

# ***CURRICULUM VITAE***

(MArch 22, 2019)

**Joe Edward Springer, Ph.D.**  
Professor, Regular Title Series  
Department of Neuroscience  
Interim Director  
Spinal Cord and Brain Injury Research Center  
University of Kentucky College of Medicine



## **I. GENERAL INFORMATION**

**Office Address**           741 S. Limestone  
Lexington, KY 40536

**Email**                       jspring@uky.edu

**Telephone**               859-323-1440

**Fax**                         859-323-1123

### **Research Certification**

09/2016-09/2019       **University of Kentucky Collaborative Institutional Training Initiative**

## **II. EDUCATION**

### **Undergraduate**

1980                       **Texas Christian University**  
Fort Worth, Texas  
BS, Neuroscience  
Mentor: Fred H. (Rusty) Gage

### **Professional/Graduate**

1984                       **State University of New York**  
Binghamton, New York  
Ph.D., Psychobiology  
Mentor: Robert L. Isaacson

### **Post-Graduate**

1984-1988               **University of Rochester**  
Rochester, NY  
Postdoctoral Fellowship, Neurobiology and Anatomy  
Mentor: Rebekah Loy

### III. PROFESSIONAL EXPERIENCE

	<b>Texas Christian University</b> Fort Worth, TX
1977-1980	Undergraduate Research Assistant
	<b>State University of New York</b> Binghamton, NY
1980-1984	Predoctoral Research Fellow/Center for Neurobehavioral Sciences/ Department of Psychology
1984	President/Psychology Graduate School Organization
	<b>University of Rochester</b> Rochester, NY
1984-1985	Postdoctoral Trainee
1985-1988	NRSA Postdoctoral Fellow
	<b>Hahnemann University</b> Philadelphia, PA
1989	Councilor, Society for Experimental Neuropathology

### IV. ACADEMIC APPOINTMENTS

#### Faculty

	<b>Hahnemann University</b> Philadelphia, PA
1988-1992	Assistant Professor, Neurology, tenure-track
1992-1994	Associate Professor, Neurology, tenured
1994-1995	Associate Professor, Anatomy and Neurobiology, tenured
	<b>University of Kentucky/School of Medicine</b> Lexington, KY
1995-2001	Associate Professor, Anatomy and Neurobiology, tenured
1995-present	Graduate Faculty, Full Membership
2001-present	Professor, Anatomy and Neurobiology,
2004-2017	Professor, Physical Medicine and Rehabilitation
2004-2017	Vice Chair for Research, Physical Medicine and Rehabilitation
2004-2017	Cardinal Hill Endowed Chair in Neurorehabilitation
2012-2017	Director, MS in Medical Sciences Program
2015-2017	Director, AgBiotech/MS in Medical Sciences University Scholars Program
2017-present	Interim Director, Spinal Cord and Brain Injury Research Center
2017-present	College of Medicine Council of Chairs and Center Directors

## V. TEACHING ACTIVITIES

### University Faculty

#### **State University of New York**

Binghamton, NY

1980-1984 Teaching Assistant/Neuroanatomy and Recovery of Function Following Brain Damage

1983 Instructor/Physiological Psychology

#### **University of Rochester**

Rochester, NY

1986-1987 Instructor/Medical Neuroscience

#### **Hahnemann University**

Philadelphia, PA

1988-1989 Course Director/Seminars in Neuroscience

1989-1995 Instructor/Medical Neuroscience Course

1993-1995 Course Director/Molecular and Cellular Neurobiology

#### **University of Kentucky**

Lexington, KY

1995-1997 Director of Graduate Studies

1995 PBL Instructor/Human Anatomy

1996 PBL Instructor/Neuroscience

1997-1998 Instructor/Allied Health Gross Anatomy (ANA811)

1998-1999 Instructor/Dental Gross Anatomy (ANA532-534)

1998 Course Director/Techniques of Anatomical Research (ANA629)

1998-2000 Lecturer/Techniques of Anatomical Research (ANA629)

1998-2005 Instructor/Medical Neuroscience (MD817)

2000-2005 Director/Medical Neuroscience Course (MD817)

2016- Course Director/Functional Human Neuroanatomy (ANA417G)

2016- Faculty of Record/Neuroscience Major

2017- Instructor/ANA 636 Advanced Neuroscience

## VI. ADVISING ACTIVITIES

### Student Advising

#### **University of Kentucky**

Lexington, KY

2006-2007 Mentor/Kelsey Ladt/Postdoctoral/Undergraduate

2012-2014 Advisor/Justin Werker/Masters

2012-2014 Advisor/Ribu Goyal/Masters

2014 Advisor/Anna Hormann/Masters

2013-2015 Advisor/Jordan Davidson/Masters

2013-2015 Advisor/Elisabeth Willems/Masters  
2015-2016 Advisor/Stephanie Tingling/Masters  
2015-2016 Advisor/Mansi Parekh/Masters

### **Postdoctoral Advising**

#### **University of Kentucky**

Lexington, KY

1992-1994 Advisor/Francis Sessler/Postdoctoral  
1993-1995 Advisor/Carl Chang/Postdoctoral  
1996-1997 Advisor/Gordon Glazner/Postdoctoral  
1996-1998 Advisor/Lihong Teng/Postdoctoral  
2000-2003 Advisor/Ying Jin/Postdoctoral  
2000-2005 Advisor/Melanie McEwen/Postdoctoral  
2001-2002 Advisor/Jianxin Gao/Visiting Postdoc  
2002-2003 Advisor/Dora Muszil/Visiting Postdoc  
2004-2007 Advisor/Ravikumar Rangwasamy Rao/Postdoctoral  
2006-2009 Advisor/Anshu Chen/Postdoctoral  
2009-2011 Advisor/Rebecca Smith/Postdoctoral  
2009-2014 Advisor/Nishant Visavadiya/Postdoctoral  
2017- Advisor/Paresh Prajapati/Postdoctoral

### **Thesis & Dissertation**

#### **University of Kentucky**

Lexington, KY

1989-1994 Advisor/Byoung J. Gwag/Doctoral Thesis  
1990-1995 Advisor/Jeff Seeburger/Doctoral Thesis  
1990-1994 Advisor/Byoung K. Jin/Doctoral Thesis  
1990-1992 Advisor/Donna L. Mayer/Doctoral Thesis  
1991-1994 Advisor/Beth Maguire/Doctoral Thesis  
1993-1995 Advisor/Ana Gabrea/Doctoral Thesis  
1993-1995 Advisor/Kelly Kemmerer/Doctoral Thesis  
1992-1995 Advisor/David Anderson/Doctoral Thesis  
1993-1998 Advisor/Xiaojun Mu/Doctoral Thesis  
1996-2001 Advisor/Dana R. Ziegler/Doctoral Thesis  
1996-2001 Advisor/DeAnna McCullers/Doctoral Thesis  
1997-1998 Advisor/Karen Beagles/Doctoral Thesis  
1998-2002 Advisor/Mary Ellen Hostettler/Doctoral Thesis  
1998-2002 Advisor/Melissa Zwick/Doctoral Thesis  
1999-2005 Advisor/Stephanie Nottingham/Doctoral Thesis  
2009 Advisor/Aashish Joshi/Doctoral Thesis  
2009-2012 Advisor/Dexter Reneer/Doctoral Thesis  
2012-2015 Advisor/Carolyn Crowdus/Doctoral Thesis  
2012-2016 Advisor/Amanda Bolton/Doctoral Thesis  
2015-2017 Chair/Taylor Claybaugh/Masters Thesis

2016-2017	Chair/Aqsa Qureshi/Master's Thesis
2016-2017	Advisor/Jessica Newton/Masters Thesis
2016-2017	Advisor/Katelyn McFarlane/Masters Thesis
2016-2017	Advisor/Rachel Blackwood/Masters Thesis
2017-	Co-Chair/Rachel Maggard/Doctoral Thesis
2017-	Advisor/Qingchao Qiu/Doctoral Thesis
2017-2018	Chair/Nicole Pappas/Masters Thesis
2018-	Chair/Olivia Murphy/Masters Thesis

### **Research Faculty**

2005-2012	Advisor/Melanie McEwen/Faculty
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### **Visiting Scientists**

#### **University of Kentucky**

Lexington, KY

2006	Advisor/Dr. Hyang Ran Lim
2007	Advisor/Dr. Sang-Hyun Kim/Assistant Professor of Neurosurgery
2007	Advisor/Dr. Ki-Hong Cho/Chief of Staff and Department of Neurosurgery

## **VII. ADMINISTRATIVE ACTIVITIES & UNIVERSITY SERVICE**

### **University**

#### **University of Kentucky**

Lexington, KY

#### **Administration**

2002	Member, Search Committee, Director of Sanders-Brown Center on Aging
2002	Member, Review Committee, Department of Molecular and Biomedical Pharmacology
2003	Chair, Departmental Presidential Teaching Award Committee
2005	Symposium Organizer, Advances in Neurorehabilitative Research
2005-2007	Member, University of Kentucky Research Advisory Committee
2009	Symposium Organizer, Advances in Neurorehabilitative Research
2013	Member, Senate Council Committee on Graduate Student Funding
07/2001	Recommendation for Promotion to Rank of Professor
07/1996	Recommendation for Tenure at Rank of Associate Professor

### **College**

#### **Administration & Clinical Operations**

2017-Present	Interim Director, Spinal Cord and Brain Injury Research Center
2000-2017	Associate Member, Spinal Cord and Brain Injury Research Center
2002	Member, Executive Committee, Spinal Cord and Brain Injury Research

	Center
2002-2004	Member, Executive Committee, Kentucky Neuroscience Institute
2003-2008	Member, Appointments, Promotions, and Tenure Committee
2009	Member, LCME Faculty Committee
2010-2012	Member, Faculty Council
2013-2019	Member, Basic Science Curriculum Subcommittee
2013-2016	Member, Faculty Council
2013-2014	Member, Curriculum Committee, Faculty Council Representative
2014-2015	Chair, Faculty Council
2004-2017	Chair, Research Committee
2013-2016	Member, Clinical Competency Committee
2015-present	Member, Biomedical Education Committee
2018-present	UK College of Medicine Neurosurgery Research Steering Committee
2019-present	UK COM Committee on Endowed Chairs and Professorships

## VIII. SPECIAL ASSIGNMENTS

### RESEARCH-RELATED EXPERIENCE:

Neuroscience and Behavior Subcommittee, ALCB-2, ad hoc (NIAAA, 1992)  
 Behavioral Neurosciences Study Section: (1992-1994)  
 Neurology A study section ad hoc (1995-1998)  
 Alzheimer's Disease Review Board, American Health Assistance Foundation (1989-1993).  
 ALS Research Advisory Board, Philadelphia Chapter (1993-1995)  
 Brain Disorders and Clinical Neurosciences 1 study section (member 1998-2000).  
 Chairman, BDCN-5 Special Emphasis Panel, (November, 2002)  
 Chairman, BDCN-5 Special Emphasis Panel (June, 2003 and February, 2004)  
 NSD-A Study Section, NINDS (ad hoc February, 2003, regular member 2005-2008)  
 New Jersey Commission on Spinal Cord Injury Research Review Board (2005)  
 MDCN-R Study Section, NINDS (2013-2014)  
 Ad Hoc Grant Reviewer-Private Foundations:  
 National Science Foundation  
 Veteran's Administration  
 Morton Cure Paralysis Fund  
 Wings for Life  
 Wellcome Trust  
 New Zealand Neurological Foundation  
 Medical Research Council of Canada  
 New Jersey Spinal Cord Injury Research Trust

## IX. HONORS & AWARDS

1980	Undergraduate Research Award, Southwest Psychological Society
2000	Golden Podium Award Director, Outstanding 1 <sup>st</sup> Year Medical School Class

2000-2013	Wethington Research Excellence Award, University of Kentucky
2002	Golden Podium Award Director, Outstanding 1 <sup>st</sup> Year Medical School Class
2014	Abraham Flexner Master Educator Award: Outstanding Teaching Contribution Development
2014	Abraham Flexner Master Educator Award: Educational Innovation and Curriculum Development
2016	Teacher Who Made a Difference – awarded by the College of Education

## **X. PROFESSIONAL ACTIVITIES, PUBLIC SERVICE & PROFESSIONAL DEVELOPMENT**

### **Memberships**

1990-1992	Library Committee/Hahnemann University
1994-1995	Graduate Program Steering Committee/Hahnemann University
1993-1995	Executive Committee/Center on Aging/Hahnemann University
1996-2001	Advisory Committee/General Clinical Research Center
1996-2001	Scientific Review Subcommittee/General Clinical Research Center
2000	Course Committee/IBS502 Molecular Biology
	American Association of Physical Medicine and Rehabilitation
	Association of Academic Psychiatrists
	Neurotrauma Society
	North America Neuromodulation Society

### **Positions Held**

#### **Local**

	<b>Kentucky Spinal Cord and Head Injury Trust (KSCHIRT)</b>
1996	Symposium Co-organizer, Annual KSCHIRT Symposium
2002	Symposium Co-organizer, Annual KSCHIRT Symposium
2004-2016	Conference Co-organizer, Annual PM&R Research Day
	<b>Society for Neuroscience</b>
2004-2005	President, Bluegrass Chapter
	<b>Cardinal Hill Rehabilitation Hospital</b>
2005-2017	Member, Cardinal Hill Rehabilitation Hospital Research Committee

### **Advisory Groups**

	<b>Kentucky Neuroscience Research Institute</b>
2005-2009	Member, Kentucky Neuroscience Research Institute Advisory Board
2018	Scientific Advisory Board Site Visit Team, Spine and Spinal Cord Injury Treatment Center, Kunming Tongren Hospital, Kunming, China

2019 Organizing Committee, 3<sup>rd</sup> Edition of Global Conference on Pharmaceutics and Drug Delivery Systems.

### **Editorial Board Member**

1991-2002 Experimental Neurology  
1992-2012 Neurobiology of Aging  
1993-2005 Journal of Histochemistry and Cytochemistry  
1994-1997 American Academy of Neurology: Continuum  
2002-2008 Journal of Neurochemistry  
2003-2013 Journal of Neurotrauma

### **Volunteer Activities**

2007-2010 Sierra Club, Local Member  
2006-2011 Outward Bound Alumni Association  
2011 Water diversion project in Mustang, Nepal

### **Community Service**

2006-2007 Court-Appointed Special Advocate Fayette County

## **XI. SPEAKING ENGAGEMENTS**

### **Local**

#### **University of Kentucky**

Lexington, KY

1995 Seminar, "Neurotrophic and Neurodegenerative Events in ALS Spinal Cord"  
2000 Neurology Ground Rounds "Cell Death Mechanisms Following Spinal Cord Injury"  
Kentucky Spinal Cord and Head Injury Research Trust Institute  
Lexington, KY  
1996 KSCHIRT Symposium "Cytoskeletal changes following acute spinal cord injury"  
1996 KSCHIRT Symposium, "Neurotrophic factor gene expression and recovery of function following spinal cord injury"  
1997 KSCHIRT Symposium, "Oxidative stress events following traumatic spinal cord injury: effects of riluzole treatment"  
1998 KSCHIRT Symposium, "Riluzole treatment in traumatic spinal cord injury"  
2006 KSCHIRT Symposium, "Paradigm Shifts in SCI Translational Research: From the Bench to the Bedside and Beyond"



**State/Regional**

**University of Louisville**  
Louisville, KY  
2002 Seminar, "Signals Regulating Apoptosis in the Injured Spinal Cord"

**National/International**

**Alkermes, Inc.**  
Cambridge, MA  
1992 Seminar, "Pharmacological strategies for regulating neurotrophin mRNA expression in the CNS"

**Harvard University**  
Cambridge, MA  
1992 Seminar, "Schwann cells secrete a dopaminergic neurotrophic factor"

**University of Pennsylvania**  
Philadelphia, PA  
1993 Seminar, "Neurotrophin mRNA regulation in the central nervous system"

**Max Plank Institute**  
Munich, Germany  
1993 Seminar, "Hippocampal neurotrophin mRNA expression is regulated in vivo by glutamatergic neurotransmission"

**Fourth Meeting of the International Neurotoxicology Association**  
Elsinore, Denmark  
1993 Symposium, Invited Speaker, "Central administration of the excitotoxin, NMDA, increases NGF mRNA in vivo"

**Karolinska Institute**  
Solna, Sweden  
1993 Seminar, "Neuronal activity regulates neurotrophin mRNA expression in the rat CNS"

**Somatix, Inc**  
Alameda, CA  
1993 Seminar, "A dopaminergic neurotrophic factor is secreted by Schwann cells"

**Rutgers University**  
New Brunswick, NJ  
1993 Seminar, "Neurotrophic factor mRNA expression is regulated by events that activate glutamatergic neurotransmission"

- Cephalon, Inc.**  
West Chester, PA  
1994 Seminar, "Cellular and behavioral events mediated by nerve growth factor"
- Trophix, Inc.**  
New Jersey  
1994 Seminar, "Expression and regulation of two forms of GDNF mRNA in the rat CNS"
- St. Louis University**  
St. Louis, MO  
1999 Seminar, "Apoptotic Signaling in Traumatic Spinal Cord Injury"
- Annual Korean Neurosciences Meeting**  
Seoul, Korea  
1999 Presidential Lecture, "Cell Death Signaling in Spinal Cord Injury"
- Ajou University/Department of Pharmacology**  
Suwon, South Korea  
1999 Seminar, "Molecular Mechanisms Controlling Apoptosis in Spinal Cord Injury"
- Winter Brain Conference**  
Sedona, AZ  
2000 Plenary Speaker, "Oxidative Stress Events Contributing to Apoptosis in Spinal Cord Injury"
- The IFCC and Beckman Coulter European Conference on Cell Biology and Neuronal Dysfunction**  
Paris, France  
2000 Invited Speaker, "Caspase Inhibitors for the Treatment of Neurodegenerative Disease"
- Washington University School of Medicine, Department of Neurology**  
St. Louis, MO  
2000 Seminar, "Extracellular and Intracellular Events Controlling Apoptosis in Spinal Cord Injury"
- Ohio State University**  
Columbus, OH  
2001 Seminar, "Diaboloical Consequences of Caspase-3 Activation in "Spinal Cord Injury"

- Emory University**  
Atlanta, GA  
2001 Seminar, “Novel Actions of Caspase-3 in the Injured Spinal Cord”
- Novartis**  
Cambridge, MA  
2006 Seminar, “Targeting Cyclophilins in Acute CNS Injury”
- Washington University School of Medicine, Department of Neurology**  
St. Louis, MO  
2007 Seminar, “Preclinical Evaluation and Translational Plans for the Non-Immunosuppressive Cyclosporine A Analog NIM811 in Spinal Cord and Brain Injury”
- Indiana University Stark Neurosciences Institute**  
Indianapolis, IN  
2013 Seminar, “Targeting Mitochondrial Function in CNS Traumatic Injury”
- 7<sup>th</sup> World Congress on Targeting Mitochondria**  
Berlin, Germany  
2016 Platform Presentation, “Mitochondria and MicroRNA – A New Role for an Ancient Organelle”
- Pharmaceutics and Drug Delivery Systems: “Nanomedicine and Cellular Delivery”**  
Rome, Italy  
2018 Invited Keynote Speaker, “Nanoparticle Delivery of Mitochondria-Associated MicroRNA Regulating Inflammation in the Central Nervous System”

## **XII. RESEARCH & INTELLECTUAL CONTRIBUTIONS**

### **A. PUBLICATIONS**

#### **Peer-Reviewed Original Research in Professional, Scientific or Educational Journals**

1. Gage, F.H. and **Springer, J.E.** Behavioral assessment of norepinephrine and serotonin: Function and interaction in the hippocampal formation. *Pharmacology, Biochemistry, and Behavior* 14:6, 815-821, 1981.
2. **Springer, J.E.**, Hannigan, J.H. and Isaacson, R.L. Changes in dopamine and DOPAC following systemic administration of apomorphine and DPI in rats. *Brain Research* 220:226-230, 1981.

3. **Springer, J.E.** and Isaacson, R.L. Catecholamine alterations in basal ganglia after hippocampal lesions. *Brain Research* 252:185-188, 1982.
4. **Springer, J.E.**, Isaacson, R.L., Ryan, J.P. and Hannigan, J.H. Dopamine depletion in nucleus accumbens reduces ACTH induced excessive grooming in rats. *Life Sciences* 33:207-211, 1983.
5. Hannigan, J.H., **Springer, J.E.** and Isaacson, R.L. Differentiation of basal ganglia dopaminergic involvement in behavior after hippocampectomy. *Brain Research* 291:83-91, 1984.
6. Ryan, J.P., **Springer, J.E.**, Hannigan, J.H. and Isaacson, R.L. Suppression of corticosterone synthesis alters the behavior of hippocampally lesioned rats. *Beh. Neuro. Bio.* 44:47-59, 1985.
7. **Springer, J.E.**, and Loy, R. Intrahippocampal injections of antiserum to nerve growth factor inhibit sympathohippocampal sprouting. *Brain Res. Bull.* 15(6):629-634, 1985.
8. Loy, R. Tayrien, M.W., **Springer, J.E.**, Carlson, S.L., and Ordy, J.M. Muscarinic receptor density changes in rat hippocampal formation due to age, deafferentation and chronic blockade are greatest in subiculum. *Trends in Pharmac. Sci.* 94-95, 1986.
9. Johnson, E.M., Jr., Taniuchi, M., Clark, B., **Springer, J.E.**, Koh, S., Tayrien, M. and Loy, R. Demonstration of the retrograde transport of nerve growth factor (NGF) receptor in the peripheral and central nervous system. *J. Neurosci.*, 7(3):923-929, 1987.
10. **Springer, J.E.**, Tayrien, M. and Loy, R. Regional analysis of age-related changes in the cholinergic system of the hippocampal formation and basal forebrain of the rat. *Brain Research*, 407(1):180-184, 1987.
11. **Springer, J.E.**, Koh, S., Tayrien, M. and Loy, R. Basal forebrain magnocellular neurons stain for nerve growth factor receptor: correlation with cholinergic cell bodies and effects of deafferentation. *J. Neurosci. Res.*, 17(2):111-118, 1987.
12. **Springer, J.E.**, Collier, T.J., Sladek, J.R., Jr., and Loy, R. Increased survival of axotomized basal forebrain neurons following transplantation of male mouse submaxillary gland. *J. Neurosci. Res.*, 19(3):291-296, 1988.
13. **Springer, J.E.** Review: Nerve growth factor receptors in the central nervous system. *Experimental Neurology*. 102:354-365. 1988.
14. **Springer, J.E.**, Collier, T.J., Notter, M.F.D., Loy, R., and Sladek, J.R., Jr. Grafts of NGF-rich tissue provide trophic support for axotomized cholinergic neurons. *Progress in Brain Research*. 78:401-407, 1988.

15. **Springer, J.E.** Commentary: The use of hollow polymer fibers for delivery of bioactive molecules to the CNS. *Neurobiology of Aging*, 10:640-641, 1989.
16. **Springer, J.E.** The distribution and function of NGF receptors in the central nervous system. *Growth and Growth Factors*. 4:95-101, 1989.
17. **Springer, J.E.**, E. Robbins, S. Meyer, M.E. Lewis, and F. Baldino. Localization and distribution of NGF receptor mRNA in the rat basal forebrain with in situ hybridization histochemistry. *Cellular and Molecular Neurobiology*, 10:33-39, 1990.
18. **Springer, J.E.**, E. Robbins, B.J. Gwag, M.E. Lewis, and F. Baldino, Jr. Non-radioactive detection of nerve growth factor receptor mRNA using in situ hybridization. *J. Histochem. Cytochem.*, 39:231-234, 1991.
19. Collier, T.J., Sladek, C.D., Gallagher, M. J., and **Springer, J.E.** A diffusible factor(s) from adult rat sciatic nerve enhances survival and neurite outgrowth of cultured embryonic dopamine neurons. *J. Neurosci. Res.*, 27:394-399, 1991.
20. **Springer, J.E.** Neurotrophic factors as therapeutic agents in the treatment of neurodegenerative disorders. *Drug News and Perspectives*, 4 (7):394-399, 1991.
21. Collier, T.J. and **Springer, J.E.** Co-grafts of embryonic dopamine neurons and adult sciatic nerve into the denervated striatum enhance behavioral and morphological recovery in rats. *Exp. Neurol.* 114:343-350, 1991.
22. Gwag, B.J., Sessler, F.M., and **Springer, J.E.** NGF gene expression in the hippocampal formation is increased by activation of NMDA receptors. *Exp Neurol.* 121:160-171, 1993
23. Seeburger, J., Tarras, S., Natter, H., and **Springer, J.E.** Spinal cord motoneurons express p75NGFR and p145trkB mRNA in amyotrophic lateral sclerosis. *Brain Research* 621:111-115, 1993
24. Seeburger, J.L. and **Springer, J.E.** Experimental rationale for the therapeutic use of neurotrophins in amyotrophic lateral sclerosis. *Exp. Neurol.* 124:64-72,1993.
25. **Springer, J.E.** Experimental evidence for growth factor treatment and function in certain neurological disorders. *Exp. Neurol.* 124:2-4,1993.
26. Gwag, BJ and **Springer, J.E.** Activation of NMDA receptors increases BDNF mRNA expression in the hippocampal formation. *NeuroReport* 5:125-128, 1993.
27. **Springer, J.E.**, Gwag, B.J., and Sessler, F.M. Neurotrophic factor mRNA expression in dentate gyrus is increased following angular bundle stimulation. *Molecular Brain Research*, 23:135-143, 1994.

28. Gwag, B.J., Sessler, F.M., Kemmerer, K, and **Springer, J.E.** Neurotrophic factor gene expression is increased in the dentate gyrus following transections of the angular bundle. *Brain Research*, 647:23-29, 1994.
29. **Springer, J.E.**, Gwag, B.J., and Sessler, F.M. Central injections of the excitotoxin N-methyl-D-aspartate increases nerve growth factor mRNA expression. *Neurotoxicology* 15(3):483-490,1994.
30. **Springer, J.E.**, X. Mu, Bergman, L.W. and J.Q. Trojanowski. Expression of GDNF mRNA in adult rat and human central nervous system. *Exp. Neurol.*127,167-170,1994.
31. Collier, T.J. and **Springer, J.E.** Neural graft augmentation through co-grafting: implantation of cells as sources of survival and growth factors. *Progress in Neurobiology* 44:309-331,1994.
32. **Springer, J.E.**, Seeburger, J.L., Gabrea, A., Blankenhorn, E.P., and Bergman, L.W. Sequence and mRNA expression of two forms of GDNF: differential regulation in denervated rat muscle. *Exp. Neurol* 131:47-52,1995.
33. Mu, X., Anderson, D., He, J., Trojanowski, J.Q., and **Springer, J.E.** Altered expression of the programmed cell death genes, bcl-2 and bax in ALS motoneurons. *Annals of Neurology* 40:140-147, 1996.
34. Gwag, B.J., Sessler, F.M., Robine, V., and **Springer, J.E.** Endogenous glutamate levels regulate nerve growth factor (NGF) mRNA expression in the hippocampal formation. *Molecules and Cells*, 7:165-169, 1997.
35. Mu, X., **Springer, J.E.**, and Bowser, R. Localization and expression of FAC1 mRNA and protein in developing, adult, and amyotrophic lateral sclerosis spinal cord. *Exp. Neurol.* 146:17-24, 1997.
36. **Springer, J.E.**, Azbill, R.D., Mark, R.J., Begley, J.G., and Mattson, M.P. 4-hydroxynonenal, a lipid peroxidation product, rapidly accumulates following traumatic spinal cord injury and inhibits glutamate transport. *J. Neurochem.* 68:2469-2476, 1997.
37. Azbill, R.D., Mu, X., Bruce-Keller, A., Mattson, M.P., and **Springer, J.E.** Impaired mitochondrial function, oxidative stress, and altered antioxidant enzyme activities following traumatic spinal cord injury. *Brain Res.*, 765:283-290, 1997.
38. **Springer, J.E.**, Azbill, R.D., Kennedy, S.E., George, J., and Geddes, J.W. Rapid calpain I activation and cytoskeletal disruption following traumatic spinal cord injury. *J. Neurochem.*, 69:1592-1600, 1997.
39. Glazner, G.W., Mu, X., and **Springer, J.E.** Localization of glial cell line-derived neurotrophic factor (GDNF) receptor alpha and c-ret mRNA in rat central nervous system. *J. Comp. Neurol.*, 391:42-49, 1998.

40. Carlson, S.L., Parrish, M.E., **Springer, J.E.**, Doty, K., and Dossett, L. Acute inflammatory response in spinal cord following impact injury. *Exp. Neurol.*, 151:77-88, 1998.
41. **Springer, J.E.**, Azbill, R.D., and Carlson, S.L. A rapid and sensitive assay for measuring mitochondrial metabolic activity in isolated neural tissue. *Brain Res. Prot.*, 2:259-263, 1998.
42. **Springer, J.E.**, Azbill, R.D., and Knapp, P.E. Activation of the caspase-3 apoptotic cascade in traumatic spinal cord injury. *Nature Medicine*: 5, 943-946, 1999.
43. Kruman, II, Pedersen, W.A., **Springer, J.E.**, and Mattson, M.P. ALS-linked Cu/Zn-SOD mutation increases vulnerability of motor neurons to excitotoxicity by a mechanism involving increased oxidative stress and perturbed calcium homeostasis. *Exp. Neurol.* 160:28-39, 1999.
44. **Springer, J.E.** Caspase-3 activation in injuries of the central nervous system. *Biotech Lab International* 11-12:16-19, 1999.
45. Rabacchi, SA, Kruk, B., Carney, C, Hamilton, J., Meyer, SL., **Springer, J.E.**, and Baird, DH. BDNF and NT4/5 promote survival and neurite outgrowth from pontocerebellar mossy fibers. *J Neurobiol.* 40(2):254-69, 1999.
46. Mu, X., Azbill, R.D., and **Springer, J.E.** Riluzole improves measures of oxidative stress in traumatic spinal cord injury. *Brain Res.* 870:66-72, 2000.
47. Azbill, R.D., Mu, X. and **Springer, J.E.** Riluzole stimulates high-affinity glutamate uptake in rat spinal cord synaptosomes. *Brain Res.* 871:175-180, 2000.
48. Mu, X., Azbill, R.D., and Springer, J.E. Riluzole and methylprednisolone combined treatment improves functional recovery in traumatic spinal cord injury. *J. Neurotrauma*, 17(9):773-780, 2000.
49. Springer, J.E., Azbill, R.D., Nottingham, S.A., and Kennedy, S.E. Calcineurin-mediated BAD dephosphorylation activates the caspase-3 apoptotic cascade in traumatic spinal cord injury. *J Neurosci.* 20(19):7246-7251, 2000.
50. Zhang, S.X., Underwood, M., Gibson, S., Huang, F., **Springer, J.E.**, and Geddes, J.W. Cytoskeletal disruption following contusion injury to the rat spinal cord. *J. Neuropathol. Exp. Neurol.* 59:287-296, 2000.
51. Zwick, M., Teng, L., Mu, X., Davis, B.M., and **Springer, J.E.** Overexpression of GDNF induces and maintains hyperinnervation of muscle fibers and multiple end plate formation without affecting motoneuron number. *Exp. Neurol.* 171:342-350, 2001.

52. Karpuj, M.V., Becher, M.W., **Springer, J.E.**, Chabas, D., Pedotti, R., and Steinman, L. Prolonged survival and decreased abnormal movements in transgenic model of Huntington disease with administration of the transglutaminase inhibitor cystamine. *Nature Medicine*, 8(2):143-149, 2002.
53. **Springer, J.E.** Apoptotic cell death following traumatic injury to the central nervous system. *J. Biochem. and Molec. Bio.* 35(1):94-105, 2002.
54. Mu, X., Azbill, R.D., and **Springer, J.E.** Treatment with NBQX improves mitochondrial function and reduces oxidative events after traumatic spinal cord injury. *J. Neurotrauma* 19(8):917-927, 2002.
55. Nottingham, S.A., Knapp, P.E., and **Springer, J.E.** FK506 treatment inhibits caspase-3 activation and promotes oligodendroglial survival following traumatic spinal cord injury. *Exp. Neurol.* 177(1):242-251, 2002.
56. Candelario-Jalil, E, Gonzalez-Falcon, A., Garcia-Cabrera, M., Alvarez, D., Al-Dalain, S.M., Martinez-Sanchez, G., Leon, O.S., and **Springer, J.E.** The relative contribution of COX isoforms to ischemia-induced oxidative damage and neurodegeneration following transient global cerebral ischemia. *J. Neurochem.* 86:545-555, 2003.
57. Nottingham, S.A. and **Springer, J.E.** Kainic acid infusions induce caspase-3 activation and cell death of oligodendroglia in rat spinal cord. *J Comp Neurol* 464(4):463-471, 2003.
58. Garrido, R. **Springer, J.E.**, Hennig, B. and Toborek, M. Nicotine attenuates arachadonic acid-induced apoptosis of spinal cord neurons by preventing depletion of neurotrophic factors. *J. Neurotrauma* 20(11):1201-1213, 2003.
59. Sullivan, P.G., **Springer, J.E.**, Hall, E.D., and Scheff, S.W. Mitochondrial uncoupling as a therapeutic target following neuronal injury. *J. Bioenergetics and Biomembranes* 36(4):353-356, 2004.
60. Jin, Y., McEwen, M.L., Nottingham, S., Maragos, W.F., Dragicevic, N.B., Sullivan, P.G., and **Springer, J.E.** The mitochondrial uncoupling agent 2,4-dinitrophenol improves mitochondrial function, attenuates oxidative damage and increases white matter sparing in the contused spinal cord. *J. Neurotrauma* 21(10):1396-1404, 2004.
61. Hall, E.D., and **Springer, J.E.** Neuroprotection and acute spinal cord injury: a reappraisal. *NeuroRx: The Journal of the American Society for Experimental NeuroTherapeutics* 1:80-100, 2004.
62. Sullivan, P.G., Rabchevsky, A.G., Waldmeier, P.C., and **Springer, J.E.** Mitochondrial permeability transition in CNS trauma: Cause or effect of neuronal cell death? *Journal of Neuroscience Res.* 79:231-239, 2005.
63. Jin, Y., McEwen, M.L., Ghandour, M.S. and **Springer, J.E.** XIAP overexpression prevents cell death in an immortalized oligodendroglial cell line. *Cellular and Molecular Neurobio.* 24:853-863, 2005.



64. McEwen, M.L. and **Springer, J.E.** Time course of caspase-3 activation following traumatic spinal cord injury. *Journal of Histochemistry and Cytochem.* 53(7):809-819, 2005.
65. McEwen, M.L. and **Springer, J.E.** Quantification of locomotor recovery following spinal cord contusion in adult rats. *Journal of Neurotrauma*, 23(11):1632-1653, 2006.
66. McEwen, M.L., Sullivan, P.G., and **Springer, J.E.** Pretreatment with the cyclosporin derivative, NIM811, improves mitochondrial function following spinal cord contusion in rats. *Journal of Neurotrauma*, 24(4):613-624, 2007.
67. Ravikumar, R., McEwen, M.L., Sullivan, P.G., and **Springer, J.E.** Post injury treatment with NIM811 reduces markers of apoptotic cell death and improves tissue sparing. *Journal of Neurotrauma*, 24(10):1618-1630, 2007.
68. Mbye, L.H., Singh, I.N., Carrico, K.M., Sullivan, P.G., **Springer, J.E.**, and Hall, E.D. Attenuation of acute mitochondrial dysfunction after traumatic brain injury in mice by NIM811, a non-immunosuppressive cyclosporin A analog. *Exp. Neurology*, 209(1):243-253, 2008.
69. Pettigrew, L. C., Holtz, M., Kryscio, R., Foster, T., **Springer, J.E.**, Li, Yizhao, Y-J., Craddock, S., Song, X-H., Grass, D., and Kindy, M. Focal cerebral ischemia in the TNF-alpha transgenic rat. *Journal of Inflammation*, 5:47-58, 2008.
70. Chen, A., McEwen, M.L., Sun, S., Ravikumar, R.R., and **Springer, J. E.** Proteomic and phosphoproteomic analyses of the soluble fraction following acute spinal cord contusion in rats. *Journal of Neurotrauma*. 27(1): 263-274, 2010.
71. Shin, J.H., Lee, Y.A., Lee, J.K., Lee, Y.B., Cho, W., Im, D.S., Lee, J.H., Yun, B.S., Son, S.J., Park, S.M., Byun, S.Y., **Springer, J.E.**, and Gwag, B.J. AAD-2004, a potent spin trapping molecule and microsomal prostaglandin E synthase-1 inhibitor, shows safety and efficacy in a mouse model of ALS. *Nature Preceedings*, 2010.  
hdl:10101/npre.2010.5237.1
72. **Springer, J.E.**, Ravikumar. R. R., H. R. Lim, S. I. Cho, G. J. Moon, H. Y. Lee, E. J. Park, J. S. Noh and B. J. Gwag. The functional and neuroprotective actions of Neu2000, a dual-acting pharmacological agent in the treatment of acute spinal cord injury. *Journal of Neurotrauma*. 27(1): 139-149, 2010.
73. Park, U.J., Lee, Y., Won, S. M., Lee, J. H., Kang, S-H., Lee, Y. B., **Springer, J.E.**, and Gwag, B.J. Blood-derived iron causes degeneration of the hippocampal CA1 neurons following transient forebrain ischemia in rat. *Acta Neuropath.* 121:459-73, 2011.
74. McEwen, M.L., Sullivan, P.G., Rabchevsky, A.G., and **Springer, J.E.** Targeting mitochondrial function for the treatment of acute spinal cord injury. *NeuroTherapeutics*. 8(2):168-179, 2011.

75. Rabchevsky, A.G., Patel, S.R., and **Springer, J.E.** Pharmacological interventions for spinal cord injury: Where do we stand? How might we step forward? *Pharmacology and Therapeutics*. 132:15-29, 2011.
76. Readnower, R.D., Pandya, J.D., McEwen, M.L., Pauly, J.R., **Springer, J.E.**, and Sullivan, P.G. Post-injury administration of the mitochondrial permeability transition pore inhibitor, NIM811, increases tissue sparing, improves behavioral outcome, attenuates mitochondrial dysfunction, and decreases mitochondrial oxidative damage following traumatic brain injury in rats. *J. Neurotrauma*. 28(9):1845-1853, 2011.
77. Hee, S.J., Lee, Y.A., Lee, J.K., Lee, Y.B., Cho, W., Im, D.S., Lee, J.H., Yun, B.S., **Springer, J.E.**, and Gwag, B.J. Concurrent blockade of free radical and microsomal prostaglandin E synthase-1-mediated PGE<sub>2</sub> production improves safety and efficacy in a mouse model of amyotrophic lateral sclerosis. *J. Neurochem*. 122(5):952-961, 2012.
78. Visavadiya, N.P., McEwen, M.L., Pandya, J.D., Sullivan, P.G., Gwag, B.J., and **Springer, J.E.** Antioxidant properties of Neu2000 on mitochondrial free radicals and oxidative damage. *Toxicology in Vitro* 27(2):788-797, 2013.
79. Chen, A., Sun., S., Visavadiya, N., and **Springer, J.E.** Differential proteomic analysis of acute contusive spinal cord injury in rats using iTRAQ reagent labeling and LC-MS/MS. *Neurochem Res*. 38(11):2246-2255, 2013.
80. \*Wang, W.X., Visavadiya, N.P., Pandya, J., Nelson, P.T., Sullivan, P.G., and **Springer, J.E.** Mitochondria-associated microRNAs in rat hippocampus following traumatic brain injury. *Exp. Neurol*. 265:84-93, 2015. (*\*most viewed Experimental Neurology publication in 2015*).
81. Wang, W.X. and **Springer, J.E.** Role of mitochondria in regulating miRNA activity and its relevance to the central nervous system. *Neural Regeneration Research* 10(7):1026-1028, 2015.
82. Nagar, V.R., **Springer, J.E.**, and Salles, S.S. Increased incidence of spinal abscess and drug abuse after implementation of strict state-controlled substances prescription drug abuse legislation. *Pain Medicine* 16:2031-2035, 2015.
83. Visavadiya, N.P. and **Springer, J.E.** Altered cerebellar circuitry following thoracic spinal cord injury in adult rats. *Neural Plasticity*, Volume 2016, Article ID 8181393, <http://dx.doi.org/10.1155/2016/8181393>, 2016.
84. Wang, W.X., Sullivan, P.G., and **Springer, J.E.** Mitochondria and microRNA crosstalk in traumatic brain injury. *Prog Neuropsychopharmacol Biol Psychiatry*. Feb 6;73:104-108, 2017.

85. **Springer, J.E.**, Visavadiya, N.P., Sullivan, P.G., and Hall, E.D. Post-injury treatment with NIM811 promotes recovery of bladder function and tissue sparing in adult female rats following spinal cord contusion: A dose-response study. *J. Neurotrauma* 35(3):492-499, 2018.
86. Raut, N., Nagar, V.R., **Springer, J.E.**, Sawaki, L., and Salles, S.S. Rehabilitation outcomes in spinal abscess patients with and without a history of intravenous substance abuse. *Am J Phys Med Rehabil.* 2018 Jun;97(6):397-400, 2018.
87. **Springer, J.E.**, Prajapati, P., and Sullivan, P.G. Targeting the mitochondria permeability transition pore in CNS injury. *Neural Regeneration Research* 13(8):1338-1341, 2018.
88. Prajapati, P., Wang, W.X., and **Springer, J.E.** Subcellular compartmentalization and translocation of mitochondria-associated miRNA in the mitochondria- endoplasmic reticulum matrix. *Accepted.*
89. Wang, W.X., Prajapati, P., Nelson, P.T., and **Springer, J.E.** The mitochondria associated ER membrane (MAM) serves as a subcellular shuttling node for inflammatory responsive microRNAs in mammalian brain. *Submitted.*
90. Wang, W.X., Prajapati, P., and **Springer, J.E.** Temporal response of mitochondria-associated microRNAs targeting inflammation following traumatic brain injury: effects of microRNA-146a nanoparticle delivery on upstream NF- $\kappa$ B inflammatory signaling. *Submitted.*
91. Hubbard, W.B., Harwood, C.L., Prajapati, P., **Springer, J.E.**, Saatman, K.E., and Sullivan, P.G. Fractionated mitochondrial magnetic separation for isolation of synaptic mitochondria from brain tissue. *Submitted.*
92. Prajapati, P., Dalwad, P., Gohel, D., Singh, K., Sripada, L., Bhatelia, K., Joshi, B., Roy, M., Wang, W-X., **Springer, J.E.**, Singh, R., Singh, R. Enforced lysosomal biogenesis rescues Erythromycin and Clindamycin induced mitochondria-mediated cell death in human cells. *Submitted.*

### **Books, Book Chapters, Monographs**

1. Isaacson, R.L., Hannigan, J.H., **Springer, J.E.**, Ryan, J.P. and Poplawsky, A. (1983) Limbic and neurohormonal influences modulate the basal ganglia and behavior. In: Integrative Neurohormonal Mechanisms: Physiological and Clinical Aspects, (ed. Endroczi et al.), Elsevier Biomedical Press, Amsterdam.
2. Isaacson, R.L., **Springer, J.E.** and Ryan, J.P. (1986) Cholinergic and catecholaminergic modification of the hippocampal lesion syndrome. In: The Hippocampus, Vol. 4 (ed. Isaacson, R.L. and Pribram, K.H.). Plenum Press, New York, pp. 127-158.

3. **Springer, J.E.**, Collier, T.J., Notter, M., Loy, R., and Sladek, J.R., Jr. (1988) Transplants of NGF-rich tissue increase survival and regeneration of axotomized cholinergic neurons in the basal forebrain. In: Neural development and regeneration: Cellular and Molecular Aspects. (ed. Gorio et al.) Springer-Verlag, Berlin Heidelberg, 683-685.
4. **Springer, J.E.**, Gwag, B.J., and Sessler, F.M. (1995) Neuronal activity regulates neurotrophin mRNA expression in the central nervous system. In: Neurobehavioral Plasticity: Learning, Development, and Response to Brain Insults. (eds. Spear, Spear, and Woodruff) Lawrence Erlbaum Associates, New Jersey, 249-262.
5. **Springer, J.E.** and Kitzman, P. (1999) Cellular responses mediated by neurotrophin signaling pathways. In: Neurotrophin Signaling and Neuroprotection. (ed. M. Mattson) Humana Press, New Jersey, 1-21.
6. **Springer, J.E.**, Nottingham, S., Azbill, R.D., McEwen, M. and Jin, Y. (2001) Caspase-3 Apoptotic Signaling Events Following Injury to the Central Nervous System. In: Clinical Chemistry and Laboratory Medicine: Proceedings of the 2<sup>nd</sup> IFCC/Beckman Coulter European Conference. (ed. G. Siest) Walter de Gruyter, Berlin.
7. McEwen, M.L. and **Springer, J.E.** (2007). The Biology of Caspases in Central Nervous System Trauma. In: Handbook of Neurochemistry and Molecular Neurobiology: Neural Protein Metabolism and Function. (eds. N. Banik and V. Lajtha), Springer-Verlag, pp. 515-550.
8. Chen, A. and **Springer, J.E.** (2009) Neuroproteomic Methods in Spinal Cord Injury. In: Methods in Molecular Biology (Editor, Ottens, A.K.), Humana Press, vol. 566, pp. 57-67.
9. Nardo, D., Henson, D., **Springer, J.E.**, Venditto, V.J. (2018) Modulating the Immune Response Using Liposomal Delivery. In: Nanomaterials for Clinical Applications: Case Studies in Nanomedicine (eds. N. Pappas and C. Demetzos), Elsevier. *Submitted.*

## **B. ABSTRACT PRESENTATIONS**

### **Local/State/Regional/Meetings**

1. POSTER **Springer, J.E.**, Azbill, R.D., Kennedy, S.E., Soutanian, N.S., and Geddes, J.W. Glutamate release and calpain I activation following traumatic spinal cord injury. Second Annual Kentucky Spinal Cord and Head Injury Trust, Lexington, KY.1996.
2. POSTER **Springer, J.E.**, Mu, X., Azbill, R.D., Kennedy, S.E., Lundgren, K.H., and Seroogy, K.B. Neurotrophic events following spinal cord injury. Second Annual Kentucky Spinal Cord and Head Injury Trust, Lexington, KY.1996.

3. POSTER Beagles, K.E., Knapp, P.E., and **Springer, J.E.** Nerve growth factor induces apoptotic cell death in oligodendroglia: involvement of caspase-3 activation. 4th Annual Symposium of the Kentucky Spinal Cord and Head Injury Research Trust, 1998.
4. POSTER **Springer, J.E.**, McEwen, M.L., Scarce, C.L., Waldmeier, P.C., and Sullivan, P.G., Treatment with the cyclosporine derivative NIM811 improves mitochondrial function and reduces oxidative damage following spinal cord contusion. 10th Annual Symposium of the Kentucky Spinal Cord and Head Injury Research Trust. 2004.
5. POSTER Ravikumar, R., McEwen, M.L., Scarce, C.L., Waldmeier, P.C., Sullivan, P.G. and **Springer, J.E.** Treatment with the cyclosporine derivative NIM811 reduces cytochrome c release and cell death, and increased white matter sparing following spinal cord injury. Symposium by the Bluegrass Chapter of the Society for Neuroscience. 2005.
6. POSTER Chen, A-S, Ravikumar, R., McEwen, M.L., and **Springer, J.E.** Differential phosphoproteomic analysis of spinal cord injury in rats. 13th Annual Kentucky Spinal Cord and Head Injury Research Trust Symposium, Louisville, Kentucky 2007.
7. POSTER Visavadiya NP, McEwen ML, Pandya JD, Sullivan PG, Gwag BJ, and **Springer JE.** (*Award for Outstanding Poster*): Neu2000 exerts potent anti-oxidant effects on rat spinal cord mitochondria in situ and in vitro. Blue Grass Society for Neuroscience (BGSFN) Annual Symposium, Lexington, Kentucky, 2011.
8. POSTER Visavadiya NP, McEwen ML, Pandya JD, Sullivan PG, Gwag BJ, and **Springer JE.** Potency of Neu2000 on various reactive oxygen/nitrogen species using in vitro oxidative model systems. 7<sup>th</sup> Annual CCTS Spring Conference - University of Kentucky Center for Clinical and Translational Science, Lexington, Kentucky, 2012.
9. POSTER Wang, W.X., Visavadiya, N.P., Pandya, J., Nelson, P.T., Sullivan, P.G., and **Springer, J.E.** Mitochondria associated microRNA expression following traumatic brain injury. 20<sup>th</sup> Annual KSCHIRT Symposium. Lexington, KY. 2014.
10. POSTER Wang, W.X., Vekaria, H., Sullivan, P.G., and **Springer, J.E.** Secondary injury events associated with TBI alter expression of mitochondria associated microRNA. Annual Neurotrauma Symposium, Lexington, KY. 2016.
11. POSTER Wang, W.X., Vekaria, H., Sullivan, P.G., and **Springer, J.E.** Brain injury signaling events alter expression of mitochondria associated microRNA. Kentucky Neuroscience Institute Clinical-Translation Research Symposium, Lexington, KY. 2016.

### **National/International Meetings**

12. PODIUM Gage, F.H., Thompson, R., Chafetz, M., and **Springer, J.E.** Functional dissociation along the dorsal-ventral axis of the hippocampus. Texas Society for Neuroscience, 1979.

13. POSTER Gage, F.H. and **Springer, J.E.** Opposite and antagonistic effects of intrahippocampal injections of serotonin and norepinephrine on behavior. *Neuroscience Abs.* 6:454, 1980.
14. POSTER Hannigan, J.H., **Springer, J.E.**, and Isaacson, R.L. Dopamine stimulation of nucleus accumbens can reduce the behavioral consequence of hippocampal damage. *Neuroscience Abs.* 7:888, 1981.
15. PODIUM Hannigan, J.H., **Springer, J.E.**, Ryan, J.P., and Isaacson, R.L. The role of nucleus accumbens opiate and dopamine systems in excessive grooming induced by ACTH. Lake Ontario Regional Neurosciences Meeting, 1982.
16. POSTER Hannigan, J.H., Balaz, M.A., **Springer, J.E.**, Ryan, J.P. and Isaacson, R.L. Hippocampal lesions: Are the secondary dopaminergic changes following lesions responsible for the decrease in ACTH-induced excessive grooming? *Neuroscience Abs.* 8:371, 1982.
17. PODIUM Isaacson, R.L., Hannigan, J.H., and **Springer, J.E.** Dopaminergic stimulation of nucleus accumbens: Alleviation of behavioral consequences of hippocampal destruction. First World Congress IBRO. The Brain in Health and Disease. Lausanne, Switzerland, 1982.
18. POSTER **Springer, J.E.**, Hannigan, J.H., Ryan, J.P. and Isaacson, R.L. Pharmacological and neurochemical interactions of ACTH and mesolimbic dopamine system. *Neuroscience Abs.* 8:371, 1982.
19. POSTER **Springer, J.E.** and Isaacson, R.L. Choline effects in animals with hippocampal damage. *Neuroscience Abs.* 9:554, 1983.
20. PODIUM **Springer, J.E.**, Kendall, P.A. and Isaacson, R.L. Acute cholinergic administration produces a transient attenuation of the effects of brain damage. Lake Ontario Regional Neurosciences Meeting, 1983.
21. POSER Ryan, J.P., **Springer, J.E.**, Hannigan, J.H. and Isaacson, R.L. Suppression of corticosterone synthesis alters the locomotor behavior of hippocampally lesioned rats. *Neuroscience Abs.* 9:1080, 1983.
22. POSTER **Springer, J.E.**, Ryan, J.P., Johnston, J. and Isaacson, R.L. Central choline injections reverse behaviors induced by hippocampal damage. *Neuroscience Abs.* 10:1177, 1984.
23. POSTER Loy, R., Tayrien, M. and **Springer, J.E.** Sexual dimorphism in regional muscarinic receptor binding in rat hippocampus. *Anatomical Record*, 211:113A, 1985.
24. POSER Loy, R., Tayrien, M.W., **Springer, J.E.**, Carlson, S.L. and Ordy, J.M. Muscarinic receptor density changes in rat hippocampal formation due to age, deafferentation and

chronic blockage are greatest in subiculum. Second Symposium on Subtypes of Muscarinic Receptors. Boston, Massachusetts, 1985.

25. POSTER Loy, R., Tayrien, M.W., **Springer, J.E.** and Koh, S. NGF and its receptor in the septohippocampal system: Trophic dependence of septal neurons, bidirectional axonal transport, and relationship to sympathohippocampal sprouting. International Symposium on Neural Regeneration. Pacific Grove, California. 1985
26. POSTER **Springer, J.E.**, Loy, R. and Tayrien, M. Age-related changes in cholinergic enzymes and muscarinic binding sites in rat brain. Neuroscience Abs. 11:895, 1985.
27. POSTER **Springer, J.E.**, Loy, R., Tayrien, M. and Chandler, J.P. Anti-NGF injections reduce sympathetic sprouting into rat hippocampus. Anatomical Record, 211:183A, 1985.
28. POSTER Koh, S., **Springer, J.E.**, Tayrien, M., and Loy, R. Rapid loss of Nerve Growth Factor receptor correlates with retrograde cell loss in medial septum following fimbria-fornix transections. Anatomical Record 214:67A, 1986.
29. POSTER Loy, R., Koh, S., **Springer, J.E.**, and Tayrien, N.W. Bidirectional axonal transport of endogenous Nerve Growth Factor receptor in the rat septo-hippocampal and basalo-cortical systems. Anatomical Record 214:76A, 1986.
30. POSTER Tayrien, M.W., Koh, S., **Springer, J.E.** and Loy, R. Immunocytochemical localization of Nerve Growth Factor (NGF) and NGF receptor in the rat olfactory bulb. Anatomical Record 214:133A, 1986.
31. POSTER **Springer, J.E.**, Tayrien, M., Koh, S. and Loy, R. Increased NGF immunoreactivity in hippocampal astrocytes following fimbria lesion. Anatomical Record 214:127A, 1986.
32. PODIUM **Springer, J.E.** and Loy, R. Immunocytochemical localization of fibers staining for nerve growth factor receptor in the hippocampal formation of the rat. Neuroscience Abs. 12:1059, 1986.
33. POSTER **Springer, J.E.**, Collier, T.J., Notter, M.F.D., Sladek, J.R. and Loy, R. CNS transplants of NGF-rich tissue increases survival of axotomized cholinergic neurons in the basal forebrain. Anatomical Record 218:130A, 1987.
34. POSTER **Springer, J.E.**, Collier, T.J., Notter, M.F.D., Sladek, J.R., Jr., and Loy, R. Transplants of NGF-rich tissue facilitate survival and regeneration of axotomized cholinergic neurons in the medial septum and diagonal band. Neuroscience Abs. 13:185, 1987.
35. POSTER Loy, R. **Springer, J.E.**, and Koh, S. Localization of cells immunoreactive for epidermal growth factor (EGF) receptor in the adult and developing rat forebrain. Neuroscience Abs.13:575, 1987.

36. PODIUM **Springer, J.E.**, Collier, T.J., Loy, R. and Sladek, J.R., Jr. Grafts of NGF-rich tissue provide trophic support for axotomized cholinergic neurons. Schmitt Symposium on Transplantation into the Mammalian CNS, 1987.
37. PODIUM **Springer, J.E.**, Collier, T.J., Notter, M.F.D., Loy R. and Sladek, J.R., Jr. Transplants of NGF-rich tissue increases survival and regeneration of axotomized cholinergic neurons in the basal forebrain. NATO workshop on Neural Development and Regeneration, 1987.
38. POSTER **Springer, J.E.** and S. Weigand. Experimental glioma-induced angiogenesis: Possible role of nerve growth factor in neovascularization. *Annals of Neurol.*,24(3):480, 1988.
39. POSTER Kennedy, S.E., Fiandaca, M.S., Kordower, J.H., Notter, M.D.F., and **Springer, J.E.** Possible involvement of nerve growth factor (NGF) in glioma-induced angiogenesis. *Neuroscience Abs.*14:257,1988.
40. POSTER Heyer, D., Collier, T.J., Loy, R., and **Springer, J.E.** Sustained regeneration of axotomized cholinergic neurons using cografts of NGF-rich tissue and fetal rat basal forebrain. *Neurosciences Abs.*14:365,1988.
41. POSTER **Springer, J.E.**, Collier, T.J., and Notter, M.F.D. Peripheral nerve sections contained in hollow fibers function as a delivery system of neurotrophic molecules. *Neurosciences Abs.*14:365,1988.
42. POSTER Collier, T.J., **Springer, J.E.**, Notter, M.F.D., Sladek, C.D., Gallagher, M.J., Daley, B.F., and Sladek, Jr., J.R. Mixed suspensions of cryopreserved fetal midbrain tissue and C6 glioma: Enhanced dopamine neuron viability in culture and neural grafts. *Neuroscience Abs.*14: 256,1988.
43. POSTER Iacobacci, R. and **Springer, J.E.** NGF-sensitive neurons in the basal forebrain: septohippocampal projections. Eastern Student Research Forum. Miami, FL 1989.
44. PODIUM **Springer, J.E.**, M.E. Lewis, E. Robbins, S. Meyer, and F. Baldino. Effect of NGF removal on NGF-receptor gene expression in the rat basal forebrain. Symposium on "Molecular and cellular mechanisms of neuronal plasticity in aging and Alzheimer's disease." Bethesda, MD 1989.
45. POSTER **Springer, J.E.**, E. Robbins, F. Baldino, and M.E. Lewis. Regulation of NGF-receptor gene expression in the rat basal forebrain: a time course study following fimbria-fornix. *Society for Neuroscience*, 15:707, 1989.
46. POSTER Baldino, F., Jr., E. Robbins, D. Grega, S.L. Meyer, **Springer, J.E.**, and M.E. Lewis. Non-radioactive detection of NGF-receptor mRNA with digoxigenin-UTP labeled RNA probes. *Society for Neuroscience*, 15:864, 1989.



47. POSTER Collier, T.J., **Springer, J.E.**, M.J. Gallagher, C.D. Sladek, and J.R. Sladek, Jr. Enhanced survival and neurite extension from embryonic rat dopamine neurons co-cultured with adult rat sciatic nerve: A diffusable factor other than nerve growth factor. Implications for neural grafting. Society for Neuroscience. 15:1354, 1989.
48. POSTER **Springer, J.E.**, and Iacovitti, L. Identification of a Schwann cell factor(s) that exhibits neurotrophic properties on mesencephalic dopamine neurons. International Society for Developmental Neuroscience, 1989.
49. POSTER Iacovitti, L. and **Springer, J.E.** A partially purified muscle factor(s) induces catecholamine differentiation in embryonic caudate nucleus neurons transplanted into the lesioned adult rodent brain. International Society for Developmental Neuroscience, 1989.
50. POSTER Mobley, W.C., Barrall, T., Gwag, B.J. and **Springer, J.E.** Developmental expression of nerve growth factor (NGF) receptor mRNA in the rat basal forebrain: Influence of NGF administration. Society for Neuroscience. 16:297,1990.
51. POSTER Gwag, B.J., Luthin, G.L., Artymyshyn, R.P. and **Springer, J.E.** Localization of nerve growth factor and cholinergic m2 muscarinic receptor mRNA in adult rat basal forebrain. Society for Neuroscience. 16:480, 1990.
52. POSTER Collier, T.J. and **Springer, J.E.** A peripheral nerve growth factor augments the behavioral and morphological effects of co-grafter dopamine neurons. Society for Neuroscience. 16:822, 1991.
53. POSTER Seeburger, J.L., **Springer, J.E.**, Lin, C.-S. Response of somatostatin neurons to transient forebrain ischemia in the gerbil: An in situ hybridization study. Society for Neuroscience. 16:937, 1990.
54. POSTER Iacovitti, L. and **Springer, J.E.** A partially purified muscle factor induces catecholamine differentiation in the lesioned and grafted rodent brain. Society for Neuroscience. 16:1286, 1990.
55. POSTER **Springer, J.E.**, Iacovitti, L., Maguire, B.A. and Collier, T.J. A dopaminergic neurotrophic factor (DNTEF) is secreted by Schwann cells grown in culture. Society for Neuroscience. 16:822, 1991
56. POSTER Maguire, B.A., Collier, T.J. and **Springer, J.E.** Characterization of a factor with neurotrophic properties on tyrosine hydroxylase-positive ventral mesencephalic neurons. Society for Neuroscience. 17:755, 1991.
57. POSTER **Springer, J.E.**, Gwag, B.J., Woertwein, G., Stackman, R., Rogers, R., Opello, K. and Walsh, T.J. Potential involvement of nerve growth factor (NGF) in spatial memory formation. Society for Neuroscience. 17:19, 1991.

58. POSTER Seeburger, J.L., Tarras, S., Lewis, M.E., Robbins, E. and **Springer, J.E.** The expression of nerve growth factor receptor and heat shock protein mRNA in ALS spinal cord. Society for Neuroscience. 17:1497, 1991.
59. POSTER Gwag, B.J., Sessler, F.M., Mouradian, R.D., Waterhouse, B.D. and **Springer, J.E.** N-methyl-D-aspartate (NMDA) regulation of nerve growth factor (NGF) gene expression. Society for Neuroscience. 17:930, 1991.
60. POSTER Sessler, F.M., Gwag, B.J., Mouradian, R.D., Waterhouse, B.D. and **Springer, J.E.** Induction of nerve growth factor (NGF) gene expression by norepinephrine (NE) is partially mediated through N-methyl-D-aspartate (NMDA) receptors. Society for Neuroscience. 17:930, 1991.
61. POSTER Mouradian, R.D., Sessler, F.M., Gwag, B.J., **Springer, J.E.**, and Waterhouse, B.D. Norepinephrine alters membrane responses of layer V cortical neurons to excitatory synaptic inputs. Society for Neuroscience. 17:983, 1991.
62. POSTER **Springer J.E.**, Gwag, B.J., Sessler, F.M., Maguire, B.A., and Lehmann, J. Neurotransmitter regulation of NGF gene expression in the CNS. International Symposium on Neural Regeneration. Pacific Grove, California. 1991.
63. POSTER Lewis, M.E., E. Robbins, E. Riley, V. Marcy, J.M. Roberts-Lewis, F. Baldino, and **Springer, J.E.** Non-radioactive in situ hybridization with digoxigenin-labeled cRNA and oligonucleotide probes. Annual Meeting of the Histochemistry Society. 1992.
64. POSTER Seeburger, J.L., Cope, T.C., and **Springer, J.E.** Expression of neurotrophin and trk mRNA in ALS and axotomized rat spinal cord and peripheral tissue. Society for Neuroscience, 1992.
65. POSTER Gwag, B.J., and **Springer, J.E.** Acute and chronic intraventricular infusions of NMDA induce BDNF and NGF mRNA selectively in rat dentate gyrus granule cells. Society for Neuroscience, 1992.
66. POSTER **Springer, J.E.**, Gwag, B.J., and Sessler, F.M. Angular bundle stimulation induces neurotrophin gene expression in dentate gyrus granule cells. Society for Neuroscience, 1992.
67. POSTER Collier, T.J., P.N. Martin, B.A. Maguire, and **Springer, J.E.** Grafted Schwann cells and infusion of a Schwann cell-derived growth factor (DNTF) enhance morphological recovery in the damaged adult rat dopamine system. Society for Neuroscience, 1992.
68. POSTER Nair, S., **Springer, J.E.** et al. Traumatic brain injury in the rat increases mRNA encoding NGF in the dentate gyrus. Society for Neuroscience, 1993.
69. POSTER Robine, V., **Springer, J.E.** et al. Traumatic brain injury induced NGF mRNA in situ-inhibition by NMDA antagonists or scopolamine. Society for Neuroscience, 1993.

70. POSTER **Springer, J.E.**, Gwag, B.J., and Sessler, F.M. NMDA receptor activation increases expression of neurotrophin mRNA in the dentate gyrus: Implications for neuronal plasticity. Society for Neuroscience, 1993.
71. POSTER Gwag, B.J., Kemmerer, K., Robine, V. , Lehmann, J., Sessler, F.M., and **Springer, J.E.** Fluorocitrate, a metabolic inhibitor of glial function, induces NGF and BDNF mRNA in the rat hippocampal formation. Society for Neuroscience, 1993.
72. POSTER Seeburger, J.L., Cope, T.C., and **Springer, J.E.** Expression of neurotrophin receptors in spinal cord motoneurons after peripheral axotomy: influence of target muscle. Society for Neuroscience, 1993.
73. POSTER **Springer, J.E.**, Gwag, B.J., Robine, V., and Sessler, F.M. Enhancement of neurotrophin mRNA expression following norepinephrine in the rat hippocampal formation. Society for Neuroscience, 1993.
74. POSTER Kemmerer, K.M., Gwag, B.J., Mancall, E.M., and **Springer, J.E.** Transections of the angular bundle increase neurotrophin mRNA expression in the hippocampal formation. Society for Neuroscience, 1993.
75. POSTER Gall, C.M. and **Springer, J.E.** Seizures increase GDNF mRNA in rat hippocampus. Society for Neuroscience, 1994.
76. POSTER Liu, W., Kosobud, A.E.K., Felder, T.N., Lin, R.C.-S, **Springer, J.E.**, and Sessler, F.M. Actions of ethanol on synaptic transmission and membrane properties of layer V cortical neurons. Society for Neuroscience, 1994.
77. POSTER **Springer, J.E.**, Seeburger, J.L., Bergman, L.W., and Trojanowski, J.Q. Glial-derived neurotrophic factor cDNA sequence and mRNA localization and regulation. Society for Neuroscience, 1994.
78. POSTER Bowser, R, Seeburger, J.L., **Springer, J.E.**, and P. Davies. FAC1 interacts with the 160kD neurofilament protein during development and is re-expressed in amyotrophic lateral sclerosis. Society for Neuroscience, 1994.
79. POSTER Seeburger, J.L., Cope, T.C., and **Springer, J.E.** Expression of GDNF, BDNF, and NT-3 mRNA in lesioned peripheral nerve and muscle:time course after crush versus transection. Society for Neuroscience, 1995.
80. POSTER Mu, X., He, J., Anderson, D.W., Trojanowski, J.Q., and **Springer, J.E.** Altered expression of bcl-2 and bax mRNA in amyotrophic lateral sclerosis motoneurons. Society for Neuroscience, 1995.
81. POSTER Rabacchi, S.A., Meyer, S.L., Baird, D.H., and **Springer, J.E.** The neurotrophic actions of BDNF in the developing pontine-cerebellar system. Society for Neuroscience, 1995.

82. POSTER Rabacchi, S.A., Meyer, S.L., **Springer, J.E.**, and Baird, D.H. BDNF and NT-4/5 increase survival and neurite outgrowth of pontocerebellar mossy fiber neurons and upregulate trkB mRNA in mossy fiber neurons and their granule cell targets. CNS Injury Rehabilitation Conference, NIH, 1996.
83. POSTER Mu, X., **Springer, J.E.**, Lundgren, K.H., and Seroogy, K.B. Neurotrophin mRNA expression is altered in locus coeruleus following traumatic spinal cord injury. Society for Neuroscience, 1996.
84. POSTER **Springer, J.E.**, Azbill, R.D., Kennedy, S.E., Siman, R.G., Soultanian, N.S., and Geddes, J.W. Expression of MAP-2, spectrin, and tau protein following traumatic spinal cord injury. Society for Neuroscience, 1996.
85. POSTER Tryon, B.C., Seeburger, J.L., Connors, T.M., Murray, M., Tessler, A.R., and **Springer, J.E.** Upregulation of GAP-43 mRNA in vestibular neurons following cervical spinal cord hemisection. Society for Neuroscience, 1996.
86. POSTER Bizon, J., **Springer, J.E.**, and Gall, C.M. Evidence of GDNF mRNA upregulation following excitotoxic lesions. Society for Neuroscience, 1996.
87. POSTER Seeburger, J.L., **Springer, J.E.**, and Snyder, J.S. GM1 ganglioside influences the regulation of trophic factor transcripts in the dopamine denervated mouse striatum. Society for Neuroscience, 1996.
88. POSTER **Springer, J.E.**, Azbill, R.D., Mark, R.J., Begley, J.G., Waeg, G., and Mattson, M.P. 4-hydroxynonenal, a lipid peroxidation product, rapidly accumulates following traumatic spinal cord injury and inhibits glutamate uptake. Fifteenth National Neurotrauma Society Meeting, New Orleans, 1997.
89. POSTER **Springer, J.E.**, Mu, X., and Azbill, R.D. Effects of riluzole treatment following spinal cord injury: comparison to methylprednisolone. Regeneration Symposium, Asilomar, CA., 1997.
90. POSTER Mu, X., Azbill, R.D., and Springer, J.E. Riluzole treatment following spinal cord injury improves mitochondrial function and increases glutamate and glucose uptake. Society for Neuroscience, 1997.
91. POSTER Azbill, R.D., Mu, X., and **Springer, J.E.** Riluzole treatment following spinal cord injury improves measures of oxidative stress. Neurotrauma Society, 1997.
92. POSTER Zhang, S.X., **Springer, J.E.**, and Geddes, J.W. Cytoskeletal disruption following spinal cord injury: rapid loss of MAP2 and delayed loss of neurofilament proteins. Society for Neuroscience, 1998.

93. POSTER Zwick, M., **Springer, J.E.**, and Davis, B.M. Overexpression of GDNF in muscle increases the size but not number of sensory neurons. Society for Neuroscience, 1998.
94. POSTER Beagles, K.E., Knapp, P.E., and **Springer, J.E.** Caspase-3 activation and apoptotic death following NGF treatment of oligodendroglia. Neurotrauma Society, 1998.
95. POSTER **Springer, J.E.**, Beagles, K.E., Azbill, R.D., and Knapp, P.E. Traumatic spinal cord injury and NGF treatment lead to caspase-3 activation and apoptotic death of oligodendroglia. Neurochemistry Society, 1999.
96. POSTER Knapp, P.E., Azbill, R.D., and **Springer, J.E.** Nuclear translocation of caspase activated DNase (DFF40/CAD) precedes cell death in 4 models of oligodendrocyte apoptosis. American Society for Neurochemistry, 2000.
97. POSTER Nottingham, S.A., Robert D. Azbill, Sarah E. Kennedy, Pamela E. Knapp, and **Joe E. Springer.** Calcineurin dependent regulation of apoptosis in traumatic spinal cord injury. Society for Neuroscience, New Orleans, 2000.
98. POSTER Nottingham, S.A., R. D. Azbill, S. E. Kennedy, P. E. Knapp, and **J. E. Springer.** Calcineurin dependent regulation of oligodendroglial apoptosis in traumatic spinal cord injury. Neurotrauma Society, New Orleans, 2000.
99. POSTER Nottingham, SA and **J.E. Springer.** Kainic Acid Induced Caspase-3 Activation in spinal Cord neurons and glial cells. Society for Neuroscience, San Diego, 2001.
100. POSTER Jin, Y., S. A. Nottingham, K. L. Young, W.F. Maragos, and **J.E. Springer.** Pretreatment with the Mitochondrial Uncoupling Agent Dinitrophenol Facilitates Recovery after Spinal Cord Injury. Neurotrauma Society, San Diego, 2001.
101. POSTER McEwen, M.L., S.A. Nottingham, & **J.E. Springer.** Colocalization of p75 and caspase-3 following spinal cord injury in rats. Neurotrauma Society, San Diego, 2001.
102. POSTER Nottingham, S.A. and **J.E. Springer,** Caspase-3 is Activated in neurons and glial cells of spinal cord following kainic acid injections. Neurotrauma Society, San Diego, 2001.
103. POSTER Jin, Y., McEwen, M.L., Nottingham, S.A., Azbill, R.D., Kennedy, S.E., and **Springer, J.E.** The X-chromosome linked inhibitor of apoptosis (XIAP) prevents cell death in the 158N immortalized oligodendroglial cell line. Neurotrauma Society, Tampa, FL. 2002.
104. POSTER Nottingham, S.A., and **Springer, J.E.** Spinal cord oligodendroglia express activated caspase-3 following K<sup>+</sup> induced depolarization and NMDA exposure. Neurotrauma Society, Tampa, FL. 2002.

105. POSTER Candelario-Jalil, E., Gonzalez-Falcon, A., Garcia-Cabrera, M., Leon, O.S., and **Springer, J.E.** Involvement of cyclooxygenase-2, but not cylooxygenase-1 in blood-brain barrier damage and leukocyte infiltration following transient focal cerebral ischemia in rats. Society for Neuroscience, Orlando, FL. 2002.
106. POSTER Nukala, V.N., Dragicevic, N., **Springer, J.E.**, and Sullivan, P.G. Role of mitochondrial nitric oxide synthase in aging and traumatic brain injury. Society for Neuroscience, New Orleans, LA. 2003.
107. POSTER McEwen, M.L. and **Springer, J.E.** Behavioral and neuroanatomical correlates of locomotor recovery following spinal cord injury. Society for Neuroscience, New Orleans, LA. 2003.
108. POSTER **Springer, J.E.**, Jin, Y., and Mu, X. Treatment with a nitric oxide synthase inhibitor reduces oxidative damage but not indicators of apoptosis following spinal cord contusion injury. Neurotrauma Society, Biloxi, MS, 2003.
109. POSTER Jin, Y., Nottingham, S.A., Maragos, W.F., and **Springer, J.E.** Pretreatment with the mitochondrial uncoupling agent 2,4-dinitrophenol (DNP) attenuates oxidative damage and increases tissue sparing in spinal cord injury. Neurotrauma Society, Biloxi, MS, 2003.
110. POSTER Nottingham, S.A. and **Springer, J.E.** The effect of NBQX treatment on caspase-3 activation in oligodendroglia following rat spinal cord injury. Neurotrauma Society, Biloxi, MS, 2003.
111. POSTER McEwen, M.L. and **Springer, J.E.** Behavioral and neuroanatomical correlates of locomotor recovery following spinal cord injury. Neurotrauma Society, Biloxi, MS, 2003.
112. PODIUM **Springer, J.E.**, Jin, Y., McEwen, M.E., Maragos, W.B., Dragicevic, N.B., and Sullivan, P.G. The uncoupling agent 2,4,-dinitrophenol improves mitochondrial function and reduces measures of oxidative damage in the injured spinal cord. Mitochondria and Neuroprotection Symposium, Ft. Lauderdale, FL. 2004.
113. POSTER Sullivan, P.G., Rabchevsky, A.G., **Springer, J.E.**, Waldmeier, P.C., and Scheff, S.W. Mitochondrial permeability transition in CNS trauma: Cause or effect of neuronal cell death? 6<sup>th</sup> International Meeting for Brain Energy Metabolsim. Heraklion, Greece, 2004.
114. POSTER Sullivan, P.G., Waldmeier, P.C., and **Springer, J.E.**, Mitochondrial permeability transition in traumatic brain injury: Cause or effect? Neurotrauma Society, San Diego, CA 2004.
115. POSTER Ravikumar, R., McEwen, M.L., Searce, C.L., Waldmeier, P.C., Sullivan, P.G. and **Springer, J.E.** Post-treatment with the cyclosporine derivative NIM811 reduces

cytochrome c release and cell death, and increases white matter sparing following spinal cord injury. *Neurotrauma Society*, 22: 1243. 2005.

116. POSTER Ravikumar, R., McEwen, M.L., Waldmeier, P.C., Sullivan, P.G., and **Springer, J.E.** The mitochondrial permeability transition inhibitor NIM811 attenuates morphological and behavioral deficits following spinal cord injury. *Neurotrauma Society*, St. Louis, MO. 2006.
117. POSTER Mbye, L.H., Singh, I.N., Carrico, K., **Springer, J.E.**, Sullivan, P.G., and Hall, E.D., Attenuation of acute mitochondrial dysfunction by NIM811, a non-immunosuppressive cyclosporin A derivative, following focal traumatic brain injury in mice. *Neurotrauma Society*, St. Louis, MO. 2006.
118. POSTER Tudor, L.G., Jackson, P.D., Lynch, M.S., Klim, G.V., and **Springer, J.E.** A Transdisciplinary model for acute rehabilitation following traumatic brain injury: An interactive team approach to improved patient care. *Neurotrauma Society*, St. Louis, MO. 2006.
119. POSTER Ravikumar, R., Ladt, K.C., McEwen, M.L., Sheikh, S.S., Snow, D.M. and **Springer, J.E.** Upregulation of cyclooxygenase-2 in reactive astrocytes at post-acute time points following spinal cord injury in rats. *The Annual 25th National Neurotrauma Symposium*, Kansas City, Missouri, 2007.
120. POSTER Chen, A-S, Ravikumar, R., McEwen, M.L., and **Springer, J.E.** Differential regulation of glycolytic enzymes after spinal cord injury revealed by proteomic analysis. *The 25<sup>th</sup> Annual National Neurotrauma Symposium*, Kansas City, Missouri, 2007.
121. POSTER Skubik-Peplaski, C., Tudor, L.G., **Springer, J.E.**, Klim, G.V., Craft, J., and Graybeal, M. Effective rehabilitation process: Transdisciplinary approach with an ICF infrastructure. *The 25<sup>th</sup> Annual National Neurotrauma Symposium*, Kansas City, Missouri, 2007.
122. POSTER Chen, A-S, Ravikumar, R., McEwen, M.L., and **Springer, J.E.** Differential neuroproteomic analysis of contusive spinal cord injury in rats. *The American Society for Mass Spectrometry (ASMS) Conference on Mass Spectrometry*, Indianapolis, Indiana, 2007.
123. POSTER Chen, A-S., Zhang, Z., Grondin, R., Pandya, J., Sullivan, P., Gash, D.M., and **Springer, J.E.** Differential Proteomic Analysis of Striatal Mitochondria in a Primate Model of Parkinson's Disease. *Society for Neuroscience*, San Diego, CA, 2007.
124. POSTER **Springer, J.E.**, Ravikumar, R., McEwen, M.L. Lim, H.R., Cho, S.I., Noh, J.S., Gwag, B.J. Long-term neuroprotection and functional recovery in a rat model of spinal cord injury following treatment with Neu2000, a dual acting antioxidant and NMDA receptor antagonist. *Society for Neuroscience*, San Diego, CA, 2007.

125. POSTER Chen, A, Sun, S., Ravikumar, R., and **Springer, J.E.** Comprehensive differential proteomic analysis of acute contusive spinal cord injury in rats. Society for Neuroscience, Washington, DC, 2008.
126. POSTER Sun, S., Chen, A., and **Springer, J.E.** Biomarkers for acute contusive spinal cord injury. Association of Biomolecular Resources Facilities, Memphis, TN, 2009.
127. POSTER Visavadiya, NP, McEwen, ML, Pandya, JD, Sullivan, PG, Gwag, BJ, and **Springer, JE.** Neu2000 Exerts Potent Anti-Oxidant Effects on Rat Spinal Cord Mitochondria in situ and in vitro. Spring Brain Conference, Tucson, AZ, 2011.
128. POSTER Visavadiya NP, McEwen ML, Pandya JD, Sullivan PG, Gwag BJ, and **Springer JE.** (*Selected in top twenty posters in student poster competition*): Potency of Neu2000 on various reactive oxygen/nitrogen species using in vitro oxidative model systems. The 29<sup>th</sup> Annual National Neurotrauma Symposium, Hollywood, FL, 2011.
129. POSTER **Springer, J.E.,** McEwen, M.L., and Visavadiya, N. Cerebellar reorganization following spinal cord injury. The 30<sup>th</sup> Annual National Neurotrauma Symposium, Phoenix, AZ, 2012.
130. POSTER Patel, SP, Sullivan, PG, Pandya, JD, Visavadiya, NP, Eldahan, KC, Kline, RH, **Springer, JE,** and Rabchevsky, AG. Neuroprotective effects of N-acetylcysteine amide (NACA) following contusion spinal cord injury in rats. Society for Neuroscience, New Orleans, LA, 2012.
131. POSTER Chirumamilla, S., Muniswamy, V., Bernert, S., **Springer, J.E.,** and Salles, S. Effect of Athletics on Activities of Daily Living, Depression & Self-efficacy after Spinal Cord Injury. Academy of Spinal Cord Injury Professionals, Las Vegas, NV, 2013.
132. POSTER Muniswamy, V., **Springer, J.E.,** and Salles, S.S. Art as Therapy in Rehabilitation. Academy of Spinal Cord Injury Professionals, Las Vegas, NV, 2013.
133. PODIUM **Springer, J.E.,** Wang, W.X., Visavadiya, N.P., Pandya, J.D., Nelson, P.T., and Sullivan, P.G. Mitochondria associated microRNA expression in hippocampus following traumatic brain injury. Annual Neurotrauma Symposium, San Francisco, CA. 2014.
134. POSTER Wofford, W., Guynn, C., **Springer, J.E.,** Salles, S.S. Hallucinations induced by oral baclofen taper following intrathecal pump placement. Academy of Spinal Cord Injury Professionals. Nashville, TN. 2016.
135. POSTER Raut, N., Nagar, V.R., **Springer, J.E.,** and Salles, S.S. Functional improvement in spinal abscess patients with substance abuse history. Academy of Spinal Cord Injury Professionals. Nashville, TN. 2016.



136. PODIUM Wang, W-X and **Springer, J.E.** Mitochondria and MicroRNA - A New Role for an Ancient Organelle. 7<sup>th</sup> World Congress on Targeting Mitochondria, Berlin, Germany. 2016.
137. POSTER Wang, W.X., Vekaria, H., Sullivan, P.G., and **Springer, J.E.** Brain injury signaling events alter expression of mitochondria associated miRNA. Annual Neurotrauma Symposium, Lexington, KY. 2016.
138. POSTER Wang, W.X., Vekaria, H., Spry, M., Cloud, A., Batten, S., Beckmann, J., Sullivan, P.G., and **Springer, J.E.** Effects of traumatic brain injury on microRNA association with mitochondria and intervention using a novel peptide-based nanoparticle miRNA delivery strategy. Annual Neurotrauma Symposium, Snowbird, UT. 2017.
139. POSTER Prajapati, P. Wang, W.X. and **Springer, J.E.** Nanoparticle Delivery of microRNAs Targeting Inflammation in Traumatic Brain Injury. Bluegrass Chapter Society for Neuroscience Annual Symposium, Lexington, KY. 2018.
140. POSTER Prajapati, P., Wang, W.X., Vekaria, H., Spry, M., Sullivan, P.G., and **Springer, J.E.** Nanoparticle microRNA delivery in traumatic injured rat brain alters expression of macrophage/microglia phenotypic markers. Annual Neurotrauma Symposium, Toronto, Canada. 2018.
141. POSTER Wang, W.X., Prajapati, P., Nelson, P.T., and **Springer, J.E.** Mitochondria associated ER membrane provides a platform for microRNA trafficking in rat and human cerebral cortex. Annual Neurotrauma Symposium, Toronto, Canada. 2018.
142. POSTER Wang, W.X., Prajapati, P., Nelson, P.T., and **Springer, J.E.** Mitochondria associated ER membrane is a novel subcellular location for microRNA in mammalian brain. Eighth Annual Markesbery Symposium on Aging and Dementia, Lexington, KY. 2018.

### **C. SPONSORED RESEARCH PROJECTS, GRANT & CONTRACT ACTIVITIES**

#### **Active**

<b>Project Title:</b>	Mitochondrial Regulation of MicroRNA Expression in TBI
<b>Project Number:</b>	201507131744
<b>Principal Investigator(s):</b>	Joe E Springer, PhD
<b>Role in Project:</b>	PI
<b>Effort:</b>	2.5%
<b>Institution/University:</b>	University of Kentucky
<b>Source of Funding:</b>	Kentucky Spinal Cord and Head Injury Research Trust
<b>Duration of Project:</b>	01/15/16-01/14/20
<b>Total Award:</b>	\$298,570

**Project Title:** Nanoparticle Delivery of miRNA Targeting Inflammation in Traumatic Brain Injury  
**Project Number:** 18-8A  
**Principal Investigator(s):** Joe E Springer, PhD  
**Role in Project:** PI  
**Effort:** 5%  
**Institution/University:** University of Kentucky  
**Source of Funding:** Kentucky Spinal Cord and Head Injury Research Trust  
**Duration of Project:** 01/15/19-01/14/22  
**Total Award:** \$299,994

### Pending

**Project Title:** MicroRNA Modulation of Neuroinflammation after Traumatic Brain Injury  
**Project Number:** R01-NS110626  
**Principal Investigator(s):** Joe E Springer, PhD  
**Role in Project:** PI  
**Effort:** 30%  
**Institution/University:** University of Kentucky  
**Source of Funding:** NIH-NINDS  
**Status:** A1 to be resubmitted (48<sup>th</sup> percentile)

**Project Title:** The NEURON Roadmap: Enhancing Neurotrauma Research Opportunities for a Diverse Community

**Project Number:** 1 R25 NS114095-01  
**Principal Investigator(s):** Joe E Springer, PhD  
**Role in Project:** PI  
**Effort:** 15%  
**Institution/University:** University of Kentucky  
**Source of Funding:** NIH-NINDS  
**Status:** To be reviewed

### Inactive – (2008-present)

**Project Title:** Growth Hormone Deficiency and Brain Functioning after Traumatic Brain Injury  
**Project Number:** 201109161131  
**Principal Investigator(s):** Joe E Springer, PhD  
**Role in Project:** PI  
**Effort:** 5%  
**Institution/University:** University of Kentucky  
**Source of Funding:** Pfizer  
**Duration of Project:** 07/01/2011-06/09/2016  
**Total Award:** \$106,865

**Project Title:** Compensatory Cerebellar Reorganization Following Spinal Cord Injury  
**Project Number:** 201204131740  
**Principal Investigator(s):** Joe E Springer, PhD  
**Role in Project:** PI  
**Effort:** 10%  
**Institution/University:** University of Kentucky  
**Source of Funding:** Morton Cure Paralysis Fund  
**Duration of Project:** 03/01/2013-02/28/2014  
**Total Award:** \$35,000

**Project Title:** NIM811 for the Treatment of Acute Spinal Cord Injury  
**Project Number:** UO1 NS066915  
**Principal Investigator(s):** Joe E Springer, PhD  
**Role in Project:** PI  
**Effort:** 35%  
**Institution/University:** University of Kentucky  
**Source of Funding:** NINDS  
**Duration of Project:** 02/01/2010-01/31/2013  
**Total Award:** \$1,987,493

**Project Title:** Inhibition of Lipid Peroxidation in Spinal Cord Injury  
**Project Number:** R21 NS077434  
**Principal Investigator(s):** Ed Hall, PhD  
**Role in Project:** Co-investigator  
**Effort:** 5%  
**Institution/University:** University of Kentucky  
**Source of Funding:** NINDS  
**Duration of Project:** 09/01/2011-08/31/2013  
**Total Award:** \$222,750

**Project Title:** Targeting Mitochondrial Function in Traumatic Spinal Cord Injury  
**Project Number:** 124814  
**Principal Investigator(s):** Joe Springer, PhD  
**Role in Project:** PI  
**Effort:** 10%  
**Institution/University:** University of Kentucky  
**Source of Funding:** Craig H. Neilsen Foundation  
**Duration of Project:** 07/01/2009-06/30/2013  
**Total Award:** \$222,750

**Project Title:** Therapeutic Potential of NEU200 in Acute Spinal Cord injury

**Project Number:** KSCHIRT 08-12  
**Principal Investigator(s):** Joe Springer, PhD  
**Role in Project:** PI  
**Effort:** 5%  
**Institution/University:** University of Kentucky  
**Source of Funding:** Kentucky Spinal Cord and Head Injury Research Trust  
**Duration of Project:** 01/31/2008-06/30/2012  
**Total Award:** \$245,088

**Project Title:** COX-2 Pathophysiology in Spinal Cord Injury  
**Project Number:** RO1 NS046380  
**Principal Investigator(s):** Joe Springer, PhD  
**Role in Project:** PI  
**Effort:** 35%  
**Institution/University:** University of Kentucky  
**Source of Funding:** NINDS  
**Duration of Project:** 07/01/2004-06/30/2008  
**Total Award:** \$1,338,875

#### **D. NON-SPONSORED RESEARCH PROJECTS**

##### **Completed**

**Project Title:** Manual Medicine in the Treatment of Chronic Obstructive Pulmonary Disease  
**Project Number:** IRB Protocol 16-00870P2H  
**Principal Investigator(s):** Sara S. Salles, D.O.  
**Role in Project:** Co-investigator  
**Date Started:** 05/2016  
**Date to be Completed:** Ongoing  
**Institution/University:** UK PMR at HealthSouth Cardinal Hill