brain inflammation, neurodegeneration, and Alzheimer's disease. Invited Speaker. Department of Neurology, Loma Linda University School of Medicine, Loma Linda, California, April, 1999.
20. Cyclooxygenases in CNS inflammation and Alzheimer's disease. Invited Speaker. "Eighth International Conference on Alzheimer's Disease", IBC USA Conference, Boston, Massachusetts, May, 1999.

21. Selective inhibition of cyclooxygenase-2 attenuates expression of inflammation-related genes in CNS injury models. Invited Speaker. "Eicosanoids and Other Bioactive Lipids in Cancer, Inflammation and Related Diseases", Boston, Massachusetts, September, 1999.
22. Cyclooxygenases in Alzheimer's disease. Invited Speaker. National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina, May, 2000.
23. COX-2 Inhibitors. Invited Speaker. Northeast Regional Pain Management Symposium, "Many Faces of Pain", Rochester, NY, November, 2000.
24. Cyclooxygenases as targets in neuroinflammation and neurodegeneration. Plenary Speaker. Keystone Symposium on "Neuronal and Vascular Stress: A New Window on Alzheimer's Disease", Durango, Colorado, January, 2001.
25. Cyclooxygenases in Neuroinflammation and Alzheimer's Disease. Invited Speaker. University of Arizona, Tucson, Arizona, February, 2001.
26. COX-1 and -2 Expression in Alzheimer's Disease. Invited Speaker. Winter Eicosanoid Conference, Baltimore, MD, March, 2001.
27. Cyclooxygenases in Neurodegeneration and Neuroinflammation. Invited Speaker. Vanderbilt University, Nashville, Tennessee, May, 2001.
28. COX-1 and -2 in Alzheimer's Disease and Neuroinflammation. Invited Plenary Speaker. Tenth Annual Oklahoma Center for Neuroscience Symposium on Inflammation in the Central Nervous System, Oklahoma City, Oklahoma, October, 2001.
29. Prostaglandin Synthesis in Astrocytes. Invited Plenary Speaker. Seventh International Conference on Eicosanoids and other Bioactive Lipids in Cancer, Inflammation & Related Diseases, Vanderbilt University, Nashville, Tennessee, October, 2001.
30. Cyclooxygenases in Neuroinflammation and Alzheimer's Disease. Invited Speaker. University of Illinois at Chicago, Medical Center, Chicago, Illinois, October, 2001.
31. Genetics and Cyclooxygenase in Alzheimer's Disease. Invited Symposium Speaker. 26<sup>th</sup> Annual Winter Conference on Learning and Memory, Park City, Utah, January, 2002.
32. Cyclooxygenases in Neuroinflammation and Alzheimer's Disease. Invited Symposium Speaker. International Association of Dental Research Meeting, San Diego, California, March, 2002.
33. Cyclooxygenases as Mediators of Neuroinflammation and Neurodegenerative Disease. Invited Symposium Speaker. Workshop on Inflammation in ALS, Society for Neuroscience Satellite Symposium, Orlando, Florida, November, 2002.
34. Prostaglandin Synthetic Pathways in Neuroinflammation and Alzheimer's Disease. Invited Speaker. University of North Dakota, Grand Forks, North Dakota, May, 2003.
35. Role of COX-2 in Acute Neuroinflammation Following Brain Irradiation. Invited Symposium Speaker. Symposium on Normal Tissue Injury, Radiation Therapy Oncology Group International Meeting, Montreal, Canada, June, 2003.

36. PGE<sub>2</sub> Synthetic Pathways in Neuroinflammation. Invited Symposium Speaker and Session Chair. 8<sup>th</sup> International Conference on Eicosanoids & Other Bioactive Lipids in Cancer, Inflammation and Related Diseases, Chicago, Illinois, September, 2003.
37. Interleukin-1 Regulates Multiple Components of Prostaglandin Synthesis and Signaling in Glial Cells and Brain. Invited Symposium Speaker. 36<sup>th</sup> Annual Society of Leukocyte Biology, Philadelphia, Pennsylvania, October, 2003.
38. Prostaglandin Synthesizing Enzymes in Neuroinflammation and Alzheimer's Disease. Invited Speaker. University of Connecticut Health Sciences Center, Farmington, Connecticut, March, 2004.
39. Roles and Regulation of Prostaglandin E<sub>2</sub> Production in Neuroinflammation. Invited Speaker. National Institute of Drug Addiction (NIDA). Baltimore, Maryland, May 2004.
40. Neuroinflammation in Acute Brain Injury and Neurodegenerative Disorders. Keynote Speaker, Medical Scholars (MD/PhD) Annual Retreat. University of Illinois, Urbana, Illinois, August, 2004.
41. COX-2 and its Reaction Products: Regulation and Roles in Neurodegeneration and Neuroprotection. Conference Symposium Organizer and Speaker. Society for Neuroscience Annual Meeting, San Diego, California, October, 2004.
42. PGE<sub>2</sub> Synthetic Pathways in Neuroinflammation and Alzheimer's Disease. Plenary Speaker. Tenth Annual Queenstown Molecular Biology Symposium, Queenstown, New Zealand, December, 2004.
43. COX-2: Discovery, Controversy and Role in Alzheimer's Disease. Invited Speaker. Ruakura Agricultural Research Station, Hamilton, New Zealand, December, 2004.
44. COX-2 in Neurodegeneration and Neuroinflammation. Invited Plenary Speaker. Meeting on protective strategies for neurodegenerative diseases, Vancouver, BC, August, 2005.
44. Interleukin-1, Cyclooxygenases, and Prostaglandins in Neuroinflammation. Invited Speaker, Psychiatry Grand Rounds, University of Illinois Medical Center, Chicago, Illinois, May, 2006.
45. Development of a New Mouse Model for Exploring the Role of Interleukin-1 in Neuroinflammation. Invited Speaker, Institute of Aging and Dementia, University of California, Irvine, May 2006.
46. HZE Radiation Induces Neuroinflammatory Changes in Mouse Brain. Invited Workshop Speaker, 4<sup>th</sup> International Workshop on Space Radiation Research and 17<sup>th</sup> Annual NASA Space Radiation Health Investigator's Workshop, Moscow and St. Petersburg, Russia, June, 2006.
47. Neuroinflammation in Alzheimer's Disease: Friend or Foe? Invited Speaker, New York University College of Medicine, New York, New York, March, 2007.
49. Neuroinflammation in Alzheimer's Disease: Friend or Foe? Keynote Speaker, University of Rochester School of Medicine & Dentistry Graduate Alumni Reunion, Rochester, New York, April, 2007.

49. Innate Immune Responses in Acute Brain Injury and Neurodegeneration: Roles of IL-1 and Prostaglandins. Invited Speaker in session on Novel Therapies Based on Molecules of the Innate Immune System, American Society of Investigative Pathology Annual Meeting, at the FASEB Experimental Biology Meeting, Washington, DC, May, 2007.
50. Neuroinflammation in Alzheimer's Disease: Friend or Foe? Invited Speaker, Special Symposium on Neuroimmunomodulation in Alzheimer's Disease, Montreal, Quebec, November, 2007.
51. Prostaglandin Production and Signaling in Chronic Neuroinflammation. Invited Speaker, Symposium entitled: "Cyclooxygenases: Protectors or Enhancers of Neuroinflammation and Neurodegeneration?" 39<sup>th</sup> Annual Meeting of the American Society for Neurochemistry, San Antonio, Texas, March, 2008.
52. Neuroinflammation in Alzheimer's Disease. Invited Speaker, Carleton College, Northfield, Minnesota, April, 2008.
53. IL-1 in Neurodegeneration and Alzheimer's Disease. Invited Speaker, Cornell University, Ithaca, New York, May, 2008.

#### EDITORIAL RESPONSIBILITIES:

2003 – Present Editorial Board, *Journal of Neuroinflammation*

1995 – 1996 Invited Co-Editor (with Caleb E. Finch) for special edition of *Neurobiology and Aging* devoted to Inflammatory Mechanisms in Alzheimer's Disease

1995 – Present Ad-hoc Reviewer for articles submitted to:

- American Journal of Physiology*
- Annals of Neurology*
- Brain Research*
- Biochemica et Biophysica Acta*
- Circulation*
- Current Medicinal Chemistry: Anti-inflammatory & Anti-Allergy Agents*
- European Journal of Neuroscience*
- Experimental Neurology*
- Free Radical Biology and Medicine*
- Glia*
- International Journal of Radiation Biology*
- Journal of Immunology*
- Journal of Laboratory and Clinical Medicine*
- Journal of Neurology*
- Journal of Neurochemistry*
- Journal of Neuropathology and Experimental Neurology*
- Journal of Neuroscience*
- Journal of Neuroscience Research*
- Life Sciences*
- Lipids*
- Mayo Clinic Proceedings*
- Molecular Pharmacology*

*Neurobiology of Aging*  
*Neurobiology of Disease*  
*Neurology*  
*Neuropharmacology*  
*Neuroscience*  
*Neuroscience Letters*  
*Neurotoxicology*  
*Oncogene*  
*Pharmacology and Experimental Therapeutics*  
*Proceedings of the National Academy of Science, USA.*  
*Radiation Research*

OTHER ADVISORY AND REVIEW RESPONSIBILITIES:

- 2008 – Present Member, Expert Referee Panel, Alzheimer's Research Trust, United Kingdom
- 2008 – Present Member, Addressing Diversity and Disparities in Science Advisory Group, Association of American Medical Colleges (AAMC)
- 2007 Ad-hoc Grant Reviewer, National Health Research Board of Ireland, Dublin
- 2007 Chair, Reverse Site Visit for Evaluation of CNS NSCOR Grant, National Aeronautics and Space Administration (NASA)
- 2007 Chair, Radiation Review Panel 1/CNS, National Aeronautics and Space Administration (NASA)
- 2007 Ad-Hoc Reviewer, The Israeli Science Foundation, The Israel Academy of Sciences and Humanities
- 2007 – 2010 Review Panelist, Howard Hughes Medical Institute (HHMI) Research Training Fellowship Program for Medical Students
- 2007 – Present Co-Chair, Subcommittee on Communication, MD/PhD Section, Great Group of the AAMC
- 2006 – 2009 Elected Member, Steering Committee for the MD/PhD Section, GREAT Group of the AAMC
- 2006 – 2007 Member, Program Planning Committee for the MD/PhD Section, GREAT Group of the AAMC Meeting, Keystone, CO, July, 2007.
- 2006 Ad-Hoc Reviewer, COBRE Special Emphasis Panel (ZZR1 R1-5(01)), Center for Scientific Review, National Institutes of Health
- 2006 Ad-Hoc Reviewer, The Wellcome Trust, United Kingdom
- 2006 Ad-Hoc Reviewer, Parkinson's Disease Society of the United Kingdom
- 2005 Ad-Hoc Reviewer, Medical Research Council, United Kingdom

- 2005 Ad-Hoc Reviewer, Multidisciplinary Research Grant Program of the North Carolina Biotechnology Center
- 2005 – Present Member, Scientific Advisory Board, The Medingen Group, LLC Canandaigua, NY.
- 2005 – Present External Advisory Board, MD/PhD Program, University of Pennsylvania, Hershey, PA.
- 2005 Ad-hoc Grant Reviewer, ZRG1 IDM-P (29) Study Section for Minority/Disability Predoctoral Fellowships, Center for Scientific Review, National Institutes of Health
- 2004 – 2005 International Advisory Board, Ninth International Meeting on Eicosanoids and Other Bioactive Lipids in Cancer, Inflammation, and Related Diseases, San Francisco, CA, 2005
- 2004 Invited External Reviewer, University of Cincinnati Physician-Scientist Training Program, State of Ohio Higher Education Department
- 2004 Ad-hoc Grant Reviewer, ZRG1 CDIN Study Section, Center for Scientific Review, National Institutes of Health
- 2004 Workshop Participant, NIH Roadmap: Clinical Research Training in Medical and Dental Schools, May, 2004, Arlington, VA.
- 2004 Ad-hoc Grant Reviewer, The Netherlands Organisation for Health Research and Development (ZonMw)
- 2003 – 2006 Member, Scientific Advisory Board, Australian Cancer Technology and ACT USA (Now Avantogen), Sydney, Australia and San Diego, California
- 2003 Ad-hoc Grant Reviewer, The Wellcome Trust
- 2003 Ad-hoc Grant Reviewer, NASA Space Radiation Biology NSCOR Peer Review Panel
- 2002 – 2003 International Advisory Board, Eighth International Meeting on Eicosanoids and Other Bioactive Lipids in Cancer, Inflammation, and Related Diseases, Chicago, IL, 2003
- 2002 Ad-hoc Grant Reviewer, The Internationale Stichting Alzheimer Onderzoek (IASO), Düsseldorf, Germany
- 2002 Ad-hoc Grant Reviewer, National Health Research Board of Ireland, Dublin
- 2001 – 2005 Member, BDCN-4 Study Section (now CNBT-1), Center for Scientific Review, National Institutes of Health
- 2001 Ad-hoc Grant Reviewer, Integrative Biology and Neuroscience Division of the Directorate for Biological Sciences, National Science Foundation

- 2001 – Present Ad-hoc Grant Reviewer, Muscular Dystrophy Association, Tucson, AZ.
- 2000 – 2001 International Advisory Board, Seventh International Meeting on Eicosanoids and Other Bioactive Lipids in Cancer, Inflammation, and Related Diseases, Nashville, TN, 2001.
- 1997 - 1999 Member of Celecoxib-Alzheimer's Disease Development Advisory Board, Searle Pharmaceutical Research and Development
- 1996 - Present Review Board of the Medical and Scientific Advisory Council; Ronald and Nancy Reagan Research Institute of the Alzheimer's Association

ORIGINAL SCIENTIFIC ARTICLES (REFEREED):

1. Schnitzlein, W. M., M. K. O'Banion, M. K. Poirot, and M. E. Reichmann. 1983. Effect of intracellular vesicular stomatitis virus mRNA concentration on the inhibition of host cell protein synthesis. *J. Virol.* 45:206-214.
2. Sundberg, J. P., R. E. Junge, M. K. O'Banion, E. J. Basgall, G. Harrison, A. J. Herron, and H. L. Shivaprasad. 1986. Cloacal papillomas in psittacine birds. *Am. J. Vet. Res.* 47:928-932.
3. Jacobson, E. R., J. P. Sundberg, J. M. Gaskin, G. V. Kollias, and M. K. O'Banion. 1986. Cutaneous papillomas associated with a herpesvirus-like infection in a herd of captive African elephants. *J. Am. Vet. Med. Assoc.* 189:1075-1078.
4. Munson, L., W. Heuschele, M. K. O'Banion, and J. P. Sundberg. 1986. Polyp in the urogenital canal of an African elephant. *J. Am. Vet. Med. Assoc.* 189:1190-1191.
5. Sundberg, J. P., M. K. O'Banion, E. Schmidt-Didier, and M. E. Reichmann. 1986. Cloning and characterization of a canine oral papillomavirus. *Am. J. Vet. Res.* 47:1142-1144.
6. O'Banion, M. K., M. E. Reichmann, and J. P. Sundberg. 1986. Isolation and characterization of an equine cutaneous papillomavirus. *Virology* 152:100-109.
7. Sundberg, J. P., M. K. O'Banion, and M. E. Reichmann. 1987. Mouse papillomavirus: pathology and characterization of the virus. *Cancer Cells* 5:373-379.
8. O'Banion M. K. and J. P. Sundberg. 1987. Papillomavirus genomes in experimentally induced fibromas in white-tailed deer. *Am. J. Vet. Res.* 48:1453-1455.
9. O'Banion, M. K., J. P. Sundberg, A. A. Reszka, and M. E. Reichmann. 1987. Cross-hybridization and relationships of various papillomavirus DNAs at different degrees of stringency. *Intervirology* 28:114-121.
10. O'Banion, M. K., J. P. Sundberg, A. L. Shima, and M. E. Reichmann. 1987. Venereal papilloma and papillomavirus in a Colobus monkey (*Colobus guereza*). *Intervirology* 28:232-237.

11. O'Banion, M. K., M. E. Cialkowski, M. E. Reichmann, and J. P. Sundberg. 1988. Cloning and molecular characterization of an oral papillomavirus of domestic rabbits. *Virology* 162:221-231.
12. Olgilvie, G. K., J. P. Sundberg, M. K. O'Banion, R. R. Badertscher, L. G. Wheaton, and M. E. Reichmann. Papillary squamous cell carcinoma in three young dogs. *J. Am. Vet. Med. Assoc.* 192:933-936.
13. O'Banion, M. K., M. E. Reichmann, and J. P. Sundberg. 1988. Cloning and characterization of a papillomavirus associated with papillomas and carcinomas in the European harvest mouse (*Micromys minutus*). *J. Virol.* 62:226-233.
14. Garden, J. M., M. K. O'Banion, L. S. Shelnitz, K. S. Pinski, A. D. Bakus, M. E. Reichmann, and J. P. Sundberg. 1988. Papillomavirus in the vapor of carbon dioxide laser-treated verrucae. *JAMA* 259:1199-1202.
15. Sundberg, J. P., M. K. O'Banion, and A. Shima. 1988. Papillomas and carcinomas associated with a papillomavirus in European harvest mouse (*Micromys minutus*). *Vet Pathol.* 25:356-361.
16. Levenson, R. M., U. G. Brinckmann, M. K. O'Banion, E. J. Androphy, J. T. Schiller, F. Tabatabai, L. P. Turek, K. Neary, M. Chin, T. R. Broker, L. T. Chow, and D. A. Young. 1989. Papillomavirus-associated inductions of cellular proteins in mouse C127 cells: correlation with the presence of open reading frame E2. *Virology.* 172:170-179.
17. O'Banion, M. K. and D. A. Young. 1991. Bovine papillomavirus type 1 alters the processing of host glucose- and calcium-modulated endoplasmic reticulum proteins. *J. Virol.* 65:3481-3488.
18. O'Banion, M. K., H. B. Sadowski, V. Winn, and D. A. Young. 1991. A serum- and glucocorticoid-regulated 4 kb mRNA encodes a cyclooxygenase-related protein. *J. Biol. Chem.* 266:23261-23267.
19. O'Banion, M. K., E. R. Jacobson, and J. P. Sundberg. 1992. Molecular cloning and partial characterization of a parrot papillomavirus. *Intervirology* 33:91-96.
20. O'Banion, M. K., V. D. Winn, and D. A. Young. 1992. cDNA cloning and functional activity of a glucocorticoid-regulated inflammatory cyclooxygenase (griPGHS). *Proc. Natl. Acad. Sci. USA* 89:4888-4892.
21. O'Banion, M. K., R. M. Levenson, U. G. Brinckmann, and D. A. Young. 1992. Glucocorticoid modulation of transformed cell proliferation is oncogene-specific and correlates with effects on *c-myc* levels. *Mol. Endocrinol.* 6:1371-1380.
22. O'Banion, M. K., V. D. Winn, J. Settleman, and D. A. Young. 1993. Genetic definition of a new bovine papillomavirus type 1 open reading frame, E5B, that encodes a hydrophobic protein involved in altering host-cell protein processing. *J. Virol.* 67:3427-3434.
23. O'Banion, M. K., D. A. Young and M. C. Bohn. 1994. Corticosterone responsive mRNAs in primary astrocytes. *Mol. Brain Res.* 22:57-68.

24. Pritchard, K. A., M. K. O'Banion, J. M. Miano, N. Vlastic, U. G. Bhatia, D. A. Young, and M. B. Stemerman. 1994. Acute expression of a novel cyclooxygenase gene in rat vascular smooth muscle cells *in vitro* and *in vivo*. *J. Biol. Chem.* 269:8504-8509.
25. O'Banion, M. K., J. Dusel, J. W. Chang, M. D. Kaplan, and P. D. Coleman. 1996. Interleukin-1 $\beta$  induces prostaglandin G/H synthase-2 (cyclooxygenase-2) in primary murine astrocyte cultures. *J. Neurochem.* 66:2532-2540.
26. Chang, J. W., P. D. Coleman, and M. K. O'Banion. 1996. Prostaglandin G/H synthase-2 (cyclooxygenase-2) mRNA expression is decreased in Alzheimer's disease. *Neurobiol. Aging.* 17:801-808.
27. Wheeler, T. T., M. K. O'Banion, A. M. Colasurdo, and D. A. Young. 1997. Bovine papillomavirus E5 oncogene stimulates DNA synthesis in C127 fibroblasts without general effects on growth factor responsive protein phosphorylations. *Arch. Virol.* 142:953-964.
28. Kaplan, M. D., J. A. Olschowka, and M. K. O'Banion. 1997. Cyclooxygenase-1 behaves as a delayed-response gene in PC12 cells differentiated with NGF. *J. Biol. Chem.* 272:18534-18537.
29. Olschowka, J. A., S. Kyrkanides, B. K. Harvey, M. K. O'Banion, J. P. Williams, P. Rubin, and J. T. Hansen. 1997. ICAM-1 induction in the mouse CNS following irradiation. *Brain, Behavior, and Immunity.* 11:273-285.
30. Combs, C. K., P. D. Coleman, and M. K. O'Banion. 1998. Developmental regulation and protein kinase C dependence of Alzheimer's type tau phosphorylation in fetal rat hippocampal neuron cultures. *Dev. Brain Res.* 107:143-158.
31. Huang, T. L. and M. K. O'Banion. 1998. Interleukin-1 $\beta$  and tumor necrosis factor- $\alpha$  suppress dexamethasone induction of glutamine synthetase in primary mouse astrocytes. *J. Neurochem.* 71:1436-1442.
32. Kyrkanides, S., J. A. Olschowka, J. P. Williams, J. T. Hansen, and M. K. O'Banion. 1999. TNF $\alpha$  and IL-1 $\beta$  mediate ICAM-1 induction via microglia astrocyte interaction in CNS radiation injury. *J. Neuroimmunol.* 95:95-106.
33. Bohn, M. C., D. L. Choi-Lundberg, B. L. Davidson, C. Leranth, D. A. Kozlowski, J. C. Smith, M. K. O'Banion, and D. E. Redmond, Jr. 1999. Adenovirus-mediated transgene expression in non-human primate brain. *Human Gene Therapy* 10:1175-1184.
34. Yermakova, A., J. Rollins, L. M. Callahan, J. Rogers, and M. K. O'Banion. 1999. Cyclooxygenase-1 in human Alzheimer's and control brain: Quantitative analysis of expression by microglia and CA3 hippocampal neurons. *J. Neuropathol. Exp. Neurol.* 58:1135-1146.
35. Kyrkanides, S., M. K. O'Banion, and J. D. Subtelny. 2000. Non-steroidal anti-inflammatory drugs in orthodontic tooth movement: metalloproteinase activity and collagen synthesis by endothelial cells. *Am. J. Orthod. Dentofacial Orthoped.* 118:203-209.
36. Matsuoka, Y., M. Picciano, B. Malester, J. LaFrancois, J. M. Daeschner, J. A. Olschowka, M. I. Fonseca, M. K. O'Banion, A. J. Tenner, C. A. Lemere, and K. Duff. 2001.

- Inflammatory responses to amyloidosis in a transgenic mouse model of Alzheimer's disease. *Am. J. Pathol.* 158:1345-1354.
37. Chang, J. W., D. A. Young, P. D. Coleman, and M. K. O'Banion. 2001. Two-dimensional gel analysis of secreted proteins induced by interleukin-1 $\beta$  in rat astrocytes. *Neurochem. Intl.* 39:349-359.
  38. Yermakova, A. V., and M. K. O'Banion. 2001. Downregulation of neuronal cyclooxygenase-2 expression in end stage Alzheimer's disease. *Neurobiol. Aging.* 22:823-836.
  39. Kyrkanides, S., M. K. O'Banion, P. E. Whiteley, J. C. Daeschner, J. A. Olschowka. 2001. Enhanced glial activation and expression of specific CNS inflammation-related molecules in aged versus young rats following cortical stab injury. *J. Neuroimmunol.* 119: 269-277.
  40. Heneka, M. T., V. Gavriluyk, L. Dumitrescu, M. K. O'Banion, J. C. Daeschner, E. Galea, T. Klockgether, and D. L. Feinstein. 2002. Noradrenergic depletion potentiates  $\beta$ -amyloid induced neuroinflammation in the frontal cortex: implications for Alzheimers disease. *J. Neurosci.* 22:2434-2442.
  41. Kyrkanides, S., A. H. Moore, J. A. Olschowka, J. C. Daeschner, J. P. Williams, J. T. Hansen and M. K. O'Banion. 2002. Cyclooxygenase-2 modulates brain inflammation-related gene expression in CNS radiation injury. *Mol. Brain Res.* 104:159-169.
  42. Garden, J. M., M. K. O'Banion, A. D. Bakus, and C. Olson. 2002. Viral disease transmitted by laser-generated plume (aerosol). *Arch. Dermatol.* 138:1303-1307.
  43. Heneka, M. T., V. Gavriluyk, G. E. Landreth, M. K. O'Banion, G. Weinberg, and D. L. Feinstein. 2003. Noradrenergic depletion increases inflammatory responses in brain: effects on I $\kappa$ B and HSP70 expression. *J. Neurochem.* 85:387-398.
  44. Hurley, S. D., M. K. O'Banion, D. D. Song, F. S. Arana, J. A. Olschowka, and S. N. Haber. 2003. Microglial response is poorly correlated with neurodegeneration following chronic, low-dose MPTP administration in monkeys. *Exp. Neurol.* 184:659-668.
  45. Shaftel, S., J. A. Olschowka, A. H. Moore, S. D. Hurley and M. K. O'Banion. 2003. COX-3: a splice variant of cyclooxygenase-1 in mouse neural tissue and cells. *Mol. Brain Res.* 119:213-215.
  46. Moore, A. H., J. A. Olschowka, J. P. Williams, S. L. Paige and M. K. O'Banion. 2004. Radiation-induced edema is dependent on cyclooxygenase-2 activity in mouse brain. *Radiat. Res.* 161:153-160.
  47. Moore, A. H., J. A. Olschowka, and M. K. O'Banion. 2004. Cyclooxygenase-2 activity mediates expression of membrane- and cytosolic-associated prostaglandin E<sub>2</sub> synthases following intracerebral administration of interleukin-1 $\beta$ . *J. Neuroimmunol.* 148:32-40.
  48. Moore, A. H., J. A. Olschowka, Williams, J. P., Okunieff, P., and M. K. O'Banion. 2005. Regulation of prostaglandin E<sub>2</sub> synthesis after brain irradiation. *Int. J. Rad. Oncol. Biol. Phys.* 62:267-272.

49. Heneka, M. T., M. Sastre, L. Dumitrescu-Ozimek, A. Hanke, I. Dewachter, C. Kuiperi, K. O'Banion, T. Klockgether, F. Van Leuven, and G. E. Landreth. 2005. Acute treatment with the PPAR $\gamma$  agonist pioglitazone and ibuprofen reduces glial inflammation and A $\beta$ 1-42 levels in APPV7171 transgenic mice. *Brain* 128:1442-1453.
50. Joseph, S. A., E. Lynd-Balta, M. K. O'Banion, R. M. Rappold, J. Daeschner, A. Allen, and J. Padowski. 2006. Enhanced cyclooxygenase-2 expression in olfactory-limbic forebrain following kainate-induced seizures. *Neuroscience* 140:1051-1065.
51. Lai, Y.-C., S. S. Shaftel, J. H. Miller, R. H. Tallents, Y. Chang, C. A. Pinkert, J. A. Olschowka, I. M. Dickerson, J. E. Puzas, M. K. O'Banion, S. Kyrkanides. 2006. Intra-articular induction of IL-1 $\beta$  expression in the adult mouse, with resultant temporomandibular joint pathologic changes, dysfunction and pain. *Arthritis and Rheumatism* 54:1184-1197.
52. Maida, M. E., S. D. Hurley, J. Daeschner, A. H. Moore, and M. K. O'Banion. 2006. Cytosolic prostaglandin E $_2$  synthase (cPGES) expression is decreased in discrete cortical regions in psychiatric disease. *Brain Res.* 1103:164-172.
53. Kyrkanides, S., P. M. Fiorentino, Y. Gan, Y-C. Lai, S. S. Shaftel, J. E. Puzas, M. G. Piancino, M. K. O'Banion, and R. H. Tallents. 2007.  $\mu$ -opioid receptor induction in the temporomandibular joint ameliorates arthritic pain and joint pathology in the Col1-IL-1 $\beta$ <sup>XAT</sup> mouse model of arthritis. *Arthritis and Rheumatism*, 56:2038-2048.
54. Shaftel, S. S., S. Kyrkanides, J. A. Olschowka, J. H. Miller, R. E. Johnson, and M. K. O'Banion. 2007. Sustained hippocampal IL-1 $\beta$  overexpression mediates chronic neuroinflammation and ameliorates Alzheimer plaque pathology. *J. Clin. Invest.* 117:1595-1604.
55. Brouxhon, S, S. Kyrkanides, M. K. O'Banion, R. Johnson, D. A. Pearce, G. M. Centola, J. N. Miller, K. H. McGrath, B. Erdle, G. Scott, S. Schneider, J. vanBuskirk, and A. P. Pentland. 2007. Sequential downregulation of E-cadherin with squamous cell carcinoma progression: loss of E-cadherin via a prostaglandin E $_2$ -EP2 dependent mechanism. *Cancer Res.* 67:7654-7664.
56. Shaftel, S. S., T. J. Carlson, J. A. Olschowka, S. Kyrkanides, S. B. Matousek, and M. K. O'Banion. 2007. Chronic IL-1 $\beta$  expression in mouse brain leads to leukocyte infiltration and neutrophil independent blood-brain barrier permeability without overt neurodegeneration. *J. Neuroscience* 27:9301-9309.
57. Fiorentino, P. M., R. H. Tallents, J. H. Miller, S. M. Brouxhon, M. K. O'Banion, J. E. Puzas, and S. Kyrkanides. 2008. Spinal IL-1 $\beta$  in arthritis and joint pain. *Arthritis Rheumat.* In Press.
58. Zhong, Z., R. Deane, Z. Ali, M. Parisi, Y. Shapovalov, M. K. O'Banion, K. Stojanovic, A. Sagare, S. Boillee, D. W. Cleveland, and B. V. Zlokovic. 2008. ALS-causing SOD-1 mutants generate vascular changes prior to motor neuron degeneration. *Nat. Neurosci.* March 16 [Epub ahead of print].

BOOK CHAPTERS AND INVITED REVIEW ARTICLES:

1. Sundberg, J. P. and M. K. O'Banion. 1989. Animal papillomaviruses associated with malignant tumors. In *Advances in Viral Oncology, Volume 8*, G. Klein, editor. Raven Press, New York. pp. 55-71.
2. O'Banion, M. K. and D. A. Young. 1990. Changes in cellular protein processing observed in BPV-1 transformed C127 cells appear to be novel effects of an E2-C gene product. In *Papillomaviruses*, UCLA Symposia on Molecular and Cellular Biology, New Series, Vol 124, P. Howley and T. Broker, eds. pp. 347-356.
3. Winn, V. D., M. K. O'Banion, and D. A. Young. 1993. Anti-inflammatory glucocorticoid action: inhibition of griPGHS, a new cyclooxygenase. In: *Prostaglandins, Thromboxanes, Leukotrienes, and Related Compounds: Update 1992*. L. S. Wolfe and A. W. Ford-Hutchinson, eds. Elsevier Science Publishers, Amsterdam. *J. Lipid Mediators* 6:101-111.
4. Coleman, P. D., D. G. Flood, M. K. O'Banion, J. R. Slemmon, T. Wengenack, and M. R. Martzen. 1993. Responses of surviving cells to the death of their neighbor neurons. In: *Alzheimer's Disease: Advances in Clinical and Basic Research*. B. Corain, K. Iqbal, M. Nicolini, B. Winblad, H. Wisniewski, and P. Zata, eds. John Wiley & Sons, Ltd., Sussex, pp. 183-188.
5. O'Banion, M. K., P. D. Coleman and L. D. Callahan. 1994. Regional neuronal loss in aging and Alzheimer's disease: a brief review. In: *Neuronal Death in Health and Disease*. P. G. H. Clarke, ed. Academic Press Ltd., London. *Seminars in the Neurosciences* 6:307-314.
6. Bohn, M. C., M. K. O'Banion, D. A. Young, R. Giuliano, S. Hussain, D. O. Dean and L. A. Cunningham. 1994. *In vitro* studies of glucocorticoid effects on neurons and astrocytes. In: *Brain Corticosteroid Receptors: Studies on the Mechanism, Function and Neurotoxicity of Corticosteroid Action*. E. R. DeKloet, E. C. Azmitia, and P. W. Landfield, eds. *Ann. NY Acad. Sci.* 746:243-259.
7. O'Banion, M. K., J. W. Chang, and P. D. Coleman. 1997. Decreased expression of prostaglandin G/H synthase (PGHS-2) in Alzheimer's disease brain. In: *Eicosanoids and Other Bioactive Lipids in Cancer, Inflammation, and Radiation Injury*. K. V. Honn, L. J. Marnett, S. Nigam, R. Jones, , and P. Y.-K. Wong, eds. *Adv. Exp. Med. Biol.* 407:171-177.
8. O'Banion, M. K., A. Yermakova, J. W. Chang, M. D. Kaplan, and P. D. Coleman. 1998. Glial and neuronal expression of cyclooxygenase-2: relevance to Alzheimer's disease. In: *Recent Advances in Prostaglandin, Thromboxane and Leukotriene Research*. H. Sinzinger, J. R. Vane, B. Samuelsson, PR. Paoletti, P. W. Ramwell, and P. Y.-K. Wong, eds. Plenum, New York, pp. 177-180.
9. O'Banion, M. K. 1998. COX-2 in Alzheimer's disease. In: *Clinical Significance and Potential of Selective COX-2 Inhibitors*. J. R. Vane and R. M. Botting, eds. William Harvey Press, London, pp. 185-192.
10. O'Banion, M. K. and J. A. Olschowka. 1999. Localization and distribution of cyclooxygenase-2 in brain tissue by immunohistochemistry. In: *Eicosanoid Protocols*, E. A. Lianos, ed. Academic Press, New York, *Meth. Mol. Med.* 120:55-66.
11. O'Banion, M. K. 1999. Cyclooxygenase-2: Molecular biology, pharmacology and neurobiology. *Crit. Rev. Neurobiol.* 13:45-82.

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