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EDUCATION

- 1995-1999 BS, Biology, Villanova University, Villanova, PA
- 1999-2005 PhD, Department of Molecular and Integrative Physiology, University of Kansas Medical Center, Kansas City, KS

FELLOWSHIPS AND POSTGRADUATE

- 2005-2007 National Research Service Award, T32 HD0073324, Center for Research in Reproductive Physiology, Department of Cell Biology and Physiology, University of Pittsburgh, Pittsburgh, PA
- 2007-2010 Magee-Womens Research Institute Postdoctoral Fellowship Program, Department of Obstetrics, Gynecology, and Reproductive Sciences, University of Pittsburgh, Pittsburgh, PA
- 2005-2010 Postdoctoral Fellow, Reproductive and Stem Cell Biology, Magee-Womens Research Institute, Department of Ob/Gyn & Reproductive Sciences, University of Pittsburgh, Pittsburgh, PA

PROFESSIONAL EMPLOYMENT HISTORY

- 2010-2011 Research Assistant Professor, Magee-Womens Research Institute, Department of Ob/Gyn & Reproductive Sciences, University of Pittsburgh, Pittsburgh, PA
- 2011-present Assistant Professor, Department of Biology, The University of Texas at San Antonio, San Antonio, TX
- 2011-present Adjunct Assistant Professor, Department of Cellular and Structural Biology, The University of Texas Health Science Center at San Antonio, San Antonio, TX
- 2016-present Adjunct Assistant Professor, Center for Reproductive Biology, Washington State University, Pullman, WA

AWARDS and HONORS

- 2011-2014 Voelcker Fellowship, Max and Minnie Tomerlin Voelcker Fund, San Antonio, TX.
- 2010 Fellow Oral Presentation Award, Magee-Womens Research Institute.
- 2009 University of Pittsburgh Postdoctoral Association, Travel Scholarship.
- 2008-2010 Contraception and Infertility Research Loan Repayment Program renewal, NICHD, NIH.
- 2008 Paul M. Rike Fellowship Award, Magee-Womens Research Institute.
- 2007 Larry Ewing Memorial Trainee Travel Fund, travel award, Society for the Study of Reproduction.
- 2006-2008 Contraception and Infertility Research Loan Repayment Program, NICHD, NIH.
- 2004 KUMC Graduate Student Travel Scholarship, Society for the Study of Reproduction 37th Annual Meeting.
- 2004 KUMC Graduate Student Travel Scholarship, Endocrine Society 86th Annual Meeting.
- 2004 KUMC Student Leadership Award, University of Kansas Medical Center.
- 2003 Student Research Forum, 1st Place, Developmental Biology Session, University of Kansas Medical Center
- 2003 KUMC Graduate Student Travel Scholarship, Endocrine Society 85th Annual Meeting.
- 2002 Student Research Forum, 1st Place Genetics I Session, University of Kansas Medical Center.
- 2002 Pi Lambda Theta, International Honor Society and Professional Association in Education, Direct Honors, University of Kansas.
- 2001 National Science Foundation Graduate Research Fellowship Program, honorable mention.
- 1999 Lawrence. C. Gallen Award for Service and Academic Achievement in Biology, Villanova University.
- 1999 Dean's List, College of Liberal Arts and Sciences, Villanova University.
- 1999 Sigma Xi, Associate student member, Villanova University.
- 1998 Omicron Delta Kappa, National Leadership Honor Society, Villanova University.
- 1998 Sigma Xi Research Day Poster Competition, First Prize Undergraduate, Villanova University.

RESEARCH, SCHOLARLY and CREATIVE ACTIVITIES

Peer-reviewed primary research articles:

1. Mutoji KN, Singh A, Nguyen T, Gildersleeve H, Kaucher AV, Oatley MJ, Oatley JM, Velte EK, Geyer CB, Cheng K, McCarrey JR and **Hermann BP**. 2016. "TSPAN8 expression distinguishes spermatogonial stem cells in the prepubertal testis." *Submitted*.
2. Kotzur T, Benavides-Garcia R, Mecklenburg J, and **Hermann BP**. 2016. "Granulocyte colony-stimulating factor (G-CSF) promotes spermatogenic regeneration from surviving spermatogonia after high-dose alkylating chemotherapy." *In revision*.
3. Lovelace DL, Gao Z, Mutoji KN, Ruan J, and **Hermann BP**. 2016. "The regulatory repertoire of PLZF and SALL4 in undifferentiated spermatogonia." *Development* 143: 1893-1906.
4. Wechsler ME, **Hermann BP***, and Bizios R. 2016. "Adult Human Mesenchymal Stem Cell Differentiation at the Cell Population and Single-Cell Levels Under Alternating Electric Current." *Tissue Eng Part C Methods* 22(2): doi:10.1089/ten.tec.2015.0324.
5. **Hermann BP***, Mutoji KN, Velte EK, Ko D, Oatley JM, Geyer CB, and McCarrey JR. 2015. "Transcriptional and Translational Heterogeneity among Neonatal Mouse Spermatogonia." *Biology of Reproduction* 92(2):54, 1-12. *Accompanied by a commentary. *corresponding author*.
6. Benavides-Garcia R*, Joachim R*, Pina N, Mutoji KN, Reilly M, and **Hermann BP**. 2015. "Granulocyte colony-stimulating factor prevents loss of spermatogenesis after sterilizing busulfan chemotherapy." *Fertility and Sterility* 103(1):270-280.e8. 10.1016/j.fertnstert.2014.09.023. **equal contribution*.
7. Shetty G, Uthamanthil RK, Zhou W, Shao SH, Weng CC, Taylor RC, **Hermann BP**, Orwig KE and Meistrich ML. 2013. "Hormone suppression with GnRH antagonist promotes spermatogenic recovery from transplanted spermatogonial stem cells in irradiated cynomolgus monkeys." *Andrology* 1(6): 886-98. **Cover Image*.
8. Dovey SL, Valli H, **Hermann BP**, Sukhwani M, Donohue J, Castro CA, Chu T, Sanfilippo JS, and Orwig KE. 2013. "Eliminating malignant contamination from therapeutic human spermatogonial stem cells." *Journal of Clinical Investigation* 123(4): 1833–1843.
9. **Hermann BP**, Sukhwani M, Winkler F, Pascarella JN, Peters KA, Sheng Y, Valli H, Rodriguez M, Ezzelarab M, Dargo G, Peterson K, Masterson K, Ramsey C, Ward T, Lienesch M, Volk A, Cooper DKC, Thomson AW, Kiss JE, Penedo MCT, Schatten GP, Mitalipov S, and Orwig KE. 2012. "Spermatogonial stem cell transplantation into Rhesus testes regenerates spermatogenesis producing functional sperm." *Cell Stem Cell* 11(5):715-726. *Featured article. Accompanied by an editorial*.
10. Easley IV CA, Phillips BT, McGuire MM, Barringer JM, Valli H, **Hermann BP**, Simerly CR, Rajkovic A, Miki T, Orwig KE, and Schatten GP. 2012. "Direct Differentiation of Human Pluripotent Stem Cells into Haploid Spermatogenic Cells." *Cell Reports* 2(3):440-6.
11. **Hermann BP**, Sukhwani M, Salati J, Chu T, Sheng Y, and Orwig KE. 2011. "Separating spermatogonia from cancer cells in contaminated prepubertal primate testis cell suspensions." *Human Reproduction* 26(12):3222-31.
12. **Hermann BP**, Sukhwani M, Simorangkir D, Chu T, Plant T, and Orwig KE. 2009. "Molecular dissection of the male germ cell lineage identifies putative spermatogonial stem cells in rhesus macaques." *Human Reproduction*. 24(7):1704-16.

13. **Hermann BP**, Hornbaker K, Rice DA, Sawadogo M, and Heckert LL. 2008. "In vivo regulation of FSH-receptor (*Fshr*) by the transcription factors USF1 and USF2 is cell specific." *Endocrinology* 149(10):5297-306.
14. **Hermann BP**, Sukhwani M, Lin C, Sheng Y, Tomko J, Rodriguez M, Shuttleworth J, McFarland D, Hobbs RM, Pandolfi PP, Schatten GP, and Orwig KE. 2007. "Characterization, cryopreservation, and ablation of spermatogonial stem cells in adult rhesus macaques." *Stem Cells* 25(9):2330-2338.
15. **Hermann BP**, Hornbaker K, Manimaran RR, and Heckert LL. 2007. "Distal regulatory elements are required for *Fshr* expression, *in vivo*." *Molecular and Cellular Endocrinology* 260-262: 49-58.
16. **Hermann BP** and Heckert LL. 2005. "Silencing of *Fshr* occurs through a conserved, hypersensitive site in the first intron." *Molecular Endocrinology* 19(8):2112-2131.
17. Mal TK and **Hermann BP**. 2000. Quantitative evaluation of pollen polymorphism in a tristylous weed, *Lythrum salicaria* (Lythraceae). *Canadian Journal of Botany* 78: 1086 – 1094.
18. **Hermann BP**, Mal TK, Williams RJ and Dollahon NR. 1999. Quantitative evaluation of stigma polymorphism in a tristylous weed, *Lythrum salicaria* (Lythraceae). *American Journal of Botany* 86 (8): 1121-1129.

Review articles:

1. Westernströer B, Singh A, and **Hermann BP**. 2016. "Implications of heterogeneity in the developing male germline and SSCs." In a special issue on Germline Stem Cells and Germ Lineage Development. *Stem Cell Research. Invited - in preparation*.
2. **Hermann BP**, Phillips BT, and Orwig KE. 2011. "The elusive spermatogonial stem cell marker?" *Biology of Reproduction*. 85: 221-3.
3. Ben-Yehudah A, Easley CA 4th, **Hermann BP**, Castro C, Simerly C, Orwig KE, Mitalipov S, Schatten G. 2010 "Systems biology discoveries using non-human primate pluripotent stem and germ cells: novel gene and genomic imprinting interactions as well as unique expression patterns." *Stem Cell Res Ther*. 1:24.
4. **Hermann BP**, Sukhwani M, Hansel MC, and Orwig KE. 2010. "Spermatogonial stem cells in higher primates: are there differences to those in rodents?" *Reproduction* 139:479-493.
5. **Hermann BP** and Heckert LL. 2007. "Transcriptional regulation of the *FSH receptor*: new perspectives." *Molecular and Cellular Endocrinology* 260-262:100-108.

Books & Book Chapters:

1. Mutoji KN, Lovelace DL, and **Hermann BP**. 2016. Chapter 4, "Key phenotypic, molecular and functional features of spermatogonial stem cells (Rodents and Primates)." In *The Biology of Mammalian Spermatogonia*, Eds. Jon Oatley and Michael Griswold; Springer, New York. *Invited - in preparation*.

2. Mecklenburg JM and **Hermann BP**. 2016. Chapter 10, "Mechanisms regulating spermatogonial differentiation." In *Molecular mechanisms of cell differentiation in gonad development*, Ed. Rafal Piprek; Springer International Publishing, Switzerland. p. 253-288.
3. **Hermann BP** and Orwig KE. 2011. "Translating spermatogonial stem cell transplantation to the clinic." In *Male Germline Stem Cells: Developmental and Regenerative Potential*, Eds Kyle Orwig and Brian Hermann; Humana Press, New York, NY. p. 227-253.
4. Orwig KE and **Hermann BP**. 2011. *Male Germline Stem Cells: Developmental and Regenerative Potential*; Humana Press, New York, NY. Co-editor.

Proceedings/Commentary:

1. Heckert LL and **Hermann BP**. 2004. "Transcriptional regulation of the FSH receptor in the testes." *Proceedings of the 12th International Congress of Endocrinology*. Lisbon, Portugal. August 31-September 4, 2004. p. 161-167.

SCHOLARLY PRESENTATIONS

Invited Seminars and Presentations:

- 2017 Invited Speaker, Gordon Research Conference on Germinal Stem Cell Biology; June 18-23, 2017; The Chinese University of Hong Kong, Hong Kong, China.
- 2017 Invited Speaker, XXIV North American Testis Workshop; April 19 - 22, 2017; The Hilton Miami Downtown, Miami, FL.
- 2016 Invited Speaker, Gordon Research Conference on Mammalian Reproduction; August 23, 2016; Waterville Valley Resort, Waterville Valley, NH.
- 2016 Invited Speaker, Abcam Germline Stem Cells Conference; June 21, 2016; UCSF Millberry Union Event & Meeting Center, San Francisco, CA.
- 2016 Invited Speaker, MCB Graduate Program Seminar Series; March 16, 2016; Brown University, Providence, RI.
- 2015 Speaker, 49th Annual GFI Conference; December 7, 2015; Placencia, Belize.
- 2015 Invited Speaker, Society for the Study of Reproduction 48th Annual Meeting; June 20, 2016; San Juan, Puerto Rico.
- 2015 Speaker, Center for Reproductive Biology Seminar Series; April 22, 2016; Washington State University.
- 2015 Speaker, Andrology Society of America 40th Annual Meeting; April 19, 2015; Salt Lake City, UT.
- 2015 Invited Speaker, 16th Workshop on the Development and Function of Reproductive Organs; February 15, 2015; Münster, Germany.
- 2015 Invited Speaker, GROWSPERM Supervisory Board Meeting; February 13, 2015; Münster, Germany.

- 2015 Speaker, CMB Seminar Series; February 9, 2015; Dept. of Biology, The University of Texas at San Antonio, San Antonio, TX.
- 2015 Speaker, Department of Pediatrics Research Seminar; January 9, 2015; University of Texas Health Science Center at San Antonio, San Antonio, TX.
- 2014 Speaker, 48th Annual GFI Conference; December 8, 2014; St. Martin.
- 2014 Invited Speaker, Genome to Proteome at Single-Cell Resolution; December 4, 2014; World Stem Cell Summit 2014, San Antonio, TX.
- 2014 Invited Speaker, Missing Link for Successful Trials: The Non-human Primate Imperative; December 3, 2014; World Stem Cell Summit 2014, San Antonio, TX.
- 2014 Invited Panelist – Hot Topics in Stem Cells, Public Education Day; December 2, 2014; World Stem Cell Summit 2014, San Antonio, TX.
- 2014 Invited Speaker, Department of Pediatrics Research Progress Conference; May 2, 2014; University of Texas Health Science Center at San Antonio, San Antonio, TX.
- 2014 Keynote speaker, Texas Forum for Reproductive Sciences 20th Annual Meeting, San Antonio, TX.
- 2014 Invited Speaker, 1st Annual San Antonio Conference on Stem Cell Research & Regenerative Medicine (RegenMed SA Meeting); February 13, 2014; BioMed SA, UTSA, San Antonio, TX.
- 2013 Invited Speaker, College of Sciences Research Conference; October 18, 2013; UTSA.
- 2013 Invited Speaker, UTSA-ISR Day; October 9, 2013; US Army Institute for Surgical Research, San Antonio Military Medical Center, San Antonio, TX.
- 2013 Invited Speaker, Society for the Study of Reproduction 46th Annual Meeting; July 24, 2016; Montréal, Québec, Canada.
- 2012 Invited Speaker, MBRS RISE/MARC U*STAR Seminar Series; March 23, 2012; The University of Texas at San Antonio, San Antonio, TX.
- 2011 Invited Speaker, South Texas Center for Emerging Infectious Diseases Seminar Series; November 4, 2011; The University of Texas at San Antonio, San Antonio, TX.
- 2011 Invited Lecturer, The Sam and Ann Barshop Institute for Longevity and Aging Studies Seminar Series; October 5, 2011; University of Texas Health Science Center at San Antonio, San Antonio, TX.
- 2011 Invited Speaker, College of Sciences Research Day; September 30, 2011; The University of Texas at San Antonio, San Antonio, TX.
- 2011 Workshop Speaker, Survival Skills & Ethics Program, Office of Academic Career Development, University of Pittsburgh, Pittsburgh, PA.
- 2010 Invited Speaker, Work-in-Progress Conference; November 16, 2010; Magee-Womens Research Institute, Pittsburgh, PA.
- 2010 Invited Speaker, San Antonio Stem Cells Conference; October 19, 2010; Henry B. Gonzalez Convention Center, San Antonio, TX.
- 2010 Invited Lecturer, Post-doc Lunch LIVE Seminar Series; March 17, 2010; University of Pittsburgh Postdoctoral Association, University of Pittsburgh, Pittsburgh, PA.

- 2009 Interview Talk, Stem Cell Search; December 17, 2009; Department of Biology, University of Texas at San Antonio, San Antonio, TX.
- 2009 Invited Lecturer, Grand Rounds; December 1, 2009; Department of Ob/Gyn & Reproductive Sciences, University of Pittsburgh, Pittsburgh, PA.
- 2009 Invited Speaker, NIH SCCIPR Research Meeting; May 11, 2009; Chicago, IL.
- 2008 Invited Speaker, Work-in-Progress Conference; January 9, 2008, Magee-Womens Research Institute, Pittsburgh, PA.
- 2006 Invited Speaker, CRRP Seminar Series; October 4, 2006; Center for Research in Reproductive Physiology, University of Pittsburgh, Pittsburgh, PA.
- 2005 Postdoc Job Talk, CRRP Seminar Series; May 4, 2005; Center for Research in Reproductive Physiology, University of Pittsburgh, Pittsburgh, PA.
- 2003 Student seminar, Physiology Seminar Series; February 10, 2003; Department of Molecular and Integrative Physiology, University of Kansas Medical Center, Kansas City, KS.
- 2002 Invited Speaker, Department of Molecular and Integrative Physiology, University of Kansas Medical Center, Kansas City, KS.

Refereed Oral Presentations:

- 2016 Platform Talk, Texas Forum for Reproductive Sciences 22nd Annual Meeting; April 21, 2016; MD Anderson Cancer Center, Houston, TX.
- 2015 Platform Talk, San Antonio Military Health System & Universities Research Forum; July 24, 2015; UTSA, San Antonio, TX.
- 2013 Platform Talk, Texas Forum for Reproductive Sciences 19th Annual Meeting; April 18, 2013; Houston, TX.
- 2013 Platform Talk, Frontiers in Reproduction 16th Annual Symposium; June 8, 2013; Marine Biological Laboratory, Woods Hole, MA.
- 2011 Platform Talk, XX^{1st} North American Testis Workshop; March 31, 2011; Montreal, Quebec, Canada.
- 2010 Platform Talk, Frontiers in Reproduction 13th Annual Symposium; June 11, 2010; Marine Biological Laboratory, Woods Hole, MA.
- 2009 Platform Talk, XXth North American Testis Workshop; April 3, 2009; Philadelphia, PA.
- 2008 Platform Talk, MWRI Postdoctoral Fellows Research Day; June 5, 2008; Magee-Womens Research Institute, Pittsburgh, PA.
- 2004 Platform Talk, The Gilbert S. Greenwald Symposium on Reproduction; October 2, 2004; University of Kansas Medical Center, Kansas City, KS.
- 2004 Platform Talk, Student Research Forum; April 7, 2004; University of Kansas Medical Center, Kansas City, KS.
- 2003 Platform Talk, Biomedical Training Program Symposium; May 2, 2003; University of Kansas Medical Center, Kansas City, KS.
- 2003 Platform Talk, Student Research Forum; April 1, 2003; University of Kansas Medical Center, Kansas City, KS.

Abstracts at International, National and Regional Meetings (last 5 years):

1. Kotzur T, Benavides-Garcia R, Mecklenburg J, and **Hermann BP**. 2016. "Granulocyte colony-stimulating factor (G-CSF) promotes spermatogenic regeneration from surviving spermatogonia after high-dose alkylating chemotherapy." Abcam Germline Stem Cells Conference, San Francisco, CA.
2. Lovelace DL, Gao Z, Mutoji KN, Ruan J, and **Hermann BP**. 2015. "Regulation of GDNF-responsive genes by PLZF and SALL4 in mouse spermatogonial stem cells." Society for the Study of Reproduction 48th Annual Meeting, San Juan, Puerto Rico.
3. Mutoji KN and **Hermann BP**. 2015. "UTF1 is induced during early differentiation of spermatogonia." 21st Annual Meeting of the Texas Forum for Reproductive Sciences, Houston, TX. *Platform talk by Postdoc*.
4. Nguyen T, Mutoji KN, Mccarrey JR, and **Hermann BP**. 2015. "Subpopulations of neonatal mouse undifferentiated spermatogonia defined by bi-modally transcribed genes." 21st Annual Meeting of the Texas Forum for Reproductive Sciences, Houston, TX.
5. Trombley J, Montoya MJ, Li Q, Almadar S and **Hermann BP**. 2014. "The role of mTORC1 signaling in spermatogonial stem cell fate", American Society for Microbiology, San Antonio, TX; SACNAS National Conference, Los Angeles, CA.
6. Wechsler ME, **Hermann BP** and Bizios R. 2014. "Optimization of Alternating Electric Current to Achieve Osteodifferentiation of Adult Human Mesenchymal Stem Cells", Biomedical Engineering Society, San Antonio, TX.
7. Benavides-Garcia R and **Hermann BP**. 2014. "Granulocyte colony-stimulating factor (G-CSF) protects spermatogenesis from alkylating chemotherapy." UTSA College of Sciences Research Conference, UTSA, San Antonio, TX. *Platform talk by undergraduate student*.
8. **Hermann BP**, Mutoji KN, Velte EK, Oatley JM, Geyer CB, McCarrey JR. 2014. "Transcriptional and Translational heterogeneity among 6dpp spermatogonia distinguishes putative spermatogonial stem cells." Gordon Research Conference on Mammalian Reproduction, Colby-Sawyer College, New Hampshire (August 11, 2014).
9. Mutoji KN and **Hermann BP**. 2014. "UTF1 is induced during early differentiation of spermatogonia." 47th Annual Meeting of the Society for the Study of Reproduction, Grand Rapids, MI. *Platform talk by Postdoc*.
10. Lovelace D and **Hermann BP**. 2014. "The regulatory repertoire of PLZF and SALL4 in spermatogonial stem cells." 20th Annual Meeting – Texas Forum for Reproductive Sciences, San Antonio, TX.
11. Lovelace DL, Mutoji KN, and **Hermann BP**. 2013. "Binding of the transcription factors SALL4 and PLZF in mouse spermatogonial stem cells intersects at gene promoters." Society for the Study of Reproduction 46th Annual Meeting, Montréal, Québec, Canada. *Platform talk by PhD student (DL)*.

12. Lovelace DL, Mutoji KN, and **Hermann BP**. 2013. "Partial overlap of SALL4 and PLZF binding sites in Spermatogonial Stem Cells reveals putative shared and distinct functional roles." The XXII North American Testis Workshop, April 10-13, 2013, San Antonio, TX. *Platform talk by PhD student (DL)*.
13. George J, **Hermann BP**, Christianson LK, and Heckert LL. 2012. "Decoding the functional role of *Fast*, a long non-coding RNA transcribed antisense to *Nr5a1*" Society for the Study of Reproduction 45th Annual Meeting, August 12-15, 2012; State College, PA.
14. Shetty G, Shao SH, Uthamanthil RK, Zhou W, Weng CC, **Hermann BP**, Orwig KE and Meistrich ML. "GnRH antagonist treatment promotes spermatogenesis from endogenous and autologously transplanted spermatogonia in cynomolgous monkeys." *The Endocrine Society's 94th Annual Meeting*; June 23-26, 2012; Houston, TX.

RESEARCH GRANTING ACTIVITIES

Active

1. **Grant Type/Number:** DBI-1337513
Sponsoring Agency: National Science Foundation (Major Research Instrumentation).
PI: Brian P. Hermann, UTSA
Role: PI
Effort: 0%
Performance Dates: 9/01/2013-8/31/2016
Direct costs: \$529,386 total costs (\$370,570 NSF funds plus institutional cost-share).
Project Title: MRI: Acquisition of a BioMark HD System for single-cell genomics research
Goals/Aims: *This award funded purchase of an instrument, the BioMark HD System, to facilitate studies high-throughput quantification of gene expression and gene sequence variations in hundreds of individual cells or samples (as small as a single cell). This resource will benefit members of multiple departments (Biology, Chemistry, Biomedical Engineering) within at least two colleges (Sciences, Engineering) at UTSA as well as colleagues at other San Antonio institutions, undergraduate education, students graduate-level laboratory courses, and area High School students.*
2. **Grant Type/Number:** Foundation
Sponsoring Agency: Helen Freeborn Kerr Charitable Foundation
PI: Brian P. Hermann, UTSA
Role: PI
Effort: 0%
Performance Dates: 7/01/2013-6/30/2015
Direct costs: \$22,575
Project Title: Devise new treatments for male infertility that result from chemotherapy and radiation treatments for childhood cancer
Goals/Aims: *This award funds provision of supplies and materials to advance research in ongoing research to test methods for primate SSC culture in order to expand few SSCs into many SSCs in the petri dish. This project is being performed in collaboration with SNPRC and Texas Biomedical Research Institute.*

- 3. Grant Type/Number:** Pilot Research Program VS988
Sponsoring Agency: Southwest National Primate Research Center
PI: Brian P. Hermann, UTSA
Role: PI
Effort: 0%
Performance Dates: 5/1/2014-4/30/2017
Direct costs: \$100,000
Project Title: Culture and transplantation of baboon spermatogonial stem cells
Goals/Aims: *This award funds pilot baboon studies to optimize spermatogonial stem cell transplantations in baboons using autologous freshly-isolated SSCs, cultured SSCs, and SSC-like cells derived from autologous induced pluripotent stem cells (iPSCs) at the SNPRC.*
- 4. Grant Type/Number:** R21 HD078916
Sponsoring Agency: NIH/NICHHD
PI: Brian P. Hermann, UTSA
Role: PI
Effort: 20%
Performance Dates: 4/16/2014 – 3/31/2017
Direct costs: \$275,000
Project Title: G-CSF prevents male infertility after chemotherapy
Goals/Aims: *In this proposal, we will test a novel approach to preserving male fertility after cancer treatment that employs injections of the cytokine granulocyte colony-stimulating factor (G-CSF).*
- 5. Grant Type/Number:** F32 HD079235
Sponsoring Agency: NIH/NICHHD
PI: Kazadi N. Mutoji, UTSA
Role: Mentor
Effort: 0%
Performance Dates: 7/1/2014 – 6/30/2017
Direct costs: \$249,828
Project Title: Regulation of Spermatogonial Stem Cell Proliferation and Differentiation by UTF1.
Goals/Aims: *This award is a 3-year individual postdoctoral Ruth L. Kirschstein National Research Service Award to Dr. Kazadi Mutoji in my laboratory.*
- 6. Grant Type/Number:** IIMS-TTR Supplement
Sponsoring Agency: UTHSCSA IIMS/CTSA
PI: Brian P. Hermann, UTSA
Role: PI
Effort: 0%
Performance Dates: 1/1/2016 – 12/31/2016
Direct costs: \$9,960
Project Title: Single-cell gene expression studies to identify the human spermatogonial stem cell.
Goals/Aims: *This proposal will use single-cell RNA-seq to identify human spermatogonia with a gene expression signature (barcode) similar to definitive mouse SSCs.*

Completed

1. **Grant Type/Number:** K99 HD062687
Sponsoring Agency: NIH/NICHD
PI: Brian P. Hermann, UTSA
Role: PI
Effort: 100%
Performance Dates: 4/10/2010 – 6/30/2011
Direct costs: \$215,358
Project Title: Transcriptional regulatory networks in spermatogonial stem cells.
Goals/Aims: *This grant is the mentored phase of the K99/R00 Pathways to Independence award which was continued into the currently-active R00 (independent phase).*

2. **Grant Type/Number:** Collaborative Research Seed Grant Program (CRSGP)
Sponsoring Agency: UTSA
PI: Brian P. Hermann, UTSA
Role: PI
Effort: 5%
Performance Dates: 9/1/2012-8/31/2013
Direct costs: \$30,000
Project Title: Iterative computational modeling of primate spermatogenesis educated by wet-lab experimentation.
Goals/Aims: *This award is a collaborative project with Dr. Matthew Reilly (Co-PI) in the Department of Biomedical Engineering (UTSA) where we will use a combination of computational modeling and wet laboratory experimentation to quantify whether human and primate SSCs contribute to spermatogenesis in the same way. Together, these studies will solidify a collaboration between the PI (Hermann) and Co-PI (Reilly), provide preliminary results to support future applications for extramural funding, and direct ongoing translational studies of involving human SSCs.*

3. **Grant Type/Number:** R00 HD062687-04S1 (Administrative Supplement)
Sponsoring Agency: NIH/NICHD
PI: Brian P. Hermann, UTSA
Role: PI
Effort: 0%
Performance Dates: 7/1/2012 - 6/30/2014
Direct costs: \$112,000
Project Title: Transcriptional regulatory networks in spermatogonial stem cells.
Goals/Aims: *This is an administrative supplement awarded under the Research Supplements to Promote Diversity in Health-Related Research Program to the K99/R00 parent grant noted above to support a post-doc.*

4. **Grant Type/Number:** R00 HD062687
Sponsoring Agency: NIH/NICHD
PI: Brian P. Hermann, UTSA
Role: PI
Effort: 75%
Performance Dates: 7/1/2011 - 6/30/2015

Direct costs: \$549,846

Project Title: Transcriptional regulatory networks in spermatogonial stem cells.

Goals/Aims: *This project will determine the role of specific transcription factors in promoting the ability of spermatogonial stem cells to produce and maintain spermatogenesis in the mouse testis. Results will reveal transcriptional regulatory networks that may be involved in stem cell fate decisions to self-renew or differentiate. This is the “independent phase” of a K99/R00 Pathways to Independence award.*

Pending

1. **Grant Type/Number:** NIH P01 HD089901-01

Sponsoring Agency: NIH/NICHD

PI: Jon M. Oatley, Washington State University

Role: Project 2 Lead, Core C Lead, Core B Lo-Lead

Effort: 33%

Performance Dates: 7/1/2016 – 6/30/2021;

Direct costs: \$ 4,883,474 (\$1,437,646 to Hermann lab)

Program Title: Specification of the foundational spermatogonial stem cell pool.

Project 2 Title: Origin and functional significance of the spermatogonial stem cell barcode.

Core C Title: Single-cell genomics core.

Core B Title: SSC transplantation core.

There is a fundamental gap in our understanding of the molecular mechanism(s) by which adult Spermatogonial stem cell progeny regulate the balance between self-renewal and initiation of differentiation. This proposal will test the hypothesis that subpopulations of adult SSC progeny exhibit distinct gene expression profiles that predispose the capacity to either self-renew or initiate differentiation. Status: This A0 proposal completed peer-review on July 25, 2016 and scored in the 20th percentile (out of the fundable range per FY16 funding guidelines for NICHD, but has yet to complete council review or be officially declined). NICHD will no longer entertain investigator-initiated P01 applications after Sept. 8, 2016, and thus, this proposal cannot be revised and resubmitted.

2. **Grant Type/Number:** BA150282 (Full proposal invitation)

Sponsoring Agency: US Army Medical Research Materiel Command

PI: Brian P. Hermann, UTSA

Role: PI

Effort: 25%

Performance Dates: 9/1/2016 – 8/31/2019

Direct costs: \$895,330

Project Title: Spermatogonial stem cell culture for fertility restoration in wounded warfighters.

Goals/Aims: *We first propose to optimize methods to isolate, maintain, and expand baboon SSCs in culture. Primate-to-mouse xenotransplantation will provide an initial assessment of the colonization potential of these SSCs, and subsequent autologous transplantation into baboon testes will definitively assess the functionality of these culture-derived SSCs in vivo. We will then use in vitro approaches to direct differentiation of validated baboon SSCs to initiate spermatogenesis in vitro. Parallel in vitro experiments with human SSCs will allow us to begin translating these methods to the human. Ultimately, this work will address the potential to develop novel therapeutic approaches to treatment of*

male infertility induced by traumatic GU injury. Status: Review completed May 16, 2016. Score = 1.8 (1-5, high-low), and placed on “unfunded requirements list” for potential future funding (expected payline ≤ 3.0).

- 3. Grant Type/Number:** NIH R01 HD090007-01
Sponsoring Agency: NIH/NICHD
PI: Brian P. Hermann
Role: PI
Effort: 25%
Performance Dates: 7/1/2016 – 6/30/2021; Direct costs: \$ 1,250,000
Project Title: Origin and functional significance of the spermatogonial stem cell barcode.
Goals/Aims: *There is a fundamental gap in our understanding of the molecular mechanism(s) by which the foundational spermatogonial stem cell pool is specified. The extent and temporal origin(s) of a unique gene expression barcode marking fetal/neonatal germ cells that will form SSCs (Aim 1), its functional significance (Aim 2), and the extent to which it is conserved in higher order primates (Aim 3) will be examined. Status: Review completed June 23, 2016. Score = 22 (7%) with anticipated funding under FY16 NICHD payline (New Investigator R01 = $\leq 12\%$).*
- 4. Grant Type/Number:** NIH R01 HD090083-01A1
Sponsoring Agency: NIH/NICHD
PI: Christopher B. Geyer
Role: co-Investigator
Effort: 8.33% (1 person-month)
Performance Dates: 4/1/2017 – 3/31/2022; Direct costs: \$1,250,000 (\$204,650 to Hermann lab)
Project Title: The role of retinoid exposure in specification of the foundational SSC pool.
Goals/Aims: *The objective of this proposal is to determine whether the foundational SSC pool forms from prospermatogonia that are intrinsically preprogrammed (predetermination) or from those that happen to occupy a limited number of stem cell niches (selection). In Aim 1, we will assess gene expression heterogeneity associated with neonatal germ cell RA responsiveness (genomics work – single cell and population – to be done by Hermann lab). In Aim 3, we will determine whether RA-insensitive prospermatogonia preferentially give rise to foundational SSCs. The Hermann lab will modulate RA levels in vivo and examine the subsequent effect on formation of the foundational SSC pool by performing transplant studies. Status: Review of first submission completed in June 2016. Score = 30 (16%), resubmitted August 10, 2016.*

INTELLECTUAL PROPERTY

Patent application 14/177,103

Title: G-CSF protects spermatogenesis from damage by chemotherapy.

Filed: Provisional application filed 2/11/2013, Utility (full) application filed 2/10/2014.

Abstract: *Recently, we compared the results of two published studies which utilized busulfan chemotherapy to ablate spermatogenesis in rhesus macaques [4;6]. Our comparison revealed that rhesus macaque spermatogenesis could be protected from cytotoxicity of busulfan chemotherapy by treatment with the cytokine granulocyte colony-stimulating factor (G-CSF).*

Specifically, in the more recent study [6], G-CSF (neupogen) was used to mobilize hematopoietic stem cells (HSCs) into the general circulation prior to collection by apheresis for autologous HSC (peripheral blood stem cell) transplant to counteract myelosuppression by busulfan. To follow-up on the result of our meta-analysis of these rhesus monkey studies, we treated 5 week-old mice with G-CSF for one week and administered busulfan on day 3, mimicking the approach used in monkeys. G-CSF treatment led to significantly better recovery of spermatogenesis after busulfan treatment than controls. These results suggest G-CSF treatment protects spermatogenesis from a high-dose alkylating chemotherapy insult. Moreover, we detected the receptor for G-CSF (CSF3R) in the mouse testis and ex vivo SSC cultures, suggesting G-CSF may act directly on the germline. Thus, in the present manuscript, we propose a novel method for protecting the human spermatogenesis from chemotherapy toxicity using G-CSF.

Note: This utility submission is currently under prosecution (review and negotiation).

TEACHING

Organized courses:

BIO 3919: Molecular Biology (Undergraduate, 3hr), Spring 2013, 2014, 2015 - UTSA.

BIO 5123: Principles of Molecular Biology (Graduate, 3hr), Spring 2016 – UTSA

BIO 5463: Reproductive Biology (Graduate, 3hr), Fall 2013, 2014, 2015, 2016 - UTSA.

BIO 6973: Special Problems – Stem Cell Biology (Graduate, 3hr), Spring 2014 (team-taught, course coordinator, 4 lectures).

BIO 7041: Biology colloquium - Stem cells and reproduction (Graduate, 1hr), Fall 2012 - UTSA.

BIO 7041: Biology colloquium – Stem cell fate regulation (Graduate, 1hr), Spring 2015 – UTSA.

BIO 7041: Principles of Molecular Biology Qualifying Exam (Graduate, 1hr), Spring 2016 – UTSA

CSBL 6064: Genes and Development (CSBL 5026: Stem Cell Biology module) Spring 2014, 2015, 2016; 1 Lecture/year – University of Texas Health Science Center at San Antonio.

CSBL 6059: Stem Cells and Regenerative Medicine, Spring 2015, 2016, 1 Lecture – University of Texas Health Science Center at San Antonio.

Research Trainees:Direct supervision:

STUDENT'S NAME	PROGRAM AFFILIATION*	TRAINING PERIOD	DEGREE & YEAR, INSTITUTION (Field) <i>Mentorship role</i>	CURRENT STATUS (Field, Institution)
Mutoji, Kazadi N.	N/A	11-present	B.S. - '05 Dillard University (Biology) Ph.D. – '11 Univ. of Louisiana at Lafayette (Microbiology) – <i>postdoctoral training</i>	Postdoctoral fellow
Li, Qi	CMB-PhD	11-13	B.S. '08 – Fudan University (Pharmacy) M.S. '11 – UTSA (Biology) - <i>thesis</i>	Statistical Analyst, MedSpace, Cincinnati
Shamby, Ross	MS Biotech	11-12	B.A. '11 – Drew University (Biochem, P.H.) M.S. -13 – UTSA (Biotechnology) – <i>directed research</i>	NJ – educational services
Song, Yungtao	MS Biology	12-14	B.S. '09 - Zhejiang University (Bioengineering) M.S. '14 – UTSA (Biology) – <i>thesis advisor</i>	PhD Candidate, University of Cincinnati
Lovelace, Dawn	CMB-PhD	12-16	B.S. '06 – Tarleton State University M.S. Ph.D. '16 – UTSA (CMB) – <i>thesis advisor</i>	Visiting Assistant Professor, Our Lady of the Lake University
Alaribe, Ugo	MS Biology	12	B.S. '10 – UTSA (Biology) M.S. '12 – UTSA (Biology) – <i>directed research</i>	MBA program, Urbana University
Dunn, Morgan	UTSA-McNair	12	B.S. '12 – UTSA (Biology) – <i>independent study</i>	Unknown
Bell, Meagan	UTSA-Honors	12	B.S. '12 – UTSA (Biology) – <i>independent study</i>	Graduate student, Wildlife Ecology and Mgt, Texas State University
Piña, Nancy	UTSA-Biology	13	B.S. '13 – UTSA (Biology) – <i>independent study</i>	Laboratory Technician, Southwest Research Institute
Joachim, Rose	PAESMEM COS Summer	13	B.S. '14 – UMass Boston (Biology) – <i>summer research</i>	MS student, Mississippi College
Montoya, Maria	UTSA-Biology	13	B.S. '13 – UTSA Biology – <i>independent study</i>	Lab technician, Texas Biomedical Research Institute
Humeidi, Ranem	UTSA-UG	13	B.S. '13 – UTSA (Biology) – <i>independent study</i>	LECOM - School of Pharmacy, FL
Benavides, Roberto	UTSA-Honors	13-15	B.S. '15 – UTSA (Biology/Honors) – <i>honors thesis advisor</i>	Aspiring medical student, Austin, TX
Almadar, Sogand	UTSA-UG	14	B.S. '14 – UTSA Biology – <i>independent study</i>	Office administrator, Aramark, San Antonio, TX
Cisñeros, Marilyn	COS UG Summer Res.	14	B.S. '15 – University of New Mexico (Biology) – <i>summer research</i>	Student, UNM PREP program
Ngyuen, Thu	UTSA-Honors	14-15	B.S. '15 – UTSA (Biology/Honors) – <i>honors thesis advisor</i>	Volunteer & aspiring dental student.
Trombley, Jessica	UTSA-UG	14-15	B.S. '15 – UTSA (Biology) – <i>independent study</i>	Student, Mayo Clinic PREP program.
Sanchez (Momand), Jamila	N/A	14-15	B.S. '05 – UT Austin (Biology) Ph.D. '14 – UTHSCSA (CSB) – <i>postdoctoral training</i>	Senior R&D Manager, bioAffinity Technologies, Inc, San Antonio, TX.
Mecklenburg, Jennifer	UTSA-MS Bio	14-16	B.S. '11 – Univ. of New Mexico (Biology) M.S. '15 – UTSA (Biology) – <i>MS directed research advisor</i>	Senior Research Assistant, UTHSCSA

Singh, Anukriti	UTSA- MS Bio	15-present	M.S. – UTSA (Biology) – <i>MS Thesis advisor</i>	MS thesis student – UTSA
Kotzur, Travis	UTSA -UG	15-present	B.S. – UTSA (Biomedical Eng/Honors) – <i>honors thesis advisor</i>	UG thesis Student – UTSA
Doraji-Naseri, Behnam	UTSA-MS	15-present	M.S. – UTSA (Biology) – <i>thesis advisor</i>	MS thesis student – UTSA
Graham, Amanda	UTSA-MS	16	B.S. '15 –UTSA (Biology) M.S. – UTSA (Biotechnology) – <i>directed research</i>	Transferred to MS Medical Laboratory Sciences, UTHSCSA
Westernströer, Birgit	N/A	16-present	B.S. '10 –Universität Bielefeld (Biochemistry) Ph.D. '14 –Universität Münster (Biology) – <i>postdoctoral training</i>	Postdoctoral fellow – UTSA
Rice, Gabriella	UTSA-UG	16-present	B.S. – UTSA (Biology) – <i>honors thesis advisor</i>	UG thesis student – UTSA
Amador, Areli	N/A	16	Memorial High School - <i>summer research advisor</i>	Senior, Memorial High School
Kotzur, Taylor	N/A	16	Douglas MacArthur High School - <i>summer research advisor</i>	Senior, Douglas MacArthur High School
Leelani, Navid	UTSA-MS	16-present	B.S. '15 –Trinity University M.S. – UTSA (Biology) – <i>thesis advisor</i>	MS thesis student – UTSA
Vitonde, Rucha	UTSA-MS	16-present	B.S. '15 – Savitribai Phule Pune University M.S. – UTSA (Biotechnology) – <i>directed research</i>	MS student – UTSA
Mayo, Max	UTSA-MS	16-present	B.S. '15 – UTSA (Biology) M.S. – UTSA (Biology) – <i>thesis advisor</i>	MS thesis student – UTSA

MS Thesis/Examination committees:

- 2013 Kristabel Aguero (MS Biology).
2014 Remington Wong (MS Biology).
2014 Jennifer Mecklenburg (MS Biology).
2014 Ui Lee (MS Biology).
2014 Caitlyn Brown (MS Biology).
2016 Bo Li (MS Biology).
2016 Kendra Garza (MS Biology).

Dissertation Committees:

- 2011-2014 Amber Baer; PI: Christopher Navara
2014-2014 I-Chung Chen; PI: John McCarrey
2011-2014 Enrique Sosa; PI: John McCarrey
2014-present Jennifer Guererro; PI: Garry Sunter.
2015-present Meagan Mahlke; PI: John McCarrey.
2016 Victoria Vega (Biomedical Engineering Qualifying Exam); PI: Teja Guda

SERVICE ACTIVITIES

Institutional service:

- 2013-present Assistant Director, UTSA Genomics Core.
- 2012-2014 LARC Advisory Council, University of Texas at San Antonio
- 2012-2013 COS Research Conference Planning Committee, UTSA.
- 2012-2013 RSC-Life Sciences Research Faculty Council, Univ. of Texas at San Antonio
- 2012-2014 Doctoral Studies Committee, Cell and Molecular Biology PhD Program,
2016-2018 Department of Biology, University of Texas at San Antonio
- 2012-2014 IT Advisory Committee, Department of Biology, University of Texas at San Antonio
- 2011-2012 Budget Committee, Department of Biology, University of Texas at San Antonio
2014-2016
- 2008-2011 Institutional Animal Use and Care Committee, Magee-Womens Research Institute

Professional Memberships/Committee service:

- American Association for the Advancement of Science
- American Society for Andrology
Communications and Media Committee, 2016-
- International Society for Stem Cell Research
- Society for the Study of Reproduction
Public Affairs Committee, 2016-2017
Program Committee, 2015-2016
Membership Committee, 2011-2016
Trainee Affairs Committee, 2008-2010
Future Meeting Sites Committee, 2008-2009
Local Arrangements Committee, 2009 SSR Annual Meeting, Pittsburgh, PA
- Pi Lambda Theta; international honor society and professional association in education.
- Texas Forum for Reproductive Sciences, Steering Committee, 2012-2017
- Sigma Xi
- Society for Clinical and Translational Science

Journal Review Service:

Ad hoc reviewer for the following journals: *Andrology*, *Biology of Reproduction*, *Cell and Tissue Research*, *Development*, *Frontiers in Bioscience*, *Human Reproduction*, *International Journal of Andrology*, *Journal of Assisted Reproduction and Genetics*, *Journal of Endocrinology*, *JoVE*, *Microscopy Research and Technique*, *Molecular Human Reproduction*, *Molecular Reproduction and Development*, *Nanoscale*, *Nature Communications*, *PIOS One*, *Reproduction*, *Reproduction*

Fertility and Development, Stem Cells and Development, Stem Cell Research, and Tissue and Cell.

Grant Review Service:

- 2016 Reviewer, ZRG1 EMNR-W (50), "Spermatogenic Stem Cells" special emphasis panel for PAR-16-114, Center for Scientific Review, National Institutes of Health; October 19, 2016.
- 2016 Reviewer, Stem Cell Characterization, Lineage and Differentiation panel, New York Health Department and Empire State Stem Cell Board, NYSTEM grant program; September 20-25, 2016.
- 2016 Video reviewer, Pluripotency, Chromatin and Epigenetics panel, New York Health Department and Empire State Stem Cell Board, NYSTEM grant program; September 29-30, 2016.
- 2016 Panelist, Major Research Instrumentation grant review panel, Division of Biological Infrastructure, National Science Foundation; May 2-3, 2016.
- 2015 Reviewer, ZGM1 TWD-6 (SC), SCORE special emphasis panel, National Institute of General Medical Sciences, National Institutes of Health; June 30-July 1, 2015.
- 2015 *Ad hoc* reviewer, NIH BUILD Initiative, ASCEND Center for Biomedical Research at Morgan State University (MSU); May 26, 2015.
- 2015 Panelist, Major Research Instrumentation grant review panel, Division of Biological Infrastructure, National Science Foundation; April 27-28, 2015.
- 2014 Reviewer, Grantseekers Program, University of Texas Health Science Center at San Antonio; May 8, 2014.
- 2014 Panelist, Major Research Instrumentation grant review panel, Division of Biological Infrastructure, National Science Foundation; April 14-15, 2014.
- 2014 *Ad hoc* reviewer, Cellular Molecular and Integrative Reproduction Study Section, Center for Scientific Review, National Institutes of Health; October 16-17, 2014.
- 2013 Reviewer, German-Israeli Foundation for Scientific Research and Development (GIF); February 2013.

REFEREES

Kyle E. Orwig, Ph.D. (Postdoctoral Advisor)
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