

Jason Orr Brant, PhD

700 SW 62nd Blvd APT 107
Gainesville, Florida 32607
<https://www.linkedin.com/in/brantjason>

Cell: (352) 214-6788
Office: (352) 273-9546
e-mail: jbrant@ufl.edu

EXPERIENCE

Research Assistant Scientist (*laboratory of Dr. Todd Brusko*) 2019 – Present
University of Florida, Department of Pathology, Immunology and Laboratory Medicine

- Analyzing single cell sequencing data sets
- Data management of large data sets from multiple project groups
- Investigating the immunological aspects of type-1 diabetes

Adjunct Assistant Scientist (*laboratory of Dr. Mike Kladde*) 2019 – 2019
University of Florida, Department of Biochemistry and Molecular Biology

- Utilized computational biology methodologies to analyze sequencing data, including DNA methylation and chromatin accessibility
- Performed data analyses of multiple types of sequencing data, including ATAC-Seq and MAPit-RRBS

Adjunct Assistant Scientist (*laboratory of Dr. Malcolm Maden*) 2018 – 2019
University of Florida, Department of Biology

- Generated a genome sequence and assembly of the African spiny mouse, *Acomys cahirinus*, using long-read (Pac-Bio) sequencing
- Investigated *de novo* muscle regeneration in *Acomys*
- Investigated the role of Wnt signaling during wound healing by modulation of specific Wnts in *Acomys* and *Mus*

Postdoctoral Associate (*laboratory of Dr. Malcolm Maden*) 2014 – 2018
University of Florida, Department of Biology

- Investigated the scar-free wound healing and tissue regeneration in the African spiny mouse, through gene expression profiling and immunohistological assays.
- Generated a *de novo* transcriptome assembly of normal and wounded skin of the unsequenced *Acomys* genome using short-read (Illumina) RNA sequencing.
- Discovered that wounding in *Acomys* does not initiate a strong inflammatory response, allowing for scar-free healing and regeneration to occur

Postdoctoral Associate (*laboratory of Dr. Thomas P. Yang*) 2009 – 2014
University of Florida, Department of Biochemistry and Molecular Biology

- Established genome-scale technologies for the investigation of DNA methylation in a cost and time efficient manner.
- Implemented bioinformatics workflows for the analysis of large next-generation sequencing datasets.
- Developed an epigenetics facility to enable epigenetic profiling collaborations with outside departments.
- Investigated the effect of prenatal ethanol exposure on genome-wide gene expression and DNA methylation in the frontal cortex of mouse brains exposed to ethanol *in utero*.

- Discovered that deletion of the Prader-Willi Syndrome Imprinting Center, on either the paternally or maternally inherited allele, has effects on DNA methylation outside of the Angelman Syndrome/Prader-Willi Syndrome Imprinted Domain, which could help to explain the observed phenotypes of these two clinically distinct syndromes.
- Mentored high school students in Student Science Training Program in summer research experiments involving sodium bisulfite genomic sequencing.

Graduate Student (laboratory of Dr. Thomas P. Yang) 2003 – 2009
University of Florida, Department of Biochemistry and Molecular Biology

- Established research protocols for the investigation of environmental and nutritional insults *in utero* on DNA methylation levels.
- Investigated the role of DNA methylation in changes of gene expression in offspring exposed to a low protein diet *in utero* in a mouse model of intrauterine growth retardation.
- Investigated DNA methylation levels in human blood samples from a folic acid supplementation study in collaboration with the Centers for Disease Control and Prevention and Peking University.
- Trained undergraduate research assistants and mentored Howard Hughes Medical Institute honors research projects in tissue culture and sodium bisulfite genomic sequencing experiments.
- Supervised research technicians in screening autoimmune serum for Barr body (Inactive X Chromosome) associated proteins using immunofluorescence microscopy.

EXPERIMENTAL APPROACHES

Computational Biology: Proficient with Windows, OS and Linux platforms, with R coding training. Working familiarity with python. Experienced with an array of open-source bioinformatics software packages. Additionally, worked closely with collaborator to direct the design of custom bioinformatics software (BISSCA – Bisulfite Sequencing Comparative Analysis; <http://www.biotech.ufl.edu/cores/bioinformatics/dibig/dibig-software/bissca/>).

Molecular Biology: Nucleic acid extraction; PCR; Quantitative Real-Time PCR; Reverse-Transcriptase PCR; Affymetrix gene-expression microarrays; Illumina library construction and sequencing; RNA-Seq; Transcriptome and Genome Assembly and Annotation; Next-generation sequence data analysis; Sodium bisulfite genomic sequencing; Reduced Representation Bisulfite Sequencing (RRBS); DNA labeling reactions; Pyrosequencing; Methylation-Specific PCR (MSP); methylated DNA immunoprecipitation assay (MeDIP); Affymetrix Promoter Arrays

Cell Biology: Mammalian tissue culture techniques (primary and transformed cell lines); Transfection and viral transduction of primary cells

EDUCATION

Ph.D. Biochemistry and Molecular Biology 2002 – 2009
 Interdisciplinary Program in Biomedical Sciences
 Department of Biochemistry and Molecular Biology
 University of Florida

Advisor: Thomas P. Yang

Thesis title: *Epigenetic effects of dietary supplementation and nutrition*

- B.S. Environmental Forest Biology** **2000 - 2002**
State University of New York, Environmental Science and Forestry, Syracuse, New York
- A.S. Environmental Science** **1997 - 2000**
Hudson Valley Community College, Troy, New York
- A.A. Culinary Arts** **1992 – 1994**
Florida Culinary Institute, Palm Beach, Florida

MANUSCRIPTS SUBMITTED FOR REVIEW

1. **Jason O. Brant**, Russell P. Darst, Carolina E. Pardo, Irina Haecker, Mayank Talwar, Thomas P. Yang, Rolf Renne, Alberto Riva and Michael P Kladde. *Dynamic and epigenetic chromatin variation discovered by molecular imaging with DNA methyltransferase probes* (manuscript under revision for *Nucleic Acids Research*)
2. **Jason O. Brant**, Alberto Riva; Cecilia M. Lopez; Michael Paiva; Henry V. Baker; Marieta B. Heaton; Thomas P. Yang. *Epigenetic Effects of Prenatal Ethanol Exposure: Genome-Wide DNA Methylation Profiling in a Mouse Model for Fetal Alcohol Syndrome* (manuscript in revision for *Epigenetics & Chromatin.*)
3. YanFei Qi, Avinash Singh Mandloi, Ruby Goel, Juan Zhang, Lei Wang, Ashok Kumar, Ravneet Vohra, Glenn Walter, Yarrow F Joshua, **Jason O. Brant**, Michael J Katovich, Juan M Aranda Jr, Malcolm Maden, Mohan K Raizada, Carl J Pepine. *Functional heart regeneration in an adult mammal, the spiny mouse*. (Manuscript submitted to *AJP – Heart and Circulatory Physiology*)

RESEARCH PUBLICATIONS

1. John D. Murray, Bharani Krishna Mynampati, **Jason Brant**, Abby Sheffield, Marie Crandall, Edward W. Scott. *Assembly of Size Selective Multicellular Spheroids of Adipose-Derived Stem/Stromal Cells for Use in Regenerative Tissue Engineering: A Methods and Morphologic Study*. *Journal of Stem Cell Reports*, 1:1-9 (2019)
2. K.A. Streeter, M.D. Sunshine, **J.O. Brant**, Jorgenson M. L.B. Wollman, E.J. Gonzalez-Rothi, M. Maden, D.D. Fuller. *Molecular and histologic outcomes following spinal cord injury in spiny mice, *Acomys cahirinus**. *The Journal of Comparative Neurology* 2019 (doi: 10.1002/cne.24836)
3. **Jason O. Brant***, J. Lucas Boatwright*, Ruth Davenport, Aaron Gabriel W. Sandoval, W. Brad Barbazuk, Malcolm Maden. *Comparative Transcriptomic Analysis of Dermal Wound Healing Reveals De Novo Skeletal Muscle Regeneration in *Acomys cahirinus*.*, *PLOS ONE* (2019); doi: 10.1371/journal.pone.0216228. eCollection 2019
4. Daniel C Stewart; P. Nicole Serrano; Andres Rubiano; Ryosuke Yokosawa; Justin Sandler; **Jason O Brant**; Malcolm Maden; Chelsey Simmons. *Unique behavior of dermal cells from regenerative mammal, the African Spiny Mouse, in response to substrate stiffness*. *Journal of Biomechanics* (2018); doi:10.1016/j.jbiomech.2018.10.005

5. Malcolm Maden, **Jason Orr Brant**, Andres Rubiano, Aaron Gabriel W. Sandoval, Chelsey Simmons, Robert Mitchell, Henry Collin-Hooper, Jason Jacobson, Saleh Omairi, Ketan Patel. *Perfect chronic skeletal muscle regeneration in adult spiny mice, *Acomys cahirinus**. *Scientific Reports* 8, Article number: 8920 (2018) June 11th, 2018.
6. **Jason O. Brant**, Maria-Cecilia Lopez, Henry V. Baker, W. Brad Barbazuk, Malcolm Madden. *A Comparative Analysis of Gene Expression Profiles During Skin Regeneration in *Mus* and *Acomys**. *PLoS One*. November 25th, 2015; 10(11): e0142931. doi:0.1371/journal.pone.0142931. eCollection 2015.
7. **Jason O. Brant**, Jung H. Yoon, Trey Polvadore, W. Brad Barbazuk, Malcolm Maden. *Cellular and molecular events during scar-free healing in the spiny mouse, *Acomys cahirinus**. *Wound Repair and Regeneration*. November 25th, 2015 doi: 10.1111/wrr.12385.
8. **Jason O. Brant**, Alberto Riva, James L. Resnick, Thomas P. Yang. *Influence of the Prader-Willi Syndrome Imprinting Center on the DNA Methylation Landscape in the Mouse Brain*. *Epigenetics*; December 2014, 9:11, 1540-1556.
9. Michael W. Lewis, **Jason O. Brant**, Joseph M. Kramer, James I. Moss, Thomas P. Yang, Peter Hansen, R. Stan Williams, and James L. Resnick. *Angelman syndrome imprinting center encodes a transcriptional promoter*. *Proceedings of the National Academy of Sciences*. November 5, 2014, doi:10.10773
10. Ewa Wroclawska, **Jason O. Brant**, Thomas P. Yang, and Karen Moore. *Improving efficiencies of locus-specific DNA methylation assessment for bovine in vitro produced embryos*. *Systems Biology in Reproductive Medicine*. February 2010, Vol. 56, No. 1, Pages 96-105
11. Nan Su; Michelle M. Thiaville; Keytam Awad; Altin Gjymishka; **Jason O. Brant**; Thomas P. Yang and Michael S. Kilberg. *Protein or Amino Acid Deprivation Differentially Regulates the Hepatic Forkhead Box Protein A (FOXA) Genes Through an Activating Transcription Factor-4–Independent Pathway*. *Journal of Hepatology*. Jul;50(1):282-90 2009

REVIEW ARTICLE AND BOOK CHAPTERS

1. Malcolm Maden and **Jason Orr Brant**. *Insights into the regeneration of skin from *Acomys*, the spiny mouse*. *Experimental Dermatology*. November 20, 2018 doi: 10.1111/exd.1384
2. **Jason O. Brant**, Thomas P. Yang. *Epigenetic effects of environment and diet*. *Epigenetic Gene Expression and Regulation, 1st Edition*. November 20, 2015, ISBN: 9780127999586
3. **Jason Orr Brant**, Thomas P. Yang. *Spreading of X-chromosome inactivation*. *Encyclopedia of Genetics, Genomics, Proteomics and Bioinformatics*. November 15, 2005

TEACHING

Guest Lecturer: Molecular Pathology and Histology of Disease – University of South Florida
Guest Lecturer: *Evolutionary Developmental Biology* – ZOO3603C
Guest Lecturer: *Genomics and Biotechnology* – ZOO4926

FUNDING

1K01AR071515-01A1, NIH NIAMS Mentored Research Scientist Development Award, Micro-RNA regulation of scar-free wound healing in the African spiny mouse. Received impact score of 30 on first submission (funding line was 27). *Not Funded*

NIH R01 on June 5th, 2018 Modulation of Wnt Signaling During Wound Healing. *Not Funded*

ORAL PRESENTATIONS

Jason Orr Brant - Full thickness skin regeneration in a non-scarring mammal, the spiny mouse (*Acomys*). Medical Health System Research Symposium – Skin Regeneration and Scar Reduction breakout session, August 28th 2017.

SELECTED ABSTRACTS

1. **Jason Brant**, Andres Rubiano, Nicole Serrano, Malcolm Maden, Chelsey Simmons. Full thickness skin regeneration in a non-scarring mammal, the spiny mouse (*Acomys*). *Military Health System Research Symposium – 2017* (Abstract # 0935)

2. **Jason O. Brant**; Alberto Riva; Cecilia M. Lopez; Michael Paiva; Henry V. Baker; Marieta B. Heaton; Thomas P. Yang. Epigenetic Effects of Prenatal Ethanol Exposure: Genome-Wide DNA Methylation Profiling in a Mouse Model for Fetal Alcohol Syndrome. *University of Florida College of Medicine Research Day 2013* (Poster #219)

3. **Jason O. Brant**; Alberto Riva; James Resnick; Thomas P. Yang. (2012) Influence of the Prader-Willi Syndrome Imprinting Center on the DNA Methylation Landscape in the Mouse Brain. *University of Florida College of Medicine Research Day 2014*

4. **Jason O. Brant**; Jianghui Zhu; Krista Crider; R.J. Berry; Hao Ling; Li Zhu; David Maneval; Lynn B. Bailey; Thomas P. Yang (2009) Analysis of Locus-Specific DNA Methylation in Response to Chronic Folic Acid Supplementation and Withdrawal in Chinese Women. *Experimental Biology 2009 Symposia*

PROFESSIONAL REFERENCES:

Mike Kladde
Professor
Mentor 2019 – present
1-352-273-8142
kladde@ufl.edu

Malcolm Maden
Professor
Mentor 2014 – present

1-352-273-7875
malcmaden@ufl.edu

Brad Barbazuk
Professor
Co-Mentor 2014 – present
1-352-273-8624
bbarbazuk@ufl.edu

Thomas P. Yang
Professor
Mentor 2003 – present
1-352-392-5472
tpyang@ufl.edu