

Curriculum Vitae

For

JAMES E. HEAVNER, D.V.M., Ph.D.

**Professor, Departments of Anesthesiology and Physiology
Director, Anesthesia and Pain Research**

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Director, Anesthesia Research
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Texas Tech University Health Sciences Center
Lubbock, TX 79430

Education:

1962 - 1964	University of Maryland PreVeterinary Medicine
1964 - 1968	Veterinary School, University of Georgia Athens, Georgia D.V.M., Veterinary Medicine
1968 - 1971	Department of Pharmacology University of Washington, School of Medicine Seattle, Washington Ph.D., Pharmacology

Postgraduate Training:

1968 - 1971	University of Washington, School of Medicine, Seattle, Washington Research Fellow, Anesthesiology
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Faculty/Professional Positions Held:

7/71 - 2/72	Acting Assistant Professor, Department of Anesthesiology and Anesthesia Research Center University of Washington, Seattle, WA
3/72 - 6/75	Assistant Professor, Department of Anesthesiology and Anesthesia Research Center University of Washington, Seattle, WA
7/75 - 3/80	Associate Professor, Department of Anesthesiology and Anesthesia Research Center University of Washington, Seattle, WA
4/78 - 9/78	Visiting Scientist, Department of Physiology University of Edinburgh, Edinburgh, Scotland
3/80 - 12/82	Chief, Pharmacology/Toxicology Branch, DVMR, BVM, FDA Beltsville, MD
10/80 - 12/82	Adjunct Professor, Faculty of Virginia-Maryland Regional College of Veterinary Medicine, Virginia Tech, Blacksburg, VA
1/83 - 8/87	Associate Professor, Anesthesiology and Physiology, Director Anesthesia Research, Texas Tech University Health Sciences Center School of Medicine, Lubbock, TX
9/87 - Present	Professor, Anesthesiology and Physiology, Director Anesthesia and Pain Research Texas Tech University Health Sciences Center School of Medicine, Lubbock, TX
94 - Present	Adjunct Professor, The Graduate School, The Union Institute, Cincinnati, OH

Hospital Affiliation:

1967 Armed Forces Institute of Pathology, Veterinary Pathology
Section WRAMC, Washington, DC.
1968 Rocky Gorge Animal Hospital and White Oak Veterinary
Clinic, Laurel, MD
1974 - 1980 Green Lake Animal Hospital, Seattle Neurology and
Anesthesiology Consultant
1976 - 1977 Relief Veterinarian, Vivarium, University of Washington
2000- University Medical Center – Allied Health Staff
2003- Covenant Medical Center – Ancillary Staff

Board Certification:

1976 Charter Diplomat, The American College of Veterinary Anesthesiologists

Honors:

1968 Phi Zeta
1968 Alpha Zeta
1968 Gamma Sigma Delta
1967 - 1968 President, Senior Class in Veterinary School
1967 President, Research Club, University of Georgia Veterinary
School
1967 Vice President, Student Chapter AVMA
1971 - 1974 NIH Special Fellow
1982 American Men and Women in Science
1984 Who's Who in the Behavioral Sciences
1984 Who's Who in Frontier Science and Technology
1985 International Who's Who of Contemporary Achievement
1986 American-Scandinavian Foundation Fellowship for Studies in
Finland (July - October 1986)
1986 Fulbright Senior Fellowship for Studies in Finland
(July - October 1986)
1988 Hildegard Doerenkamp/Gerhard Zbinden-Stiftung Special
Award for work related to Anesthesia in Laboratory Animals -
Management of Chronic Pain in Laboratory Animals
2001 Fellow Interventional Pain Practice (Honorary)

Licensure to Practice Veterinary Medicine:

1968 Maryland
1975 Washington

Organizations:

1967 Omega Tau Sigma Professional Veterinary Fraternity (Non-
active, 1968)
1968 - 1980 American Veterinary Medical Association
1968 - American Association for the Advancement of Science
1970 - American Society of Veterinary Anesthesiology
Treasurer (1971-72)

ad hoc Committee on Manpower Status (1972)
ad hoc Committee on Veterinary Acupuncture (1975)
ad hoc Committee on Welfare of Research Animals (1985)
 Organized mini symposium "Management of Pain in Research Animals" for 2nd International Congress of Veterinary Anesthesia (1985)

1970 - American Society of Regional Anesthesia and Pain Medicine
 Newsletter Committee (1992 - 2006)
 Newsletter Editor (2003-2006)
 Research Committee (1996- 2003)
 Chair (2002)

1970 - 1974 American Association of Veterinary Physiologists and Pharmacologists

1970 - 1980 Seattle Veterinary Medical Association
 Chairman, Research and Regulatory Chapter (1971)
 Secretary (1972)
 Secretary (1973)
 President-elect (1974)
 President (1975)
 Board of Trustees (1977)

1970 - American Society of Anesthesiologists
 1973 - 1980 Washington Society of Anesthesiologists (Inactive 1980)
 1973 - Western Pharmacology Society
 1973 - 1982 Digital Equipment Computer Users Society (DECUS)
 1974 - Society for Neuroscience
 1974 - British Brain Research Association (Honorary Member)
 1974 - International Association for the Study of Pain (IASP)
 Subcommittee on Refresher Courses of the Committee of Education (August 1993 - August 1996)

1974 - International Brain Research Organization
 1976 - American College of Veterinary Anesthesia
 Scientific Session Planning Committee (1976-79)
 Continuing Education Committee (1977-79)
 Examination Committee (1980-82)
 ad hoc Committee on Animal Research (1985)
 Examiner (1988)

1977 - American Society of Pharmacology and Experimental Therapeutics

1982 - 1983 Mid Atlantic Society of Toxicology
 1983 - Texas Anesthesia Society
 1983 - International Anesthesia Research Society
 1984 - 1988 The New York Academy of Science
 1989 - Texas Pain Society
 Board of Trustees (1989 - Present)
 Director Emeritus (2005-2008)
 Chairman, Education Committee (1989 - 1994)
 Editor, Newsletter (1989 - 2000)
 Program Chairman (1989 -1994)
 TMA Annual Session Symposium on Pain and Methods to relieve It (1992, 1993)
 TMA Annual Session Symposium on Pain (1994)
 Secretary (1992 - 2005)

1996 - Co-organizer Budapest Interventional Pain Workshop on Pain Procedures for Chronic Pain

1997 - Institute of Laboratory Animal Resources (ILAR)
 2001 - World Institute of Pain

Examination Committee
 Practical Examination Coordinator (2001 -)
 Examination Registrar (2004 -)
 Coordinator – Refresher Course: Essentials of Pain Medicine, 3rd World
 Congress Barcelona (2004)
 Facilitator, WIP beta exam. Budapest, Hungary (2001)
 Task Force WIP/ASIPP Agreement (2005-2006)
 Liaison Committee-WIP/ASIPP (2007)
 World Congress (2007)
 Planning Committee (2005-2007)
 Scientific Program Committee (2005-2007)
 Refresher Course Organizer
 Congress Associate Chairman
 Topical Seminar Organizer—
 Epiduroscopy/Adhesiolysis
 2005 Neurotoxicity Society (Membership #195)

Editorial Responsibilities:

1974 - 1978 Associate Editor, Veterinary Anesthesia
 1978 - 1985 Editorial Review Board, Veterinary Anesthesia
 1989 - 1994 Pain Digest, Associate Editor, Biomedical Devices
 and Products
 1990 - 1999 Scientific Review Board, Laboratory Animal Science
 1994 - 2000 Associate Editor, Pain Digest
 1997 - 2000 Section Editor, Current Review of Pain
 1998 - 2001 Associate Editor, Regional Anesthesia and Pain Medicine
 2002 - 2006 Editor, Regional Anesthesia and Pain Medicine
 1999 - Present Editorial Board, Journal of Veterinary Anesthesia and Analgesia
 2000 - 2004 Editorial Board, Comparative Medicine (formerly Laboratory
 Animal Science)
 2000 - Present Editorial Board, Pain Practice
 Executive Editor – 2002 – Present
 Guest Editor March 2005 issue Pain Practice
 Guest Editor September 2007 issue Pain Practice
 2002 - Present Editorial Advisory Board (2002-2006), Pain Physician
 Associate Editor – 2006 – Present
 2004 Guest Editor July 2004 Issue Techniques in Regional
 Anesthesia and Pain Management

Manuscript Reviews:

1972 Life Sciences
 1973 - Present Anesthesiology
 1973 - 2006 American Journal of Veterinary Research
 1973 - 2006 Journal of Applied Physiology
 1973 - 2006 Anesthesia and Analgesia
 1974 - 2006 Journal of American Veterinary Medical Association
 1975 - 1978 Journal of Pharmacology and Experimental Therapeutics
 1977 Science
 1988 - 2006 Laboratory Animal Science
 1990 Veterinary Surgery
 2004 Journal of Clinical Anesthesia

2005	Comparative Medicine
2005 - Present	Pain
2006 – Present	Regional Anesthesia and Pain Medicine

Special Local Responsibilities:

Department of Anesthesiology, University of Washington

1973 - 1974	Continuing Education Committee
1973 - 1974	Newsletter Committee
1974 - 1980	Research Committee
	Head, Computer Subcommittee

University of Washington

1976 - 1980	Committee on Animal Care
1977 - 1980	Subcommittee Animal Medicine Advisory Board

Department of Anesthesiology, Texas Tech University Health Sciences Center

1983 - 1999	Chairman, Visiting Scientist Program
1983-1999, 2003-2004	Education Committee
1983 - 2007	OR Stat Lab Associate Director
1983 - 1994	OR Respiratory Monitoring System Supervisor
1983 - 1994	Respiratory Therapy Blood Gas Lab Associate Director
1983 - 2006	Editor, Department Newsletter
1983 – Present	Co-Director, Annual Pain Symposium (1 st thru 25 th Annual)
1992 - 1996	Coordinator, Didactic Program for Pain Fellowship
1998 – 2007	QA/QI Committee
2000	Finance Committee
2001 - Present	Tenure & Promotion Committee
	2003- Co-Chair
	2004 – Present Chair
2005 - Present	Executive Committee
1983 - Present	Research Committee - Chair

Texas Tech University Health Sciences Center School of Medicine

1983 - 2000	Graduate School Biological Science (Member)
2000 -	Associate Member
1985 - 1992	Animal Care and Use Committee
	Chairman (1989 - 91)
1987 - 2001	Institutional Review Board For The Protection of Human Subjects
1987	CRC Committee
1988 - 1989	Vivarium Expansion Task Force
1989 - 1991	Vivarium Advisory Committee, ex-officio member
1990-1992, 1996-1998	Faculty Appointments Committee
1992	Search Committee - Vivarium Director
1993, 1997-2003	Faculty Executive Committee
	Chair Elect (1998-99)
	Chair (1999-2000)
1992-1995, 1997-2000 & 2004-2007	Hearing Committee
1995 - Present	Mediator, Grievances and Dismissal for Cause
1996-1999, 2000-2003	Faculty Research Committee
	Chair (97-98)
2000 - 2002	Grievance Committee

2003 - 2006	Post-Tenure Peer Review Committee Chair (12/2003-12/2004)
2004 - 2006	Faculty Development Advisory Committee
2004 - 2006	Ad Hoc Seed Grant Reviewer
2006	Mentor, Annual Review of Faculty and Chairs

Texas Tech University/Texas Tech University Health Sciences Center

1994-1998	Benefits and Retirement Committee Chairman (1995-1998)
2000	LCME Task Force - Information Technology
2000	Strategic Planning Task Force
2002 - 2003	Human Research Protection Program Task Force Chair (2002-2003)

Teaching Activities:

University of Washington

1969 - 1980	Department of Anesthesiology Research Seminars
1969 - 1980	Department of Pharmacology Research Seminars
1969 - 1980	Department of Anesthesiology Clinical Conferences
1969 - 1980	Department of Anesthesiology Teachathons
1973 - 1980	Anesthesiology Residents Lecture
1973 - 1974	Pharmacology 525 (Current Topics)
1974	Anesthesiology Resident's Journal Club
1972 - 1975	Pharmacology 444 (Neuropharmacology)
1976	Laboratory Animal Medical Technician Training Seminars (Spring)
1979	Biology 535 (July)

Students:

1972	L.F. de Oliveira
1973	J.E. Scurlock, 1 year Research Rotation during Anesthesia Residency
1977 - 1978	J. Turner, predoctoral student
1978	R. Montgomery, predoctoral student

Washington State Society of Anesthesiologist Continuing Education Workshops

1972	Local Anesthetic Seizures and Their Prevention
1979	The Electrophysiology of Nerve Conduction and Skeletal Muscle Contraction
1979	Therapy for Toxic Reactions to Local Anesthetics

Virginia Tech, Blacksburg, Virginia

1980	Electrophysiology Lectures
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Department of Pharmacology and Therapeutics, University of Maryland School of Medicine Seminar

1982	Is the Toxicity of Organophosphorus Compounds Influenced by Stress and/or Seasonal Factors?
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TTUHSC

1983 - Present	Clinical Conferences and Resident and Pain Fellow Lectures
1983	1983 Bioengineering Student Laboratory
1983	Emergency Medical Service Workshop - Establishing and Maintaining an Upper Airway in the Field
1983	Local Anesthetics Symposium sponsored by Astra Chemical Company Texas Tech Regional Academic Health Center, El Paso, TX
1983 - Present	Intubation labs - medical students, anesthesia residents, EMS personnel,

1984 RT's, NICU staff
 MS I Physiology Laboratory
 1984 - 1985 Graduate Committee, Emmanuel Otuwa, Ph.D. thesis
 1984 Graduate committee, Aharon Shulimson, Ph.D. thesis
 1984 Paul Salva MS I (Southern Medical School Student Grant)
 1987 - 1990 General Physiology 5402, Neuroscience section
Students:
 1984 Ralph Gertch MS IV
 1984 Dotty McWhorter MS III
 1984 - 1986 Karla Barron pre-med student
 1984 Mark Pacinda pre-med student
 1986 Marylinda Carline MS III
 1986 Wright Singleton MS II
 1987 - 1988 Craig Flinders MS
 1988 Sam Colley MS II
 1989 Justin Gayle MS II
 Lan Anh Le MS II
 1991 Charles Dryden, MS II
 1991 Nicholas Manitzas, MS II
 1992 Bing Shi (Ph.D. 1994) (Doctoral committee)
 1998 Steve Arze, MS II (AHA Medical Student Research Fellow)
 1998 Amy Davis, MS I
 2000 Travis King premed student
 2000 Amanda Purdom (Master's advisory committee)
 2001 - 2003 Brian Gill medical student/Orthopedics resident
 2001 - 2004 Travis Lehman premed student
 2003 Robert Brobst medical student
 2005 Christina Hicks medical student
 2005 - 2007 Erin Haley occupational therapy student
 2005 - Present Adam Ross premed student
 2006 David Wyatt MS IV
 2007 Jonathan Nathan MS II
 2007 Zachariah Treat
 2007 - Present Suzan Parhizgar Post doctoral trainee
 2007 - Present Marzieh Nasrollahzadeh premed student
Other
 1990 Symposium co-organizer "Conflict of the 90's: The Siege by Animal Rights Activists"
 1994 -1998 Respiration in Medical Physiology
 1994 - Integrated Medical Neurosciences MID 50801 – Clinical Correlation: Pain
 1995 - Pain Grand Rounds
 1998 IRB Rules and Regulations - Clinical Investigation and Health Management Course
 2002 - Student Research Week Poster Judge
 2002 Dean's Grand Rounds – Pathophysiological Responses to Surgical Trauma and Anesthesia
Students; other Institutions
 1995 - 2002 Doctoral Committee of John Mabee
 The Union Institute
 2006 Thesis Examination. Leigh Ladd. For the degree of Doctor of Philosophy. Anesthesia, The University of Sydney.

Visiting Professorship:

1971	Department of Physiology and Pharmacology, Veterinary School, University of Georgia
1973	Department of Physiological Sciences, College of Veterinary Medicine, Oklahoma State University
1974	Department of Anatomy, Pharmacology and Physiology College of Veterinary, Medicine, Iowa State University
1976	College of Veterinary Medicine, Mississippi State University
1976	School of Medicine, University of California, Irvine
1976	School of Medicine and Veterinary Medicine, Michigan State University
1979	Department of Physiology and Biophysics, College of Veterinary Medicine, Fort Collins, CO
1984	Institute of Chemical Defense, U.S. Army, Aberdeen Proving Ground, MD
1988	Division of Animal Medicine, University of Washington, School of Medicine, Seattle, WA
1989	Department of Anesthesiology, University of Colorado, School of Medicine, Denver, CO
1990	Division of Laboratory Animal Medicine, University of Texas, Southwestern University Health Sciences Center, Dallas, TX
1990	Texas A&M University, College Station, TX (RE: Animal Rights Activities)
1995	Anesthesiology Virginia Mason Medical Center, Seattle, Washington
2004	Pain Management Department, Cleveland Clinic, Cleveland, Ohio
2006	Department of Anesthesia. Beijing, Daqing, and Xian, China.
2007	Department of Anesthesia. Oporto, Portugal

Invited Lectures:

1972	Sedation Tranquilization, Capture, Surgery and Anesthetization of Aquatic Animals (Panel Discussant), International Association for Aquatic Animal Medicine, HI
1972	Ventricular Fibrillation, Cardiac Arrest and Resuscitation, American Veterinary Medicine Association Convention
1973	Studies of Analgasic and Anesthetic Effects on Dorsal Horn Impulse Transmission, People's Republic of China
1976	Delegation Visit the University of Washington, Seattle, WA Current Trends and Recent Developments in Animal Anesthesia and Pharmacology of the Adrenergic Nervous System Specifically related to Animal Anesthesia, Seventh Annual Conference International Association for Aquatic Animal Medicine, Seattle, WA
1980	Relationship of Seizure Activity to Neurology Outcome Following Cardiac Arrest in the Cat (Invited discussant), International Anesthesia Research Society
1983	Establishing and Maintaining an Upper Airway Passage (Moderator), 4th Annual Emergency Medical Services Update, TTUHSC
1983	Local Anesthetics for Obstetrical Use: Epidural Applications and Pharmaceutical Products (Panel Discussion) El Paso Regional Refresher Course
1984	Current Status of Anesthesia Research, United States

- Army Medical Research Institute of Chemical Defense,
Aberdeen, MD
- 1985 Monitoring Respiratory Physiology and Anesthetic Gas
Delivery in the Operating Room Using Mass Spectrometry
Based Medical Gas Analysis Second International
Congress of Veterinary Anesthesia Sacramento, CA
- 1985 Moderator for session on Management of Pain in
Research Animals. Second International Congress of
Veterinary Anesthesia, Sacramento, CA
- 1985 Methods of Animal Experimentation (4 hour workshop)
United States Army Medical Research Institute of Chemical Defense,
Aberdeen, MD
- 1985 Pain Evaluation and Alleviation, Academy of Surgical
Research (Plenary Speaker)
- 1986 Respiratory Gas Monitoring in the OR, Department of
Anesthesiology, Helsinki Central Hospital, Helsinki, Finland
Finland
- 1986 MAO Inhibition by Local Anesthetics. Department
of Pharmacology and Toxicology, Helsinki University
School of Medicine, Helsinki, Finland
- 1986 Effects of Local Anesthetics and other Drugs on SCBF.
Fourth Surgical Hospital, Helsinki, Finland
- 1987 Mechanism of Local Anesthetic Action - New Developments,
TMA Guest Speaker, San Antonio, TX
- 1987 New Generation of Implanted Peripheral Nerve Stimulators,
TUHSC, Pain Symposium
- 1988 Invited Speaker, NIH (OPRR) and Emory University
Workshop on Implementation of PHS Policy on Humane Care and Use
of Laboratory Animals
- 1989 Toxicity of Local Anesthetics, ASRA Ann Mtg, Boston, MA
- 1990 Conflict of the 90s: The Siege by Animal Rights Activists Profile of an
Attack -The Experience at TTUHSC and Other Institutions, Symposium,
TTUHSC, Lubbock, TX
- 1990 How Far Do We Need To Go In Assessing and Treating
Animal Pain? Satellite Symposium, World Congress on Pain:
The Ethical and Scientific Perspective on Animal Pain.
Adelaide, Australia
- 1990 Pain Recognition During Experimentation and Tailoring
Anesthetic and Analgesic Administration to the Experiment. Animal Pain
and its Control Symposium, Ithaca, NY
- 1990 Update on Basic Researches in Pain Mechanism.
International Symposium: Advances in Pain Management
Update 1990, Houston, TX
- 1990 Local Anesthetic Pharmacology. Workshop on Acute
Postoperative Pain Management in Children Sponsored by ASRA.
Indian Wells, CA
- 1991 Anesthesia and Analgesia in Laboratory Animals. Recognition and
Alleviation of Pain and Distress in Animals (workshop). PHS Workshop
on Surgical and Post-surgical Care. Charleston, SC
- 1991 Profile of an Animal Rights Attack on a Research Institution. PHS
Workshop on Recurrent Controversies in Protocol Review. St. Louis,
MO
- 1991 Evaluating the Anesthetic Regimen. PHS
Workshop on Recurrent Controversies in Protocol Review.
St. Louis, MO
- 1991 Local Anesthetics - Structure, Site of Action. OAS.

- 1991 Banff Springs, Canada
Neurotoxicity of Local Anesthetics. OAS.
Banff Springs, Canada
- 1992 Two Years Post-ALF Break-in at a Major Medical Center.
School of Medicine, University of Georgia, Athens, GA
- 1992 Update on Basic Researches. IPS. Atlanta, GA
- 1993 What We Don't Know About the Systemic Toxicity of
Local Anesthetics. ASRA, Seattle, WA
- 1993 What We Don't Know About the Systemic Toxicity of
Local Anesthetics. Helsinki University Central Hospital,
Finland
- 1994 Physiologic Effects of Anesthetics and Analgesics.
Scientist Center for Animal Welfare, Atlanta, GA
- 1994 New Concepts in the Development of Endoscopy of the
Spinal Canal and Cord - Equipment and Teaching Tools
for Endoscopic Evaluation of the Spinal Canal.
ASA, San Francisco, CA
- 1995 CNS and CVS Toxicity of Local Anesthetics. What's New?
Virginia Mason Medical Center, Seattle, WA
- 1995 Nitric Oxide: A Role in Local Anesthetic Induced Seizures
and Arrhythmias? Neurology Grand Rounds, Texas Tech
University Health Sciences Center, Lubbock, TX
- 1995 Experimental Epiduroscopy in Animals, Panel on Update
on Endoscopy of the Spinal Canal and Cord. ASA,
Atlanta, GA
- 1996 Epiduroscopy - Workshop Instructor/Lecturer. 13th Annual Pain
Symposium, Lubbock, TX
- 1996 Epiduroscopy - Workshop Instructor. First Budapest Interventional Pain
Workshop on Pain Procedures for Chronic Pain, Budapest, Hungary
- 1997 Epiduroscopy/Myelography/Spinoscopy - Workshop
Instructor/Lecturer. 2nd Budapest Workshop Interventional Procedures
for Chronic Pain. Budapest, Hungary
- 1997 Epiduroscopy - Workshop Instructor/Lecturer. 14th
Annual Pain Symposium, Lubbock, TX
- 1998 Physiological Substrates of Local Anesthetic Toxicity.
Department of Physiology Seminar. Texas Tech
University Health Sciences Center, Lubbock, TX
- 1998 Epiduroscopy. 2nd Annual St. Joseph's Pain Symposium,
Tampa, FL
- 1998 Pain Mechanisms - Newer Concepts. 2nd Annual St. Joseph's Pain
Symposium, Tampa, FL
- 1998 Epiduroscopy. Lecturer/Workshop Instructor. 15th Annual
Pain Symposium. Lubbock, TX
- 1998 Epiduroscopy - Theoretical and Practical Considerations.
Lecturer/Workshop Instructor. 3rd Annual Advanced
Interventional Pain Conference and Cadaver Workshop.
Budapest, Hungary
- 1998 Development of a Technique for radiofrequency Lesioning
of Splanchnic Nerves. 3rd Annual Advanced Interventional
Pain Conference and Cadaver Workshop. Budapest, Hungary
- 1998 Epiduroscopy. Lecturer/Workshop Instructor. 1st Annual
Interventional Pain Conference & Cadaver Workshop.
Athens, Greece
- 1999 Mechanical Ventilation and Respiratory Monitoring in Animals Less than
300 Grams. Blood Gases and Expiratory CO₂/O₂ Values Do Not Agree.

Division of Comparative Medicine, University of Washington, Seattle, WA.

1999 Myeloscropy Developments. Lecturer/Workshop Instructor. 16th Annual Pain Symposium. Lubbock, TX

1999 Myeloscropy Update. Lecturer/Workshop Instructor. 4th Annual Advanced Interventional Pain Conference and Cadaver Workshop, Budapest, Hungary

2000 Local Anesthetic Toxicity: A Clinical Concern, Basic Research Opportunities. Department of Pharmacology and Anesthesiology Seminar Series. Texas Tech University Health Sciences Center, Lubbock, TX

2000 Epidurography Cadaver Workshop. ASRA

2000 Career Opportunities for Veterinary Anesthesiologists, Other Than the "Standard" Position at Veterinary Colleges. (panel discussant) ACVA, San Francisco, CA

2000 Veterinary Anesthesiology (lecture and demonstration). Midland College Veterinary Technology (2nd year students). Midland, TX

2000 Epiduroscopy/Myeloscropy/Spinoscopy. Lecturer/Workshop Instructor. 5th Annual Advanced Interventional Pain Conference and Cadaver Workshop, Budapest, Hungary

2001 Epidural Space: You've Been There, Now You Can See There. Refresher Course in Anesthesiology, Lubbock, TX

2001 Epiduroscopy. Lecturer/Workshop instructor. 18th Annual Pain Symposium. Lubbock, TX

2001 Cardiac Toxicity of Local Anesthetics in the Intact Isolated Heart Model. ASRA Conference on Local Anesthetic Toxicity, Miami, FL

2001 Epiduroscopy. Lecturer/Workshop Instructor. Pain Management in the 21st Century: 2nd World Congress of World Institute of Pain. Istanbul, Turkey

2001 Outcome, Evidence Based. Co-chairman. Pain Management in the 21st Century: 2nd World Congress of World Institute of Pain. Istanbul, Turkey

2001 Epiduroscopy. Lecturer/Workshop Instructor. 6th Annual Advanced Interventional Pain Conference and Cadaver Workshop, Budapest, Hungary

2002 Epiduroscopy – lecture and workshop facilitator. 19th Annual Pain Symposium, Lubbock, TX

2002 Data Analysis (Symposium lecture). World Congress on Regional Anaesthesia and Pain Therapy. Barcelona, Spain

2002 Epiduroscopy, Myeloscropy, Spinoscopy, Spinal Canal Endoscopy (Symposium lecture). World Congress on Regional Anaesthesia and Pain Therapy. Barcelona, Spain

2002 Epiduroscopy, technology looking for indications – pro (Pro & Con Session). World Congress on Regional Anaesthesia and Pain Therapy. Barcelona, Spain

2002 Update on Epiduroscopy. Lecturer/Workshop Instructor. 7th Annual Advanced Interventional Pain Conference and Cadaver Workshop, Budapest, Hungary

2002 Epiduroscopy, Lecturer/Workshop Instructor. ALGOS 2002 International Symposium of the World Institute of Pain (WIP). Santorini, Greece

2003 Update on Epiduroscopy. Lecturer/Workshop Instructor. 8th Annual Advanced Interventional Pain Conference and Cadaver Workshop, Budapest, Hungary

- 2003 Pathophysiology of Pain Transmission. First
Interventional Workshop, San Juan, Puerto Rico
- 2003 Epiduroscopy – lecture and workshop facilitator.
20th Annual Pain Symposium, Lubbock, TX
- 2003 Epiduroscopy, Lecturer/Workshop Instructor. First
Interventional Workshop, San Juan, Puerto Rico
- 2004 Epiduroscopy, Cleveland Clinic, Cleveland, Ohio
- 2004 Neurobiology of Pain. 3rd World Congress World
Institute of Pain, Barcelona, Spain.
- 2004 Clinical Evidence in Epiduroscopy and Recent
Developments. 3rd World Congress World Institute of
Pain, Barcelona, Spain.
- 2005 Epiduroscopy and Epidural Adhesiolysis. International
Symposium on Interventional Therapy for Acute and
Chronic Pain. Nott will, Switzerland.
- 2005 Pathophysiology of Pain Transmission. 2nd Interventional
Workshop, San Juan, Puerto Rico.
- 2005 Mechanisms of Pain; Today's Situation. 8th National
Congress on Pain. Istanbul, Turkey.
- 2005 Epiduroscopy Advances. Lecturer/Workshop Instructor.
10th Annual Advanced Interventional Pain Conference.
Budapest, Hungary.
- 2005 Epiduroscopy. Lecturer/Workshop Instructor. Basic &
Clinical Science for the Management of the Chronic
Pain Patient – Course I. Barcelona, Spain.
- 2005 Epiduroscopy. Lecturer/OR Instructor. Hospital Son Dureta,
Anesthesiologist and Neurosurgeons of Baleares, Palma de
Mallosca, Spain.
- 2005 Epiduroscopy. Policlinica la Rosaleda, Santiago de
Compostela, Spain.
- 2005 Epiduroscopy. Lecture, demonstration. 13th World Congress of
Neurological Surgery. Marrakesh, Morocco.
- 2006 Cadaver. Workshop Instructor. 24th Annual Pain Symposium, Lubbock,
TX
- 2006 Epiduroscopy. Lecturer/Workshop Instructor. 24th Annual Pain
Symposium, Lubbock, TX
- 2006 Brief History of Epiduroscopy. 12th International Pain Clinic Congress,
Turin, Italy.
- 2006 Epiduroscopy. FIPP Exam Refresher Course.
Budapest, Hungary.
- 2006 Epiduroscopy, Lecturer/Workshop Instructor. Basic & Clinical Science
for the Management of the Chronic Pain Patient – Course II. Barcelona,
Spain.
- 2006 Epiduroscopy Lecturer/Workshop Instructor. 11th Annual Advanced
Interventional Pain Conference and Cadaver workshop. Budapest,
Hungary.
- 2007 Lumbosacral Epiduroscopy: 1st International Europe and Middle East
Congress on Spinal Surgery. Abu Dhabi, UAE
- 2007 Visual and Cytology Observations with Epiduroscopy. Topical Seminar
Epiduroscopy/Adhesiolysis 4th World Congress World Institute of Pain,
Budapest Hungary
- 2007 What Epiduroscopy Affords in Interventional Pain
Procedures Lecture/Workshop Instructor. Basic and Clinical
Science for the Management of the Chronic Pain Patient.
Course III. Barcelona, Spain

Other Appropriate Information:

1986	Consultant for Anesthesia Improvement, Finland School of Veterinary Medicine, Helsinki, Finland (Matti Mori)
1988	Participant History Exhibit ASA 1988: Veterinary Anesthesia History
1989	Board of Directors, Custom Medical Concepts
1990	NIH Ad Hoc Animal Resources Review Committee for Facilities Improvements Applications
1992	RH de Jong Roast, Astra Dinner. ASRA, Tampa, FL
1992	Chairman, Board of Directors, American Turbine Jet Drive
1992 -	Consultant, Regulatory Affairs, MEDIC
1994	Expert witness RE: local anesthetic toxicity. Cincinnati, OH
1996 - 1997	Expert witness RE: local anesthetic toxicity. Lubbock, TX (Settle out of court)
1997	Poster Discussant. American Society of Regional Anesthesia Annual Meeting
2002	Member, Scientific Advisory Group, Medical Index for Neuromuscular Data (MIND) Registry
2003	Co-organizer, Cadaver Workshop, WIP, Puerto Rico
2004	Facilitator, Texas Tech University School of Medicine Department of Physiology Retreat.
2004	Expert witness: RE: Epidural Adhesiolysis (Settled out of court)
1996-2002, 2003-	Cadaver Workshop Coordinator, WIP Annual Advanced Interventional Pain Conference and Practical Workshop, Budapest, Hungary.
2005	FIPP Practical Exam Coordinator and Cadaver Workshop Coordinator. 2 nd Interventional Workshop, San Juan, Puerto Rico.
2005 – 2006	Grant Proposal Review US Civilian Research & Development Foundation BRHE Program
2006	Assist with Epiduroscopy on Patient – Oil Field Hospital Daqing, China.
2006	Demonstrated Epiduroscopy Technique – Johnson & Johnson Training Center, Beijing, China.
2006	Karl Storz Luncheon Symposium “Spinal Endoscopy” co-organizer and co-chair 12 th International Pain Clinic Congress, Turin, Italy.
2007	Epiduroscopy Instruction—2 patients, Military Hospital, Abu Dhabi, UAE
2007	Epiduroscopy Instruction—2 patients, Oporto, Portugal
2007	Cadaver Dissection—Spinal Endoscopy. Center for Cell Biology and Anatomy. University of Vienna, Austria
2007	Spinal Endoscopy Discussion. Paracelsus Hospital, Zwicklaw, Germany
2007	Spinal Endoscopy Discussion. Karl Storz. Tuttlingen, Germany.

Civic Activities:

1971	Judge, Puget Sound Science Fair
1969 - 1971	Presentation, Puget Sound Cat Club
1970	Presentation, 4-H Pet Club, Seattle
1980	Guest Columnist, "Sound-off" (Publications of Puget Sound Cat Club)
1985 -	Board of Trustees, St. John's United Methodist Church
1988 - 1990	Board of Directors, Rush Pool. President, 1988, 1989

Scientific Presentations - USA:

May 1970	Effects of Anesthetics on Spinal Cord Neurons, American Veterinary Association
Apr 1971	Effects of Halothane on Afferent Axon Excitability. FASEB Ann Mtg
Jul 1971	Experimental Animal Anesthesia, AVMA Convention
Oct 1971	Ether Inhibits Spinal Neuron Firing, ASA
Mar 1972	Monkeys, Cats, and Man - The Influence of Diazepam On Local Anesthetic Seizures, West Soc Anesth
Apr 1972	Magnesium--EEG and Behavioral Effects in Cats, West Soc Anesth
Jul 1972	Ventricular Fibrillation, Cardiac Arrest and Resuscitation, AVMA Convention
Oct 1974	Halothane Blocks Excitatory Neurotransmitter at Spinal Synapses, ASA
Oct 1975	Interaction of Glutamate and Neurotropic Compounds with an Excitable Membrane, Soc Neurosci 5th Annual Mtg
Oct 1976	Brain Excitability after Multiple Enflurane Exposures, ASA
Jan 1977	Local Anesthetic Seizures in Cats with Limbic Brain Seizure Foci, West Pharm Soc
Mar 1978	Conduction Block by Lidocaine and Bupivacaine: Neonate vs Adult, ASRA
Mar 1978	High/Low Temperature Intensification of Local Anesthetic Block, ASRA
Oct 1978	Power Spectra from Bifrontal Leads: A Relatively Simple Monitor of Brain Activity During Anesthesia, ASA
Oct 1979	Bupivacaine Blood Levels Following Scalp Injection (Poster), ASA
Oct 1979	Effects of Graded Hypoxia on Auditory Brainstem Responses, Am Physiol Soc
Jan 1980	Pharmacologic Pitfalls in Obtaining Vigorous Pre-term Animals for Biological Investigations (Poster), West Pharm Soc
Oct 1981	Adverse Reactions to Anesthetics and Ancillary Drugs Reported to BVM, ACVA
Apr 1982	Seasonal Variation of Acetylcholinesterase Activity in Ewes, Am Acad Vet Pharm Therapy
Jul 1982	Mammary Gland Irritation Reaction to Antibiotics: Caprine vs Bovine (NIH Colloquium on Toxic Effects of Chemicals on Various Organs), FDA
Oct 1983	Repeat Epidural Injections of Phenol for Pain and Spasticity Therapy in Non Terminal as Well as Terminal Patients (Scientific Exhibit), ASA
Dec 1983	Repeat Epidural Injections of Phenol for Pain and Spasticity Therapy in Non Terminal as Well as Terminal Patients (Scientific Exhibit). NYPGA, Best Instructional Exhibit
May 1984	Repeat Epidural Injections of Phenol for Pain and Spasticity Therapy in Non Terminal as Well as Terminal Patients (Scientific Exhibit). IARS Best Instructional Exhibit
Aug 1984	Neurochemical and Physiological Basis of Pain Perception,

Oct 1984 TTUHSC Pain Symposium
 Intraoperative Respiratory Gas Analysis by Mass Spectrometry: Possible Veterinary Application, ACVA
 Oct 1984 Capnography in the Operating Room. (Scientific Exhibit). ASA, 1st Place
 Oct 1984 Therapeutic Approaches to Reflex Sympathetic Dystrophies of The Upper Extremity. (Scientific Exhibit). ASA, Exceptional Merit
 Dec 1984 Capnography in the Operating Room. (Scientific Exhibit). NYPGA, Best Scientific Exhibit
 Dec 1984 A New Improved Catheter for Epidural Anesthesia Continuous Plexus Block and CSF Drainage. (Scientific Exhibit). NYPGA, Best Clinical Application Award
 Jan 1985 The Use of Epidural Phenol for the Cerebral Palsied Upper Extremity. (Scientific Exhibit). American Academy of Orthopaedic Surgeons
 Mar 1985 Reactions of Dog Anterior Spinal Artery Rings to Epinephrine, Potassium, and Histamine. ASRA
 Mar 1985 Therapeutic Approaches to Reflex Sympathetic Dystrophy. (Scientific Exhibit). IARS, 2nd Place
 May 1985 Therapeutic Approaches to Reflex Sympathetic Dystrophies of the Upper Extremity. (Scientific exhibit). TMA
 Oct 1985 A New Improved Catheter for Epidural Anesthesia, Continuous Plexus Block and CSF Drainage. (Scientific Exhibit). ASA
 Oct 1985 The Use of Cervical Epidural Phenol Blocks in Upper Extremity Movement Disorders in Cerebral Palsy. (AV Presentation). Am Acad Cerebral Palsy Develop Med
 Mar 1986 A New Improved Catheter for Continuous Brachial Plexus Block and CSF Drainage. (Scientific Exhibit). IARS
 Mar 1986 Local Anesthetic Facilitation of Local Anesthetic Passage Through the Dura. ASRA
 Oct 1986 Percutaneous Dorsal Column Stimulator Implantation for Chronic Pain Control, (Scientific Exhibit). ASA
 Dec 1986 Percutaneous Dorsal Column Stimulator Implantation for Chronic Pain Control. (Scientific Exhibit), NYPGA
 Mar 1987 Percutaneous Dorsal Column Stimulator Implantation for Chronic Pain Control. (Scientific Exhibit), IARS, 2nd Place Award for Scientific Exhibits
 May 1987 Respiratory and CV Depressant Effects of Halothane, Isoflurane and Enflurane Delivered via the Jackson-Rees Breathing System in Rats, V-MAC
 May 1987 Multiple Mechanisms Involved in Intravenous Regional Anesthesia. V-MAC
 May 1987 Inhibition of MAO A and MAO B Activity by Tetracaine vs a Tetracaine Homologue. V-MAC
 Dec 1987 Epidural Injection of Hypertonic Saline and Corticosteroid for Lysis of Adhesions and Pain Control. (Scientific Exhibit). NYPGA, 1st Place, Best Instructional Exhibit
 Oct 1988 Teaming-Up on Difficult RSD/Causalgia: Peripheral Nerve Stimulator Implantation. (Scientific Exhibit). ASA
 Mar 1989 Peripheral Nerve Stimulator Implantation in the Treatment of Causalgia and Reflex Sympathetic Dystrophy. (Scientific Exhibit). IARS, Second Place Award

for Scientific Exhibits

Mar 1989 Halothane Decreases the Lethal Dose of Bupivacaine in Two-Day Old Pigs. ASRA

Mar 1989 Plasma Levels of Bupivacaine are Age Dependent in Young Pigs. ASRA

Dec 1989 Diagnostic and Neurolytic Hypogastric Plexus Blockade for Pelvic Pain. (Scientific Exhibit). 43rd NYPGA, 3rd Place Best Instructional Exhibit

May 1990 Diagnostic and Neurolytic Hypogastric Plexus Blockade for Pelvic Pain. (Scientific Exhibit). TMA, Corpus Christi, TX. Second Award, Group II

Oct 1990 Experimental Evaluation of an Epidural Balloon Catheter System for Lysing Epidural Adhesions. (Scientific Exhibit) ASA

Dec 1990 Spinal Cord Stimulation: Use of a Dual Purpose Catheter in Screening and Therapy for Benign and Malignant Pain. (Scientific Exhibit). NYPGA, Honorable Mention Award

Mar 1991 Spinal Cord Stimulation: Use of a Dual Purpose Catheter in Screening and Therapy for Benign and Malignant Pain. (Scientific Exhibit). IARS, 3rd Place Award

Mar 1991 Cardiovascular and Central Nervous System Effects of Bupivacaine in Magnesium Deficient Rats. IRAS

Apr 1991 Epidural Balloon Catheter System for Lysing Epidural Adhesions. (Scientific Exhibit). ASRA

Apr 1991 Percutaneous Evaluation of the Epidural and Subarachnoid Space with a Flexible Fiberscope. (Video Presentation). ASRA

Oct 1991 Neurography Utilizing a Biodegradable Subepineurial Stent: Early Results. Am Soc Surg of Havel. (Poster). Ann Mtg, Orlando, FL

Oct 1991 Spinal Cord Stimulation: Use of a Dual Purpose Catheter in Screening and Therapy for Benign and Malignant Pain. (Scientific Exhibit). ASA Ann Mtg, San Francisco, CA, Exceptional Merit Award

Oct 1991 Which Opioid to Use with Midazolam for Sedation and Analgesia for Upper GI Endoscopy? (Poster). Am Col Gastroenterol 56th Ann Sci Mtg

Mar 1992 Spinal Cord Stimulation. (Scientific Exhibit). ASRA Mtg.

Mar 1992 Flumazenil Does Not Influence Bupivacaine Toxicity. ASRA

Mar 1992 Severe Hypoxemia Enhances CNS and CV Toxicity to Bupivacaine in Lightly Anesthetized Pigs. ASRA

Mar 1992 Tolerance to Bupivacaine Toxicity. (Poster). ASRA

May 1992 Severe Hypoxemia Enhances CNS and CV Toxicity to Bupivacaine in Lightly Anesthetized Pigs. (Poster) TMA

May 1992 Safe Use of Newer Opioids with Midazolam for GI Endoscopy. (Poster) TMA

Oct 1992 Patient Controlled Analgesia with Alfentanil for Colonoscopy. (Poster). ACG

Oct 1992 Epidural Space: Identification of Filling Defects and Lysis of Adhesions in the Treatment of Chronic, Painful Conditions. ASA

Dec 1992 Epidural Space: Identification of Filling Defects and Lysis of Adhesions in the Treatment of Chronic, Painful Conditions. (Sci Exhibit). NYPGA, Best Clinical Application Award

Mar 1993 The Effect of Dietary Selenium Deficiency and Toxicity on Cardiac Function in Cholesterol Fed

Apr 1993 Rats. (Poster). FASEB
Epiduroscopy: Past, Present and Future. Ann Alumni
Mtg. UGA

May 1993 Epidural Space: Identification of Filling Defects and
Lysis of Adhesions in the Treatment of Chronic
Painful Conditions. (Scientific Exhibit). ASRA

May 1993 Postoperative Analgesia After Brachial Plexus Block
with Mepivacaine and Butorphanol, Buprenorphine
or Saline. (Poster). Gulf Coast Resident Conference

Apr 1994 Hypoglycemia in Rats Following Resuscitation from
Bupivacaine Induced Asystole. (Poster). ASRA

Apr 1994 Resuscitation from Bupivacaine Induced Asystole in Rats:
Comparison of Some Different Cardioactive Agent.
(Poster). ASRA

Apr 1994 Cardiac Function Impairment Following Coronary
Artery Ligation in Magnesium Deficient Rats.
(Poster). FASEB

Oct 1994 Nitric Oxide Synthesis Inhibition Enhances Bupivacaine
Cardiotoxicity. (Poster). ASA

Oct 1994 Bupivacaine and Epinephrine Act Synergistically to
Produce Ventricular Arrhythmias in Young Pigs.
(Poster). ASA

Oct 1994 Nitric Oxide and Anesthesia. (Scientific Exhibit). ASA

Mar 1995 Nitric Oxide and Anesthesia. (Scientific Exhibit). ASRA

Jun 1995 Comparison of the Behavioral Effects of Chronic Pain
and Learned Helplessness. (Poster). APS

Oct 1995 A New Technique for Lumbar Sympatholysis Using
Radiofrequency Thermal Coagulation and Somatic
Nerve Block (Scientific and Educational Exhibit). ASA

Mar 1996 Lumbar Sympatholysis Using Radiofrequency Thermal
Coagulation and Somatic Nerve Block: A New
Approach to CRPS. (Scientific Exhibit). ASRA

Oct 1996 Double Epidural Catheter Technique for Pain
Management. (Scientific Exhibit). ASA

Oct 1996 The 3-D Technique for Cervical Epidural Catheterization
in Treating Cervical Pain. (Scientific Exhibit). ASA

Oct 1996 Modification of Bupivacaine Toxicity by Non-selective
vs. Neuronal NOS Inhibition. (Poster). ASA

Nov 1996 Two Genetically Selected Strains of Rats Exhibiting
Hypersensitivity and Resistance to Cocaine Induced
Fatal Cardiac Arrhythmias. (Poster). AHA

Mar 1997 The 3-D Technique for Cervical Epidural Catheterization
in Treating Cervical Pain. (Scientific Exhibit). IARS

Apr 1997 Double Epidural Catheter Technique for Pain Management.
(Scientific Exhibit). ASRA

Apr 1997 The 3-D Technique for Cervical Epidural Catheterization
in Treating Cervical Pain. (Scientific Exhibit). ASRA

Oct 1997 Posterior Sacral Approach to the Sciatic Nerve for
Continuous Lidocaine Infusion – A New Technique.
(Scientific Exhibit). ASA

Oct 1997 Cocaine Cardiotoxicity Differs Markedly in Isolated
Hearts of Two Strains of Rats Exhibiting Phenotypic
Differences in Sensitivity to Amygdala Kindling.
(Poster). Society for Neuroscience

Nov 1997 Calcium Channel Blockade Differentially Modifies
Sensitivity to Cocaine-induced Arrhythmias in Two

- Dec 1997 Genetically-selected Strains of Rats. (Oral Presentation). AHA
Posterior Sacral Approach to the Sciatic Nerve for
Continuous Lidocaine Infusion - A New Technique.
(Scientific Exhibit) New York PGA
- Dec 1998 Posterior Sacral Approach to the Sciatic Nerve
for Continuous Ropivacaine Infusion: A New
Technique. (Scientific Exhibit). New York PGA
- May 1999 Genetically Determined Differences in Cocaine
Cardiotoxicity are Altered by Nitric Oxide Synthesis Inhibition.
(Poster). ASRA
- Oct 1999 Local Anesthetic Toxicity in Genetically Slow- Versus
Fast-Amygdala Kindling Rats. ASA
- Oct 1999 Contribution of SKM2, the Rat Cardiac Sodium Channel,
to the Generation of Seizures. (Poster). Society for
Neuroscience
- Oct 2000 Hemodynamic Responses to Isoflurane, Desflurane,
and Sevoflurane in Rats Following Chronic Morphine
or Cocaine Administration. ASA
- May 2001 Early detection of intravascular injection of bupivacaine
in anesthetized pigs. (Poster) ASRA.
- Apr 2002 Sensations evoked by intravenous lidocaine in
chronic pain patients. (Poster) ASRA, Chicago, IL
- Mar 2003 Demographics and doses of MYOBLOC®
(Botulinum Toxin Type B) used to treat pain and
spasticity from patient registry. APS, Chicago, IL
- Mar 2003 MYOBLOC® for the treatment of myofascial low back
pain of the psoas and quadratus lumborum muscles.
APS, Chicago, IL
- Oct 2003 Patient Involvement in Medical Decision-Making and
Pain Among Elders: Physician or Patient-Driven (Poster),
ASA, San Francisco, CA
- Mar 2004 Visual Impairment Following Epidural Fluid Injections
and Epiduroscopy: A Review (Poster). AAPM, Orlando, FL
- Mar 2004 Visual Impairment Following Epidural Fluid Injections and
Epiduroscopy: A Review (Poster). ASRA, Orlando, FL

Scientific Presentations - International:

- May 1973 Modulation of Dorsal Horn Throughput by Anesthetics International
Pain Symposium, Seattle, WA
- Nov 1973 Studies of Analgesic and Anesthetic Effects on Dorsal Horn Impulse
Transmission, People's Republic of China Delegation Visit with the
University of Washington, Seattle, WA
- Jul 1975 Glutamate Breakdown During Electric Field Stimulation, Sixth
International Pharmacology Congress, Helsinki, Finland
- Jul 1978 Conduction Block by Lidocaine and Bupivacaine: Neonate vs Adult,
British Anesthesia Research Society, Newcastle, England
- Jul 1978 Ketamine Kinetics: Decerebrate vs Intact Cats, Seventh
International Pharmacology Congress, Paris, France
- Sep 1984 Repeat Epidural Phenol Injections in Chronic Pain and Spasticity
Using a New Epidural Catheter (Scientific Display)
Postgraduate Course: Pain Mechanisms and Evaluations,
Budapest, Hungary
- Jul 1986 Inhibition of MAO A and MAO B Activity by Tetracaine vs
a Tetracaine Homologue (Poster), Third World Conference on

Sep 1986 Clinical Pharmacology and Therapeutics, Stockholm, Sweden
Local Anesthetic Inhibitory Action Against Monoamine Oxidase
May Play a Role in Spinal Anesthesia, European Society
of Regional Anesthesia. Malmo, Sweden

Aug 1987 Multiple Mechanisms Involved in Intravenous Regional Anesthesia
(IVRA) (Poster), 5th World Congress on Pain of the International
Association for the Study of Pain, Hamburg, Germany

Aug 1987 Epidural Injection of Hypertonic Saline and Corticosteroid for Pain
Control (Poster), 5th World Congress on Pain of the International
Association for the Study of Pain, Hamburg, Germany

Mar 1988 Epidural Injection of Hypertonic Saline and Corticosteroid for Lysis of
Adhesions and Pain Control, (Scientific Exhibit) 62nd Congress IARS,
San Diego, CA

May 1988 Epidural Injection of Hypertonic Saline and Corticosteroid for Pain
Control, 9th World Congress of Anesthesiologists, Washington, DC

May 1988 Multiple Mechanisms Involved in Intravenous Regional Anesthesia
(IVRA) (Poster), 9th World Congress of Anesthesiologists,
Washington, DC

Jul 1988 Conduction Block by Lidocaine and Bupivacaine: Neonate vs Adult, First
International Symposium on Pediatric Pain, Seattle, WA

Aug 1988 Three-Breath Determination of Cardiac Output in Young Swine,
(Scientific Display), Third International Congress of Veterinary
Anaesthesia, Brisbane, Australia

Apr 1990 Safety Evaluation of a Catheter Introducer and Balloon Catheter for
Lysing Epidural Adhesions (Poster), 6th World Congress on Pain,
Adelaid, Australia.

Apr 1991 Use of Peripheral Nerve Stimulation in Pediatric Patients with
Neuropathic Pain
(Reflex Sympathetic Dystrophy, Causalgia). Abs. 2nd Intl Symp Ped Pain.
Toronto, Canada

May 1991 Effects of Intrapleurally Injected Bupivacaine on Phagocytic and Killing
Activities
of Pleural Macrophages in Rats (Presentation), Constituent Congress
International Society for Pathophysiologicals, Moscow

May 1991 CNS and CV Toxic Profile of Lidocaine vs Bupivacaine in a rodent
model, Constituent Congress International Society for
Pathophysiologicals, Moscow

Nov 1991 Safe Use of Newer Opioids with Midazolam for GI Endoscopy. Intl
Conference of Gastroenterol, Hong Kong/Beijing, China. (Poster)

Sept 1992 Alfentanil Analgesia During Colonoscopy (Poster), First United
European Gastroenterology Week/Athens '92. Athens, Greece

Aug 1993 Postoperative Analgesia After Brachial Plexus Block with Mepivacaine
and Butorphanol, Buprenorphine or Saline. (Poster), 7th World
Congress on Pain. Paris, France

Aug 1993 Follow-up of 117 Patients with Peripheral Nerve Stimulation Implants For
RSD (Poster), 7th World Congress on Pain. Paris, France

Aug 1993 Epidural Space: Identification of Filling Defects and Lysis of Adhesions in
the Treatment of Chronic Painful Conditions (Poster), 7th World
Congress on Pain. Paris, France

Aug 1993 The Spinal Cord Access System: A New Tool for Repeatedly Accessing
the Epidural Space (Poster), 7th World Congress on Pain. Paris, France

Aug 1993 Diagnostic and Therapeutic Maneuvers in the Epidural Space via a
Flexible Endoscope (Poster) 7th World Congress on Pain. Paris, France

Feb 1994 Epiduroscopy with a thin flexible and deflectable fiberscope. (Poster)
ESRA. Brussels, Belgium

Mar 1996 Lumbar Sympatholysis Using Radiofrequency Thermal Coagulation and

- Somatic Nerve Block: A New Approach to CRPS. (Scientific Exhibit). IARS, Washington, DC.
- Aug 1996 Combined lumbar RFTC sympathectomy and somatic nerve block: A new technique for treating SMP+SIP. (Poster Presentation) 8th World Congress on Pain, IASP, Vancouver, British Columbia
- Aug 1996 Prospective spinal cord stimulation treatment outcome study. (Poster Presentation) 8th World Congress on Pain, IASP, Vancouver, British Columbia
- Aug 1996 Prospective evaluation of lysis of epidural adhesions in the management of pain. (Poster Presentation) 8th World Congress on Pain, IASP, Vancouver, British Columbia
- Mar 1998 Posterior Sacral Approach to the Sciatic Nerve for Continuous Lidocaine Infusion - A New Technique. (Scientific Exhibit), IARS, Orlando, FL
- Mar 1998 Sensitivity to Cocaine Induced Arrhythmias Differ in Isolated Hearts of Two Strains of Rats Genetically Selected by Sensitivity to Seizures. (Poster Presentation), IARS, Orlando, FL
- Mar 1999 Polypharmacy, Age and Scheduled Surgery. (Poster). IARS, Los Angeles, CA
- Mar 1999 Evolution of Percutaneous Epidural Neuroplasty aka Lysis of Epidural Adhesions. (Scientific Exhibit) IARS, Los Angeles, CA
- Aug 1999 Assessment of an Ambulatory Traction System for Treatment of Chronic Low Back Pain with or without Radiculopathy. (Poster) IASP, Vienna, Austria
- Mar 2000 Vehicle Influence on Cocaine Toxicity in Rats: Saline vs. Cyclodextrin. (Poster) IARS, Honolulu, HI
- Mar 2000 Increased Cardiotoxicity of Bupivacaine in Genetically Epilepsy-prone Rats. (Poster) IARS, Honolulu, HI
- May 2000 Current Perception Thresholds And Pain Perception Thresholds In CRPS. (Poster) ISRA, Quebec, Canada
- May 2000 Vehicle Influence On Cocaine Toxicity In Rats: Saline Vs. Cyclodextrin. (Poster) ISRA, Quebec, Canada
- Dec 2000 Evaluation and treatment of spinal canal pathology with a flexible endoscope (epiduroscope) in patients with chronic low back pain and/or radiculopathy. (Poster) 1st World Congress 2000 Minimally Invasive Spinal Medicine & Surgery. Las Vegas, NV
- Mar 2001 Discogenic Pain: The value of objective measures. (Poster, 1st place) 75th Congress, IARS. Ft. Lauderdale, FL
- Mar 2002 Liver Function Tests and Acetaminophen Blood Level Studies in Chronic/Persistent Pain Patients (Poster). IARS, San Diego, CA
- May 2002 Pain patients and polypharmacy (Refresher Course lecture). World Congress on Regional Anaesthesia and Pain Therapy. Barcelona, Spain
- Jun 2005 The Mind Registry: An Observational Database of Patients Treated with Botulinum Toxin Type B (Myobloc®) – Pain Subset of the database (Poster). 5th International Conference on Basic and Therapeutic Aspects of Botulinum and Tetanus Toxins. Denver, CO.
- Sep 2007 Cells obtained from the Lumbosacral space during Epiduroscopy (Poster). 4th World Congress, Budapest, Hungary
- Sep 2007 Improved Stellate Ganglion Block(Poster). 4th World Congress, Budapest, Hungary

Publications:

1. Heavner JE, Bowen JM. Influence of adrenergic agents on recovery of dogs from anesthesia. *Am J Vet Res* 29:2133-2139, 1968.
2. Heavner JE. Treatment of ventricular fibrillation - A case report. *Georgia Vet* 20:19-20, 1968.
3. Heavner JE, Few AB. Microfilariae of *dirofilaria immitis* in the canine brain. *Southern Vet* 5:6, 1968.
4. Heavner JE. Morphine for postsurgical use in cats. *JAVMA* 156:1018-1019, 1970.
5. Bowen JM, Blackmon DM, Heavner JE. Neuromuscular transmission and hypocalcemic paresis in the cow. *Am J Vet Res* 31:831-839, 1970.
6. de Jong RJ, Heavner JE. Suppression of impulse transmission in the cat's dorsal horn by inhalation anesthetics. *Anesthesiology* 32:440-445, 1970.
7. Bowen JM, Blackmon DM, Heavner JE. Effect of magnesium ions on neuromuscular transmission in the horse, steer, and dog. *JAVMA* 157:164-173, 1970.
8. de Jong RH, Heavner JE. Diazepam prevents local anesthetic seizures. *Anesthesiology* 34:523-531, 1971.
9. de Jong RJ, Heavner JE. Correlation of Ethrane electroencephalogram with motor activity in cats. *Anesthesiology* 35:474-481, 1971.
10. Heavner JE. Intervertebral disc syndrome in the cat. *JAVMA* 159:425-427, 1971.
11. Heavner JE, de Jong RH. General anesthetic effects on spinal cord neurons. Ph.D. Dissertation, University of Washington, 1971.
12. de Jong RH, Heavner JE. Local anesthetic seizure prevention: diazepam vs pentobarbital. *Anesthesiology* 36:449-457, 1972.
13. de Jong RH, Heavner JE, de Oliveira LF. Intravascular lidocaine compartment: Kinetics of bolus injection. *Anesthesiology* 37:493-497, 1972.
14. de Jong RH, Heavner JE, de Oliveira LF. Nitrous oxide elevates local anesthetic seizure threshold. *Exp Neurol* 35:558-564, 1972.
15. de Jong RH, Heavner JE, de Oliveira LF. Effects of nitrous oxide on the lidocaine seizure threshold and diazepam protection. *Anesthesiology* 37:299-303, 1972.
16. Heavner JE. Cardiac arrest and cardiopulmonary resuscitation. *Vet Clin N A* 3:33-44, 1973.
17. Heavner JE, de Jong RH. Magnesium: electroencephalographic and behavioral effects in cats. *Can J Physiol Pharmacol* 51:308-312, 1973.
18. Heavner JE. The spinal cord dorsal horn. *Anesthesiology* 38:1-3, 1973.
19. Heavner JE, de Jong RH. Spinal cord neuron response to natural stimuli. A microelectrode study. *Exp Neurol* 39:293-306, 1973.
20. de Jong RH, Heavner JE. Diazepam and lidocaine-induced cardiovascular changes. *Anesthesiology* 39:633-638, 1973.
21. Heavner JE, de Jong RH. Lidocaine blocking concentrations for B- and C- nerve fibers. *Anesthesiology* 40:228-233, 1974.
22. de Jong RH, Heavner JE. Convulsions induced by local anesthetic: Time course of diazepam prophylaxis. *Can Anaesth Soc J* 21:153-158, 1974.
23. de Oliveira LF, Heavner JE, de Jong RH. 5- Hydroxytryptophan intensifies local anesthetic-induced convulsion. *Arch Int Pharmacodyn* 207:333-339, 1974.

24. Heavner JE, de Jong RH. Modulation of dorsal horn throughput by anesthetics. In: Advances in Neurology vol 4. Bonica JJ ed.: Raven Press, New York pp.179-185, 1974.
25. de Jong RH, Heavner JE. Diazepam prevents and aborts lidocaine convulsions in monkeys. *Anesthesiology* 41:226-230, 1974.
26. de Jong RH, Heavner JE, Amory DW. Malignant hyperpyrexia in the cat. *Anesthesiology* 41:608-609, 1974.
27. Heavner JE. Jamming spinal sensory input: effects of anesthetic and analgesic drugs in the spinal cord dorsal horn. *Pain* 1:239-255, 1975.
28. Scurlock JE, Heavner JE, de Jong RH. Differential B and C fiber block by an amide- and an ester-linked local anesthetic. *Br J Anaesth* 47:1135-1139, 1975.
29. Haschke RH, Heavner JE. Glutamate breakdown during electric field stimulation. *Brain Research* 102:351-354, 1976.
30. Heavner JE, Pierce M. Brain abscess in a dog. *Vet Med/Sm An Clin* 71:785-793, 1976.
31. Heavner JE, Friedhoff J, Haschke R. Gas chromatographic assay of volatile anesthetics: Some problems and a solution. *Anesthesiology* 45:654-655, 1976.
32. Heavner JE. Chronic urethral obstruction in a cat. *Vet Med/Sm An Clin* 71:1689-1691, 1976.
33. Heavner JE, Canfield D, Jones S. Cardiac arrhythmia with meningitis in a dog. *Mod Vet Prac* 58:149-150, 1977.
34. Heavner JE, Dice PF. Pituitary tumor as a cause of blindness in a dog. *Vet Med/Sm An Clin* 72:873-876, 1977.
35. Heavner JE, Reyes L. What is your diagnosis? *JAVMA* 171:765-766, 1977.
36. Heavner JE. Congenital hydrocephalus secondary to *in utero* infection. *Vet Med/Sm An Clin* 73:157-160, 1978.
37. Heavner JE. Neural lymphomatosis in cats. *Med Vet Prac* 59:122-124, 1978.
38. Heavner JE, Iwazumi T. A laser system for stimulating spinal neuron receptive fields. *Brain Research* 152:348-352, 1978.
39. Heavner JE, Burgua W. Burns from an electric heating pad. *Vet Anes* 5:14-15, 1978.
40. Turner J, Heavner JE. Influence of spinal cord tran-section on spinal cord blood flow in rats. *Gen Pharmac* 9:463-465, 1978.
41. Heavner JE, Bloedow DC. Ketamine kinetics: decerebrate vs intact cats. *Canad J Physiol Pharm* 57:878-881, 1979.
42. Wyler AR, Heavner JE. Kindling phenomenon: impairment by auditory stimuli. *Epilepsia* 20:333-338, 1979.
43. Ludders JW, Heavner JE. Effect of atropine on tear formation in anesthetized dogs. *JAVMA* 175:585-586, 1979.
44. Heavner JE, Bloedow DC. Ketamine pharmacokinetics in domestic cats. *Vet Anesthesia* 6:16-19, 1979.
45. Heavner JE. Veterinary anesthesia residency training. Forward. *Vet Anesthesia* 6:21-23, 1979.
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56. Jortner BS, Pope AM, Heavner JE. Haloxon-induced delayed neurotoxicity: Effect of plasma A (Aryl) esterase activity on severity of lesions in sheep. *Neurotox* 4:241-246, 1983.
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58. Heavner JE, Pope A. Toxicity of organophosphorus compounds. *FDA Veterinary Notes. JAVMA* 184:30-32, 1984.
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61. Kawalek JC, Few RS, Heavner JE. Glutathione-S-transferase, a possible drug-metabolizing enzyme, in *Haemonchus contortus*: Comparative activity of a cambendazole-resistant and a susceptible strain. *Internat J Parasit* 14:173-175, 1984.
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Learning Aids

1. Interventional Pain Treatment Techniques DVD #1. Includes Splanchnic Nerve Block, Hypogastric Block, Lumbar Sympathetic Block, Anatomic Dissection, Patient Interview, Demonstration of the Procedure, and a Quiz, 2004.
2. Interventional Pain Treatment Techniques DVD #2. Includes Stellate Ganglion Block, Cervical facets Median Branch Block, T2 and T3 Sympathetic, Anatomic Dissection, Patient Interview, Demonstration of the Procedure, and a Quiz, 2005.
3. Interventional Pain Treatment Techniques DVD #3. Includes Ganglion Impar Block, Trigeminal Nerve Block, Glossopharyngeal Nerve Block, Anatomic Dissection, Patient Interview, Demonstration of the Procedure, and a Quiz 2007
4. Interventional Pain Treatment Techniques DVD #4. Includes Epiduroscopy, Sphenopalatine Block, and Suprascapular Block

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163. Heavner JE. Epiduroscopy: Advances in diagnosis and treatment. 11th Annual Advances Interventional Pain Conference and Practical Workshop and FIPP Examination Preparation Course. Sept. 17-20, 2006. Syllabus
164. Heavner JE, Bosscher H, Wachtel M: Cells obtained from the Lumbosacral space during epiduroscopy. 4th World Congress—World Institute of Pain. September 25-28, 2007. Pain Practice 7 (Suppl 1): Abs 1017, 2007
165. Gabor GB, Heavner JE: Improved Stellate Ganglion block. 4th World Congress—World Institute of Pain. September 25-28, 2007. Pain Practice 7 (Suppl 1): Abs 1157, 2007
166. Heavner JE. Epiduroscopy/Adhesiolysis. 4th World Congress—World Institute of Pain. September 25-28, 2007. Pain Practice 7 (Suppl 1): Abs TSS20, 2007

Training Since 1980:

Mar 1980	Merit Pay Program
May 1980	"Understanding and Managing Human Behavior" (OPM)
Jun 1980	The Project Officers' Training Course (Sponsored through contract by Parklawn at Manassas, VA)
Jul 1980	EEO Training for Supervisors
Aug 1980	"Personnel Management for Supervisors" (OPM)
Mar 1980	"Managing Relationships with Superiors"
Apr 1981	"Developing a Winning Team" (Sponsored by Federally Employed Women)
May 1981	Advanced Electrophoresis/Chromatography Workshop (Sponsored by Helena Laboratories)
Jun 1981	Advanced Project Officer's Course
Nov 1981	Technician Seminar - Users Club
Nov 1981	American Management Associations Course on Program Management
Sep 1982	Symposium: Role of Drug Metabolism in Assessing Drug Toxicity sponsored by North Jersey ACS Drug Metabolism Discussion Group, Somerset, NJ
Nov 1982	The Change Resisters: How They Prevent Progress (OPM)
Dec 1987	Laboratory Computing, Woods Hole Educational Associates
Sep 1988	Issues and Concerns Facing IRB's and Clinical Investigators, NIH and Scott & White sponsors
Sep 1988	Implementation of PHS Policy on Human Care and Use of Laboratory Animals and The Guide for the Care and Use of Laboratory Animals (Faculty plus Participant), NIH and Emory University sponsors
Jan 1989	Public Health Service Policy on the Humane Care and Use of Lab Animals, San Antonio, TX
Feb 1989	NABR Legislative Conference, Washington, DC
Feb 1989	Inventors and Entrepreneurs/National Inventors Expo 1989, Arlington, VA
Apr 1989	NABR Legislative Conference, Washington, DC
Oct 1989	NABR Conference on State Legislation, Washington, DC
Jan 1990	NABR Legislative Conference, Washington, DC
Sep 1990	PHS Colloquium: Implementation of PHS and USDA Policies and Regulations RE Care and Use of Lab Animals, Los Angeles, CA
Nov 1990	Tufts University School of Medicine, Boston, MA, Research with Drugs and Devices: IRB's, Industry and Investigators
Mar 1991	Georgetown University, Washington, DC: Ethical Issues in Animal Experimentation
Mar 1991	PHS Workshop on Surgical and Postsurgical Care (of experimental animals), Charleston, SC
May 1991	PHS Workshop on Recurrent Controversies in Protocol Review (ACUC). St. Louis, MO
May 1991	Colloquium on USDA Regulation: Interpretation and Integration with the PHS Policy. St. Louis, MO

May 1992	CLIA '88 meeting. San Antonio, TX
Dec 1992	Food and Drug Law Institute and FDA Annual Educational Conference, Washington, DC
Jun 1993	Food and Drug Law Institute and FDA Annual Educational Conference, Washington, DC
Dec 1999	Transforming Challenges into Change: Opportunities for IRBs in the New Millennium. Applied Research Ethics National Association Meeting, Boston, MA
Aug 2000	Executive Leadership Workshop: Emotional Intelligence at Work, Cloudcroft, NM
Dec 2000	OHRP/FDA/VA Town Meeting – Evolving Concerns for Protection of Human Subjects, Dallas, TX
Nov 2002	PRIM&R Annual IRB Conference: Protecting Human Subjects: What's Best? What Works? What's Worth Doing, San Diego, CA
Jan 2004	Photonics West 2004

Funding:

2007 - Present	Level of Effort	Archimedes CP043. (Multicenter, Placebo-Controlled, Double-Blind, Two-Phase Crossover Study of Nasalfent (Fentanyl Citrate Nasal Spray) in the Treatment of Breakthrough Cancer Pain (BTCP) in Subjects Taking Regular Opioid Therapy).
2007 - Present	Level of Effort	Archimedes CP045. (Open-Label Study Investigating Long-Term Safety and Tolerability of Nasalfent (Fentanyl Citrate Nasal Spray) in the Treatment of Breakthrough Cancer Pain (BTCP) in Subjects Taking Regular Opioid Therapy).
2007 - Present	Level of Effort	Pacira C-209. (Multicenter, Randomized, Double-Blind, Parallel-Group, Active-control, Dose-Ranging Study to Evaluate the Safety and Efficacy of a Single Administration of SKY0402 for Prolonged Postoperative Analgesia in Subjects Undergoing Hemorrhoidectomy).
2007 - Present	Level of Effort	Pacira C-208. (Multicenter, Randomized, Double-Blind, Parallel-Group, Active-control, Dose-Ranging Study to Evaluate the Safety, Efficacy, and Comparative Systemic Bioavailability of a Single Administration of SKY0402 via Local Infiltration for Prolonged Postoperative Analgesia in Subjects Undergoing Total Knee Arthroplasty).
2007 - Present	Level of Effort	Pacira C-207. (Multicenter, Randomized, Double-Blind, Parallel-Group, Active-control, Dose-Ranging Study to Evaluate the Safety and Efficacy of a Single Administration of SKY0402 for Prolonged Postoperative Analgesia in Subjects Undergoing Primary, Unilateral, Inguinal Hernia Repair)
2007 - August 2007	496,525.82	2007 billing for tests performed by OR STAT lab supervised by Dr. James E. Heavner
2007	\$100,405.	24 th Annual Pain Symposium
2006	\$995,271.58	2006 billing for tests performed by OR STAT lab supervised by Dr. James E. Heavner
2006 - Present	Level of Effort	Xenome Ltd. (A Phase I/II, Open-Label, Single-Blind, Multicentre, Single-Dose, Dose-Escalating Safety and Tolerability Study of Intrathecal Xen2174 in Oncology Patients)
2006	\$102,565	23rd Annual Pain Symposium
2005 - Present	Level of Effort	Celgene Corporation (Multicenter, Double-blind, Placebo-controlled Study to Evaluate the Efficacy and Safety of Lenalidomide in the Treatment of Complex Regional Pain Syndrome Type I)
2005 - Present	Level of Effort	Celgene Corporation (Multicenter, Double-Blind, Placebo-Controlled Study to Evaluate the Efficacy and Safety of Lenalidomide in the Treatment of Painful Lumbar Radiculopathy)

2005	\$130,000	22 nd Annual Pain Symposium
2005	\$1,000,465	2005 billing for tests performed by OR STAT lab supervised by Dr. James E. Heavner
2004	\$5,000	Cognate Therapeutics (PI) Evaluation of a new device for pain Therapy
2004	\$980,198	2004 billing for tests performed by OR STAT lab supervised by Dr. James E. Heavner
2004	Level of effort	Élan Pharmaceuticals (co-invest w/M. Day) ELN92045-501
6/2004	\$132,565	21 st Annual Pain Symposium
6/2003	\$97,790	20 th Annual Pain Symposium
2003	\$978,254	2003 billing for tests performed by OR STAT lab supervised by Dr. James E. Heavner
9/2002-8/2004	\$11,484	The South Plains Foundation (PI)
7/2002-	Level of Effort	Élan Pharmaceuticals (co-invest w/M. Day)
	\$9,916	ELN92045-352
7/2002-12/2003	Level of Effort	Élan Pharmaceuticals (co-invest w/M. Day)
	\$55,283	ELN92045-301
4/2002-	Level of Effort	Élan Pharmaceuticals (PI)
	\$2,691	Medical Index for Neuromuscular Data (MIND) Registry
2001-2003	Level of Effort	SkyePharma, Inc. (co-invest w/A. Kaye)
	\$67,213	SKY0401
2001-2002	\$11,484	The South Plains Foundation/Houston Endowment (PI)
2001-	\$30,000	Baxter Pharmaceuticals (co-invest w/ A. Kaye)
		Recovery from desflurane vs. sevoflurane
1999-	\$26,000	Baxter Pharmaceuticals (co-invest w/A. Kaye)
1999-	\$11,229	Baxter Pharmaceuticals (co-invest w. A. Kaye)
		DES-28 vascular study
1999-2002	\$80,000	Gliatech (with G. Racz)
1999-2000	\$31,440	Allergan - Botox Studies (co-investigator with P. Raj)
1998-2000	\$17,468	Knoll Pharmaceuticals - Dilaudid Studies (co-investigator with P. Raj)
1998-98	\$1,000	Neurex - SNX-111 Studies (co-investigator with P. Raj)
1998-00	\$40,000	Meditrac, Ltd. - Vertetrac Outcomes Study (co-investigator with G. Racz)
1996-97	\$21,040	Allergan/Parexel-BOTOX study (co-investigator with G. Racz)
1996-97	\$25,000	Ben Covino Research Award (co-applicant with B. Shi)
1996-98	\$83,371	American Heart Association, Texas Affiliate grant (collaborating investigator with B. Shi)
1996	\$128	Custom Medical Concepts, Inc. (product donation)
		Evaluation of the Use of a Catheter Introducer in Epidural Anesthesia for Labor and Delivery
1996	\$318	Abbott Laboratories (product donation)
		Evaluation of the Use of a Catheter Introducer in Epidural Anesthesia for Labor and Delivery
1995	\$2,750	Astra Pharmaceuticals - Thermal Grill study
1994	Level of Effort	Hoffman-La Roche Protocol #125
1994	Level of Effort	Hoffman-La Roche Protocol #134
1994-96	\$25,000	Predictor Variables; Medtronic (co-investigator with G. Racz)
1993	\$20,000	Patient Treatment Outcomes; Medtronic (co-investigator with G. Racz)
1990		\$7,500 Effects of magnesium deficiency; Center of Food and Nutrition, Institute for Nutritional Sciences (co-investigator with Boylan and Zavisca)
1990	\$5,125	TTUHSC Seed Grant (co-investigator with B. Furst)
1989 -	\$10,000	Olympus (indefinite equipment loan) Principal Investigator
1989 -	In Kind	Karl Storz Principal Investigator – continuous Epiduroscopy

		Equipment Loan
1989	\$6,000	Anaquest Equipment Grant
1989	\$5,000	Carl Koeller Fund (co-investigator with M. Badgwell)
1988 -	\$35,000	Epiduroplasty; USCI Co (co-principal investigator)
1988 -	\$49,063	Production of Videotape Program Entitled "Alternatives in Animal Research"; USDA (co-director)
1988-1989	\$4,374	TTUHSC Seed Grant - (co-principal investigator with W. Lyness)
1988	\$5,000	Hildegard Doerenkamp/Gerhard Zibinden-Stiftung Award - special award for work related to Anesthesia and Laboratory Animals
1987 -	\$42,000	Siemens-Elema (indefinite equipment loan); collaborator
1987 - 1989	Level of Effort	Ciba-Geigy Patient Ismelin Study
1987	\$3,000	Raven Press Grant for Anesthesia Technician Book
1986	\$42,500	Bristol Laboratories Clinical Evaluation of Stadol for Migraine Headache Treatment (G Racz, PI)
1986	\$4,000	Fulbright Foundation Fellowship to Finland
1986	\$5,000	Carl Koeller Fund; principal investigator
1986	\$1,500	The American-Scandinavian Foundation - Former Fellows Fund
1985	\$1,074	Thermal Detection of Liquid-Gas Interface in Compressed Gas Cylinders; Flexi Therm, New York, NY (co-principal investigator with G Racz)
1985	\$6,000	Pharmacology of Anterior Spinal Artery Rings; TTUHSC seed grant (principal investigator)
1983 -	\$100,000	Anesthesiology Research Laboratory Departmental Fund
1980 - 1982	Level of Effort	Pharmacology Toxicology Branch, Chief DVMR, CVM, FDA
1973 - 1979		Anesthesia Research Center Grant (Center staff with funded project, JJ Bonica, PI)
1971 - 1972		NIH Special Fellow
1968 - 1971		Post Doctoral Trainee, Anesthesia Research Center, University of Washington, Seattle, WA