

Scott D. Olson, Ph.D.

PRESENT TITLE: Assistant Professor
The University of Texas Medical School at Houston
Department of Pediatric Surgery
6431 Fannin St. MSB 5.233
Houston, TX 77030

BIRTHDATE: March 18, 1980

CITIZENSHIP: USA

UNDERGRADUATE EDUCATION:

B.S. Biochemistry, 2001
Texas Christian University
Fort Worth, TX

GRADUATE EDUCATION:

Doctor of Philosophy, 2007
Interdisciplinary Molecular and Cellular Biology
Tulane University School of Medicine
New Orleans, LA

POSTGRADUATE TRAINING:

Postdoctoral Fellow, 2007 – 2011
Stem Cell Program
Institute for Regenerative Cures
UC Davis Health System
Sacramento, CA

ACADEMIC APPOINTMENTS:

Assistant Professor, 2011 – Present
Children's Regenerative Medicine Program
Department of Pediatric Surgery
The McGovern Medical School at the University of Texas at Houston
Houston, TX

Associate Member, 2012 – Present
Program in Clinical and Translational Sciences (2014 – Present)
Graduate School of Biomedical Sciences
The University of Texas Health Science Center
Houston, TX

PROFESSIONAL ORGANIZATIONS:

Regional:

Louisiana Gene Therapy Consortium, 2002 – 2007
Mission Connect, 2011 – Present
Gulf Coast Consortium, 2013 – Present

National:

International Society for Cellular Therapy, 2002 – 2007
International Society for Stem Cell Research, 2002 – 2007
American Society for Gene and Cell Therapy, 2009 – 2011
American Academy of Neurology, 2010 – Present
National Neurotrauma Society, 2013 - Present
Reviewer for *Stem Cells*, 2009 – Present
Reviewer for *Stem Cells Translational Medicine*, 2013 – Present
Reviewer for *Stem Cells and Development*, 2013 – Present
Reviewer for *Cytotherapy* 2014 – Present

Study Section:

American Heart Association – IRG BSc1 11/2016

HONORS AND AWARDS:

Louisiana Board of Regents Scholarship Fund, 2002 – 2006
Huntington's Disease Society of America Distinguished Service Award, 2009

SERVICE ON THE UNIVERSITY OF TEXAS MEDICAL SCHOOL AT HOUSTON COMMITTEES:

Faculty Senate, 2012 – Present
Medical School Applicant Interviewer, 2012 – Present
MD/PhD Applicant Interviewer, 2013 – Present
Faculty Review Committee, Department of Pediatric Surgery, 2013 – Present
Faculty Search Committee, Immunology & Organ Transplantation
Program/CSCRM, Department of Surgery, 2015 - Present

SERVICE ON THE UNIVERSITY OF TEXAS GRADUATE SCHOOL OF BIOMEDICAL SCIENCES COMMITTEES:

Graduate Student Education Committee, 2012 – Present

GSBS Student Scholarship Committee, 2014 – Present

SPONSORSHIP OF CANDIDATES FOR POSTGRADUATE DEGREE:

Sowmya Kallur, M.D., “Co-encapsulation of MSC and CB-MNC in alginate to locally treat TBI.” 2014 – present. Fellowship in Pediatric Critical Care. UTHealth, Houston, TX.

Heather Stewart, M.S., “Designing and implementing a unique tetracycline based reporter system for assaying RNAi transferring intercellularly.” 2010 – 2011 Sacramento State University, Sacramento, CA.

Ella Severson, M.S., “The effects of BDNF overexpression in Mesenchymal Stem Cells on *in vitro* neuroinflammation models.” 2010 – 2012 University of California at Davis, Davis, CA.

SPONSORSHIP OF POSTDOCTORAL FELLOWS:

Vrushali Datar, Ph.D. 2012 - 2012

Daniel J. Kota, Ph.D. 2012 – 2016

Sowmya Kallur, M.D. 2014 – 2016

Tin Toan Nguyen, M.D. 2016 – Present

Katherine Ruppert, Ph.D. 2015 – Present

CURRENT TEACHING RESPONSIBILITIES:

MS-1 Summer Research Program, 2013 – Present

Virginia Bailey, BA, 2013, “Characterizing Co-Encapsulated MSC and Leukocytes for Immune Modulation.”

Bradley Adams, BS, 2013, “Mesenchymal Stem Cells Inhibit Microglia and T-cell Inflammatory Response *in vitro*.”

Qingzheng Chen, Undergraduate TAMU, 2014, “Neuroinflammation Following TBI Treated With Mesenchymal Stem Cells.”

Alexandra Van Brummen, BS, 2014, “Additive Cognitive And Behavioral Recovery From TBI When Treated With Propranolol And Mesenchymal Stem Cells.”

Austin Wheeler, BS, 2015, “A Study of Mechanisms of MSC Potency *in vitro*.”

Jacob Shaw, BS, 2015, "MSC to Prevent the Development of Neuropathic Pain following SCI."

Marvin Rivera, BS, 2015, "Characterizing the Mechanical Conflict Avoidance System in rats."

Gregory Jones, BS, 2016, "Differences in MSC-derived exosomes."

Austin Arcineaux, Undergraduate UT Austin, 2017, "Localization and polarization of microglia following injury."

Research Fellowship, Department of Pediatrics, Critical Care, 2014 – 2016
Sowmya Kallur, M.D., 2014-current, "Alginate encapsulated MSC and Cord blood-derived MNC to locally treat TBI."

Research Fellowship, Department of Pediatrics, Critical Care, 2016 – Present
Tin Toan Nguyen, M.D., 2016-current, "Exosomes to treat spinal cord injury."

Lecture, MDACC/UT GSBS, MD/PhD Program-Spring, 02/08/2017. "Academic careers in cellular therapy."

Lecture, Houston Methodist Research Institute Neural Control Course, 03/06/2017.
"Autonomic Nervous System regulation and dysregulation following CNS trauma."

CURRENT GRANT SUPPORT:

Scott D. Olson (PI) 10/01/2010-10/01/2017
Glassell Foundation Stem Cell Research Gift \$1, 310,689
Mesenchymal stem cells as a cellular therapy for traumatic brain injury.
Role: PI (start-up funding)
The goal is to create new treatment strategies and platforms to develop in translational studies.

Charles S. Cox (PI) 08/01/2016-9/30/2017
Cord Blood Registry \$114,885
Mesenchymal stem cell-derived exosomes to treat inflammation and endotheliopathy associated with traumatic brain injury
Role: Co-PI (15% effort)
The goal is to evaluate the efficacy of microvesicles derived from Wharton's jelly MSC isolated by CBR to reduce neuroinflammation and improve outcome after traumatic brain injury.

Scott D. Olson (PI) 08/01/2016-09/30/2017
Biostage Inc \$214,434
GLP-compliant production of characterized MSC and seeded scaffolds
Role: PI (25% effort)

The goal is to produce pig adipose-derived MSC and seed them on proprietary scaffolds to be delivered to Biostage.

Scott D. Olson (PI) 11/15/2016-9/01/2017
Cord Blood Registry \$55,250

Terumo Quantum Evaluation
Role: PI (4% effort)

The goal is to evaluate the Terumo Quantum to expand high numbers of MSC to replace traditional culture.

Scott D. Olson (PI) 06/30/2016-12/31/2017
Biostage Inc \$448,070

GLP-to-cGMP Transition Plan
Role: PI (20% effort)

The goal is to transfer all technology from GLP production in a porcine system to manufacturing human products in a cGMP facility.

Scott D. Olson (PI) 06/01/2017-12/31/2017
Hope Bio. \$10,075

Safety over multiple injections
Role: PI (2% effort)

The goal is to evaluate the safety of Hope Bio's adMSC an animal model.

Scott D. Olson (PI) 07/01/2017-06/30/2018
Holly Frost Research Gift \$125,000

Safety and efficacy of repeated adMSC infusion to treat TBI
Role: PI (15% effort)

The goal is to evaluate the safety and potency of repeated administration of adMSC to treat severe TBI

Scott D. Olson (PI) 10/01/2017-09/30/2020
Neilsen Foundation \$290,775

Inflammation-primed MSC-derived extracellular vesicles to treat neuroinflammation in sub-acute and chronic SCI

Role: PI (20% effort)

The goal is to transfer all technology from GLP production in a porcine system to manufacturing human products in a cGMP facility.

Scott D. Olson (PI) 10/01/2017-09/30/2019
Mission Connect \$59,375

Biodistribution of therapeutic MSC-derived extracellular vesicles that improve locomotor recovery after SCI

Role: PI (2% effort)

The goal is to describe the biodistribution of extracellular vesicles throughout a rat on organ, tissue, and cellular levels after spinal cord injury.

Charles S. Cox, Jr (PI) 02/01/2018-01/31/2021
NIH-NCATS X02-UG3-UH3 RFA-TR-17-001 \$462,000
ADZ0328 to reduce inflammation and damage following traumatic brain injury
Role: Co-I (20% effort)
The goal is rapidly evaluate ADZ0328 as a therapeutic for TBI in a preclinical model and then transition to early clinical trial.

Scott D. Olson (PI) 04/04/2018-04/03/2020
NIH-NINDS Parent R21 \$423,500
The Distribution and Immunomodulatory Activity of Stimulated MSC-derived Extracellular Vesicles to Treat Traumatic Brain Injury
Role: PI (35% effort)
The goal is to transfer all technology from GLP production in a porcine system to manufacturing human products in a cGMP facility.

Amit Srivastava (PI) 09/01/2017-08/31/2018
Mission Connect \$58,322
Exploring a new therapeutic approach for spinal cord injury through intrathecal administration of mesenchymal stem cells derived-extracellular vesicles.
Role: Co-I (27% effort)
To determine the effect of IT administration of MSC-EVs in contusion model of SCI in rats.

PREVIOUS GRANT SUPPORT:

Scott D. Olson (PI) 12/1/2013 - 12/1/2016
Genzyme, #GZ-2013-11010 \$191,868
Aubagio to Treat Traumatic Brain Injury.
Role: PI (25% effort)
The goal is to evaluate the potential for an immune modulating drug for Multiple Sclerosis, Aubagio (teriflunomide), to treat TBI.

Scott D. Olson (PI) 02/1/2014-01/31/2017
Bentsen Stroke Center \$237,625
Novel application of adult, human mesenchymal stem cells to reduce inflammation and treat neuropathic pain in a clinically-relevant rat model of chronic spinal cord injury.
Role: PI (15% effort)
The goal is to investigate the potential for MSC to treat chronic neuropathic pain following spinal cord injury.

Scott D. Olson (PI) 08/1/2016-09/30/2017
Biostage Inc \$87,000
Process development for GLP-compliant isolation, expansion, and seeding of esophageal scaffolds and tech transfer
Role: Co-PI (8% effort)

The goal is to produce pig adipose-derived MSC and seed them on proprietary scaffolds to be delivered to Biostage.

Charles S. Cox, Jr (PI) 01/01/2015-12/31/2015
Athersys, Inc. \$59,790
Assaying Changes in Immunobiology of Select MAPC Products
Role: Co-PI (4% effort)
The goal is to explore differences between production batches in in vitro assays as they relate to in vivo performance in a TBI model.

Charles S. Cox, Jr (PI) 03/01/2015-12/31/2015
Cord Blood Registry, Inc. \$59,798
Assaying the potency of hUCB on BBB permeability after TBI
Role: Co-PI (4% effort)
The goal is to explore the different donor effects of human umbilical cord blood on in vitro measures of immunomodulation and in vivo measures of efficacy to treat TBI.

Scott D. Olson (PI) 10/1/2013 – 09/30/2014
TIRR Foundation, Mission Connect #013-110 \$35,067
Sequential beta-blocker and cellular therapy for traumatic brain injury.
Role: PI (5% effort)
The goal is to explore the combinatorial therapy of propranolol and MSC to treat TBI.

Jan A. Nolta, Ph.D. (PI) 04/01/2003 - 03/31/2011
NIH NHLBI \$250,000
1RO1 HL073256-01
Role: Co-PI (10% effort)
Functional Dissection of human adipose-derived MSC and bone marrow-derived MSC phenotypes.

Jan A. Nolta, Ph.D. (PI) 08/01/2009-07/31/2012
CIRM \$2,753,559
TR1-01257
Role: Co-PI (50% effort)
Sustained siRNA production from human MSC to treat Huntington's disease and other neurodegenerative disorders.

Scott D. Olson, Ph.D. (PI) 10/01/2009-09/01/2010
UC Davis Alzheimer's Disease Center \$34,000
NIH NIA 5P30AG010129 - 19 (DeCarli)
Alzheimer's disease center- Pilot Project

Scott D. Olson, Ph.D. (PI)
CPRIT

05/30/2012-09/30/2013

Supported shared instrument usage 50 hrs assisted Aria II FACS
The effects of MSC on monocytes in co-culture.

PUBLICATIONS:

A. Abstracts

1. Olson, SD., Spees, JL., Prockop, DJ. Intracellular mitochondrial transfer can rescue aerobic respiration. International Society for Cellular Therapy, Vancouver, Canada. 5/2005.
2. Olson, SD., Spees, JL., Prockop, DJ. Intracellular mitochondrial transfer by mesenchymal stem cells can rescue damaged cells. International Society for Stem Cell Research, San Francisco, CA. 6/2006
3. Olson, SD., Nolte, JA. Mesenchymal stem cells as a potential therapy for Huntington's disease; a safety trial. International Conference on Mesenchymal and Non-Hematopoietic Stem Cells, Austin, TX. 11/2009
4. Olson, SD., McNerney, G., Pollock, K., Stuart, H., Mitchell, G., Nolte, JA. Visualization of siRNA Complexed to RISC Machinery: Demonstrating Intercellular siRNA Transfer by Imaging Activity. American Academy of Neuroscience Annual Meeting, Honolulu, HI. 4/2011.
5. Mitchell, G., Olson, SD., Kamball, A., Nolte, JA. Mesenchymal Stem Cells as a Delivery Vehicle for Intercellular Delivery of RNAi to Treat Huntington's Disease. American Academy of Neuroscience Annual Meeting, Honolulu, HI, 4/2011.
6. Kota DJ, DiCarlo B, Hetz R, Olson, SD. Mesenchymal Stem/Progenitor cell pre-conditioning with Poly I:C Increases monocytic leukemia cell line binding through Hyaluronic acid. Stem Cell Symposium at TIPS, 10/2012.
7. Kota DJ, DiCarlo B, Olson SD. Investigating the Immunomodulatory Properties of Mesenchymal Stem Cells. Mission Connect Symposium, Houston, TX. 12/2012. Presented by Daniel Kota, Postdoctoral trainee.
8. Olson SD, DiCarlo B, Kota DJ. Exploring the Potential of Mesenchymal Stem Cells to Participate in the Inflammatory Reflex. Mission Connect Symposium, Houston, TX. 12/2012.
9. Kota DJ, DiCarlo, B, Hetz R, Olson SD. Mesenchymal Stem/Progenitor cell pre-conditioning with Poly I:C Increases monocytic leukemia cell line binding through Hyaluronic acid. 6th International Symposium on Mesenchymal Stem/Progenitor Cells, College Station, TX. 5/2013.

10. Kota DJ, DiCarlo B, Hetz R, Smith P, Olson SD. A new mesenchymal stem cell interaction mechanism following pre-conditioning. International Society of Stem Cell Research (ISSCR), Boston, MA. 6/2013.
11. Hetz RA, Triolo F, Olson SD, Bedi S, Kota DJ, Roye J, Smith P, Day MC, DiCarlo B, Cox Jr CS. Amniotic fluid derived mesenchymal stem cells: potential hazardous in the treatment of traumatic brain injury. International Society of Stem Cell Research (ISSCR), Boston, MA. 6/2013.
12. Evans S, Kota DJ, Hetz H, Olson SD, Triolo F, Cox Jr CS, Wenzel P. MSC licensing by biomechanical forces. International Society of Stem Cell Research (ISSCR), Boston, MA. 6/2013.
13. Olson SD, Kota DJ, DiCarlo B, Hetz AR, Cox CS, Smith P. MSC alter leukocyte binding mechanisms when activated with different cues. MSC 2013 Conference on Adult Stem Cell Therapy & Regenerative Medicine. Cleveland, OH. 8/2013.
14. Hetz RA, Bedi S, Thomas C, Kota DJ, Olson SD, Williams S, Smith P, Hamilton J, Mays R, Cox CS. Intravenous Multipotent Adult Progenitor Cell (MAPC) Therapy as a Novel Treatment in Traumatic Brain Injury (TBI): Modulation of the Inflammatory Response. American College of Surgeons 99th Clinical Congress. Washington, DC. 10/2013.
15. Kota DJ, Prabhakara KS, DiCarlo B, Smith P, Olson SD. Sequential Beta-Blocker and Cellular Therapy for Traumatic Brain Injury. Mission Connect Symposium. Houston, TX. 12/2013.
16. Kota DJ, DiCarlo B, Hetz RA, Smith P, Olson SD. A New Mesenchymal Stem Cell Interaction Mechanism Following Pre-Conditioning. Mission Connect Symposium. Houston, TX. 12/2013.
17. Bailey V, DiCarlo B, Kota DJ, Olson SD. Characterizing Co-Encapsulated MSC and Leukocytes for Immune Modulation. Mission Connect Symposium. Houston, TX. 12/2013.
18. Adams BD, Kota DJ, Olson SD. Mesenchymal Stem Cells Inhibit Microglia and T-cell Inflammatory Response In Vitro. Mission Connect Symposium. Houston, TX. 12/2013.
19. DiCarlo B, Kota DJ, Triolo F, Adams BD, Bailey V, Prabhakara KS, Olson SD. Looking for Biomarkers for Mesenchymal Stem Cell Potency. Mission Connect Symposium. Houston, TX. 12/2013.
20. Hetz RA, Triolo F, Olson SD, Smith P, Day M, Johnson A, Moise KJ, Cox CS. Amniotic Fluid Derived Mesenchymal Stromal Cells: Characterization And

Logistics Of Clinical Grade Cell Production. 9th Annual Academic Surgical Congress. San Diego, CA. 2/2014. Presented by Robert Hetz, MD, collaborator.

21. Liao GP, Olson SD, Hetz RA, Caplan HW, Bedi S, Cox CS. Far-Red Tracer Technique for Analysis of Vascular Injury in Traumatic Brain Injury Research. 9th Annual Academic Surgical Congress. San Diego, CA. 2/2014. Presented by George Liao, MD, collaborator.
22. Olson SD, Kota DJ, Prabhakara KS, DiCarlo B, Smith P. Sequential Beta-Blocker And Cellular Therapy For Traumatic Brain Injury. National Neurotrauma Society. San Francisco, CA 6/2014.
23. Kota DJ, Prabhakara KS, DiCarlo B, Liao GP, Smith P, Cox CS, Olson SD. Prostaglandin E2 Predicts Therapeutic Efficacy of Mesenchymal Stem Cells in Experimental Traumatic Brain Injury. Gulf Coast Consortium – Regenerative Medicine Cluster, Houston, TX, 10/2014
24. Kota DJ, Liao GP, Prabhakara KS, DiCarlo B, Evans S, Triolo F, Wenzel P, Cox CS, Olson SD. Predicting therapeutic efficacy of MSC in TBI through anti-inflammatory potency. Mission Connect Annual Symposium. Houston, TX. 12/2014
25. Prabhakara KS, van Brummen A, Kota DJ, DiCarlo B, Cox CS, Olson SD. Combinatorial treatment with propranolol and mesenchymal stem cells improves spatial learning and memory after experimental traumatic brain injury. Mission Connect Annual Symposium. Houston, TX. 12/2014
26. Kallur, S, Bailey V, Kota DJ, Prabhakara KS, DiCarlo B, Cox CS, Olson SD. The effects of co-encapsulated MSC and leukocytes on inflammation in traumatic brain injury in rat models. Mission Connect Annual Symposium. Houston, TX. 12/2014
27. Smith PA, Kota DJ, Prabhakara KS, Aertker BM, Cox CS, Olson SD. Development of multicolor immunophenotyping protocols for rat blood, spleen, and brain. FlowTex Annual Symposium. Houston, TX. 2/2015.
28. Ruppert, KA, Ph.D., Kota, DJ, Ph.D., Prabhakara, KS, MS, Grill, RJ, Ph.D., Olson, SD, Ph.D. "Mesenchymal Stem Cells to Treat Neuropathic Pain in Spinal Cord Injury." Annual Regenerative Medicine Symposium for Gulf Coast Consortia for Biomedical Sciences, Houston, TX. 06/2015.
29. Kota DJ, Prabhakara KS, DiCarlo B, Liao GP, Smith P, Cox CS, Olson SD. Prostaglandin E2 Predicts Therapeutic Efficacy of Mesenchymal Stem Cells in Experimental Traumatic Brain Injury. MSC 2015 Conference. Cleveland, OH. 8/2015.

30. Ruppert, KA, Ph.D., Prabhakara, KS, M.S., Toledano Furman, NE, Ph.D., Olson, SD, Ph.D. "Breaking Down Neuro-Splenic Signaling in a Rodent Model of Spinal Cord Injury." Annual Shock Society Meeting. Austin, TX. 06/2016.
31. Ruppert, KA, Ph.D., Nguyen, TT, M.D., Prabhakara, KS, M.S., Srivastava, A, Ph.D., Olson, SD, Ph.D. "Treating Spinal Cord Injury with Mesenchymal Stem Cell Extracellular Vesicles Improves Locomotor Recovery, Mechanical Sensitivity and Neuroinflammation". National Neurotrauma Society Annual Meeting, Snowbird, UT. 07/2017
32. Ruppert, KA, Ph.D., Kota, DJ, Ph.D., Prabhakara, KS, M.S., Olson, SD, Ph.D. "Co-encapsulation of Mesenchymal Stem Cells and Cord Blood Improve Locomotor Recovery and Neuroinflammation in Spinal Cord Injury". National Neurotrauma Society Annual Meeting, Snowbird, UT. 07/2017
33. Ruppert, KA, Ph.D., Kota, D.J., Ph.D., Prabhakara, KS, M.S., Grill, R.J., Ph.D., Olson, S.D., Ph.D. "Mesenchymal Stem Cells to Treat Neuropathic Pain in Spinal Cord Injury." National Neurotrauma Society Annual Meeting, Snowbird, UT. 07/2017
34. Ruppert, KA, Ph.D., Nguyen, TT, M.D., Prabhakara, KS, M.S., Srivastava, A, Ph.D., Olson, SD, Ph.D. "Treating Spinal Cord Injury with Mesenchymal Stem Cell Extracellular Vesicles Improves Locomotor Recovery, Mechanical Sensitivity and Neuroinflammation". Annual Regenerative Medicine Symposium for Gulf Coast Consortia for Biomedical Sciences, Houston, TX. 04/2017
35. Ruppert, KA, Ph.D., Kota, DJ, Ph.D., Prabhakara, KS, M.S., Olson, SD, Ph.D. "Co-encapsulation of Mesenchymal Stem Cells and Cord Blood Improve Locomotor Recovery and Neuroinflammation in Spinal Cord Injury". Annual Regenerative Medicine Symposium for Gulf Coast Consortia for Biomedical Sciences, Houston, TX. 04/2017
36. Ruppert, KA, Ph.D., Kota, D.J., Ph.D., Prabhakara, KS, M.S., Grill, R.J., Ph.D., Olson, S.D., Ph.D. "Mesenchymal Stem Cells to Treat Neuropathic Pain in Spinal Cord Injury." Annual Regenerative Medicine Symposium for Gulf Coast Consortia for Biomedical Sciences, Houston, TX. 04/2017
37. Olson SD. "MSC for TBI: attempting to relate in vitro activity with in vivo efficacy." Gulf Coast Consortium Regenerative Medicine Symposium. Presented at the Rice BioResearch Consortium. Houston, TX. 04/21/2017. Invited Abstract.
38. Olson SD. "MSC for TBI: attempting to relate in vitro activity with in vivo efficacy." STEPS4: The Fourth in a series of Academia-Industry workshops on Cell Therapies for Stroke. Washington, DC. 05/06/2017. Invited Abstract.

39. Olson SD. "MSC for TBI: attempting to relate in vitro activity with in vivo efficacy." Cellular Therapy for Trauma and Acute Critical Care 2017. San Francisco, CA. 5/17/2017. Invited Abstract.

B. Refereed Articles in Journals

1. Spees JL, Olson SD, Ylostalo J, Lynch PJ, Smith J, Perry A, Peister A, Wang MY, Prockop DJ. Differentiation, cell fusion, and nuclear fusion during ex vivo repair of epithelium by human adult stem cells from bone marrow stroma. *Proc Natl Acad Sci U S A*. Mar 4;100(5):2397-402, 2003.
2. Mohamadzadeh M, Olson S, Kalina WV, Ruthel G, Demmin GL, Warfield KL, Bavari S, Klaenhammer TR. Lactobacilli activate human dendritic cells that skew T cells toward T helper 1 polarization. *Proc Natl Acad Sci U S A*. 2005 Feb 22;102(8):2880-5.
3. Gunn WG, Conley A, Deininger L, Olson SD, Prockop DJ, Gregory CA. A crosstalk between myeloma cells and marrow stromal cells stimulates production of DKK1 and interleukin-6: a potential role in the development of lytic bone disease and tumor progression in multiple myeloma. *Stem Cells*. Apr;24(4):986-91, 2006.
4. Prockop DJ*, Olson SD*. Clinical trials with adult stem/progenitor cells for tissue repair. Let's not overlook some essential precautions. *Blood*. Dec 14, 2006. *equal contributors
5. Lee RH, Seo MJ, Reger RL, Spees JL, Pulin AA, Olson SD, Prockop DJ. Multipotent stromal cells from human marrow home to and promote repair of pancreatic islets and renal glomeruli in diabetic NOD/scid mice. *Proc Natl Acad Sci U S A*. Nov 14;103(46):17438-43, 2006.
6. Spees JL*, Olson SD*, Whitney MJ, Prockop DJ. Mitochondrial transfer between cells can rescue aerobic respiration. *Proc Natl Acad Sci U S A*. Jan 31;103(5):1283-8, 2006. *equal contributors
7. Lee N, Smolarz AJ, Olson SD, David O, Reiser J, Kutner R, Daw NC, Prockop DJ, Horwitz EM, Gregory CA. A potential role for Dkk-1 in the pathogenesis of osteosarcoma predicts novel diagnostic and treatment strategies. *Br J Cancer*. Dec 3; 97(11):1552-9, 2007.
8. Joyce N, Annett G, Wirthlin L, Olson S, Bauer G, Nolte J. Mesenchymal stem cells for the treatment of neurodegenerative disease. *Regen Med*. Nov;5(6):933-46, 2010.

9. Meyerrose T, Olson S, Pontow S, Kalomoiris S, Jung Y, Annett G, Bauer G, Nolte JA. Mesenchymal stem cells for the sustained in vivo delivery of bioactive factors. *Adv Drug Deliv Rev.* Sep 30;62(12):1167-74, 2010.
10. Gruenloh W, Kambal A, Sondergaard C, McGee J, Nacey, C, Kalomoiris S, Pepper K, Olson S, Fierro F, Nolte JA. Characterization and in vivo testing of mesenchymal stem cells derived from human embryonic stem cells. *Tissue Eng Part A.* Jun; 17(11-12): 1517-25, 2011.
11. Olson SD, Pollock K, Kambal A, Cary W, Mitchell GM, Tempkin J, Stewart H, McGee J, Bauer G, Kim HS, Tempkin T, Wheelock V, Annett G, Dunbar G, Nolte JA. Genetically Engineered Mesenchymal Stem Cells as a Proposed Therapeutic for Huntington's Disease. *Mol Neurobiol.* 45(1):87-98. Dec 2011.
12. Olson SD, Kambal A, Pollock K, Mitchell GM, Stewart H, Kalomoiris S, Cary W, Nacey C, Pepper K, Nolte JA. Examination of mesenchymal stem cell-mediated RNAi transfer to Huntington's disease affected neuronal cells for reduction of huntingtin. *Mol Cell Neurosci.* 49(3):271-81. Dec 2011.
13. Hetz RA, Bedi SS, Olson SD, Olsen A, Cox CS. Progenitor Cells: Therapeutic targets after traumatic brain injury. *Transl Stroke Res.* 3:318-323, 2012.
14. Hetz RA, Triolo F, Olson SD, Smith P, Day M, Johnson A, Moise KJ, Cox CS. Amniotic Fluid Derived Mesenchymal Stromal Cells: Characterization and Logistics of Clinical Grade Cell Production. *J Surg Res.* 179(2):189. Feb 2012.
15. Hetz RA, Bedi S, Thomas C, Kota DJ, Olson SD, Williams S, Smith P, Hamilton J, Mays R, Cox CS. Intravenous multipotent adult progenitor cell therapy as a novel treatment in traumatic brain injury: modulation of the inflammatory response. *J Amer Coll Surgeons.* 217(3): S98. Sept 2013.
16. Kota DJ, DiCarlo B, Hetz RA, Smith P, Cox CS, Olson SD. Differential MSC activation leads to distinct mononuclear leukocyte binding mechanisms. *Sci Rep.* 2014 Apr 2;4:4565.
17. Liao, GP, Olson SD, Kota DJ, Hetz RA, Smith P, Cox CS. Far-red tracer analysis of traumatic cerebrovascular permeability. *J Surgical Res.* 2:190. May 2014.
18. Kota DJ, Prabhakara KS, Cox CS, Olson SD. MSCs and hyaluronan: Sticking together for new therapeutic potential? *Int J Biochem Cell Biol.* 2014 Aug 7;55C:1-10.
19. McFerrin HE, Olson SD, Gutschow MV, Semon JA, Sullivan DE, Prockop DJ. Rapidly self-renewing human multipotent marrow stromal cells (hMSC)

- express sialyl Lewis X and actively adhere to arterial endothelium in a chick embryo model system. *PLoS One*. 2014 Aug 21;9(8):e105411.
20. Kota DJ, Prabhakara KS, van Brummen AJ, Bedi S, Xue H, DiCarlo B, Cox CS Jr, Olson SD. Propranolol and Mesenchymal Stromal Cells Combine to Treat Traumatic Brain Injury. *Stem Cells Transl Med*. 2016 Jan;5(1):33-44. doi:10.5966/sctm.2015-0065. PubMed PMID: 26586775; PubMed Central PMCID: PMC4704870.
 21. Liao GP, Aertker BM, Kota DJ, Prabhakara KS, Smith P, Hetz RA, Xue H, Bedi S, Olson SD, Cox CS. Assessing Blood Brain Barrier Permeability in Traumatic Brain Injury Research. *ADMET & DMPK*. 2015 September 05; 3(3):182-189.
 22. Sahai S, Wilkerson M, Zaske AM, Olson SD, Cox CS, Triolo F. A cost-effective method to immobilize hydrated soft-tissue samples for atomic force microscopy. *Biotechniques*. 2016 Oct 1;61(4):206-209. PubMed PMID: 27712584.
 23. Kota DJ, Prabhakara KS, Toledano-Furman N, Bhattarai D, Chen Q, DiCarlo B, Smith P, Triolo F, Wenzel PL, Cox CS Jr, Olson SD. Prostaglandin E2 Indicates Therapeutic Efficacy of Mesenchymal Stem Cells in Experimental Traumatic Brain Injury. Kota DJ, Prabhakara KS, Toledano-Furman N, Bhattarai D, Chen Q, DiCarlo B, Smith P, Triolo F, Wenzel PL, Cox CS Jr, Olson SD. *Stem cells* (Dayton, Ohio). 2017; 35(5):1416-1430. PMID: 28233425
 24. Diaz MF, Vaidya AB, Evans SM, Lee HJ, Aertker BM, Alexander AJ, Price KM, Ozuna JA, Liao GP, Aroom KR, Xue H, Gu L, Omichi R, Bedi S, Olson SD, Cox CS Jr, Wenzel PL. Biomechanical Forces Promote Immune Regulatory Function of Bone Marrow Mesenchymal Stromal Cells. *Stem cells* (Dayton, Ohio). 2017; 35(5):1259-1272. NIHMSID: NIHMS849909 PMID: 28181347 PMCID: PMC5405000
 25. Lee HJ, Diaz MF, Ewere A, Olson SD, Cox CS Jr, Wenzel PL. Focal adhesion kinase signaling regulates anti-inflammatory function of bone marrow mesenchymal stromal cells induced by biomechanical force. *Cell Signal*. 2017 Jun 21. pii:S0898-6568(17)30170-5. doi: 10.1016/j.cellsig.2017.06.012. [Epub ahead of print] PubMed PMID: 28647573.
 26. Toledano-Furman NE, Prabhakara KS, Bedi S, Cox CS Jr, Olson SD. Optimized Multicolor Immunofluorescence Panel (OMIP) Rat Microglial Staining Protocol. *Cytometry: Part A*. MS 17-001.R2. under review

27. Harting MT, Srivastava AK, Zhaorigetu S, Bair H, Prabhakara KS, Toledano-Furman NE, Vykoukal JV, Ruppert KA, Cox CS Jr, Olson SD. Inflammation-stimulated mesenchymal stromal cell-derived extracellular vesicles attenuate inflammation. *Stem Cells*. Under review
28. Zhaorigetu S, Bair H, Lu J, Jin Di, Olson SD, Harting MT. Perturbations in endothelial dysfunction-associated pathways in the nitrofen-induced congenital diaphragmatic hernia model. *Journal of Vascular Research*. Under review.

C. Chapters

1. Olson, SD. "The neuro-immune signaling circuit in traumatic brain injury." Cellular Therapy for Neurological Injury – Series: Cell and Gene Therapy. Editor: Atala, A. Springer Publishing, New York, NY.
2. Ruppert KA, Olson SD, Cox CS Jr. "A Roadmap to Non-hematopoietic Stem Cell-Based Therapeutics." A Roadmap to Mesenchymal Stem Cell-based Therapeutics: From the Bench to the Clinic. Editor: Xiao-Dong Chen. Academic Press, Elsevier Inc. *under review

D. Other Professional Communications

Oral Presentations:

Olson, SD. Cell fusion and mitochondrial transfer as methods of tissue repair by adult stem/progenitor cells. Invited seminar by Dr. Harold Bernstein, presented at University of California San Francisco. 8/2007.

Olson, SD. Mitochondrial transfer by MSCs can rescue critically damaged cells. Invited speaker courtesy of Dr. Jan Nolte, Shriners Hospital of Sacramento for University of California, Davis Health System. 9/2007.

Olson, SD. Mitochondrial transfer by MSCs, implications for transfer of other small molecules. Invited speaker courtesy of Dr. Thomas Huser, presented at Center for Biophotonics Science and Technology, Sacramento, CA. 6/2008

Olson, SD. Potential for MSCs as a therapeutic device in Alzheimer's disease. Invited speaker courtesy of Dr. Charles DeCarli, presented at the M.I.N.D. Institute conference room, UC Davis Health System. 10/2008.

Olson, SD. Overview of ongoing studies of MSC transfer of RNA interference molecules. University of California, Davis, invited by Dr. Larry Galuppo, presented for Veterinary Medicine, UC Davis, Davis, CA. 6/2009.

Olson, SD. MSCs as a potential treatment for Alzheimer's disease. Invited by Dr. Jan Nolte, presented at the Oak Park research building conference room, University of California, Davis. 6/2009.

Olson, SD. Overview of Huntington's disease studies underway. Invited by Dr. Jan Nolte, presented at the Institute for Regenerative Cures, UC Davis Health System. 7/2010.

Olson, SD. Intercellular transfer of labeled siRNA visualized by immunolabeling. Invited by Stem Cell Program for visiting faculty, UC Davis Cancer Center. 12/15/2010.

Olson, SD. MSC for the treatment of Huntington's disease, a multifaceted approach. Invited by Humboldt State BRIDGES program, CTSC Conference room, UC Davis. 3/2011.

Olson, SD. Visualizing siRNA-RISC interactions using super-high resolution Structured Illumination microscopy and computerized cross-correlational analysis: A complex way to visualize RNAi transfer between cells. Invited by Dr. Darwin Prockop, presented at Texas A&M Scott White's Institute for Regenerative Medicine, Temple, TX. 3/2011.

Olson, SD. Mesenchymal Stem Cells in the generation of next generation treatments for traumatic brain injury, presented for UT Health, invited by Dr. Charles S. Cox, presented at MSB B.610, Houston, TX. 8/2011.

Olson, SD. Mesenchymal Stem Cells in 10 minutes, presented for Department of Pediatric Surgery, invited by Dr. Kevin Lally, presented at MSB 4.169A. 2/2013.

Olson, SD. The Immunomodulatory Capabilities of Mesenchymal Stem Cells, invited seminar for Department of Pathology, invited by Dr. Keri Smith, presented at MSB 2.024. 3/2013.

Olson, SD. The Immunomodulatory Capabilities of Mesenchymal Stem Cells in clinical usage, invited seminar for Department of Pediatrics, invited by Dr. Richard Johnston, presented in Hermann Pavilion at Children's Memorial Hermann Hospital. 4/2013.

Olson, SD. MSC bind leukocytes differently in response to different stimuli, presented for Mission Connect Foundation, invited seminar, MSB B.100. 9/2013.

Olson, SD. Assessing and predicting MSC potency for traumatic brain injury, invited seminar for Department of Pathology, invited by Dr. Chinnaswamy Jagarannoth, presented at MSB 2.024. 9/2014.

Olson, SD. A Combination of Propranolol and Mesenchymal Stem/Stromal Cells to Treat Traumatic Brain Injury, invited presentation for TIRR Foundation Board. Presented at Houston United Way Building. 11/5/2014.

Smith PA, Kota DJ, Prabhakara KS, Aertker BM, Cox CS, Olson SD. Development of multicolor immunophenotyping protocols for rat blood, spleen, and brain. FlowTex Annual Symposium. Houston, TX. 2/2015.

Olson, SD. A Combination of Propranolol and Mesenchymal Stem/Stromal Cells to Treat Traumatic Brain Injury, invited presentation for Mission Connect Review of Science, presented at Cooley Center. 5/15/2015

Olson, SD. Session Chair: Stem Cells. Gulf Coast Consortium, Regenerative Medicine Cluster Annual Symposium. Presented at Rice BRC. 6/2/2015.

Kota DJ, Prabhakara KS, DiCarlo B, Liao GP, Smith P, Cox CS, Olson SD. A combination of propranolol and MSC to treat TBI. Texas A&M Institute for Neuroscience 7th Annual Symposium. College Station, TX. 3/2015.

Kota DJ, Prabhakara KS, DiCarlo B, Liao GP, Smith P, Cox CS, Olson SD. Prostaglandin E2 Predicts Therapeutic Efficacy of Mesenchymal Stem Cells in Experimental Traumatic Brain Injury. MSC 2015 Conference. Cleveland, OH. 8/2015.

Olson SD. Academic career in cellular therapy. UTHealth MD/PhD Program Spring Session. UT Health at Houston GSBS. 2/8/17.

Olson SD and Cox CS Jr. Autonomic Nervous System regulation and dysregulation following CNS trauma. Houston Methodist Research Institute Neural Control Course, 3/6/17.

Olson SD. "MSC for TBI: attempting to relate in vitro activity with in vivo efficacy." Gulf Coast Consortium Regenerative Medicine Symposium. Presented at the Rice BioResearch Consortium. Houston, TX. 04/21/2017. Invited Speaker.

Olson SD. "MSC for TBI: attempting to relate in vitro activity with in vivo efficacy." STEPS4: The Fourth in a series of Academia-Industry workshops on Cell Therapies for Stroke. Washington, DC. 05/06/2017. Invited Speaker.

Olson SD. "MSC for TBI: attempting to relate in vitro activity with in vivo efficacy." Cellular Therapy for Trauma and Acute Critical Care 2017. San Francisco, CA. 5/17/2017. Invited Speaker.

Poster Presentations:

Olson, SD., Prockop, DJ. A two-sided approach to finding a secreted 'damage signal' using MSC. International Symposium on Mesenchymal and Non-Hematopoietic Stem Cells, New Orleans, LA. 2003.

Olson, SD., Prockop, DJ. Lentiviral vectors and mesenchymal stem cells. Mesenchymal and Non-Hematopoietic Stem Cells, New Orleans, LA. 2004

Olson, SD., Spees, JL., Prockop, DJ. Intracellular mitochondrial transfer can rescue aerobic respiration. International Society for Cellular Therapy, Vancouver, Canada. 5/2005.

Olson, SD., Spees, JL., Prockop, DJ. Intracellular mitochondrial transfer by mesenchymal stem cells can rescue damaged cells. International Society for Stem Cell Research, San Francisco, CA. 6/2006

Olson, SD., Spees, JL., Prockop, DJ. Mitochondrial transfer by mitochondrial stem cells. Gene Therapy Research Symposium, Baton Rouge, LA. 2006

Olson, SD., Nolte, JA. Mesenchymal stem cells as a potential therapy for Huntington's disease; a safety trial. International Conference on Mesenchymal and Non-Hematopoietic Stem Cells, Austin, TX. 11/2009

Olson, SD., McNerney, G., Pollock, K., Stuart, H., Mitchell, G., Nolte, JA. Visualization of siRNA Complexed to RISC Machinery: Demonstrating Intercellular siRNA Transfer by Imaging Activity. American Academy of Neuroscience Annual Meeting, Honolulu, HI. 4/2011.

Mitchell, G., Olson, SD., Kamball, A., Nolte, JA. Mesenchymal Stem Cells as a Delivery Vehicle for Intercellular Delivery of RNAi to Treat Huntington's Disease. American Academy of Neuroscience Annual Meeting, Honolulu, HI, 4/2011.

Kota DJ, DiCarlo B, Olson SD. Investigating the Immunomodulatory Properties of Mesenchymal Stem Cells. Mission Connect Symposium, Houston, TX. 12/2012. Presented by Daniel Kota, Postdoctoral trainee.

Olson SD, DiCarlo B, Kota DJ. Exploring the Potential of Mesenchymal Stem Cells to Participate in the Inflammatory Reflex. Mission Connect Symposium, Houston, TX. 12/2012.

Kota DJ, DiCarlo, B, Hetz R, Olson SD. Mesenchymal Stem/Progenitor cell pre-conditioning with Poly I:C Increases monocytic leukemia cell line binding through Hyaluronic acid. 6th International Symposium on Mesenchymal Stem/Progenitor Cells, College Station, TX. 5/2013.

Kota DJ, DiCarlo B, Hetz R, Smith P, Olson, SD. A new mesenchymal stem cell interaction mechanism following pre-conditioning. International Society of Stem Cell Research (ISSCR), Boston, MA. 6/2013. Presented by Daniel Kota, Postdoctoral trainee.

Hetz RA, Triolo F, Olson SD, Bedi S, Kota DJ, Roye J, Smith P, Day MC, DiCarlo B, Cox Jr CS. Amniotic fluid derived mesenchymal stem cells: potential hazardous in the treatment of traumatic brain injury. International Society of Stem Cell Research (ISSCR), Boston, MA. 6/2013. Presented by Robert Hetz MD, collaborator.

Kota DJ, DiCarlo B, Hetz R, Olson, SD. Mesenchymal Stem/Progenitor cell pre-conditioning with Poly I:C Increases monocytic leukemia cell line binding through Hyaluronic acid. Stem Cell Symposium at TIPS, 10/2012. Presented by Daniel Kota, Postdoctoral trainee.

Evans S, Kota DJ, Hetz H, Olson SD, Triolo F, Cox Jr CS, Wenzel P. MSC licensing by biomechanical forces. International Society of Stem Cell Research (ISSCR), Boston, MA. 6/2013. Presented by Pamela Wenzel, collaborator.

Olson SD, Kota DJ, DiCarlo B, Hetz AR, Cox CS, Smith P. MSC alter leukocyte binding mechanisms when activated with different cues. MSC 2013 Conference on Adult Stem Cell Therapy & Regenerative Medicine. Cleveland, OH. 8/2013.

Hetz RA, Bedi S, Thomas C, Kota DJ, Olson SD, Williams S, Smith P, Hamilton J, Mays R, Cox CS. Intravenous Multipotent Adult Progenitor Cell (MAPC) Therapy as a Novel Treatment in Traumatic Brain Injury (TBI): Modulation of the Inflammatory Response. American College of Surgeons 99th Clinical Congress. Washington, DC. 10/2013. Presented by Robert Hetz, MD, collaborator.

Kota DJ, Prabhakara KS, DiCarlo B, Smith P, Olson SD. Sequential Beta-Blocker and Cellular Therapy for Traumatic Brain Injury. Mission Connect Symposium. Houston, TX. 12/2013.

Kota DJ, DiCarlo B, Hetz RA, Smith P, Olson SD. A New Mesenchymal Stem Cell Interaction Mechanism Following Pre-Conditioning. Mission Connect Symposium. Houston, TX. 12/2013.

Bailey V, DiCarlo B, Kota DJ, Olson SD. Characterizing Co-Encapsulated MSC and Leukocytes for Immune Modulation. Mission Connect Symposium. Houston, TX. 12/2013. Presented by Virginia Bailey, student trainee.

Adams BD, Kota DJ, Olson SD. Mesenchymal Stem Cells Inhibit Microglia and T-cell Inflammatory Response In Vitro. Mission Connect Symposium. Houston, TX. 12/2013. Presented by Bradley Adams, student trainee.

DiCarlo B, Kota DJ, Triolo F, Adams BD, Bailey V, Prabhakara KS, Olson SD. Looking for Biomarkers for Mesenchymal Stem Cell Potency. Mission Connect Symposium. Houston, TX. 12/2013.

Hetz RA, Triolo F, Olson SD, Smith P, Day M, Johnson A, Moise KJ, Cox CS. Amniotic Fluid Derived Mesenchymal Stromal Cells: Characterization And Logistics Of Clinical Grade Cell Production. 9th Annual Academic Surgical Congress. San Diego, CA. 2/2014. Presented by Robert Hetz, MD, collaborator.

Liao GP, Olson SD, Hetz RA, Caplan HW, Bedi S, Cox CS. Far-Red Tracer Technique for Analysis of Vascular Injury in Traumatic Brain Injury Research. 9th Annual Academic Surgical Congress. San Diego, CA. 2/2014. Presented by George Liao, MD, collaborator.

Olson SD, Kota DJ, Prabhakara KS, DiCarlo B, Smith P. Sequential Beta-Blocker And Cellular Therapy For Traumatic Brain Injury. National Neurotrauma Society. San Francisco, CA 6/2014.

Kota DJ, Prabhakara KS, DiCarlo B, Liao GP, Smith P, Cox CS, Olson SD. Prostaglandin E2 Predicts Therapeutic Efficacy of Mesenchymal Stem Cells in Experimental Traumatic Brain Injury. Gulf Coast Consortium – Regenerative Medicine Cluster, Houston, TX, 10/2014

Kota DJ, Liao GP, Prabhakara KS, DiCarlo B, Evans S, Triolo F, Wenzel P, Cox CS, Olson SD. Predicting therapeutic efficacy of mesenchymal stem cells in traumatic brain injury through anti-inflammatory potency. Mission Connect Annual Symposium. 12/2014.

Prabhakara KS, van Brummen A, Kota DJ, DiCarlo B, Cox CS, Olson SD. Combinatorial treatment with propranolol and mesenchymal stem cells improves spatial learning and memory after experimental traumatic brain injury. Mission Connect Annual Symposium. 12/2014.

Kallur S, Bailey V, Kota DJ, Prabhakara KS, DiCarlo B, Cox CS, Olson SD. The effects of co-encapsulated MSC and leukocytes on inflammation in traumatic brain injury in rat models. Mission Connect Annual Symposium. 12/2014.

Kota DJ, Prabhakara KS, DiCarlo B, Liao GP, Smith P, Cox CS, Olson SD. Prostaglandin E2 Predicts Therapeutic Efficacy of Mesenchymal Stem Cells in Experimental Traumatic Brain Injury. Gulf Coast Consortium – Regenerative Medicine Cluster Symposium. Houston, TX. 6/2/2015.

Kota DJ, Prabhakara K, van Brummen A, DiCarlo B, Olson SD. Combinatorial treatment with propranolol and mesenchymal stem cells improves spatial learning and memory after experimental traumatic brain injury. Gulf Coast Consortium – Regenerative Medicine Cluster Symposium. Houston, TX. 6/2/2015.

Smith PA, Kota DJ, Prabhakara K, Aertker BM, Cox Jr CS, Olson SD. Development of Multicolor Immunophenotyping Protocols for Rat Blood, Spleen and Brain. Gulf Coast Consortium – Regenerative Medicine Cluster Symposium. Houston, TX. 6/2/2015.

Kota DJ, Prabhakara KS, DiCarlo B, Liao GP, Smith P, Cox CS, Olson SD. Prostaglandin E2 Predicts Therapeutic Efficacy of Mesenchymal Stem Cells in Experimental Traumatic Brain Injury. MSC 2015 Conference. Cleveland, OH. 8/2015.

Ruppert, KA, Ph.D., Nguyen, TT, M.D., Prabhakara, KS, M.S., Srivastava, A, Ph.D., Olson, SD, Ph.D. “Treating Spinal Cord Injury with Mesenchymal Stem Cell Extracellular Vesicles Improves Locomotor Recovery, Mechanical Sensitivity and Neuroinflammation”. National Neurotrauma Society Annual Meeting, Snowbird, UT. 07/2017

Ruppert, KA, Ph.D., Kota, DJ, Ph.D., Prabhakara, KS, M.S., Olson, SD, Ph.D. “Co-encapsulation of Mesenchymal Stem Cells and Cord Blood Improve Locomotor Recovery and Neuroinflammation in Spinal Cord Injury”. National Neurotrauma Society Annual Meeting, Snowbird, UT. 07/2017

Ruppert, KA, Ph.D., Kota, D.J., Ph.D., Prabhakara, KS, M.S., Grill, R.J., Ph.D., Olson, S.D., Ph.D. “Mesenchymal Stem Cells to Treat Neuropathic Pain in Spinal Cord Injury.” National Neurotrauma Society Annual Meeting, Snowbird, UT. 07/2017

Ruppert, KA, Ph.D., Nguyen, TT, M.D., Prabhakara, KS, M.S., Srivastava, A, Ph.D., Olson, SD, Ph.D. “Treating Spinal Cord Injury with Mesenchymal

Stem Cell Extracellular Vesicles Improves Locomotor Recovery, Mechanical Sensitivity and Neuroinflammation". Annual Regenerative Medicine Symposium for Gulf Coast Consortia for Biomedical Sciences, Houston, TX. 04/2017

Ruppert, KA, Ph.D., Kota, DJ, Ph.D., Prabhakara, KS, M.S., Olson, SD, Ph.D. "Co-encapsulation of Mesenchymal Stem Cells and Cord Blood Improve Locomotor Recovery and Neuroinflammation in Spinal Cord Injury". Annual Regenerative Medicine Symposium for Gulf Coast Consortia for Biomedical Sciences, Houston, TX. 04/2017

Ruppert, KA, Ph.D., Kota, D.J., Ph.D., Prabhakara, KS, M.S., Grill, R.J., Ph.D., Olson, S.D., Ph.D. "Mesenchymal Stem Cells to Treat Neuropathic Pain in Spinal Cord Injury." Annual Regenerative Medicine Symposium for Gulf Coast Consortia for Biomedical Sciences, Houston, TX. 04/2017

Ruppert, KA, Ph.D., Prabhakara, KS, M.S., Toledano Furman, NE, Ph.D., Olson, SD, Ph.D. "Breaking Down Neuro-Splenic Signaling in a Rodent Model of Spinal Cord Injury." Annual Shock Society Meeting. Austin, TX. 06/2016.

Ruppert, KA, Ph.D., Kota, DJ, Ph.D., Prabhakara, KS, MS, Grill, RJ, Ph.D., Olson, SD, Ph.D. "Mesenchymal Stem Cells to Treat Neuropathic Pain in Spinal Cord Injury." Annual Regenerative Medicine Symposium for Gulf Coast Consortia for Biomedical Sciences, Houston, TX. 06/2015.

Patents/Patent Applications

Mesenchymal Stem Cells producing inhibitory RNA for disease modification. Patent pending Nov 2008. US 13/260,551. Inventors: Scott Olson, Ph.D., Louisa Wirthlin, B.S., Jan Nolte Ph.D.