

CURRICULUM VITAE

Patricia Denise Hurn, Ph.D.
Professor and Dean
University of Michigan

Office of the Dean
University of Michigan School of Nursing
400 N. Ingalls, Suite 1320
Ann Arbor, MI 48109-5482
734-764-7185

Email: phurn@med.umich.edu

Personal: Spouse: Warren Chave Esq.

EDUCATION

<u>Degree</u>	<u>Institution</u>	<u>Year</u>	<u>Field</u>
Post-Doctoral	Johns Hopkins University	1992	Biomedical Engineering
PhD	Johns Hopkins University	1990	Physiology
MN	University of Washington	1981	Nursing with Minor in Business Administration
BSN	University of Florida	1974	Nursing

PROFESSIONAL EXPERIENCE

2016-	Professor and Dean of Nursing School of Nursing University of Michigan Ann Arbor, Michigan
2016-	Professor of Molecular, Cellular, and Developmental Biology School of Literature, Science and the Arts University of Michigan Ann Arbor, Michigan
2012-2016	Vice Chancellor for Research and Innovation The University of Texas System Austin, Texas
2011-2016	Research Professor, Neurobiology College of Natural Sciences The University of Texas at Austin Austin, Texas
2011-2012	Associate Vice Chancellor for Health Research Office of Health Affairs The University of Texas System Austin, Texas
2007-2011	Associate Dean for Faculty Development and Faculty Affairs School of Medicine Oregon Health and Science University Portland, Oregon
2003-2011	Professor and Vice Chairman, Anesthesiology and Perioperative Medicine School of Medicine Oregon Health and Science University Portland, Oregon

- 2007-2011 Director, Research Center for Gender-based Medicine
Oregon Health and Science University
Portland, Oregon
- 2005-2011 Professor, Neurology
School of Medicine
Oregon Health and Science University
Portland, Oregon
- 2003-2011 Professor, Physiology and Pharmacology
School of Medicine
Oregon Health and Science University
Portland, Oregon
- 2002-2003 Professor, Anesthesiology/Critical Care Medicine
School of Medicine
Johns Hopkins University
Baltimore, Maryland
- 2000-2003 Director, Core Molecular Laboratories, Anesthesiology/Critical Care Medicine
School of Medicine
Johns Hopkins University
Baltimore, Maryland
- 1997-2002 Associate Professor, Anesthesiology/Critical Care Medicine
School of Medicine
Johns Hopkins University
Baltimore, Maryland
- 2001-2002 Adjunct Associate Professor, Nursing
School of Nursing
Johns Hopkins University
Baltimore, Maryland
- 1993-1997 Assistant Professor, Anesthesiology/Critical Care Medicine
School of Medicine
Johns Hopkins University
Baltimore, Maryland
- 1989-1993 Research Fellow
Anesthesiology/Biomedical Engineering
Johns Hopkins Medical Institutions
Baltimore, Maryland
- 1985-1987 Associate Faculty
School of Nursing
University of Maryland at Baltimore
Baltimore, Maryland
- 1981-1987 Staff, Critical Care Recovery Unit
Maryland Institute of Emergency Medical Services and
Systems (MIEMSS)
Baltimore, Maryland
- 1981-1985 Instructor and Program Coordinator
Trauma/Critical Care Masters Program
Graduate Faculty, School of Nursing
University of Maryland
Baltimore, Maryland
- 1981-1983 Clinical Specialist, Trauma

- Maryland Institute of Emergency Medical Services and Systems (MIEMSS)
Baltimore, Maryland
- 1979-1981 Staff Nurse, Intensive Care Units and Emergency Center
Harborview Medical Center
Seattle, Washington
- 1976-1979 Clinician II, Critical Care Recovery Unit
Maryland Institute of Emergency Medical Services and Systems (MIEMSS)
Baltimore, Maryland
- 1975-1976 Staff, Surgical Intensive Care Unit
Georgia Baptist Medical Center
Atlanta, Georgia
- 1974-1975 Staff, Cardiovascular Intensive Care Unit
North Florida Regional Medical Center
Gainesville, Florida

GRANT SUPPORT

NIH 2 RO1 NR03521-18

Estrogen as Immunoprotectant in Cerebral Ischemia

Patricia D. Hurn, Ph.D., 15% effort

\$ 1,250,000 Total Direct Costs (12/01/09-11/30/2015)

The specific aims of the project are to determine if estrogen deficiency in young and aging female mice enhances post-stroke immunosuppression and if estrogen or G1 replacement improves immune function in correlate with decreased brain injury.

Role: PI

Institutional Ruth L. Kirschstein NRSA (NIH GMS)

T32 GM082770-03

Integrated and Translational Training in Anesthesiology Research

Patricia D. Hurn, Ph.D., 10% effort

\$ 1,017,444 Total Direct Costs (7/01/2007 – 6/30/2012)

The goal of this program is to provide basic and clinical scientific training to academic anesthesiologists as an integral component of their postgraduate clinical training program. This training will allow anesthesiologists to establish independent investigative careers devoted to improving care of the anesthetized/critically ill patient by advancing knowledge in the field. The training program involves a two year continuum where trainees work under close supervision of a faculty member in research areas of neuroscience, gender biology, lung biology, cardiovascular, kidney, metabolism, and pain. Initially, the trainee will learn research skills, and later emphasis will be directed towards independent hypothesis generation, experimental design, data analysis, presentation of research findings, and competition for external funding. Research opportunities are offered by faculty members with proven records of success in the training of postdoctoral fellows, both from within Anesthesiology as well as from other collaborating basic science and clinical departments: neurology, medicine, neuroscience, pediatrics, neurosurgery, pathology, and physiology & pharmacology. This program is designed to produce academic anesthesiologists who will provide academic leadership throughout this century.

Role: PI

National Institutes of Neurological and Communicative Disorders and Stroke

PO1 NS-049210

Sex, Sex Steroids and Neuroprotection

Patricia D. Hurn, Ph.D., Principal Investigator, 25% total effort
\$5,000,000 Total Direct Costs (3/1/05-2/28/10)

The overall goal of this program project is to examine mechanisms of sex differences and sex steroids as neuroprotectants in experimental stroke and multiple sclerosis. Program includes 3 projects and 3 supporting cores.

National Institutes of Neurological and Communicative Disorders and Stroke

PO1 NS-20020: Mechanisms of Regulation of Cerebral Blood Flow

Patricia D. Hurn, Ph.D., Principal Investigator/Program Director

\$ 754,611 Total Direct Costs (6/01/03-5/31/09)

Project 2: Gender Differences in Stroke

(Patricia D. Hurn, PI, 10% effort)

Purpose of this project is to examine gender-specific mechanisms of ischemic injury in focal stroke.

Core A: Administration (Patricia D. Hurn, PI)

The purpose of this core is to provide administrative and financial structure for the PPG.

National Institutes of Neurological and Communicative Disorders and Stroke

2RO1 NS33668

Cerebral Ischemia in the Female and Male

Patricia D. Hurn, Ph.D., Principal Investigator, 25% effort

\$ 1,250,000 Total Direct Costs (4/1/05-3/31/10)

This grant examines mechanisms by which experimental stroke is sexually dimorphic, the role of pre-natal steroid exposure in determining the male “ischemia sensitive” phenotype in cerebrovascular disease and neuroprotection.

R01 NS054684 (Murphy, Stephanie PI)

National Institute of Neurological Diseases and Stroke

Patricia D. Hurn, Ph.D., 5% effort

(4/01/2006 – 6/30/2011)

Perioperative Stroke and Cerebral Conditioning in the Female

This grant focuses on how female gender and estradiol-specific effects lead to a detrimental response in APC female ischemic brain using a mouse isoflurane preconditioning (IsoPC) model. Our findings will elucidate the mechanisms by which female stroke outcomes are worsened by preischemic isoflurane exposure.

Role: Co-Investigator

1 R41 NS65515 (Offner, Halina PI)

National Institute of Neurological Diseases and Stroke

Patricia D. Hurn, Ph.D., 5% effort

5/15/2009-7/31/2010

A Novel Intervention Strategy for Stroke with RTL Therapy

Human stroke results in multi-organ systemic disease, rather than in solely a brain lesion. While patients may survive the initial brain insult, many succumb to stroke induced immunodepression caused by an initial over reaction of the immune system. We seek to develop a stroke therapy that would block the initial immune system over activation and thus be highly beneficial to stroke survivors.

Role: Collaborator

American Heart Association Bugher Foundation Award

0575058N

Sex specific Ischemic Cell Signaling

Patricia D. Hurn, Ph.D., Principal Investigator
\$400,000 Total Direct Costs (1/01/06-12/31/09)

The goal of these studies is to elucidate the mechanisms behind activation of poly (ADP-ribose) polymerase in the male and interactions with male sex steroid signaling.

National Institute for Nursing Research
2 RO1 NR03521
Estrogen and Testosterone as Neuroprotectants in Cerebral Ischemia
Patricia D. Hurn, Ph.D., Principal Investigator, 25% effort
\$ 1,250,000 Total Direct Costs (6/01/04-5/31/09)

The overall goal of this study is to examine mechanisms of estrogen's neuroprotection in stroke in experimental ischemia. Mechanisms include estrogen receptor alpha mediated regulation of cerebral blood flow and enhancement of angiogenesis. Testosterone's role as a regulator of intra-ischemic cerebral blood flow is also evaluated.

National Institute for Nursing Research
1 RO1 NR04943-05
Estrogen/Platelet Interaction in Cerebral Ischemia
Marguerite L Kearney Ph.D. R.N., Principal Investigator
Patricia D. Hurn, Ph.D., R.N., Co-investigator, 5% effort
\$ 1,371,112 Total Direct Costs (03/01/00-02/29/06)

Purpose of these studies is to determine effect and mechanisms of estrogen treatment on platelet reactivity during global cerebral ischemia. Whole blood aggregometry, flow cytometry, intravital microscopy and immunocytochemistry are employed in rabbit.

Veteran's Administration Merit Award
Gender differences in Opioid-mediated cardiac adaptation to stress
Donna Van Winkle, Ph.D., Principal Investigator, Portland VA Medical Center
Patricia D. Hurn, Ph.D., Co-Investigator, 3% effort

National Heart, Lung & Blood Institute
1 RO1 HL071854-01
Gender Differences in Cardiac Arrest/CPR
Patricia D. Hurn, Ph.D., Co-Investigator, 5% effort
\$237,500 Total Direct Costs (09/30/02 - 06/30/07)

This grant has the title "Gender Differences in Cardiac Arrest/CPR". The purpose of this proposal is to determine if there are inherent sex-linked injury mechanisms in experimental cardiac arrest/CPR, and if 17 β -estradiol, the principal biologically active estrogen in mammals, plays a key role in salvaging brain tissue following cardiac arrest/CPR.

National Institutes of Neurological and Communicative Disorders and Stroke
2RO1 NS33668
Cerebral Ischemia in the Female
Patricia D. Hurn, Ph.D., Principal Investigator, 25% effort
\$ 668,662 Total Direct Costs (4/1/99-4/1/05)

This study focuses on estrogen and progesterone as a neuroprotective team in experimental stroke in rodents. The overall hypothesis is that estrogen and progesterone improve ischemic outcomes in vivo by reducing excitotoxicity in a manner unique to the female animal. Transgenic mouse strains are employed to examine the importance of NMDA stimulated nNOS toxicity. Role of GABAergic inhibitory transmission as mechanisms of steroid neuroprotection.

National Institutes of Neurological and Communicative Disorders and Stroke

1 PO1 NS39148-01

Project III: PARP in focal cerebral ischemia; Patricia D. Hurn, Ph.D., Principal Investigator (15% effort)

Program Project Grant: Poly (ADP-ribose) polymerase in neuronal injury

Valina L. Dawson, Ph.D., Principal Investigator

\$ 958,219 Total Direct Costs (07/01/99-06/30/04)

Purpose of this project is to examine PARP mechanisms of ischemic injury in focal stroke in transgenic and virally transfected mice.

National Institutes of Neurological and Communicative Disorders and Stroke

RO1 NS-40267-01

Sociobiological Factors in Experimental Stroke Outcome

A. Courtney Devries, Ph.D., Principal Investigator

Patricia D. Hurn Co-investigator (10% effort)

\$ 750,000 Total Direct Costs (07/01/00-06/30/03)

Purpose of this project is to examine role of stress and corticosteroids in stroke outcome in mouse histology and behavioral measures.

National Institute for Nursing Research

2 RO1 NR03521

Estrogen as Neuroprotectant in Cerebral Ischemia

Patricia D. Hurn, Ph.D., R.N., Principal Investigator, 25% effort

\$ 750,000 Total Direct Costs (6/01/01-5/31/05)

American Diabetes Association

Estrogen as a Neuroprotectant in Diabetic Stroke

Susan J Vannucci, Ph.D., Principal Investigator, School of Medicine

Pennsylvania State University

Patricia D. Hurn, Ph.D., Consultant

\$300,000 (01/01-12/03)

National Institutes of Neurological and Communicative Disorders and Stroke

PO1 NS-20020

Project II: Gender Differences in Stroke; Patricia D. Hurn Principal Investigator (20% effort)

Program Project Grant: Mechanisms of Regulation of Cerebral Blood Flow; Richard J. Traystman,

Ph.D., Principal Investigator

\$ 754,611 Total Direct Costs (12/01/97-11/30/02)

Purpose of this project is to examine gender-specific mechanisms of ischemic injury in focal stroke.

National Institute for Nursing Research

RO3 NR03816 (5% effort)

Post-ischemic Platelet Function: Young vs Adult

Marguerite L. Kearney, D.NSc., R.N., Principal Investigator

\$ 595,339 Total Direct Costs (06/01/95-05/31/96)

National Institutes of Neurological and Communicative Disorders and Stroke

5 PO1 NS-20020 (20% effort)

Program Project Grant: Mechanisms of Regulation of Cerebral Blood Flow

Richard J. Traystman, Ph.D., Principal Investigator
Project I: Role of Nitric Oxide in the Control of Cerebral Blood Flow in Global and Focal Ischemia
\$ 551,409 Total Direct Costs (12/01/92-11/30/97)

National Institutes of Neurological and Communicative Disorders and Stroke
1RO1 NS33668

Cerebral Ischemia in the Female
Patricia D. Hurn, Ph.D., Principal Investigator, 40% effort
\$ 668,662 Total Direct Costs (2/1/95-2/1/99)

Purpose of this work is to determine if cerebral recovery after global ischemia is different in female animals relative to males and if exogenous estrogen alters mechanisms of ischemic and reperfusion injury.

RO1 NR03521

pH-Mediated Mechanisms of Injury in Cerebral Ischemia
Patricia D. Hurn, Ph.D., R.N., Principal Investigator, 30% effort
\$ 595,339 Total Direct Costs (12/01/93-11/30/98)

This work investigates mechanisms of cerebral ischemic injury related to altered brain pH and buffering capacity, free-radical generation and iron catalysis. Employs magnetic resonance techniques, electrophysiology.

American Heart Association (Maryland Affiliate)
Research Fellowship, Patricia D. Hurn, Ph.D. (06/91-06/93)

National Institute for Nursing Research
1F32NR06730
National Research Service Award
Patricia D. Hurn, Ph.D., R.N., \$ 25,600 Total Direct Costs (9/01/92-8/31/93)

National Institute of Heart Lung Blood, Division Vascular Diseases
1F32HL08348
National Research Service Award
Patricia D. Hurn, Ph.D., \$ 18,600 Total Direct Costs (8/01/90-7/31/91)

National Research Service Award (Institutional, Predoctoral)
Environmental Health Sciences, Division of Physiology
Johns Hopkins School of Hygiene and Public Health
Johns Hopkins University
1985-1989

Predocctoral Nursing Scholarship
Division of Nursing, Health Resources and Services Administration
School of Nursing
University of Washington
1979-1981

AWARDS AND HONORS

2014 Thomas Willis Lecture Award, American Stroke Association/American Heart Association

- 2011 Oregon Health and Science University Technology Innovation Award; Recombinant Molecules for Stroke
- 2010 Oregon Health and Science University Faculty Senate Distinguished Faculty Award for Outstanding Collaboration
- 2009 Alpha Omega Alpha Honor Society, Member
- 2002 Virenda B Mahesh Lecturer in Physiology, Medical College of Georgia
- 2001 Fellow, American Heart Association
- 2001 Fellow, American College of Critical Care Medicine
- 2001 Norma J. Shoemaker Award for Excellence in Critical Care Nursing, Society for Critical Care Medicine
- 2000 Presidential Citation, Society for Critical Care Medicine
- 1999 Presidential Citation, Society for Critical Care Medicine
- 1998 Presidential Citation, Society for Critical Care Medicine
- 1997 Presidential Citation, Society for Critical Care Medicine
- 1996 Fellow, Cardiovascular Section of the American Physiological Society
- 1993 Sigma Theta Tau International Honor Society, Nu Beta Chapter, Community Leader
- 1992 Fellow, Stroke Council of the American Heart Association
- 1991 The Jonathan Witherspoon Fellow for Stroke, Maryland Affiliate of the American Heart Association
- 1988 Research Award, Foundation for Nursing of Maryland
- 1981 Research Award and Scholarship, American Lung Association
- 1970-1974 Brecht Scholar, Brecht Foundation for Scholarship, University of Florida
- 1970-1974 Allstate Merit Award, Allstate Insurance Company
- 1970-1974 Nurse Training Award for State of Florida

EDITORIAL ACTIVITIES

- 2010-2013 Consulting Editor, Stroke
- 2006- Editorial Board, Restorative Neurology and Neuroscience
- 2005-2012 Editorial Board, Journal of Cerebral Blood Flow Metabolism
- 2000-2007 Assistant Editor for Basic Science, Stroke
- 1999-2005 Consulting Editor, American Journal of Physiology: Heart and Circulatory Physiology
- 1994-2000 Editorial Board, Stroke

SCIENTIFIC REVIEW AND ADVISORY BOARDS (EXCLUDING AD HOC)

- 2014- Member, Oversight Committee American Stroke Association/Bugher Foundation Centers of Excellence in Stroke
- 2013 Chair, Review Panel American Stroke Association/Bugher Foundation Centers of Excellence in Stroke
- 2011-2012 Advisory Council to the Director, Data and Informatics Working Group, National Institutes of Health
- 2009-2013 Charter Member, Acute Neural Injury and Epilepsy (ANIE) Study Section, CSR, National Institutes of Health
- 2004 Member, American Heart Association National Research Committee
- 2004 Member, American Heart Association, Leadership Committee, Council on Cardiovascular Nursing
- 2003-2004 Chairman, Brain 1 Study Section, American Heart Association
- 2001-2003 Co-chair, Brain 1 Study Section, American Heart Association
- 2001 Bugher Foundation Awards Review Committee, American Heart Association
- 2000- Medical Advisory Board, Hazel K. Goddess Fund for Stroke Research in Women

- 1998-1999 Member, BDCN-1 Study Section, National Institute of Neurological Diseases and Stroke, National Institutes of Health
- 1995-1998 Member, Neurology B-1 Study Section, National Institute of Neurological Diseases and Stroke, National Institutes of Health

PROFESSIONAL ASSOCIATIONS AND SERVICE

- 2008-2010 Chair, International Stroke Conference, American Heart Association/American Stroke Association
- 2008-2010 Member, American Stroke Association Long Range Planning Committee
- 2008-2010 Co-chairman, Stroke Treatment Academic Industry Roundtable (STAIR)
- 2006-2008 Co-Chair, International Stroke Conference, American Stroke Association
- 2005-2007 XXIII International Symposium on Cerebral Blood Flow, Metabolism and Function; VII International Conference on Quantification of Brain Function with PET Program Planning Committee
- 2002-2012 International Symposium Stroke and Cerebrovascular Disease Program Planning Committee, American Stroke Association
- 2007 Program committee, 28th International Symposium on Cerebral Blood Flow and Metabolism, Brain '07
- 2006 NIH NINDS Stroke Progress Review Group II.
- 2004 American Heart Assn Research Committee
- 2000 Co-Chairman, 29th International Scientific and Educational Symposium, Society for Critical Care Medicine
- 1997 Scientific Advisory Board, 18th International Symposium on Cerebral Blood Flow and Metabolism, Brain '97
- 1994-1998 International Educational Program Planning Committee, Society for Critical Care Medicine
- 1992-1994 Scientific Review Board, American Association Neuroscience Nurses
- 1982- Scientific Review, International Educational and Scientific Symposium, Society for Critical Care Medicine

ORGANIZATIONAL MEMBERSHIPS

- 2004-2010 American Association University Anesthesiologists
- 1998-2010 Society Neurosurgical Anesthesiology and Critical Care
- 1995- Society for Neuroscience
- 1994- American Physiological Society
- 1993-2003 Neurotrauma Society
- 1992- International Society for Study of Cerebral Circulation and Metabolism
- 1991-2003 Microcirculatory Society
- 1982-2014 Society for Critical Care Medicine
- 1975-2010 American Association of Critical Care Nurses

SERVICE TO THE UNIVERSITY

Administrative:

- 2007-2010 SOM Leader, OHSU University Space Allocation Committee
- 2007 Chair, OHSU Organizational Leadership Team, Strategic Group on Interdisciplinary Planning
- 2007 Chair, OHSU School of Medicine Faculty Retention Committee

Research Leadership:

- 2012- External Advisory Board, Center for Clinical and Translational Sciences, University of Texas Health Science Center at Houston, NIH funded Clinical and Translational Award, Houston
- 2011- External Advisory Board, Institute for Translational Sciences, University of Texas Medical Branch, NIH funded CTSA Galveston
- 2009-2010 OHSU Limited Submission Review Committee
- 2007-2010 OHSU Strategy Planning for Research Committee
- 2007-2010 Advisory Board, K12 Building interdisciplinary Careers in Women's Health
- 2007-2010 Oregon Academy Clinical and Translational Research, Oregon Clinical and Translational Research Institute (OCTRI)
- 2004-2006 Strategic Advisory Committee, OHSU General Clinical Research Center
- 1999-2002 Johns Hopkins University Institutional Animal Care and Use Committee
- 1998-2002 Johns Hopkins School of Medicine Clinical Research Review

Academic Affairs:

- 2012 Chair, University of Texas Blue Ribbon Panel for Professionalism and Citizenship
- 2011- External Advisory Board, NIH K12 Oregon Multidisciplinary Training Program in Emergency Medicine, Oregon Health and Sciences University
- 2008-2010 OHSU Academic and Student Affairs Council
- 2008-2010 OHSU SOM Women in Academic Medicine, ex officio
- 2008 Chair, OHSU SOM Faculty Performance Evaluation Task Force
- 2006 Chair, OHSU SOM Faculty Engagement Task Force
- 2001-2003 Johns Hopkins School of Medicine Promotions and Tenure Committee
- 2001-2003 Johns Hopkins School of Medicine Women's Leadership Council

ACADEMIC TEACHING

- Faculty 2006-2011 Faculty, Neuroscience Graduate Program, OHSU
- Faculty 2004 Lecturer, Neuroscience 625, Cell and Molecular Neurobiology, OHSU
- Faculty 1999-2002 Lecturer and laboratory teaching coordinator, Organ System Physiology, School of Medicine, Johns Hopkins University
- Lecturer 1994-1997 Instructor, Pathophysiological Basis for Advanced Nursing Practice, School of Nursing, Johns Hopkins University
- Faculty 1989-1994 2nd Year Pathophysiology Core, School of Medicine, Johns Hopkins University
- Lecturer 1992 Animal Models in Nursing Research, Research Concepts Course, Doctoral Program, School of Nursing, University of Maryland
- Faculty 1986-1987 Instructor, Physiology and Clinical Assessment of Ventilation and Perfusion, Therapeutic Concepts in Trauma/Critical Care (Graduate: N601), School of Nursing, University of Maryland
- Faculty 1981-1985 Faculty Program Coordinator, Masters Program in Trauma and Critical Care Nursing, School of Nursing, University of Maryland (lead for curriculum design, faculty training, design and implementation of all clinical coursework for 12 masters students annually)
- Instructor, Therapeutic Concepts in Trauma/Critical Care Nursing (N601 Graduate; 6 credits: lecture and clinical instruction)
- Trauma/Critical Care Nursing Concepts I (N623 Graduate; 3 credits: lecture and seminar)

Trauma/Critical Care Nursing Concepts II (N624 Graduate; 4 credits: seminar and clinical instruction)

Pathophysiology of Shock (N621 Graduate; 4 credits: lecture and clinical instruction)

The Clinical Specialist in Trauma/Critical Care Nursing (N755 Graduate; 6 credits: seminar)

Masters Thesis Research (N800 Graduate; variable credit)

COMMUNITY BOARDS AND TEACHING

- 2010 Lecturer, Society for Women’s Health Research, Washington, DC
 2008 Lecturer, Speaking of Women Lecture Series, Center for Women’s Health, OHSU
 2003- 2007 Lecturer, Brain Awareness Series, Public Relations, OHSU
 2000-2002 Laboratory Associate and Intern Supervisor: BioTechnical Institute of Maryland, Inc. Baltimore, MD
 2000-2003 Preceptor, Pikesville High School Science Internship Program, Baltimore, MD

TRAINEES AND STUDENTS

Full time postdoctoral fellows:

- Yoshio Asano, M.D. (1994-96), Fellow Anesthesiology/Critical Care Medicine (A/CCM), Johns Hopkins School of Medicine; Stipend support through Saitama Medical School, research costs supported by NS-20020, NR03521, NS33668
- Nabil Alkayed, M.D., Ph.D. (1995-98), Fellow Anesthesiology/Critical Care Medicine, Johns Hopkins School of Medicine; Stipend support and research costs NS33668
- Kenji Sampei, M.D. (1996-98), Fellow Anesthesiology/Critical Care Medicine, Johns Hopkins School of Medicine; Stipend support through Tokyo Medical School, research costs supported by NS-20020, NR03521, NS33668
- Masahiko Sawada, M.D. (1996-98), Anesthesiology/Critical Care Medicine (A/CCM), Johns Hopkins School of Medicine; Stipend support through Saitama Medical School, research costs supported by NS-20020, NR03521, NS33668
- Izumi Harukuni, M.D. (1995-1999), Fellow Anesthesiology/Critical Care Medicine (A/CCM), Johns Hopkins School of Medicine; Stipend support through A/CCM departmental funds and pharmaceutical industry contracts, research costs supported by NS-20020, NR03521, NS33668
- Yuki Watanabe, M.D., Ph.D. (1997-1999), Fellow Anesthesiology/Critical Care Medicine (A/CCM), Johns Hopkins School of Medicine; Stipend support through Gifu Medical School, research costs supported by NS-20020, NR03521, NS33668
- Kimihiko Hattori, M.D. (1998- 2000), Fellow Anesthesiology/Critical Care Medicine (A/CCM), Johns Hopkins School of Medicine; Stipend support through Saitama Medical School, research costs supported by NS-20020, NS33668
- Shozo Goto (1998-2000), Fellow Anesthesiology/Critical Care Medicine (A/CCM), Johns Hopkins School of Medicine; Stipend support through Tokyo Medical School, research costs supported by NS-20020, NS33668

Stephanie Murphy, Ph.D., V.M.D. (1998-2000), Fellow Comparative Medicine and Anesthesiology/Critical Care Medicine (A/CCM), Johns Hopkins School of Medicine; supported by the MD Affiliate of AHA

Nobio Sugo, M.D. (1999-2001), Fellow Anesthesiology/Critical Care Medicine (A/CCM), Johns Hopkins School of Medicine; supported by NS39148

Louise McCullough, M.D., Ph.D. (2000-2002) Fellow Anesthesiology/Critical Care Medicine (A/CCM), Johns Hopkins School of Medicine; supported by MD Affiliate of AHA and NS20020

Takashi Otsuka, M.D. (2001- 2003) Fellow Anesthesiology/Critical Care Medicine (A/CCM), Johns Hopkins School of Medicine; Fellowship supported by NS39148

Yun Xu, M.D. (2002-2003) Fellow Anesthesiology/Critical Care Medicine (A/CCM), Johns Hopkins School of Medicine; Supported by NR03521

Zhizheng Zhang, M.D. (2003-2004) Fellow Anesthesiology and Perioperative Medicine, OHSU. Fellowship supported by NS 33668

Sharon Graham, D.V.M. (2003-2006) Fellow Anesthesiology and Perioperative Medicine, OHSU, Fellowship supported by NS 20020

Ruediger Noppens, M.D. (2003-2006) Fellow Anesthesiology and Perioperative Medicine, OHSU. Fellowship supported by NS 20020

Ines Koerner, M.D. (2003-2006) Fellow Anesthesiology and Perioperative Medicine, OHSU. Fellowship supported by NS 20020

Hideto Kitano, M.D. (2004-2006) Fellow Anesthesiology and Perioperative Medicine, OHSU, supported by NS33668

Jian Cheng, Ph.D. (2003-09) Fellow Anesthesiology and Perioperative Medicine, OHSU. Fellowship supported by NR03521

Wenri Zhang, M.D. (2004-6) Fellow Anesthesiology and Perioperative Medicine, OHSU, Fellowship supported by NS 20020

Noriko Taguchi, M.D. (2005-6) Fellow Anesthesiology and Perioperative Medicine, OHSU, Fellowship supported by NS 49210

Lan Wang, M.D. (2005-07) Fellow Anesthesiology and Perioperative Medicine, OHSU, Fellowship supported by NS 49210

Bing Zhang, M.D., Ph.D. (2005-08) Fellow Anesthesiology and Perioperative Medicine, OHSU

Masayoshi Uchida,, M.D. (2006-2010) Fellow Anesthesiology and Perioperative Medicine, OHSU, Fellowship supported by NS 33668

Kozaburo Akiyoshi, M.D. (2008-2011) Fellow Anesthesiology and Perioperative Medicine, OHSU, Fellowship supported by NS 49210

Suzan Dziennis, Ph.D. (2008-2011) Fellow Anesthesiology and Perioperative Medicine, OHSU, Fellowship supported by NS 49210

Takeru Shimizu, M.D., Ph.D. (2010-2011) Fellow Anesthesiology and Perioperative Medicine, OHSU, Fellowship supported by NR003521

Xuefang Ren, M.D., Ph.D. (2010-2011) Fellow Anesthesiology and Perioperative Medicine, OHSU, Fellowship supported by NR003521

Jie Pan, M.D. (2012-2015) Fellow in Neurobiology, University of Texas at Austin. Supported by NR003521

Clinical trainees and medical students: (under sponsor's direct supervision and support of research costs, training stipends according to departmental funds)

Dean Moutos, M.D., Fellow, Obstetrics and Gynecology (1993-94) Johns Hopkins School of Medicine

Mary Sturaitis, M.D., Fellow, Neuroanesthesiology, A/CCM (1994) Johns Hopkins School of Medicine

Steven Davis, M.D., Fellow, Pediatric Critical Care, A/CCM (1995-97) Johns Hopkins School of Medicine

Diane Lipscomb, M.D., Fellow, Pediatric Critical Care, A/CCM (1996-97) Johns Hopkins School of Medicine

Renata Rusa, M.D., Fellow, Neurology and A/CCM (1996-98) Johns Hopkins School of Medicine

Mikael Eliasson, M.D., Ph.D., Medical Student, JHU (1997-98) Johns Hopkins University School of Medicine

Michael Wang, M.D., Ph.D., Fellow, Neurology (1998-2000) Johns Hopkins University School of Medicine

Louise McCullough, M.D., Ph.D., Resident, Neurology (1998-2000) Johns Hopkins University School of Medicine

Alex Barrocas, M.D., Intern, Internal Medicine (2000-2001) Johns Hopkins University School of Medicine

Lauren Anderson, Johns Hopkins Undergraduate in Neurosciences (2000-2001) Johns Hopkins University School of Medicine

Anise Ardelt, M.D., Ph.D., Resident, Neurology (2000- 2003) Johns Hopkins University School of Medicine

Stacey Fairbanks, M.D., Medical Student (2005), Resident (2009- 2011) Anesthesiology, Oregon Health & Science University, Supported by T32 GM082770-03

Justin Ortiz, M.D., Ph.D., Resident Anesthesiology (2008-2011) Oregon Health & Science University,
Supported by T32 GM082770-03

Lee-Lee Nguyen, M.D., Resident Anesthesiology (2009-2011) Oregon Health & Science University,
Supported by T32 GM082770-03

Junior Faculty with mentored award, Hurn as mentor:

Mark Rossberg, M.D., Lily Women's Health Fund, Lily Pharmaceuticals (2000) Johns Hopkins
University School of Medicine

Michael Wang, M.D., Ph.D., Burroughs Wellcome Fund Career Award (2000-2003); Richard S Ross
Clinical Scientist Award; KO8, NINDS (2000-2005) Johns Hopkins University School of
Medicine

Stephanie Murphy, V.M.D., Ph.D. (2000-2005) KO1 SERCA, NIH, Johns Hopkins University School of
Medicine

Louise McCullough, M.D., Ph.D. (2002-2005) Goddess Scholar Award; American Stroke Assn Fellow
to Faculty Award Johns Hopkins University School of Medicine

Tonya Palermo, Ph.D. (2004-2005) NIH K08 Assistant Professor, Fellow Anesthesiology and
Perioperative Medicine, Oregon Health & Science University

Matthias Merkel, M.D. (2004-2010:) Assistant Professor, Fellow Anesthesiology and Perioperative
Medicine, Oregon Health & Science University

Paco Herson, Ph.D. (2004-2007) Building Integrative Research Careers in Women's Health Award,
Assistant Professor, Anesthesiology and Perioperative Medicine, Oregon Health & Science
University

Kirk Lalwani, M.D. (2005-2007) OHSU Anesthesiology Research and Education Scholar, Assistant
Professor, Anesthesiology and Perioperative Medicine, Oregon Health & Science University

Mingyue Liu, M.D., Ph.D. (2005-2009) AHA Scientist Development Award, Assistant Professor,
Anesthesiology and Perioperative Medicine, Oregon Health & Science University

Kamila Vagnerova, M.D. (2005-2008) OHSU Anesthesiology Research and Education Scholar,
Assistant Professor, Anesthesiology and Perioperative Medicine, Oregon Health & Science
University

Michael Hutchens, M.D. (2005- 2011) KO8, NIGMS, Assistant Professor, Anesthesiology and
Perioperative Medicine, Oregon Health & Science University

Beth Darnall, Ph.D. (2007-2010) Building Integrative Research Careers in Women's Health Award,
Assistant Professor, Anesthesiology and Perioperative Medicine, Oregon Health & Science
University

Ines Koerner, M.D., Ph.D. (2006-2010) OHSU Anesthesiology Research and Education Scholar,
Assistant Professor, Anesthesiology and Perioperative Medicine, Oregon Health & Science
University

Jian Cheng, Ph.D. (2009-2011) OHSU Anesthesiology Research and Education Scholar, Assistant Professor, Anesthesiology and Perioperative Medicine, Oregon Health & Science University

Ph.D. Thesis Committees:

Liqun Zhang, Ph.D., Neuroprotective effect of estrogen in diabetic stroke. Department Neuroscience, College of Medicine, Pennsylvania State University (2003)

Amy Ross, R.N., Ph.D., Immunomodulation of Clinical TIA. School of Nursing, OHSU (2004-2006)

Melissa Hernandez, Ph.D., GABAergic mechanisms of neuroprotection. Neuroscience Graduate Program, Oregon Health and Sciences University (2007-2011)

Jeffrey Iliff, Ph.D., Role of P450 Epoxyeicosanoids in Cerebral Extrinsic Perivascular vasodilator nerve function. Physiology and Pharmacology, Oregon Health and Sciences University (2009)

CLINICAL ACTIVITIES

2012- Active Registered Nurse, Texas State Board of Nursing, 824899
 1976- 2012 Registered Nurse, Maryland State Board of Nursing, RO60826
 1976-1987 Certification in Critical Care Nursing (CCRN), American Association of Critical Care Nurses

PATENT

OHSU Tech ID 1279

US Non-Provisional Patent Application 13/924,275

Title: Compositions and Methods Using Recombinant MHC Molecules for the Treatment of Stroke

Filed: June 21, 2013

PUBLICATIONS

Peer-reviewed Journals:

1. Nishijima MK, Koehler RC, Hurn PD, Eleff SM, Norris S, Jacobus WD, Traystman RJ: Postischemic recovery rate of cerebral ATP, phosphocreatine, pH and evoked potentials. *Am J Physiol* 257 (Heart Circ Physiol 26): H1-H11, 1989.
2. Hurn PD, Koehler RC, Norris SE, Blizzard KK, Traystman RJ: Dependence of cerebral bioenergetic and evoked potential on end-ischemic pH. *Am J Physiol* 260 (Heart Circ Physiol 29): H532-H541, 1991.
3. Hurn PD, Koehler RC, Norris SE, Schwentker AE, Traystman RJ: Bicarbonate conservation during incomplete cerebral ischemia with superimposed hypercapnia. *Am J Physiol* 261 (Heart Circ Physiol 30): H853-H859, 1991.
4. Baldwin WA, Kirsch JR, Hurn PD, Toung WSP, Traystman RJ: Hypothermic cerebral reperfusion and recovery from ischemia. *Am J Physiol* 261 (Heart Circ Physiol 30): H774-H781, 1991.
5. Helfaer MA, Kirsch JR, Hurn PD, Blizzard KK, Koehler RC, Traystman RJ: Tirilazad does not improve cerebral metabolic recovery following transient compression ischemia. *Stroke* 23:1479-1486, 1992.

6. Hurn PD, Jones MD, Shoukas AA, and Traystman RJ: Cerebral microvascular hemodynamics during hemodilution. *Am J Physiol* 264: H2131-H2135, 1993.
7. Hurn PD, Hansen RB, Hanley DF, Wilson DA, Traystman RJ: Vasopressin and oxytocin as mediators of neurohypophyseal blood flow. *Am J Physiol* 265: H2027-2035, 1993.
8. Clavier NM, Kirsch JR, Hurn PD, Traystman RJ: Tonic nitric oxide mediated cerebral vascular relaxation is present during postischemic delayed hypoperfusion. *Am J Physiol* 267: H174-181, 1994.
9. Clavier NM, Kirsch JR, Hurn PD, Traystman RJ: Effect of post-ischemic hypoperfusion on vasodilatory mechanisms in cat. *Am J Physiol* 267: H2012-2018, 1994.
10. Hurn PD, Koehler RC, Blizzard KK, Traystman RJ: Deferoxamine reduces early metabolic failure associated with low end-ischemic brain bicarbonate. *Stroke* 26:688-694, 1995.
11. Tietjen CS, Hurn PD, Ulatowski JA, Kirsch JK: Treatment modalities for hypertensive patients with intracranial pathology: options and risks. *Crit Care Med* 24: 311-322, 1995.
12. Hurn PD, Littleton-Kearney ML, Kirsch RC, Dharmarajan AM, Traystman RJ: Post-ischemic cerebral blood flow recovery in the female: effect of 17 β -estradiol. *J Cereb Blood Flow Metab* 15:666-672, 1995.
13. Traystman RJ, Moore LE, Helfaer MA, Davis S, Banasiak K, Williams M, Hurn PD: Nitro-L-arginine Analogues: Dose- and Time-related nitric oxide synthase inhibition in brain. *Stroke* 26:864-869, 1995.
14. Moutos D, Schryer B, Hurn PD, and Dharmarajan AM. 1995. Effect of exogenous oestrogen on blood flow and quantitative histology of the corpora lutea of pseudopregnant rabbits. *Journal of Reproduction and Fertility*, 103(2):357-362, 1995. PMID: 7616508
15. Kosk-Kosicka D, Fomitcheva I, Zylinska L, Hurn PD, Traystman RJ, Roszcynska G: Plasma membrane Mg²⁺, Ca²⁺-ATPase from three tissue is inhibited by volatile anesthetics at clinically relevant concentrations. *Prog in Anesth Mechanisms* 3: 279-283, 1995.
16. Kim H, Koehler RC, Hurn PD, Hall ED, Traystman RJ: Amelioration of impaired cerebral metabolism after severe acidotic ischemia by tirilazad posttreatment. *Stroke* 27:114-121, 1996.
17. Hurn PD and Traystman RJ. pH-Mediated Brain Injury in Cerebral Ischemia and Circulatory Arrest. *J Intensive Care Med*. 11:205-218, 1996.
18. Davis S, Helfaer MA, Traystman RJ, Hurn PD: Parallel antioxidant and antiexcitotoxic therapy improves outcome after incomplete global cerebral ischemia in dogs. *Stroke* 28:198-205, 1997.
19. Hurn PD, Koehler RC, Traystman RJ: Extracellular alkalosis reduces recovery from global cerebral ischemia by NMDA receptor-mediated mechanisms. *Am J Physiol* 272: H2557-2562, 1997.
20. Eliason MJL, Sampei K, Mandir AS, Hurn PD, Traystman RJ, Bao J, Pieper A, Wang ZQ, Dawson TM, Snyder SH, Dawson VL: Poly (ADP-Ribose) Polymerase gene disruption renders mice resistant to cerebral ischemia. *Nature Medicine*, 3 (10): 1089-1095, 1997.
21. Alkayed NJ, Harukuni I, Kimes AS, London ED, Traystman RJ, Hurn PD: Gender-linked brain injury in experimental stroke. *Stroke*. 29: 159-165, 1998.
22. Lipscomb DC, Gorman LK, Traystman RJ, Hurn PD: Changes in low molecular weight iron during hyperglycemic incomplete global ischemia. *Stroke* 29:487- 493, 1998.

23. Helfaer MA, Ichord R, Martin LJ, Hurn PD, Castro A, Traystman RJ: Treatment with the competitive NMDA antagonist does not improve outcome after cardiac arrest in dogs. *Stroke* 29: 824-829, 1998.
24. Littleton-Kearney M, Hurn PD, Kickler TS, Traystman RJ: Incomplete global cerebral ischemia alters platelet biology in neonatal and adult sheep. *Am J Physiol* 274: H1293-1300, 1998.
25. Toung TJK, Traystman RJ, Hurn PD: Estrogen-mediated neuroprotection after experimental stroke in males. *Stroke* 29: 1666-1670, 1998.
26. Palmon SC, Williams MJ, Littleton-Kearney M, Traystman RJ, Kosk-Kosicka D, Hurn PD: Estrogen increases cGMP in selected brain regions and in cerebral microvessels. *J Cereb Blood Flow Metab* 18: 1248-1252, 1998.
27. Rusa R, Alkayed NJ, Crain BJ, Traystman RJ, Kimes AS, London ED, Klaus J, Hurn PD: 17 β estradiol reduces stroke injury in estrogen-deficient female animals. *Stroke* 30: 1665-1670, 1999.
28. Toung TJ, Bhardwaj A, Dawson VL, Dawson TM, Traystman RJ, Hurn PD. Immunosuppressant FK506 affords focal ischemic neuroprotection without altering nitric oxide production in vivo. *Stroke* 30: 1279-1285, 1999.
29. Slusher BS, Vornov JJ, Thomas AG, Hurn PD, Harukuni I, Bhardwaj A, Traystman RJ, Robinson MB, Britton P, May Lu XC, Tortella FC, Wozniak KM, Yudkoff M, Potter PF, Jackson PF. Selective inhibition of NAALADase which converts NAAG to glutamate reduces ischemic brain injury. *Nature Medicine*, 5: 1396-1402, 1999.
30. Dore S, Sampei K, Goto S, Alkayed NJ, Guastella D, Blackshaw S, Gallagher M, Traystman RJ, Hurn PD, Koehler RC, Snyder SH. Heme Oxygenase-2 is neuroprotective in cerebral ischemia. *Molecular Med* 5: 656-663, 1999.
31. Sawada M, Alkayed NJ, Goto S, Crain BJ, Traystman RJ, Shaivitz A, Nelson RJ, Hurn PD. Estrogen receptor antagonist, ICI182,780, exacerbates ischemic injury in female mouse. *J Cereb Blood Flow Metab*, 20:112-118, 2000.
32. Harukuni I, Bhardwaj A, Shaivitz AB, Devries C, London ED, Hurn PD, Traystman RJ, Kirsch JR. σ 1-receptor ligand, PPBP [4-phenyl-1-(4-phenylbutyl) piperidine] affords neuroprotection from focal ischemia with prolonged reperfusion. *Stroke*, 31: 976-982, 2000.
33. Bhardwaj A, Wu Y, Hurn PD, Kirsch JR, Traystman RJ. Administration of Selective endothelin receptor A antagonist RO60-1790 does not improve outcome in focal cerebral ischemia in cat. *J Cereb Blood Flow Metab* 3:499-504, 2000.
34. Hurn PD and Macrae IM. Estrogen as Neuroprotectant in Stroke. *J Cereb Blood Flow Metab* 20:631-652, 2000.
35. Alkayed NJ, Murphy SJ, Traystman RJ, Hurn PD. Neuroprotective effects of female gonadal steroids in reproductively senescent female rats. *Stroke* 31: 161-168, 2000.
36. Sampei K, Goto S, Alkayed NJ, Sawada M, Crain BJ, Korach KS, Demas GE, Nelson RJ, Traystman RJ, Hurn PD. Stroke in Estrogen Receptor α -deficient Mice. *Stroke* 31:738-743, 2000.
37. Murphy SJ, Traystman RJ, Hurn PD. Progesterone exacerbates striatal stroke injury in progesterone-deficient female animals. *Stroke* 31: 1173-1178, 2000.
38. Bhardwaj A, Harukuni I, Murphy SJ, Alkayed NJ, Crain BJ, Koehler RC, Hurn PD, Traystman RJ. Hypertonic saline worsens infarction volume following transient focal ischemia in rat. *Stroke* 31: 1694-1701, 2000.

39. Hattori K, Lee H, Hurn PD, Crain BJ, Traystman RJ, DeVries AC. Cognitive Deficits After Focal Cerebral Ischemia in Mice. *Stroke* 31(8):1939-1944, 2000.
40. Littleton-Kearney M, Agnew DM, Traystman RJ, Hurn PD. Effect of exogenous estrogen on cerebral blood flow and pial microvasculature. *Am J Physiol* 279: H1208-1214, 2000.
41. Sampei K, Mandir AS, Asano Y, Wong PC, Traystman RJ, Dawson VL, Dawson TM, Hurn PD. Stroke Outcome in Double Mutant Antioxidant Transgenics. *Stroke* 31(11): 2685-91, 2000.
42. Rossberg MI, Murphy SJ, Traystman RJ, Hurn PD. LY353381, a selective estrogen receptor modulator (SERM) and experimental stroke. *Stroke* 31: 3041-3046, 2000.
43. Toung TK, Hurn PD, Traystman RJ, Sieber FE. Estrogen decreases infarct size following temporary focal ischemia in a genetic model of Type 1 Diabetes Mellitus (DM). *Stroke* 31(11):2701-6, 2000.
44. Vannucci SJ, Willing LB, Goto S, Alkayed NJ, Brucklacher RM, Wook TL, Towfighi J, Hurn PD, Simpson IA. Experimental stroke in the female diabetic, db/db, mouse. *J Cereb Blood Flow Metab*, 21: 52-60, 2001.
45. Hurn PD. Ethanol-induced contractions in cerebral arteries: role of tyrosine and mitogen-activated protein kinases. *Stroke* 32: 257, 2001. (Solicited Editorial).
46. Sieber FE, Hurn PD, Alkayed NJ, Traystman RJ. Gender-based Differences in Na⁺ -K⁺ Adenosine Triphosphatase Activity Occur in the Microcirculation of the Diabetic Rat Brain. *Anesthesiology*. 94:372-375, 2001.
47. Xue R, Goto S, Sawada M, Hurn PD, Traystman RJ, van Zijl PCM, Mori S. Rapid three-dimensional diffusion MRI facilitates the study of acute stroke in mice. *Magnetic Resonance in Medicine* 46: 183-8, 2001.
48. McCullough LD, Alkayed NJ, Traystman RJ, Williams MJ, Hurn PD. Post-ischemic estrogen improves reperfusion cerebral blood flow in experimental stroke. *Stroke* 32: 796-802, 2001.
49. Murphy SJ, Smith P, Shaivitz AB, Rossberg MI, Hurn PD. Effect of brief halothane anesthesia during daily gavage on complication rate and body weight in rats. *Contemporary Topics Lab Animal Sci* 40: 9-12, 2001.
50. Traystman RJ, Klaus JA, DeVries AC, Shaivitz AB, Hurn PD. Lamotrigine does not improve outcome from focal cerebral ischemia in rat. *Stroke* 32: 783-788, 2001.
51. Harukuni I, Hurn PD, Crain BJ. Estrogen paradoxically increases hippocampal injury after 4VO in rat. *Brain Research* 900:137-42, 2001.
52. Watanabe Y, Kearney M, Traystman RJ, Hurn PD. 17 β -Estradiol restores pial vascular vasodilatory integrity after global cerebral ischemia. *Am J Physiol*. 281: H155-160, 2001.
53. Goyagi T, Goto S, Hardwaj A, Dawson VL, Hurn PD, Kirsch JR. Neuroprotective effect of σ -receptor ligand 4-Phenyl-1-(4-Phenylbutyl) piperidine (PPBP) is linked to reduced neuronal nitric oxide production. *Stroke*. 32: 1613-1620, 2001.
54. Bhardwaj A, Castro AF, Alkayed NJ, Hurn PD, Kirsch JR. Anesthetic choice of halothane versus propofol: impact on experimental perioperative stroke. *Stroke*. 32: 1920-1925, 2001.
55. Alkayed NJ, Goto S, Klaus JA, Hu W, Joh HD, Crain BJ, Bernard O, Traystman RJ, Hurn PD. Estrogen and Bcl2: expression and effect of transgene in experimental stroke. *J Neurosci* 21:7543-7550, 2001.
56. DeVries AC, Nelson RJ, Traystman RJ, Hurn PD. Cognitive and behavioral assessment in experimental stroke research: will it prove useful? *Neurosci Biobehav Rev*. 25 (4): 325-342, 2001.

57. DeVries AC, Joh HD, Bernard O, Hattori K, Hurn PD, Traystman RJ, Alkayed NJ. Social stress suppresses Bcl-2 expression and exacerbates experimental stroke outcome. *PNAS* 98 (20):11824-8, 2001.
58. Polotsky VY, Wilson JA, Smaldone MC, Haines AS, Hurn PD, Tankersley CG, Smith PL, Schwartz AR, O'Donnell CP. Female gender exacerbates respiratory depression in leptin-deficient obesity. *Am J Respiratory Critical Care Med.* 164: 1470-1475, 2001.
59. Toung TJK, Hurn PD, Traystman RJ, Bhardwaj A. Global Brain Water Increases after Experimental Focal Cerebral Ischemia: Effect of Hypertonic Saline. *Critical Care Medicine* 30: 644-649, 2002.
60. Goto S, Xue R, Sugo N, Sawada M, Poitras MF, Johns DC, Crain BJ, Dawson VL, Dawson TM, Traystman RJ, Mori S, Hurn PD. Poly (ADP-ribose) polymerase (PARP-1) impairs early and long-term experimental stroke recovery. *Stroke* 33(4):1101-6, 2002.
61. Wang M, Klaus JA, Joh H, Traystman RJ, Hurn PD. Angiogenic gene expression after ischemia in spontaneously hypertensive, stroke prone (SHRSP) rats. *Exp Neurol* 173(2):283-8, 2002.
62. Toung TJK, Tyler B, Brem H, Traystman RJ, Hurn PD, Bhardwaj A. Hypertonic saline ameliorates cerebral edema associated with experimental tumor. *J Neuroanesthesiology.* 14: 187-193, 2002.
63. Alkayed NJ, Goyagi T, Joh HD, Klaus J, Harder DR, Traystman RJ, Hurn PD. Neuroprotection and P450 2C11 upregulation after experimental transient ischemic attack. *Stroke* 3(6):1677-1684, 2002.
64. Ye B, Sugo N, Hurn PD, Haganir RL. Physiological and pathological Caspase-3 cleavage of the neuronal rasGEF GRASP-1 as detected using a cleavage site-specific antibody. *Neuroscience* 114: 217-227, 2002.
65. Sugo N, Hurn PD, Morahan MB, Hattori K, Traystman RJ, DeVries AC. Social stress exacerbates focal cerebral ischemia in mice. *Stroke* 33(6):1660-1664, 2002.
66. Littleton-Kearney MT, Ostrowski NL, Cox DA, Rossberg MI, Hurn PD. Selective estrogen receptor modulators: tissue actions and potential for CNS protection. *Central Nervous System Drug Reviews* Fall;8(3):309-30, 2002.
67. Kirsch JH, Klaus JA, Blizzard KK, Hurn PD, Murphy SJ. Pain evaluation and response to buprenorphine in rats subjected to sham experimental stroke. *Contemporary Topics Lab Animal Sci* 41(6):9-14, 2002.
68. Murphy SJ, Littleton-Kearney MT, Hurn PD. Progesterone Administration During Reperfusion, But Not Pre-Ischemia Alone, Reduces Injury In Ovariectomized Rats. *J. Cereb. Blood Flow Metab.* 22(10):1181-1188, 2002.
69. Amiry-Moghaddam M, Otsuka T, Hurn PD, Traystman RJ, Haug FM, Froehner SC, Adams ME, Neely JD, Agre P, Ottersen OP, Bhardwaj A. Aquaporin-4 in perivascular astroglial end-feet confers bi-directional water transport between blood and brain: disturbed brain water homeostasis in mice lacking a-syntrophin. *PNAS* 100: 2106-2111, 2003.
70. Bhardwaj A, Alkayed NJ, Kirsch JR, Hurn PD. Mechanisms of Ischemic Brain Damage. *Current Cardiology Reports* 5(2):160-7, 2003.
71. Goyagi T, Bhardwaj A, Koehler RC, Traystman RJ, Hurn PD, Kirsch JR. Potent σ 1-receptor ligand 4-phenyl-1-(4-Phenylbutyl) piperidine (PPBP) provides ischemic neuroprotection without altering dopamine accumulation in vivo in rat. *Anesthesia Analgesia* 96:532-8, 2003.

72. Antezana DF, Clatterbuck RE, Alkayed NJ, Murphy SJ, Anderson LG, Frazier J, Hurn PD, Traystman RJ, Tamargo RJ. High-dose ibuprofen reduces striatal infarcts during middle cerebral artery occlusion in rats. *J Neurosurg.* 98: 860-6, 2003.
73. Goyagi T, Toung TJK, Kirsch JR, Traystman RJ, Koehler RC, Hurn PD, Bhardwaj A. Neuroprotective kappa opioid receptor agonist, BRL 52537, attenuates ischemia-evoked nitric oxide production in vivo in rats. *Stroke.* Jun;34(6):1533-8, 2003.
74. Zhang Z, Kirsch JR, Toung TJK, Traystman RJ, Koehler RC, Hurn PD, Bhardwaj A. Kappa opioid receptor selectivity for ischemic neuroprotection with BRL52537 in rats. *Anesth Analg* 97:1776-83, 2003.
75. McCullough LD and Hurn PD. Estrogen and Neuroprotection. *Trends in Endocrinology and Metabolism*, 14:228-35, 2003.
76. Murphy SJ, McCullough LD, Littleton-Kearney MT, Hurn PD. Estrogen and SERMs: Neuroprotection in the Women's Health Initiative Era. *Endocrine*, 21(1):17-26, 2003.
77. Dore S, Otsuka T, Mito T, Sugo N, Hand T, Wu L, Hurn PD, Traystman RJ, Andreasson K. Neuronal overexpression of cyclooxygenase-2 increases cerebral infarction. *Annals Neurol* 54: 155-62,2003.
78. Hurn PD and Brass LM. Estrogen: A Balanced Analysis. *Stroke* 34: 338-41, 2003.
79. Xu Y, Traystman RJ, Hurn PD, Wang MM. Membrane restraint of estrogen receptor enhances estrogen dependent nuclear localization and genomic function. *Molecular Endocrinol* 18: 86-96, 2004.
80. Xu Y, Traystman RJ, Hurn PD, Wang MM. Neurite-localized estrogen receptor alpha mediated rapid signaling by estrogen. *J Neurosci Res.* Oct 1;74(1):1-11, 2003.
81. McCullough LD, Blizzard K, Simpson ER, Oz OK, Hurn PD. Aromatase cytochrome P450 and extragonadal estrogen play a role in ischemic neuroprotection. *J Neurosci* 23, 8501-5, 2003.
82. Littleton-Kearney MT, Hurn PD. Testosterone as a modulator of vascular behavior. *Biological Research for Nursing.* 5(4), 2004.
83. Chen TY, Goyagi T, Toung TJK, Kirsch JR, Hurn PD, Koehler RC, Bhardwaj A. Prolonged opportunity for ischemic neuroprotection with selective kappa opioid receptor agonist, BRL 52537 in rats. *Stroke.* 35:1180-5, 2004.
84. Li X, Blizzard KK, Zhu Z, DeVries AC, Hurn PD, McCullough LD. Chronic behavioral testing after focal ischemia in the mouse: functional recovery and the effects of gender. *Exp Neurology* 187:94-104, 2004.
85. Kofler J, Hattori K, Sawada M, DeVries AC, Martin LJ, Hurn PD, and Traystman RJ. Histopathological and behavioral characterization of a novel model of cardiac arrest and cardiopulmonary resuscitation in mice. *J Neurosci Methods.* 2004 Jun15;136(1):33-44. PMID: 15126043.
86. Liu M, Hurn PD, and Alkayed NJ. Cytochrome P450 in neurological disease. *Curr Drug Metab.* 2004 Jun;5(3):225-34. PMID: 15180492.
87. Hurn PD and Sacco RL. Sex, Steroids, and Stroke: Introduction. *Stroke.* 2004 Sep;35:2642-3.
88. Wang MM, Traystman RJ, Hurn PD, and Liu T. Non-classical regulation of estrogen receptor- α by ICI182,780. *J Steroid Biochem Mol Biol.* 2004 Sep;92(1-2):51-62. PMID: 15544930.

89. Toung TJ, Chen TY, Littleton-Kearney MT, Hurn PD, and Murphy SJ. Effects of combined estrogen and progesterone on brain infarction in reproductively senescent female rats. *J Cereb Blood Flow Metab.* 2004 Oct;24(10):1160-6. PMID: 15529016.
90. Hurn PD, Vannucci SJ, and Hagberg H. Adult or perinatal brain injury: does sex matter? *Stroke.* 2005 Feb;36(2):193-5. PMID: 15625289. [Epub 2004 Dec 29].
91. Ardelt AA, McCullough LD, Korach KS, Wang MM, Munzenmaier DH, and Hurn PD. Estradiol regulates angiopoietin-1 mRNA expression through estrogen receptor-alpha in a rodent experimental stroke model. *Stroke.* 2005 Feb;36(2):337-41. PMID: 15637314. [Epub 2005 Jan 6].
92. Matejuk A, Hopke C, Vandenbark AA, Hurn PD, and Offner H. Middle-aged male mice have increased severity of experimental autoimmune encephalomyelitis and are unresponsive to testosterone therapy. *J Immunol.* 2005 Feb;174(9):2387-95. PMID: 15699175.
93. McCullough LD, Zeng Z, Blizzard KK, Debchoudhury I, and Hurn PD. Ischemic nitric oxide and poly (ADP-ribose) polymerase-1 in cerebral ischemia: male toxicity, female protection. *J Cereb Blood Flow Metab.* 2005 Apr;25(4):502-12. PMID: 15689952.
94. Littleton-Kearney MT, Klaus J, and Hurn PD. Effects of combined oral conjugated estrogens and medroxyprogesterone acetate on brain infarction size after experimental stroke in rat. *J Cereb Blood Flow Metab.* 2005 Apr;25(4):421-6. PMID: 15689957.
95. Chen CH, Toung TJK, Hurn PD, Koehler RC, and Bhardwaj A. Ischemic neuroprotection with selective kappa-opioid receptor agonist is gender specific. *Stroke.* 2005 Jul;36(7):1557-61. PMID: 15933260. [Epub 2005 Jun 2].
96. Noppens RR, Kofler J, Hurn PD, and Traystman RJ. Dose-dependent neuroprotection by 17 β -estradiol after cardiac arrest and cardiopulmonary resuscitation. *Crit Care Med.* 2005 Jul;33(7):1595-602. PMID: 16003068.
97. Qin X, Hurn PD, and Littleton-Kearney MT. Estrogen restores postischemic sensitivity to the thromboxane mimetic U46619 in rat pial artery. *J Cereb Blood Flow Metab.* 2005 Aug;25(8):1041-6. PMID: 15758945.
98. Kofler J, Hurn PD, and Traystman RJ. SOD1 overexpression and female sex exhibit region-specific neuroprotection after global cerebral ischemia due to cardiac arrest. *J Cereb Blood Flow Metab.* 2005 Sep;25(9):1130-7. PMID: 15843790.
99. Craft TKS, Glasper ER, McCullough LD, Zhang N, Sugo N, Otsuka T, Hurn PD, and Devries AC. Social interaction improves experimental stroke outcome. *Stroke.* 2005 Sep;36(9):2006-11. PMID: 16100018. [Epub 2005 Aug 11].
100. Littleton-Kearney MT, Gaines JM, Callahan KP, Murphy SJ, and Hurn PD. Effects of estrogen on platelet reactivity after transient forebrain ischemia in rats. *Biol Res Nurs.* 2005 Oct;7(2):135-45. PMID: PMC2678714.
101. Singletary SJ, Kirsch AJ, Watson J, Karim BO, Huso DL, Hurn PD, and Murphy SJ. Lack of correlation of vaginal impedance measurements with hormone levels in the rat. *Contemp Top Lab Anim Sci.* 2005 Nov;44(6):37-42. PMID: PMC1403319.
102. Kofler J, Otsuka T, Zhang Z, Noppens R, Grafe MR, Koh DW, Dawson VL, de Murcia JM, Hurn PD, and Traystman RJ. Differential effect of PARP-2 deletion on brain injury after focal and global cerebral ischemia. *J Cereb Blood Flow Metab.* 2006 Jan;26(1):135-41. PMID: 15959455.
103. Zeynalov E, Nemoto M, Hurn PD, Koehler RC, and Bhardwaj A. Neuroprotective effect of selective kappa opioid receptor agonist is gender specific and linked to reduced neuronal nitric oxide. *J Cereb Blood Flow Metab.* 2006 Mar;26(3):414-20. PMID: 16049424.

104. Joh HD, Searles RV, Selmanoff M, Alkayed NJ, Koehler RC, Hurn PD, and Murphy SJ. Estradiol alters only GAD67 mRNA levels in ischemic rat brain with no consequent effects on GABA. *J Cereb Blood Flow Metab.* 2006 Apr; 26:518–26. PMID: PMC1410818.
105. Offner H, Subramanian S, Parker SM, Afentoulis ME, Vandembark AA, and Hurn PD. Experimental stroke induces massive, rapid activation of the peripheral immune system. *J Cereb Blood Flow Metab.* 2006 May;26(5):654-65. PMID: 16121126.
106. Craft TK, Zhang N, Glasper ER, Hurn PD, and Devries AC. Neonatal factors influence adult stroke outcome. *Psychoneuroendocrinology.* 2006 Jun;31(5):601-13. PMID: 16545914. [Epub 2006 Mar 20].
107. Offner H, Subramanian S, Parker SM, Wang C, Afentoulis ME, Lewis A, Vandembark AA, and Hurn PD. Splenic atrophy in experimental stroke is accompanied by increased regulatory T cells and circulating macrophages. *J Immunol.* 2006 Jun 1;176(11):6523-31. PMID: 16709809.
108. Vagnerova K, Hurn PD, Bhardwaj A, and Kirsch JR. Sigma 1 receptor agonists act as neuroprotective drugs through inhibition of inducible nitric oxide synthase. *Anesth Analg.* 2006 Aug;103(2):430-4. PMID: 16861428.
109. Bushnell CD, Hurn PD, Colton C, Miller VM, del Zoppo G, Elkind MS, Stern B, Herrington D, Ford-Lynch G, Gorelick P, James A, Brown CM, Choi E, Bray P, Newby LK, Goldstein LB, and Simpkins J. Advancing the study of stroke in women: summary and recommendations for future research from an NINDS-Sponsored Multidisciplinary Working Group. *Stroke.* 2006 Sep;37(9):2387-99. PMID: 16857945. [Epub 2006 Jul 20].
110. Xu Y, Zhang W, Klaus J, Young J, Koerner I, Sheldahl LC, Hurn PD, Martinez-Murillo F, and Alkayed NJ. Role of cocaine- and amphetamine-regulated transcript in estradiol-mediated neuroprotection. *Proc Natl Acad Sci U S A.* 2006 Sep 26;103(39):14489-94. PMID: PMC1636703. [Epub 2006 Sep 13].
111. Andrabi SA, Kim NS, Yu SW, Wang H, Koh DW, Sasaki M, Klaus JA, Otsuka T, Zhang Z, Koehler RC, Hurn PD, Poirier GG, Dawson VL, and Dawson TM. Poly(ADP-ribose) (PAR) polymer is a death signal. *Proc Natl Acad Sci U S A.* 2006 Nov 28;103(48):18308-13. PMID: PMC1838747. [Epub 2006 Nov 20].
112. Ardeshiri A, Kelley MH, Korner IP, Hurn PD, and Herson PS. Mechanism of progesterone neuroprotection of rat cerebellar Purkinje cells following oxygen-glucose deprivation. *Eur J Neurosci.* 2006 Nov;24(9):2567-74. PMID: PMC2831653.
113. Liu M, Hurn PD, Roselli CE, and Alkayed NJ. Role of P450 aromatase in sex-specific astrocytic cell death. *J Cereb Blood Flow Metab.* 2007 Jan;(1):135-41. PMID: 16736049. [Epub 2006 May 17].
114. Yang S, Bhardwaj A, Cheng J, Alkayed NJ, Hurn PD, and Kirsch JR. Sigma receptor agonists provide neuroprotection in vitro by preserving bcl-2. *Anesth Analg.* 2007 May;104(5):1179-84. PMID: PMC2596726.
115. Kitano H, Kirsch JR, Hurn PD, and Murphy SJ. Inhalational anesthetics as neuroprotectants or chemical preconditioning agents in ischemic brain. *J Cereb Blood Flow Metab.* 2007 Jun;27(6):1108-28. PMID: PMC2266688. [Epub 2006 Oct 18].
116. Kitano H, Young JM, Cheng J, Wang L, Hurn PD, Murphy SJ. Gender-specific response to isoflurane preconditioning in focal cerebral ischemia. *J Cereb Blood Flow Metab.* 2007 Jul;27(7):1377-86. PMID: PMC2266686. [Epub 2007 Jan 31].

117. Dziennis S, Jia T, Ronnekleiv OK, Hurn PD, and Alkayed NJ. Role of signal transducer and activator of transcription-3 in estradiol-mediated neuroprotection. *J Neurosci*. 2007 Jul 4;27(27):7268-74. PMID: PMC2570353.
118. Mao P, Ardeshiri A, Jacks R, Yang S, Hurn PD, and Alkayed NJ. Mitochondrial mechanism of neuroprotection by CART. *Eur J Neurosci*. 2007 Aug;26(3):624-32. PMID: PMC2582219. [Epub 2007 Jul 18].
119. Cheng J, Alkayed NJ, and Hurn PD. Deleterious effects of dihydrotestosterone on cerebral ischemic injury. *J Cereb Blood Flow Metab*. 2007 Sep;27(9):1553-62. PMID: PMC2274912. [Epub 2007 Feb 21].
120. Ross AM, Hurn PD, Perrin N, Wood L, Carlini W, and Potempa K. Evidence of the peripheral inflammatory response in patients with transient ischemic attack. *J Stroke Cerebrovasc Dis*. 2007 Sep-Oct;16(5):203-7. PMID: PMC2570354.
121. Hurn PD, Subramanian S, Parker SM, Afentoulis ME, Kaler LJ, Vandenberg AA, and Offner H. T- and B-cell-deficient mice with experimental stroke have reduced lesion size and inflammation. *J Cereb Blood Flow Metab*. 2007 Nov;27(11):1798-805. PMID: PMC2592689. [Epub 2007 Mar 28].
122. Hutchens MP, Nakano T, Dunlap J, Traystman RJ, Hurn PD, and Alkayed NJ. Soluble epoxide hydrolase gene deletion reduces survival after cardiac arrest and cardiopulmonary resuscitation. *Resuscitation*. 2008 Jan;76(1):89-94. PMID: PMC2585367.
123. Koerner IP, Zhang W, Cheng J, Parker S, Hurn PD, and Alkayed NJ. Soluble epoxide hydrolase: regulation by estrogen and role in the inflammatory response to cerebral ischemia. *Front Biosci*. 2008 Jan 1;13:2833-41. PMID: PMC2593891.
124. Cao Z, Liu L, Packwood W, Merkel M, Hurn PD, and Van Winkle DM. Sex differences in the mechanism of Met5-enkephalin-induced cardioprotection: role of PI3K/Akt. *Am J Physiol Heart Circ Physiol*. 2008 Jan;294(1):H302-10. PMID: PMC2596724. [Epub 2007 Nov 2].
125. Dziennis S, Yang D, Cheng J, Anderson KA, Alkayed NJ, Hurn PD, and Lein PJ. Developmental exposure to polychlorinated biphenyls influences stroke outcome in adult rats. *Environ Health Perspect*. 2008 Apr;116(4):474-80. PMID: PMC2291013.
126. Liu M, Oyarzabal, Yang R, Murphy SJ, Hurn PD. A novel method for assessing sex-specific and genotype specific response to injury in astrocyte culture. *J Neurosci Methods*. 2008 Jun 30;171(2):214-7. PMID: PMC2701697.
127. Merkel MJ, Liu L, Cao Z, Packwood W, Hurn PD, and Van Winkle DM. Estradiol abolishes reduction in cell death by the opioid agonist Met5- enkephalin after oxygen glucose deprivation in isolated cardiomyocytes from both sexes. *Am J Physiol Heart Circ Physiol*. 2008 Jul; 295(1):H409-15. PMID: 18502904. [Epub 2008 May 23].
128. Vagnerova K, Koerner I, and Hurn PD. Gender and the injured brain. *Anesth Analg*. 2008 Jul; 107(1):201-14. PMID: PMC2651745.
129. Hutchens MP, Dunlap J, Hurn PD, and Jamberg PO. Renal ischemia: does sex matter? *Anesth Analg*. 2008 Jul;107(1):239-49. PMID: 18635495.
130. Wang L, Kitano H, Hurn PD, and Murphy SJ. Estradiol attenuates neuroprotective benefits of isoflurane preconditioning in ischemic mouse brain. *J Cereb Blood Flow Metab*. 2008 Nov; 28(11):1824-34. PMID: PMC2575135. [Epub 2008 Jul 9].
131. Kelley MH, Taguchi N, Ardeshiri A, Kuroiwa M, Hurn PD, Traystman RJ, and PS Herson. Ischemic insult to cerebellar Purkinje cells causes diminished GABA_A receptor function and

- Allopregnanolone neuroprotection is associated with GABAA receptor stabilization. *J Neurochem.* 2008 Nov;107(3):668-78. PMID: PMC2692389.
132. Liu X, Zhang W, Alkayed NJ, Froehner SC, Adams ME, Amiry-Moghaddam M, Ottersen OP, Hurn PD, Bhardwaj A. Lack of sex-linked differences in cerebral edema and aquaporin-4 expression after experimental stroke. *J Cereb Blood Flow Metab.* 2008 Dec;(12):1898-906. PMID: PMC2667324.
 133. Offner H, Vandenbark AA, Hurn PD. Effect of experimental stroke on peripheral immunity: CNS ischemia induces profound immunosuppression. *Neuroscience.* 2009 Feb 6; 158(3):1098-111. PMID: PMC2666964.
 134. Noppens RR, Kofler J, Grafe MR, Hurn PD, and Traystman RJ. Estradiol after cardiac arrest and cardiopulmonary resuscitation is neuroprotective and mediated through estrogen receptor-beta. *J Cereb Blood Flow Metab.* 2009 Feb;29(2):277-86. PMID: PMC268442.
 135. Yang S, Alkayed NJ, Hurn PD, Kirsch JR. Cyclic adenosine monophosphate response element-binding protein phosphorylation and neuroprotection by 4-phenyl-1-(4-phenylbutyl) piperidine (PPBP). *Anesth Analg.* 2009 Mar;108(3):964-70. PMID: PMC2828492.
 136. Cheng J, Hu W, Toung T, Zhang Z, Parker SM, Roselli CE, and Hurn PD. Age-dependent effects of testosterone in experimental stroke. *J Cereb Blood Flow Metab.* 2009 Mar;29(3):486-94. PMID: PMC2843561. [Epub 2008 Nov 12].
 137. Herson PS, Koerner I, Hurn PD. Sex, Sex Steroids and Brain Injury. *Sem Reproductive Medicine.* 2009 May;27(3):229-39. PMID: PMC2675922.
 138. Roselli CE, Liu M, and Hurn PD. Brain aromatization: classic roles and new perspectives. *Semin Reprod Med.* 2009 May;27(3):207-17. PMID: PMC2902157. [Epub 2009 Apr 28].
 139. Fisher M, Feuerstein G, Howells DW, Hurn PD, Kent TA, Savitz SI, and Lo EH; for the STAIR Group. Update of the stroke therapy academic industry roundtable preclinical recommendations. *Stroke.* 2009 Jun;40(6):2244-50. PMID: PMC2888275. [Epub 2009 Feb 26].
 140. Liu M, Dziennis S, Hurn PD, and Alkayed NJ. Mechanisms of gender-linked ischemic brain injury. *Restor Neurol Neuroscience.* 2009;27(3):163-79. PMID: PMC2826890.
 141. Subramanian S, Zhang B, Kosaka Y, Burrows G, Grafe M, Vandenbark A, Hurn PD, Offner H. Recombinant T cell receptor ligand treats experimental stroke. *Stroke.* 2009 July;40:2539-2545. PMID: PMC2704258.
 142. Uchida M, Palmateer JM, Herson PS, DeVries AC, Hurn PD. Dose-dependent effects of androgens on outcome following focal cerebral ischemia in adult male mice. *J Cereb Blood Flow Metab.* 2009 Aug;29(8):1454-62. PMID: PMC2821811.
 143. Zhang W, Iliff JJ, Campbell CJ, Wang RK, Hurn PD, Alkayed NJ. Role of soluble epoxide hydrolase in the sex-specific vascular response to cerebral ischemia. *J Cereb Blood Flow Metab.* 2009 Aug;29(8):1475-81. PMID: PMC2823630.
 144. Vannucci SJ and Hurn PD. Gender differences in pediatric stroke: is elevated testosterone a risk factor for boys. *Ann Neurol.* 2009 Dec;66(6):713-4. PMID: PMC2888285.
 145. Hutchens MP, Nakano T, Dunlap J, Zhang W, Herson PS, Murphy SJ, Anderson S, Hurn PD. Estrogen is renoprotective via a non-receptor dependent mechanism after cardiac arrest in vivo. *Anesthesiology.* 2010 Feb;112(2):395-405. PMID: PMC2821813.
 146. Prongay KD, Lewis AD, Hurn PD, Murphy SJ. Dietary soy may not confound acute experimental stroke infarct volume outcomes in ovariectomized female rats. *Lab Anim,* 2010 Feb;44:138-46. PMID: PMC2888984.

147. Vagnerova K, Liu K, Ardeshiri A, Cheng J, Murphy SJ, Hurn PD, and Herson PS. Poly (ADP-ribose) polymerase-1 initiated neuronal cell death pathway-do androgens matter? *Neuroscience*. 2010 Mar 17;166(2):476-81. PMID: PMC3098136. [Epub 2009 Dec 24].
148. Zhang B, Subramanian S, Dziennis S, Jia J, Uchida M, Akiyoshi K, Migliati E, Lewis AD, Vandenbark DA, Offner H, and Hurn PD. Estradiol and GI reduce infarct size and improve immunosuppression after experimental stroke. *J Immunol*. 2010 Apr 15;184(8):4087-94. PMID: PMC3142781. [Epub 2010 Mar 19].
149. Zhu W, Wang L, Palmateer J, Libal N, Hurn PD, Herson P, Murphy S. Isoflurane Preconditioning Neuroprotection In Experimental Focal Stroke Is Androgen-Dependent in Male Mice. *Neuroscience*. 2010 Aug;169(2):758-69. PMID: PMC2905034.
150. Liu M, Kelley MH, Herson PS, and Hurn PD. Neuroprotection of sex steroids. *Minerva Endocrinol*. 2010 Jun;35(2):127-43. PMID: PMC3036837.
151. Nakano T, Hurn PD, Herson PS, Traystman RJ. Testosterone Exacerbates Neuronal Damage Following Cardiac Arrest and Cardiopulmonary Resuscitation in Mouse. *Brain Research*. 2010 Oct 21;1357:124-30. PMID: PMC2946522.
152. Cheng J and Hurn PD. Sex shapes experimental ischemic brain injury. *Steroids*. 2010 Nov;75(11):754-59. PMID: PMC2902572. [Epub 2009 Nov 10].
153. Cheng J, Uchida M, Zhang W, Grafe MR, Herson PS, and Hurn PD. Role of salt-induced kinase 1 in androgen neuroprotection against cerebral ischemia. *J Cereb Blood Flow Metab*. 2011 Jan;31(1):339-50. PMID: PMC3049497.
154. Li J, Siegel M, Yuan M, Zeng Z, Finnucan L, Persky R, Hurn PD, McCullough L. Estrogen enhances neurogenesis and behavioral recovery after stroke. *J Cere Blood Flow Metab*. 2011 Feb;31(2):413-25. PMID: PMC3049534. [Epub 2010 Oct 13].
155. Ren X, Akiyoshi K, Vandenbark A, Hurn PD, and Offner H. CD4+FoxP3+ regulatory T-cells in cerebral ischemic stroke. *Metabolic Brain Dis*. 2011 Mar;26(1):87-90. PMID: PMC3070853. [Epub 2010 Nov 17].
156. Dziennis S, Akiyoshi K, Subramanian S, Offner H, and Hurn PD. Role of dihydrotestosterone in post-stroke peripheral immunosuppression after cerebral ischemia. *Brain, Behavior, and Immunity*. 2011 May;25(4):685-95. PMID: PMC3081425.
157. Dziennis S, Mader S, Akiyoshi K, Ren X, Ayala P, Burrows GG, Vandenbark AA, Herson PS, Hurn PD, and Offner HA. Therapy with recombinant T-cell receptor ligand reduces infarct size and infiltrating inflammatory cells in brain after middle cerebral artery occlusion in mice. *Metab Brain Dis*. 2011 Jun;26(2):123-33. PMID: PMC3111858. [Epub 2011 Apr 7].
158. Ren X, Akiyoshi K, Dziennis S, Vandenbark AA, Herson PS, Hurn PD, and Offner H. Regulatory B cells limit CNS inflammation and neurologic deficits in murine experimental stroke. *J Neurosci*. 2011 Jun 8;31(23):8556-63. PMID: PMC3111929.
159. Berny-Lang MA, Hurst S, Tucker EI, Pelc LA, Wang RK, Hurn PD, Di Cera E, McCarty OJ, Gruber A. Thrombin mutant W215A/E217A treatment improves neurological outcome and reduces cerebral infarct size in a mouse model of ischemic stroke. *Stroke*. 2011 Jun;42(6):1736-41. PMID: PMC3115697. [Epub 2011 Apr 21].
160. Akiyoshi K, Dziennis S, Palmateer J, Ren X, Vandenbark A, Offner H, Herson P, Hurn PD. Recombinant T Cell Receptor Ligands Improve Outcome After Experimental Cerebral Ischemia. *Transl Stroke Res*. 2011 Sept 1;2(3):340-410 PMID: PMC3181103.

161. Ren X, Akiyoshi K, Vandenbark A, Hurn PD, Offner H. Programmed Death-1 Pathway Limits Central Nervous System Inflammation and Neurologic Deficits in Murine Experimental Stroke. *Stroke*. 2011 Sep;42(9):2578-83. PMID: PMC3164218. [Epub 2011 Jul 7].
162. Albers GW, Goldstein LB, Hess DC, Wechsler LR, Furie KL, Gorelick PB, Hurn PD, Liebeskind DS, Nogueira RG, Saver JL; for the STAIR VII Consortium. Stroke Treatment Academic Industry Roundtable (STAIR) recommendations for maximizing the use of intravenous thrombolytics and expanding treatment options with intra-arterial and neuroprotective therapies. *Stroke*. 2011 Sep;42(9):2645-50. PMID: 21852620. [Epub 2011 Aug 18].
163. Yang S, Abrahams MS, Hurn PD, Grafe MR, and Kirsch JR. Local anesthetic Schwann cell toxicity is time and concentration dependent. *Reg Anesth Pain Med*. 2011 Sep-Oct;36(5):444-51. PMID: PMC3380610.
164. Jia J, Verma S, Nakayama S, Quillinan N, Grafe MR, Hurn PD, and Herson PS. Sex differences in neuroprotection provided by inhibition of TRPM2 channels following experimental stroke. *J Cereb Blood Flow Metab*. 2011 Nov;31(11):2160-8. PMID: PMC3210342. [Epub 2011 May 18].
165. Ren X, Akiyoshi K, Grafe MR, Vandenbark AA, Hurn PD, Herson PS, and Offner H. Myelin specific cells infiltrate MCAO lesions and exacerbate stroke severity. *Metab Brain Dis*. 2012 Mar;27(1):7-15. PMID: PMC3270145. [Epub 2011 Oct 12.]
166. Offner, H, Hurn, PD. A Novel Hypothesis: Regulatory B Lymphocytes Shape Outcome from Experimental Stroke. *Transl Stroke Res*. 2012 Sept;3:324-330. PMID: PMC3501272.
167. Kosaka Y, Quillinan N, Bond CT, Traystman RJ, Hurn PD, Herson PS. GPER1/GPR30 activation improves neuronal survival following global cerebral ischemia induced by cardiac arrest in mice. *Transl Stroke Res*. 2012 Dec 1;3(4):500-507. PMID: PMC3587667.
168. Herson PS, Palmateer J, and Hurn PD. Biological Sex Mechanisms of Ischemic Brain Injury. *Transl Stroke Res*. 2013 Aug 1;4(1):413-19. PMID: PMC3733393.
169. Zhang W1, Cheng J, Vagnerova K, Ivashkova Y, Young J, Cornea A, Grafe MR, Murphy SJ, Hurn PD, and Brambrink AM. Effects of androgens on early post-ischemic neurogenesis in mice. *Transl Stroke Res*. 2014 Apr;5(2):301-11. PMID: 24323721. [Epub 2013 Nov 11].
170. Nobile CW, Palmateer JM, Kane J, Hurn PD, Schallert T, and Adkins DL. Impaired limb reaction to displacement of center of gravity in rats with unilateral striatal ischemic injury. *Transl Stroke Res*. 2014 Oct;5(5):562-8. PMID: 24687517.
171. Pan J, Palmateer J, Schallert T, Hart M, Pandya A, Vandenbark AA, Offner H, and Hurn PD. Novel Humanized Recombinant T Cell Receptor Ligands Protect the Female Brain After Experimental Stroke. *Transl Stroke Res*. 2014 Oct;5(5):577-85. PMID: PMC4121525.
172. Hurn PD. 2014 Thomas Willis Award Lecture: Sex, Stroke and Innovation. *Stroke*. 2014 Dec;45(12):3725-9. PMID: PMC4245388.
173. Mittal N, Pan J, Palmateer J, Martin L, Pandya A, Kumar S, Ofomata A, Hurn PD, and Schallert T. So you think you can jump? A novel long jump assessment to detect deficits in stroked mice. *J Neurosci Methods*. 2015 Dec;256:212-9. PMID: PMC4651752.
174. Palmateer J, Pan J, Pandya A, Martin L, Kumar S, Ofomata A, Jones TA, Gore AC, Schallert T, and Hurn PD. Ultrasonic vocalization in murine experimental stroke: A mechanistic model of aphasia. *Restor Neurol Neurosci*. 2016 Jan;34(2):287-95. PMID: 26889967. doi: 10.3233/RNN-150583

175. Mittal N, Hurn PD, and Schallert T. Exploring a need for improved preclinical models of post-stroke depression. *Neural Regen Res*. 2016 April;11(4); 561-2. doi: 10.4103/1673-5374.180736

Books, Chapters:

1. Hurn PD, and Connolly C. The polytrauma patient: multiple problems and nursing management. *Focus Crit Care* 10: 15-20, 1983.
2. Cardona VD, Hurn PD, Mason PB, Scanlon AS, and Veise-Berry SW. Trauma Nursing: from Resuscitation through Rehabilitation. WB Saunders, Philadelphia, 1988.
3. Hurn, PD. Thoracic trauma. in Trauma Nursing: From Resuscitation through Rehabilitation. Cardona VD, Hurn PD, Mason PB, Scanlon-Schilpp AS, Veise-Berry SW (eds). WB Saunders, Philadelphia, 1988, pp 449-490.
4. Cardona VD, Hurn PD, Mason PB, Scanlon AS, and Veise-Berry SW. Trauma Nursing: from Resuscitation through Rehabilitation. 2nd edition. WB Saunders, Philadelphia, 1993.
5. Hurn PD and Hartsock RL. Thoracic trauma. in Trauma Nursing: From Resuscitation through Rehabilitation. Cardona VD, Hurn PD, Mason PB, Scanlon AS, Veise-Berry SW (eds). WB Saunders, Philadelphia, 1993.
6. Hurn PD. Chest trauma. (Guest editor) Crit Care Nurs Clin N Am Vol 5: 671-2, 1993.
7. Hurn PD and Hartsock RL. Blunt thoracic injuries. Crit Care Nurs Clin N Am 5:673-86, 1993.
8. Moore LE and Hurn PD. Anesthesia in chest trauma: implications for critical care. Crit Care Nurs Clin N Am 5:697-711, 1993.
9. Hurn PD. Graded bioassay for demonstration of brain rescue form experimental acute ischemia in rats. Stroke 25: 2240, 1994.(Solicited Editorial).
10. Hurn PD. Responses of cerebral arterioles to kainate. Stroke 25: 2084, 1994 (Solicited Editorial).
11. Hurn PD. N-Acetylcysteine enhances hippocampal neuronal survival after transient forebrain ischemia in rats. Stroke 26: 311, 1995.(Solicited Editorial).
12. Hurn PD. Failure of isradipine to reduce infarct size in mouse, gerbil, and rat models. Stroke 26: 2183, 1995.(Solicited Editorial).
13. Hurn PD. Selective depression of endothelium dependent dilations during cerebral ischemia. Stroke 26:1882, 1995.(Solicited Editorial).
14. Hurn PD. Effect of age and sex on NMDA antagonist-induced neuronal necrosis. Stroke 27: 746, 1996.(Solicited Editorial).
15. Hurn PD, Kirsch JR, Helfaer MA, and Traystman RJ. Brain damage and free radicals. in Tissue Perfusion and Organ Function: Ischemia/Reperfusion Injury. Kamada T, Shiga T, McCluskey RS (eds). Elsevier Science, Amsterdam, 1996, 71-84.
16. Hurn PD and Kirsch JR. Principles of Cerebroprotection. in Critical Care Medicine: Perioperative management. Murray MJ, Coursin DB, Pearl RG, Prough DS (eds.), Raven Press, New York, 1996, pp 233-244.
17. Kirsch JR, Traystman RJ, and Hurn PD. Anesthetics and Cerebroprotection: Experimental Aspects. in International Anesthesia Clinics, (Giffard RG and Jaffee RA, eds.), Vol 34 (4), Little Brown, Boston, 1996, 73-94.
18. Hurn PD and Traystman RJ. Overview of Cerebral Hemodynamics. in Primer on Cerebrovascular Diseases, (Welch, Caplan et al, eds.), Academic Press, San Diego, 1997, pp 42-45.

19. Hurn PD, Kirsch JR and Traystman RJ. Pharmacologic Neuroprotection: Fact or Fantasy? In Neuroprotection. Blanck, TJJ (ed), Williams & Wilkins, Baltimore, pp. 47-61, 1997.
20. Hurn PD, Alkayed NJ, Toung TJK, Traystman RJ, Crain BJ, Nelson RJ, and Korach KS. Female vs Male: Injury in experimental stroke. In Pharmacology of Cerebral Ischemia. Krieglstein J (ed), Medpharm Scientific Publishing, Stuttgart, 1998, pp 379-386.
21. Alkayed NJ and Hurn PD. Low glucose enhances Na⁺/glucose transport in bovine brain artery endothelial cells. Stroke 29: 849, 1998 (Solicited Editorial).
22. Hurn PD. Effects of glucose and PaO₂ modulation on cortical intracellular acidosis, NADH redox state and infarction in the ischemic penumbra. Stroke 30: 170, 1999. (Solicited Editorial).
23. Hurn PD. Synergistic effects of a combination of low-dose basic fibroblast growth factor and citicoline after temporary experimental focal ischemia. Stroke 30: 431-432, 1999. (Solicited Editorial).
24. Hurn PD. Pharmacological inhibition of the Na⁺/Ca²⁺ exchanger enhances depolarizations induced by oxygen/glucose deprivation but not responses to excitatory amino acids in rat striatal neurons. Stroke 30: 1694-1694, 1999. (Solicited Editorial).
25. Hurn PD. An integrin inhibitor preserves microvascular patency in experimental acute focal cerebral ischemia. Stroke 31: 1409-1410, 2000. (Solicited Editorial).
26. Kirsch JR, Hurn PD, and Traystman RJ. Nitric oxide and cerebral ischemia. In Nitric Oxide: Biology and Pathobiology. Ignarro LJ (ed.), Academic Press, San Diego CA, 2000, pp 439-451.
27. Hurn PD, Bhardwaj A, and Traystman RJ. Cerebral Ischemia: Pathophysiology and neuroprotection. In Update in Intensive Care and Emergency Medicine, Vincent JL (ed.), Springer Verlag, Berlin, 2001, pp 339-347.
28. Rossberg MI, Hurn PD, Bhardwaj A, and Kirsch JR. Principles of Cerebroprotection. in Critical Care Medicine: Perioperative management (2nd edition) Murray MJ, Coursin DB, Pearl RG, Prough DS (eds.), Lippincott Williams and Wilkins, Philadelphia, pp 225-235.
29. Hurn PD and DeVries AC. Sex and Stress Hormones in Brain Injury. in Neuroprotection. Marwah J and Lo EH (eds.) Prominent Press, Scottsdale, pp 239-2258, 2002.
30. Alkayed NJ, Wang M, and Hurn PD. Reproductive hormones as neuroprotectants in brain injury. In Brain Injury. Molecular and Cellular Biology of Critical Care Medicine. Clark B and Kochanek P (eds.) Kluwer/Lippincott Publishing, 2001, pp 295-315.
31. Hurn PD and Traystman RJ. Changes in Arterial Gas Tensions. In Cerebral Blood Flow and Metabolism, 2nd edition. Edvinsson L and Krause DN (eds). Lippincott Williams and Wilkins Company, Philadelphia, pp 384-394, 2002.
32. Kofler J, M Sawada, K Hattori, VL Dawson, PD Hurn, and RJ Traystman. Brain injury after cardiac arrest and cardiopulmonary resuscitation (CPR). In: Pharmacology of Cerebral Ischemia 2002. Krieglstein J, ed., Medpharm Scientific Publishers, Stuttgart, Germany, 2002, pp 397-403.
33. Hurn PD, A A. Ardelt, N J Alkayed, B J Crain, W Hu , ML Kearney, LD McCullough, SJ Murphy, TJK Toung, RJ Traystman, and M Wang. Estrogen and testosterone as neuroprotectants in stroke. In: Pharmacology of Cerebral Ischemia 2002. Krieglstein J, ed., Medpharm Scientific Publishers, Stuttgart, Germany, 2002, pp457-464.
34. Alkayed NJ, Goyagi T, Peng X, Harder DR, Hurn PD, Traystman RJ, and Koehler RC. Role of P450 arachidonic acid epoxygenase in ischemic preconditioning in brain. In: Pharmacology of Cerebral Ischemia 2002. Krieglstein J, ed., Medpharm Scientific Publishers, Stuttgart, Germany, 2002 pp 303-310.

35. Murphy SJ, Littleton-Kearney MT, McCullough LD, and Hurn PD. Sex, hormones and the endothelium. In *Principles of Sex-Based Differences in Physiology*, Miller V (ed), *Adv in Molecular Cell Biology* 34:71-84, 2003.
36. Kofler J, Noppens R, Hurn PD, and Traystman RJ. Neurological Outcome from CPR: do genes and gender make a difference. In: Pharmacology of Cerebral Ischemia 2002. Krieglstein J, ed., Medpharm Scientific Publishers, Stuttgart, Germany, 2004.
37. McCullough LD, and Hurn PD. Stroke: What every women should know. In The savvy woman patient: How and why your sex matters to your health. Greenberger P (ed) Monograph for Society for Women's Health Research. Capital Books, Washington DC, 2005.
38. Koerner I, Murphy SJ, and Hurn PD. Gender, Sex Steroids, and Cerebral Ischemic Pathobiology. In Acute Ischemic Injury and Repair in the Nervous System, Vol 23, Handbook of Neurochemistry and Molecular Neurobiology, 3e Chan P (ed). Kluwer Academic/Plenum Publishing, 2007.
39. McCullough LD, Kofler J, and Hurn PD. Gender differences in stroke pathobiology: therapeutic implications, in Acute Stroke: Bench to Bedside. Bhardwaj A, Alkayed NJ, Kirsch JR, Traystman RJ (ed), Informa Healthcare, Marcel Dekker Publishing, New York, 38: 433-441, 2006.
40. McCullough LD, Koerner IP, and Hurn PD. Effects of gender and sex steroids on ischemic injury. In Handbook of Clinical Neurology, 3rd edition. Bogousslavsky J and Fisher M (eds). Elsevier Publishing, 2008; 92:149-69.
41. Hurn PD and Stein DG. Effects of sex steroids in damaged neural systems. In Hormones, Brain and Behavior. Pfaff D, Arnold A, Etgen A, Fahrbach S, Rubin R (eds.) Elsevier Publishing, Volume 4, June 2009, Chapter 69.
42. Herson P and Hurn PD. Gender and the injured brain. Progress in Brain Research, Volume 186, December 2010, pages 177-87.
43. Herson PS, Palmateer J, Hurn PD, and Devries AC. Evaluating Behavioral Outcomes from Ischemic Brain Injury. In Translational Models of Behavioral Analysis. Raber J (ed). Humana Press, 2011; 50:307-327.
44. Offner H and Hurn PD. Systemic Immune Responses after Experimental Stroke. In Immunological Mechanisms and Therapies in Brain Injuries and Stroke. Chen J, Hu, X, Stenzel-Poore M and Zhang J (ed), 2013 153-176.
45. Sohrabji F, and Hurn PD. Risk Factors: Gender and Sex. in Primer on Cerebrovascular Diseases. 2nd edition. Caplan LR, Biller J, Leary M, Thomas A, Lo E, Yenari M, and Zhang J (eds). Elsevier Publishing, 2016, Chapter 34.
46. Hurn PD and Traystman RJ. Voices from the Field: Cross-disciplinary Team of Researchers. In Advancing Social and Behavioral Health Research through Cross-disciplinary Team Science: Principles for Success Hall KL, Vogel AL and Croyle RT (eds.) Springer Publishing, 2016, Chapter 7.