

Curriculum Vitae

PERSONAL DATA

Name: Tim Jenkins

EDUCATION

<u>Years</u>	<u>Degree</u>	<u>Institution (Area of Study)</u>
2013 - 2014	Postdoctoral Fellow	University of Utah (Surgery / Urology) Salt Lake City, UT, United States
2009 - 2013	Ph.D.	University of Utah (Physiology) Salt Lake City, UT, United States
2004 - 2008	B.S.	Brigham Young University (Physiology and Developmental Biology) Provo, UT, United States

ACADEMIC/CAREER HISTORY**Brigham Young University – Department of Cell Biology and Physiology**

2023 – Present Associate Professor

2019 – 2023 Assistant Professor

University of Utah – Department of Surgery (Urology)

2019 – Present Adjunct Faculty

2017 – 2019 Assistant Professor

2016 – 2017 Research Assistant Professor

PROFESSIONAL EXPERIENCE**Full-Time Positions**

2014 – 2016 Research Associate, University of Utah School of Medicine, Department of Surgery, Division of Urology, Salt Lake City, UT

Industry Positions

2022 – Present Co-founder / VP of R&D, Renew Biotech/Wasatch Biolabs

2020 – Present Scientific Advisor / equity holder, Inherent Biosciences

CITIZENSHIP EXPERIENCE**EXTERNAL CITIZENSHIP****Editorial Experience**

2020 – Present Editorial Board for Systems Biology in Reproductive Medicine

2018 – 2021 Editorial Board for Fertility and Sterility

Grant Review Experience

2021	Grant review: French National Research Agency
2020	Grant review: Poland Nation Science Center
2019	Grant review: European Science Foundation / Flander's Foundation

Symposium/Meeting Chair/Coordinator

2023	ASA program committee co-chair for the 2024 ASA annual meeting
2018	Panel discussion member: "The Future: SSC Profiling and Culturing" Annual AUA meeting; San Francisco, CA; May, 2018
2018	Panel discussion member: "Should We Should Freeze Azoospermic Testicular Tissue from Pre-Pubertal Boys Undergoing Chemo?" Annual AUA meeting; San Francisco, CA; May, 2018
2018	Panel discussion member: "How Might SSC/Testis Profiling be Utilized by Fertility Clinicians?" Annual AUA meeting; San Francisco, CA; May, 2018
2016	Co-Chair Selected Abstract session: 2016 ASA basic Science Workshop; New Orleans, LA; April, 2016

Reviewer Experience

2020 – Present	Reviewer for Aging Cell
2020 – Present	Reviewer for Scientific Reports
2019 – Present	Reviewer for The New England Journal of Medicine
2019 – Present	Reviewer for Biotechniques
2019 – Present	Reviewer for The International Journal of Women's Health
2019 – Present	Reviewer for Theriogenology
2019 – Present	Reviewer for Molecular Human Reproduction
2019 – Present	Reviewer for Clinical Medicine Insights: Reproductive Health
2019 – Present	Reviewer for BMC Urology
2019 – Present	Reviewer for Journal of Assisted Reproduction and Genetics
2019 – Present	Reviewer for Andrologia
2018 – Present	Reviewer for Epigenetics and Chromatin
2018 – Present	Reviewer for Reproductive Biology
2017 – Present	Reviewer for Systems Biology in Reproductive Medicine
2015 – Present	Reviewer for Asian Journal of Andrology
2015 – Present	Reviewer for Molecular Reproduction and Development
2015 – Present	Reviewer for PLoS One
2014 – Present	Reviewer for Fertility and Sterility
2013 – Present	Reviewer for Journal of Andrology

Current Memberships

Current	American Society of Reproductive Medicine
Current	American Society of Andrology

INTERNAL CITIZENSHIP

University Citizenship (BYU)

2022 – Present	Member of Research Committee: Internship coordinator (Department of Cell Biology and Physiology, BYU)
2021 – Present	Member of Genomics Curriculum Committee (College of Life Sciences, BYU)
2021 – 2024	Chair of Marketing Committee (Department of Cell Biology and Physiology, BYU)
2021 – 2023	Member of Search Committee (Department of Cell Biology and Physiology, BYU)
2021	Judge for CURA projects (Department of Cell Biology and Physiology, BYU)
2020 – 2021	Reviewer of J. Ruben Clark Scholarly Research Grant (BYU)
2020	Reviewer of Turkey Vaccination Research Proposals (College of Life Sciences, BYU)
2019	Reviewer of CURA Grants (College of Life Sciences, BYU)
2019 – 2022	Member of Awards Committee (Department of Cell Biology and Physiology, BYU)

University Citizenship (University of Utah)

2017 – 2018	Member of Admissions Committee (University of Utah School of Medicine)
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TEACHING / MENTORING EXPERIENCE

COURSES TAUGHT

Lecture based courses

UNIV 101	Foundations (2024 – present): 20 students per semester
CELL 120	The Science of Biology (2020 – present): ~150 students per section.
CELL 444/445	Bio-innovations (2021 – present): ~10 students per section. (<i>Half lecture, half experiential</i>)
CELL 550R	Epigenetic data analysis (2020 – present): ~10 students per section.

Experiential based courses

CELL 295R	Introductory Undergraduate Research (2020 – present)
CELL 450R	Readings in Cell Biology and Physiology (2020 – present)
CELL 349R	Cell Biology and Physiology Teaching (2020 – present)
CELL 495R	Advanced Undergraduate Research (2020 – present)

MENTORING EXPERIENCE

Undergraduate students mentored to date (BYU): ~15 students in my lab per semester.

Mathew Grover	Chad Pollard	Sydney Reil
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Heather Evans	Kelaney Stalker	Carter Norton
Josh Holstrom	Craig Busch	Berlin Barnett
Caroline Catterton	Jacob Gneiting	Kate Hansen
Lily Millar	Megan Hansen	Nathanael Taylor
Parker Smith	Preston Moe	Preston Glade
Robbie Millard	Eric Clarke	William Fawcett
Jeff Olsen	Austen Callister	Matthew Baer
Berlin Barnett	Emily Duffin	Eliza Estes
Kase Haas	Tanner Perez	Skylar Reeves
McKay Whiting	Miles Anderson	Claire Corey
Alexandra DiLiberto	Haylie Jarvis	Hailey Johnson
Mykle Keni	Rachel Maxfield	Jordan Moore
Gavin Van Alfen	Nate Bowman	James Crawford
Ty Gleason	Brandon Golightly	Alex Griffin
Cami Groberg	Abbi Jacobson	Ava Komadina
Reed Komadina	Ben Reeve	Isaac Robinson
Josh Theodosius	Pierce Whitley	

Graduate students mentored to date (BYU)

Kelaney Stalker – PhD (2025 – present)
 Andrew Jenkins – PhD (2025 – present)
 Nastaran Salehisedeh – PhD (2024 – present)
 Chad Pollard – PhD (2022 – 2025)
 Isaac Stirland – PhD (2021 – 2025)
 Ryan Barney – PhD (2020 – 2024)
 Andrew Lutes – Masters (2020 – 2022)

Graduate student committees

2025 – present	Chair, Andrew Jenkins, BYU (PhD)
2025 – present	Chair, Kelaney Stalker, BYU (PhD)
2025 – present	Member, Carine Martins, BYU (PhD)
2024 – present	Member, Ryan Miller, BYU (PhD)
2023 – present	Member, Claire Bruno, BYU (MS)
2022 – present	Member, Ryan Summerhays (MS)
2022 – present	Chair, Chad Pollard, BYU (PhD)
2021 – present	Chair, Isaac Stirland, BYU (PhD)
2020 – 2022	Chair, Andrew Lutes, BYU (MS)
2020 – 2024	Chair, Ryan Barney, BYU (PhD)
2019 – 2022	Member, Depika Garg, University of Utah (Masters)
2019 – 2020	Member, Alex Jafek, University of Utah (PhD)
2018 – 2020	Member, Marzieh Chaharlang, University of Utah (PhD)
2017 – 2020	Member, Haidong Feng, University of Utah (PhD)

ACADEMIC / RESEARCH EXPERIENCE

SCHOLASTIC HONORS

2021	Star Reviewer award from Fertility and Sterility. 2021
2019	Star Reviewer award from Fertility and Sterility. 2019
2018	Top published paper in 2017 in the Journal of Andrology: Awarded in Budapest, Hungary; Oct, 2018
2017	Star Reviewer award from Fertility and Sterility. 2017
2017	2nd Place Prize Poster "Population-based semen analysis result and fertility among men with inflammatory bowel disease: Results from Subfertility Health Assisted Reproduction and the Environment (SHARE) study, at the Utah Chapter Meeting of the American College of Surgeons, Salt Lake City, May 11.
2016	1st Place - American Urological Association: Early Career Investigator Showcase. "Aging and the male gamete."
2015 - 2017	NIH LRP Award recipient, National Institute of Child Health and Human Development
2011	Excellence in Andrology award, awarded for outstanding patient care and research quality in the Andrology & IVF Laboratories, University of Utah Health Care, Salt Lake City, UT
2010	Prize Abstract, International Symposium on the Genetics of Male Infertility, 2010: Hammoud S, Nix D, Jenkins T, Cairns B, Carrell DT (2010): Genome-wide Epigenetic Characterization of Retained Nucleosomes In The Mature Sperm Of patients with Abnormal Protamine Replacement. 4th Utah/Florence International Symposium on the Genetics of Male Infertility, Park City, UT, Feb 4-6, 2010.
2008	ORCA Grant Recipient: Awarded \$1,500 to study oxidative stress in the paraventricular nucleus and the pressor response in the rat, Brigham Young University, Provo, UT

PUBLICATIONS

Peer Reviewed Journal Articles

1. Schardein, J., Moore, J., Olson, B., Kaufmann, S., Jimbo, M., Gross, K., Parks, S., **Jenkins, T.**, Pastuszak, A.W., Hotaling, J.M. and Christensen, M.B., 2025. Epigenetic differences in non-plaque tissues of men with Peyronie's disease. *The Journal of Sexual Medicine*, 22(11), pp.2043-2051.
2. Ploeger, C.G., Hansen, K., Bayles, A., Burger, A., Hansen, J. and **Jenkins, T.**, 2025. Changes in Sperm Glutathione and Glutathione Redox States Correlate to Poor Sperm Qualitative Measures. *Reproductive Medicine*, 6(2), p.13.
3. Stalker, K., Pollard, C., Perkins, N.J., DeVilbiss, E.A. and **Jenkins, T.**, 2025. Epigenetic implications of socioeconomic status and education on sperm DNA methylation patterns. *Fertility and Sterility*, 123(4), pp.616-623.

4. Moore, J.L., Parks, S.J., James, E.R., Aston, K.I. and **Jenkins, T.G.**, 2025. The impact of air pollution on sperm DNA methylation. *Reproductive Toxicology*, 132, p.108850.
5. Zimmerman, H. and **Jenkins, T.**, 2025. The correlation between sperm DNA methylation and DNA damage: a comparison of comet and TUNEL. *Frontiers in Reproductive Health*, 7, p.1523386.
6. Norton, C., Pollard, C., Stalker, K., Aston, K. and **Jenkins, T.**, 2024. Novel bioinformatic analyses of somatic cell contamination in sperm samples. *Systems Biology in Reproductive Medicine*, 70(1), pp.174-182.
7. Stirland, I., Soares, M.R., Furtado, C.L.M., Dos Reis, R.M., Aston, K.I., Smith, R.P. and **Jenkins, T.G.**, 2024. An assessment of alterations to human sperm methylation patterns in coronavirus disease 2019 infected and healthy control males. *F&S Science*, 5(1), pp.2-15.
8. Schardein, J., Jimbo, M., Gross, K., Hotaling, J., Moore, J., Parks, S., Tasnim, M., Olson, B., **Jenkins, T.**, Christensen, B. and Pastuszak, A., 2024. Epigenetic and Gene Expression Profiles in Non-Plaque Tissues from Men with Peyronie's Disease. *The Journal of Sexual Medicine*, 21(Supplement_2), pp.qdae002-056.
9. Stalker, K., Pollard, C., Perkins, N. J., DeVilbiss, E. A., & **Jenkins, T.** (2024). Epigenetic implications of socioeconomic status and education on sperm DNA methylation patterns. *Fertility and Sterility*.
10. Miranda Furtado, C.L., Hansen, M., Kogure, G.S., Ribeiro, V.B., Taylor, N., Racy Soares, M., Ferriani, R.A., Aston, K.I., Jenkins, T. and Dos Reis, R.M., 2024. Resistance and aerobic training increases genome-wide DNA methylation in women with polycystic ovary syndrome. *Epigenetics*, 19(1), p.2305082. Norton, C., Pollard, C., Stalker, K., Aston, K., & Jenkins, T. (2024). Novel bioinformatic analyses of somatic cell contamination in sperm samples. *Systems Biology in Reproductive Medicine*, 70(1), 174-182.
11. Pollard, C., Aston, K. I., Emery, B. R., Hill, J. E., & **Jenkins, T. G.** (2023). Detection of neuron-derived cfDNA in blood plasma: a new diagnostic approach for neurodegenerative conditions. *Frontiers in Neurology*, 14. <https://doi.org/10.3389/fneur.2023.1272960>
12. Miller, R., DeVilbiss, E. A., Brogaard, K., Norton, C., Pollard, C., Emery, B. R., Aston, K. I., Hotaling, J., & **Jenkins, T. G.** (2023). Epigenetic determinants of reproductive potential augment the predictive ability of the semen analysis. *F&S Science*. <https://doi.org/10.1016/j.xfss.2023.09.001>
13. de Sena Brandine, G., Aston, K. I., **Jenkins, T. G.**, & Smith, A. D. (2023). Global effects of identity and aging on the human sperm methylome. *Clinical Epigenetics*, 15(1), 127.
14. Norton, C., Clarke, D., Holmstrom, J., Stirland, I., Reynolds, P. R., **Jenkins, T. G.**, & Arroyo, J. A. (2023). Altered Epigenetic Profiles in the Placenta of Preeclamptic and Intrauterine Growth Restriction Patients. *Cells*, 12(8), 1130.
15. Miller, R. H., DeVilbiss, E. A., Brogaard, K. R., Norton, C. R., Pollard, C. A., Emery, B. R., ... & **Jenkins, T. G.** (2023). Epigenetic determinants of reproductive potential augment the predictive ability of the semen analysis. *F&S Science*.
16. Garg, D., Lomo, L., Aston, K., Reil, S., Hodgeman, M., Hill, J., Johnstone, E., **Jenkins, T.**, Letourneau, J., *Effect of Chemotherapy on the Uterus of Young Adult Cancer Survivors*. Fertility and Sterility Reports. 2022, (accepted for publication; In Press)
17. **Jenkins, T.**, K. Aston, D. Carrell, E. DeVilbiss, L. Sjaarda, N. Perkins, J.L. Mills, Z. Chen, A. Sparks, T. Clemons, K. Chaney, C.M. Peterson, B. Emery, J. Hotaling, E.

- Johnstone, E. Schisterman, and S.L. Mumford, *The impact of zinc and folic acid supplementation on sperm DNA methylation: results from the folic acid and zinc supplementation randomized clinical trial (FAZST)*. *Fertil Steril*, 2022. 117(1): p. 75-85.
18. Barney, R., K. Stalker, A. Lutes, A. Bayles, K. Aston, and **T. Jenkins**, *Assessment of seminal cell-free DNA as a potential contaminant in studies of human sperm DNA methylation*. *Andrology*, 2022. 10(4): p. 702-709.
 19. Schuller, A., C. Bellini, **T.G. Jenkins**, M. Eden, J. Matz, J. Oakes, and L. Montrose, *Simulated Wildfire Smoke Significantly Alters Sperm DNA Methylation Patterns in a Murine Model*. *Toxics*, 2021. 9(9): p. 199.
 20. Salas-Huetos, A., L. Maghsoumi-Norouzabad, E.R. James, D.T. Carrell, K.I. Aston, **T.G. Jenkins**, N. Becerra-Tomás, A.Z. Javid, R. Abed, and P.J. Torres, *Male adiposity, sperm parameters and reproductive hormones: An updated systematic review and collaborative meta-analysis*. *Obesity Reviews*, 2021. 22(1): p. e13082.
 21. Salas-Huetos, A., E.R. James, J. Salas-Salvadó, M. Bulló, K.I. Aston, D.T. Carrell, and **T.G. Jenkins**, *Sperm DNA methylation changes after short-term nut supplementation in healthy men consuming a Western-style diet*. *Andrology*, 2021. 9(1): p. 260-268.
 22. Goodrich, J.M., M.A. Furlong, A.J. Caban-Martinez, A.M. Jung, K. Batai, **T. Jenkins**, S. Beitel, S. Littau, J. Gulotta, D. Wallentine, J. Hughes, C. Popp, M.M. Calkins, and J.L. Burgess, *Differential DNA Methylation by Hispanic Ethnicity Among Firefighters in the United States*. *Epigenetics Insights*, 2021. 14.
 23. Goodrich, J.M., M.M. Calkins, A.J. Caban-Martinez, T. Stueckle, C. Grant, A.M. Calafat, A. Nematollahi, A.M. Jung, J.M. Graber, **T. Jenkins**, A.L. Slitt, A. Dewald, J. Cook Botelho, S. Beitel, S. Littau, J. Gulotta, D. Wallentine, J. Hughes, C. Popp, and J.L. Burgess, *Per- and polyfluoroalkyl substances, epigenetic age and DNA methylation: a cross-sectional study of firefighters*. *Epigenomics*, 2021. 13(20): p. 1619-1636.
 24. Feng, H., A. Jafek, R. Samuel, J. Hotaling, **T.G. Jenkins**, K.I. Aston, and B.K. Gale, *High efficiency rare sperm separation from biopsy samples in an inertial focusing device*. *Analyst*, 2021. 146(10): p. 3368-3377.
 25. Santana, V.P., E.R. James, C.L. Miranda-Furtado, M.F. de Souza, C.P. Pompeu, S.C. Esteves, D.T. Carrell, K.I. Aston, **T.G. Jenkins***, and R.M. Dos Reis*, *Differential DNA methylation pattern and sperm quality in men with varicocele*. *Fertility and Sterility*, 2020. 114(4): p. 770-778. (*Shared Senior authorship)
 26. Samuel, R., J. Son, **T.G. Jenkins**, A. Jafek, H. Feng, B.K. Gale, D.T. Carrell, and J.M. Hotaling, *Microfluidic system for rapid isolation of sperm from microdissection TESE specimens*. *Urology*, 2020. 140: p. 70-76.
 27. Salas-Huetos, A., E.R. James, K.I. Aston, D.T. Carrell, **T.G. Jenkins**, and M. Yeste, *The role of miRNAs in male human reproduction: A systematic review*. *Andrology*, 2020. 8(1): p. 7-26.
 28. Salas-Huetos, A., E.R. James, D.S. Broberg, K.I. Aston, D.T. Carrell, and **T.G. Jenkins**, *The combined effect of obesity and aging on human sperm DNA methylation signatures: inclusion of BMI in the paternal germ line age prediction model*. *Scientific Reports*, 2020. 10(1): p. 1-6.

29. Nwanaji-Enwerem, J.C., **T.G. Jenkins**, E. Colicino, A. Cardenas, A.A. Baccarelli, and E.W. Boyer, *Serum dioxin levels and sperm DNA methylation age: Findings in Vietnam war veterans exposed to Agent Orange*. *Reproductive Toxicology*, 2020. 96: p. 27-35.
30. Murphy, P.J., J. Guo, **T.G. Jenkins**, E.R. James, J.R. Hoidal, T. Huecksteadt, D.S. Broberg, J.M. Hotaling, D.F. Alonso, and D.T. Carrell, *NRF2 loss recapitulates heritable impacts of paternal cigarette smoke exposure*. *Plos Genetics*, 2020. 16(6): p. e1008756.
31. Jafek, A., H. Feng, D. Broberg, B. Gale, R. Samuel, K. Aston, and **T. Jenkins**, *Optimization of Dean flow microfluidic chip for sperm preparation for intrauterine insemination*. *Microfluidics and Nanofluidics*, 2020. 24(8): p. 1-9.
32. Jafek, A., H. Feng, H. Brady, K. Petersen, M. Chaharlang, K. Aston, B. Gale, **T. Jenkins**, and R. Samuel, *An automated instrument for intrauterine insemination sperm preparation*. *Scientific reports*, 2020. 10(1): p. 1-9.
33. Hanson, B.M., X. Tao, Y. Zhan, **T.G. Jenkins**, S.J. Morin, R.T. Scott, and E.U. Seli, *Young women with poor ovarian response exhibit epigenetic age acceleration based on evaluation of white blood cells using a DNA methylation-derived age prediction model*. *Human Reproduction*, 2020. 35(11): p. 2579-2588.
34. Zhou, J., **T.G. Jenkins**, A.M. Jung, K.S. Jeong, J. Zhai, E.T. Jacobs, S.C. Griffin, D. Dearmon-Moore, S.R. Littau, and W.F. Peate, *DNA methylation among firefighters*. *PloS one*, 2019. 14(3): p. e0214282.
35. Salas-Huetos, A., E.R. James, K.I. Aston, **T.G. Jenkins**, D.T. Carrell, and M. Yeste, *The Expression of miRNAs in Human Ovaries, Oocytes, Extracellular Vesicles, and Early Embryos: A Systematic Review*. *Cells*, 2019. 8(12): p. 1564.
36. Murphy, P.J., J. Guo, **T.G. Jenkins**, J.R. Hoidal, T. Huecksteadt, J. Hotaling, D.T. Carrell, B.R. Cairns, and K.I. Aston, *Cigarette smoke-induced oxidative stress alters DNA methylation patterns in sperm and neurological gene expression patterns in offspring*. *Fertility and Sterility*, 2019. 112(3): p. e337.
37. **Jenkins, T.G.**, E.R. James, K.I. Aston, A. Salas-Huetos, A.W. Pastuszak, K.R. Smith, H.A. Hanson, J.M. Hotaling, and D.T. Carrell, *Age-associated sperm DNA methylation patterns do not directly persist trans-generationally*. *Epigenetics & Chromatin*, 2019. 12(1): p. 1-8.
38. Hanson, B.M., X. Tao, Y. Zhan, **T.G. Jenkins**, J.G. Kim, E.K. Osman, A.W. Tiegs, S.A. Neal, R.T. Scott, and E. Seli, *The relationship between chronologic age, ovarian response, and DNA methylation of white blood cells and cumulus cells among infertile women undergoing IVF*. *Fertility and Sterility*, 2019. 112(3): p. e33-e34.
39. Samuel, R., N. Miller, O. Badamjav, **T. Jenkins**, D. Carrell, J. Hotaling, and B.K. Gale, *Design and operation of a microfluidic chip for trapping, and off-chip collection of a few human sperm*. *Journal of Micromechanics and Microengineering*, 2018. 28(9): p. 097002.
40. Keihani, S., J.R. Craig, C. Zhang, A.P. Presson, J.B. Myers, W.O. Brant, K.I. Aston, B.R. Emery, **T.G. Jenkins**, and D.T. Carrell, *Proton-pump inhibitor use does not affect semen quality in subfertile men*. *Asian journal of andrology*, 2018. 20(3): p. 290.
41. **Jenkins, T.G.**, L. Liu, K.I. Aston, and D.T. Carrell, *Pre-screening method for somatic cell contamination in human sperm epigenetic studies*. *Systems biology in reproductive medicine*, 2018. 64(2): p. 146-155.

42. **Jenkins, T.G.**, K.I. Aston, B. Cairns, A. Smith, and D.T. Carrell, *Paternal germ line aging: DNA methylation age prediction from human sperm*. *Bmc Genomics*, 2018. 19(1): p. 1-10.
43. Hanson, B.M., K.I. Aston, **T.G. Jenkins**, D.T. Carrell, and J.M. Hotaling, *The impact of ejaculatory abstinence on semen analysis parameters: a systematic review*. *Journal of assisted reproduction and genetics*, 2018. 35(2): p. 213-220.
44. Keihani, S., J.R. Craig, C. Zhang, A.P. Presson, J.B. Myers, W.O. Brant, K.I. Aston, B.R. Emery, **T.G. Jenkins**, and D.T. Carrell, *Impacts of Abstinence Time on Semen Parameters in a Large Population-based Cohort of Subfertile Men*. *Urology*, 2017. 108: p. 90-95.
45. **Jenkins, T.**, E. James, D. Alonso, J. Hoidal, P. Murphy, J. Hotaling, B. Cairns, D. Carrell, and K. Aston, *Cigarette smoking significantly alters sperm DNA methylation patterns*. *Andrology*, 2017. 5(6): p. 1089-1099.
46. Patel, B., E. Johnstone, A. Presson, C. Zhang, **T. Jenkins**, K. Aston, D. Carrell, and J. Hotaling, *The effect of ADHD medications on semen analysis in sub-fertile couples*. *Fertility and Sterility*, 2016. 106(3): p. e234.
47. **Jenkins, T.G.**, K.I. Aston, T.D. Meyer, J.M. Hotaling, M.B. Shamsi, E.B. Johnstone, K.J. Cox, J.B. Stanford, C.A. Porucznik, and D.T. Carrell, *Decreased fecundity and sperm DNA methylation patterns*. *Fertility and sterility*, 2016. 105(1): p. 51-57. e3.
48. **Jenkins, T.**, K. Aston, J. Hotaling, M. Shamsi, L. Simon, and D. Carrell, *Teratozoospermia and asthenozoospermia are associated with specific epigenetic signatures*. *Andrology*, 2016. 4(5): p. 843-849.
49. **Jenkins, T.G.**, K.I. Aston, C. Trost, J. Farley, J.M. Hotaling, and D.T. Carrell, *Intra-sample heterogeneity of sperm DNA methylation*. *Mhr: Basic science of reproductive medicine*, 2015. 21(4): p. 313-319.
50. Ge, S., L. Liu, K. Aston, L. Simon, **T. Jenkins**, B. Emery, and D. Carrell, *Associations of single nucleotide polymorphisms in the Pygo2 coding sequence with idiopathic oligospermia and azoospermia*. *Genet Mol Res*, 2015. 14(3): p. 9053-9061.
51. Aston, K.I., P.J. Uren, **T.G. Jenkins**, A. Horsager, B.R. Cairns, A.D. Smith, and D.T. Carrell, *Aberrant sperm DNA methylation predicts male fertility status and embryo quality*. *Fertility and sterility*, 2015. 104(6): p. 1388-1397. e5.
52. **Jenkins, T.G.**, K.I. Aston, C. Pflueger, B.R. Cairns, and D.T. Carrell, *Age-associated sperm DNA methylation alterations: possible implications in offspring disease susceptibility*. *PLoS genetics*, 2014. 10(7): p. e1004458.
53. **Jenkins, T.G.**, K.I. Aston, B.R. Cairns, and D.T. Carrell, *Paternal aging and associated intraindividual alterations of global sperm 5-methylcytosine and 5-hydroxymethylcytosine levels*. *Fertility and sterility*, 2013. 100(4): p. 945-951. e2.
54. **Jenkins, T.G.**, K.I. Aston, and D.T. Carrell, *Supplementation of cryomedium with ascorbic acid–2-glucoside (AA2G) improves human sperm post-thaw motility*. *Fertility and sterility*, 2011. 95(6): p. 2001-2004.

Peer Reviewed Review Articles

1. Pollard, C.A., Saito, E.R., Burns, J.M., Hill, J.T. and **Jenkins, T.G.**, 2024. Considering Biomarkers of Neurodegeneration in Alzheimer's Disease: The Potential of Circulating Cell-Free DNA in Precision Neurology. *Journal of Personalized Medicine*, 14(11), p.1104.

2. Carrell, D.T., Aston, K.I. and **Jenkins, T.G.**, 2024. Epigenetics and Sperm Abnormalities.
3. Pollard, C.A. and **T.G. Jenkins**, *Epigenetic mechanisms within the sperm epigenome and their diagnostic potential*. Best Practice & Research Clinical Endocrinology & Metabolism, 2020. 34(6): p. 101481.
4. Patel, D.P., **T.G. Jenkins**, K.I. Aston, J. Guo, A.W. Pastuszak, H.A. Hanson, and J.M. Hotaling, *Harnessing the full potential of reproductive genetics and epigenetics for male infertility in the era of “big data”*. Fertility and sterility, 2020. 113(3): p. 478-488.
5. Mangum, C.L., D.P. Patel, A.R. Jafek, R. Samuel, **T.G. Jenkins**, K.I. Aston, B.K. Gale, and J.M. Hotaling, *Towards a better testicular sperm extraction: novel sperm sorting technologies for non-motile sperm extracted by microdissection TESE*. Translational Andrology and Urology, 2020. 9(Suppl 2): p. S206.
6. James, E.R., D.T. Carrell, K.I. Aston, **T.G. Jenkins**, M. Yeste, and A. Salas-Huetos, *The Role of the Epididymis and the Contribution of Epididymosomes to Mammalian Reproduction*. International Journal of Molecular Sciences, 2020. 21(15): p. 5377.
7. Salas-Huetos, A., E.R. James, K.I. Aston, **T.G. Jenkins**, and D.T. Carrell, *Diet and sperm quality: Nutrients, foods and dietary patterns*. Reproductive Biology, 2019. 19(3): p. 219-224.
8. Mangum, C.L., D.P. Patel, A.R. Jafek, R. Samuel, **T.G. Jenkins**, K.I. Aston, B.K. Gale, and J.M. Hotaling, *Towards a better testicular sperm extraction (TESE): novel sperm sorting technologies for non-motile sperm extracted by microdissection TESE*. Transl. Androl. Urol, 2019. 10.
9. Samuel, R., H. Feng, A. Jafek, D. Despain, **T. Jenkins**, and B. Gale, *Microfluidic—based sperm sorting & analysis for treatment of male infertility*. Translational andrology and urology, 2018. 7(Suppl 3): p. S336.
10. **Jenkins, T.G.** and D.T. Carrell, *Epigenetics and Sperm Abnormalities*. 2018.
11. **Jenkins, T.G.**, K.I. Aston, and D.T. Carrell, *Sperm epigenetics and aging*. Translational andrology and urology, 2018. 7(Suppl 3): p. S328.
12. James, E. and **T.G. Jenkins**, *Epigenetics, infertility, and cancer: future directions*. Fertility and sterility, 2018. 109(1): p. 27-32.
13. **Jenkins, T.G.**, K.I. Aston, E.R. James, and D.T. Carrell, *Sperm epigenetics in the study of male fertility, offspring health, and potential clinical applications*. Systems biology in reproductive medicine, 2017. 63(2): p. 69-76.
14. Craig, J.R., **T.G. Jenkins**, D.T. Carrell, and J.M. Hotaling, *Obesity, male infertility, and the sperm epigenome*. Fertility and Sterility, 2017. 107(4): p. 848-859.
15. **Jenkins, T.G.** and D.T. Carrell, *The sperm epigenome and potential implications for the developing embryo*. Reproduction, 2012. 143(6): p. 727.
16. **Jenkins, T.** and D.T. Carrell, *Dynamic alterations in the paternal epigenetic landscape following fertilization*. Frontiers in genetics, 2012. 3: p. 143.
17. **Jenkins, T.G.** and D.T. Carrell, *The paternal epigenome and embryogenesis: poisoning mechanisms for development*. Asian journal of andrology, 2011. 13(1): p. 76.

Peer Reviewed Invited Book Chapters

1. Stirland, I., Jenkins, A., Barnett, B., Salehisedeh, N. and **Jenkins, T.** (2025) 'Paternal aging and offspring health', in Skinner, M.K. (ed.) *Encyclopedia of Reproduction*. 3rd

- edn. Amsterdam: Elsevier/Academic Press, pp. 657–667. doi: 10.1016/B978-0-443-21477-6.00480-6.
2. Barney, R.C. and **T.G. Jenkins**, *Sperm epigenetics: The future of precision medicine in male infertility*, in *Epigenetics in Precision Medicine*. 2022, Elsevier. p. 369-380.
 3. James, E.R., A. Salas-Huetos, A.R. Gostick, D.T. Carrell, K.I. Aston, and **T.G. Jenkins**, *Aging of male and female gametes*, in *Epigenetics and Reproductive Health*. 2021, Academic Press. p. 253-267.
 4. **Jenkins, T.G.** and P.J. Turek, *Epigenetics and Male Infertility*, in *Male Infertility*. 2020, Springer. p. 139-146.
 5. James, E.R., **T.G. Jenkins**, and D.T. Carrell, *The Sperm Epigenome and Potential Implications for the Developing Embryo*, in *Genetics of Male Infertility*. 2020, Springer. p. 173-185.
 6. Grover, M.M. and **T.G. Jenkins**, *Transgenerational epigenetics: A window into paternal health influences on offspring*. *Urologic Clinics*, 2020. 47(2): p. 219-225.
 7. Carrell, D.T., **T.G. Jenkins**, B.R. Emery, J.M. Hotaling, and K.I. Aston, *The Role of Reproductive Genetics in Modern Andrology*, in *Intracytoplasmic Sperm Injection*. 2018, Springer. p. 23-38.
 8. **Jenkins, T.G.** and D.T. Carrell, *Sperm Epigenome*. *The Sperm Cell: Production, Maturation, Fertilization, Regeneration*, 2017. 9: p. 230.
 9. Murphy, K.E., **T.G. Jenkins**, and D.T. Carrell, *How the father might epigenetically program the risk for developmental origins of health and disease effects in his offspring*, in *The Epigenome and Developmental Origins of Health and Disease*. 2016, Elsevier. p. 361-375.
 10. **Jenkins, T.G.**, K.I. Aston, T. Meyer, and D.T. Carrell, *The sperm epigenome, male aging, and potential effects on the embryo*, in *The Male Role in Pregnancy Loss and Embryo Implantation Failure*. 2015, Springer. p. 81-93.
 11. Gannon, J.R., B.R. Emery, **T.G. Jenkins**, and D.T. Carrell, *The sperm epigenome: implications for the embryo*, in *Genetic Damage in Human Spermatozoa*. 2014, Springer. p. 53-66.
 12. **Jenkins, T.G.**, K.I. Aston, and D.T. Carrell, *The Aging Male and Impact on Offspring*, in *Biennial Review of Infertility*. 2013, Springer. p. 17-29.
 13. **Jenkins, T.G.**, B.R. Emery, and D.T. Carrell, *Assays used in the study of sperm nuclear proteins*, in *Sperm Chromatin*. 2011, Springer. p. 233-241.

Invited Editorials

1. Patel, D.P., **T.G. Jenkins**, and J.M. Hotaling, *Microfluidics: a way to interrogate a single sperm?* *Fertility and sterility*, 2019. 112(5): p. 808.
2. **Jenkins, T.G.**, *Semen parameter decline with advancing age: a cause for concern?* *Fertility and sterility*, 2018. 110(1): p. 54-55.
3. James, E., **T. Jenkins**, J. Hotaling, N. Laufer, Z. Rosenwaks, H. Daum, T. Peretz, B. Hanson, M. Eisenberg, and L. Nagirnaja, *FERTILITY AND STERILITY: 50 YEARS AGO TODAY*. 2018.
4. **Jenkins, T.G.**, *Semen characteristics and pregnancy loss: an important step in addressing a complex problem*. *Fertility and sterility*, 2017. 108(4): p. 598-599.

- Hotaling, J.M. and **T.G. Jenkins**, *MicroRNA: a step beyond bulk seminal parameters?* Fertility and sterility, 2015. 104(3): p. 554.

POSTER AND ORAL ABSTRACT PRESENTATIONS

Recently Published Abstracts from Society Meetings (past three years)

- Pollard, C., R. Miller, **T. Jenkins**, and K. Brogaard, PD36-07 *DISCOVERY OF A EPIGENETIC BIOMARKER PREDICTIVE OF MALE INFERTILITY*. The Journal of Urology, 2022. 207(Supplement 5): p. e635.
- Saito, J., E. Saito, J. Arroyo, P. Reynolds, **T. Jenkins**, and B. Bikman, *Exposure to e-cigarette smoke enhances sperm mitochondrial respiration in mature mice*. The FASEB Journal, 2021. 35.
- Liu, L., K.I. Aston, and **T.G. Jenkins**, *ASSESSMENT OF AGE-ASSOCIATED SPERM DNA METHYLATION ALTERATION INHERITANCE IN 4 CELL MOUSE EMBRYOS*. Fertility and Sterility, 2021. 116(3): p. e333.
- Garg, D., **T.G. Jenkins**, E. Johnstone, K.I. Aston, and J.M. Letourneau, *EFFECT OF ALKYLATING AGENT CHEMOTHERAPY ON THE UTERUS OF YOUNG ADULT CANCER SURVIVORS*. Fertility and Sterility, 2021. 116(3): p. e474.
- Evans, H. and **T. Jenkins**, *The Reliability of Sperm Epigenetic Age Associations with Semen and Embryo Quality*. 2021.
- Jafek*, A., H. Feng, **T. Jenkins**, K. Aston, D. Carrell, B. Gale, R. Samuel, and J. Hotaling, PD34-07 *A NOVEL MICROFLUIDIC DEVICE TO IMPROVE SPERM SEARCHING IN MICRODISSECTION TESE SAMPLES*. The Journal of Urology, 2019. 201(Supplement 4): p. e647-e648.
- Jafek*, A., H. Brady, H. Feng, J. Hotaling, D. Carrell, B. Gale, R. Samuel, K. Aston, and **T. Jenkins**, MP52-05 *RAPID MICROFLUIDIC SPERM PREPARATION FOR INTRAUTERINE INSEMINATION*. The Journal of Urology, 2019. 201(Supplement 4): p. e767-e767.
- Anderson, R., H. Hanson, C. Zhang, A. Presson, M. Kingsbury, **T. Jenkins**, K. Smith, and J. Hotaling*, MP46-01 *THE INITIAL MALE INFERTILITY EVALUATION AND PREGNANCY-WHAT REALLY MATTERS? A STUDY FROM THE UTAH POPULATION DATABASE USING A PREDICTIVE ANALYSIS MODEL*. The Journal of Urology, 2019. 201(Supplement 4): p. e677-e677.

Oral Presentation of Abstracts at Society Meetings (Jenkins as presenter)

- 2018 - The diagnostic potential and clinical utility of sperm epigenetic analysis. American Urological Association Annual Meeting; San Francisco, CA; May 18-20.
- 2018 - Semen Analysis and Sperm function. Annual Meeting of the American Society of Andrology Basic Science Workshop, Portland, OR April 21.
- 2016 - Jenkins TG. Aging and the male gamete. 1st Place Prize, Early Career Investigator Showcase American Urological Association Annual Meeting, San Diego, CA.
- 2015 - Jenkins TG, Aston KI, Hotaling JM, Carrell DT. Cigarette smoking and the sperm epigenome. American Society of Andrology Annual Meeting, Salt Lake City, UT
- 2014 - Smith A, Aston KI, Uren PJ, Jenkins TG, Carrell DT. Sperm DNA methylation patterns are highly predictive of fertility status and may be prognostic for IVF embryo quality. American Society for Reproductive Medicine Annual Meeting, Honolulu, HI

6. 2014 - Jenkins TG, Aston KI, Pflueger C, Cairns BR, Carrell DT. Next Generation Bisulfite Sequencing Reveals Consistent Population-Wide Regional Sperm DNA Methylation Alterations with Age. American Society for Reproductive Medicine Annual Meeting, Honolulu, HI
7. 2013 - Jenkins T, Aston KI, Carrell DT. Regional enrichment of altered sperm DNA methylation marks associated with paternal aging. American Society of Reproductive Medicine Annual Meeting, Boston, MA
8. 2012 - Jenkins T, Aston KI, Carrell DT. Intra-individual variability of global sperm 5-methylcytosine and 5-hydroxymethylcytosine levels between ejaculates. American Society of Reproductive Medicine Annual Meeting, San Diego, CA

INVITED/VISITING PROFESSOR PRESENTATIONS

International

1. 2022 – Science and Religion: A Biology Professor’s Prospective. Cardiff, Wales, July 2022
2. 2021 - The utility of DNA methylation and targeted ‘cell of origin’ analysis in the care for azoospermic patients. Society for Reproductive Biology (Australia), Melbourne, Australia (Via Zoom), October 2021
3. 2018 - Cigarette Smoking and Sperm Epigenetic Signatures. European Congress of Andrology; Budapest, Hungary; October 2018
4. 2015 - Jenkins TG. Epigenetics in Spermatogenesis. EDMaRC Workshop, Copenhagen, Denmark

Domestic

1. 2025 – The impact of occupational exposures on male fertility and offspring health. ALTS IAFF annual meeting. New Orleans 2025
2. 2024 – Platform Talk: bringing nanopore to the clinic. ASHG annual meeting. Denver 2024
3. 2024 – Sperm epigenetics and tissue of origin analysis. ASRM annual meeting. Denver 2024
4. 2023 – Let’s get molecular about recurrent pregnancy loss. ASRM 2023. Oct
5. 2023 – cfDNA in the ejaculate is predictive of testicular biopsy success. AUA annual meeting. Chicago 2023
6. 2022 - DNA methylation instability and targeted ‘cell of origin’ analysis: future tools for complex disease diagnosis. Biological Sciences Seminar Series, Boise State University, Boise, ID March 2022.
7. 2021 – Epigenetics and infertility. Infertility Unfiltered lecture series. Repeated quarterly via Zoom with couples in infertility care across the US.
8. 2021 - Sperm epigenetics and complex disease. Society of epidemiological research annual symposium, San Diego, CA June 2021.
9. 2021 - Non-Obstructive Azoospermia treatment in the laboratory. American Society of Andrology annual meeting (virtual). April 2021

10. 2021 - Epigenetic links between parent and child in infertility care, Infertilityunfiltered.com, Webinar with couples in southern California, Feb. 2021
11. 2018 - State of Male Infertility Diagnosis and Treatment: Where Do We Go From here? Ohana Biosciences, Cambridge, MA, May 25.
12. 2017 - Germline epigenetics: Potential Diagnostic Utility for Fertility, Embryogenesis, and Offspring Health, at the Third Annual Reproductive Genetic Diagnostics Conference, Cambridge MA, November 30.
13. 2016 - Jenkins TG, using sperm epigenetic data in the clinic: promises and perils. American Urologic Association SBUR 2016 Summer Research Conference, Linthicum, MD, July 1.
14. 2016 - Jenkins TG. Strategies for investigating the sperm epigenome. American Society of Andrology Basic Science Workshop, New Orleans, LA

Local / Regional

1. 2023 – Utility of cell of origin analysis in screening for complex disease. Utah State University 2023, Oct.
2. 2019 - Sperm DNA methylation and aging. Predictive Laboratories, Salt Lake City, UT
3. 2019 - The methodology and utility of identifying subtle DNA methylation differences in human disease. Illumina Genomics Symposium, Salt Lake City UT
4. 2019 - A father's Unexpected Legacy: Cause and consequence of sperm epigenetic alterations. Presented at Brigham Young University: Physiology and Developmental Biology Department Seminar, Provo UT
5. 2018 - Epigenetics and predictive analytics: steps toward improving fertility diagnostics. Department of Surgery: Basic Science Research Section Meeting, Salt Lake City, UT
6. 2017 - Understanding the biological impact of fathers. Department of Surgery: Basic Science Research Section. Salt Lake City, UT
7. 2017 - Sperm epigenetics and the paternal age effect. Urology Conference. Salt Lake City, UT
8. 2016 - The sperm epigenome: Implications in embryogenesis and offspring health. Brigham Young University Research Seminar, Provo, UT
9. 2016 - The sperm epigenome: Male Infertility. Utah Infertility Conference, Sandy, UT

OTHER ACADEMIC / RESEARCH PRODUCTS

Patents

1. 2024 – Keni, Jafek, Jenkins (BYU). Hydrodynamic DNA shearing
2. 2024 – Keni, Jafek, Jenkins (BYU). Instrument for the shaped distribution of DNA shearing
3. 2024 – Jenkins, Hill, Jenkins (BYU). Components and methods for DNA sample native strand enrichment in library preparation for sequencing
4. 2024 – Moore, Hill, Jenkins (BYU). Quantifying frequencies of microbial species in the gut microbiome.
5. 2022 – Pollard, C., **Jenkins, T.**, (BYU). *Nueronal cfDNA found in blood plasma as a diagnostic marker of neurodegenerative disease.* (Licensed by Resonant Biosciences).

6. 2021 – Barney, R., **Jenkins, T.**, (BYU). *Seminal cfDNA analysis to determine cell of origin*. (Licensed by Inherent Biosciences).
7. 2021 – Gale, B., A. Jafek, H. Feng, **T. Jenkins**, and K. Aston, (U of U) *Rapid sperm separation based on sperm morphology and motility*.
8. 2019 – Carrell D., Cairns, B., **Jenkins T.**, Aston, K., (U of U) *Methods of identifying male fertility and embryo quality*.
9. 2019 – Samuel, R., B. Gale, A. Jafek, **T. Jenkins**, J. Hotaling, D. Carrell, and J. Son, (U of U) *Microfluidic system for sperm separation and enrichment from various types of sperm samples*.
10. 2016 – Carrell, D., Cairns, B., **Jenkins, T.**, Aston, KI (U of U). *Systems and Methods for Determining Impact of Age-Related Changes in Sperm Epigenome on Offspring Phenotype*.

FUDNING

Current funding

01/01/2024-07/01/25

Research Catalyst Program

Role: PI

Goals: The goal of this study is to develop a noninvasive blood test that accurately detects neurodegeneration associated with Alzheimer's disease by analyzing cell-free DNA (cfDNA) derived specifically from cortical neurons.

Costs: \$40,000

Funder: University State University Alzheimer's Disease & Dementia Research Center

01/01/23-06/30/26

Comprehensive diagnostic generation for Azoospermia and Cryptozoospermia (SBIR)

Role: Co-Investigator

Costs: \$125,981

Funder: NICHD

08/01/22-07/31/27

Assessing the impact of sperm DNA methylation on recurrent pregnancy loss (R01)

Role: Co-Investigator

Costs: \$51,885

Funder: NICHD

01/01/22-12-31-2026

Sponsored Research Agreement (SRA)

Role: PI

Goals: This SRA funds research to explore novel approaches for generating and analyzing Nanopore sequencing data in diagnostic settings. Types of data analysis include variant detection, copy number quantification, and the use of methylation patterns as biomarkers.

Costs:

2022: \$183,820

2023: \$183,820

2024: \$155,505

Funder: Renew Biotechnologies

01/01/26-12-31-2026

Bobbit Kidney Disease award

Role: PI

Goals: Assess a PKD diagnostic that can reliably avoid the pitfalls of poor alignment of genetic data due to pseudogenes

Costs: \$11,000

Past funding

01/01/21 – 08/01/22

Translational Medial Fund Award

PI: Tim Jenkins

Direct Costs: \$35,500

BYU Tech Transfer office

08/30/19 - 07/31/21

Sperm sample preparation for point of care applications (Phase II SBIR)

PI: Tim Jenkins; Raheel Samuel

Direct Costs: 1,000,000

NICHHD

04/20/18 - 09/30/18	<p>Sperm sample preparation for point of care applications (Phase I SBIR)</p> <p>Principal Investigator(s): Tim Jenkins; Raheel Samuel</p> <p>Direct Costs: \$173,508 Total Costs: \$223,823</p> <p>NICHD</p> <p>Role: Co-Principal Investigator</p>
07/01/17 - 06/30/19	<p>New Investigator Grant: The effect of aging on the mammalian sperm epigenome and implication in embryogenesis</p> <p>Principal Investigator(s): Tim Jenkins</p> <p>Direct Costs: \$44,000 Total Costs: \$44,000</p> <p>Role: Principal Investigator</p>
01/01/16 - 12/31/17	<p>Development of a Novel Microfluidics Device to Optimize Sperm Retrieval and Storage from Microsurgical Testicular Sperm Extraction and Storage from Microsurgical Testicular Sperm Extraction</p> <p>Principal Investigator(s): Raheel Samuel</p> <p>National Science Foundation</p> <p>Role: Co-Investigator</p>
02/04/15 - 01/31/18	<p>Transgenerational Effects of Smoking-Induced Changes to Sperm DNA Methylation</p> <p>Principal Investigator(s): Brad Cairns; Kenneth Aston</p> <p>NICHD</p> <p>Role: Key Personnel</p>
09/10/14 - 05/31/19	<p>Genomics of Spermatogenetic Impairment</p> <p>Principal Investigator(s): Don Conrad; Kenneth Aston</p> <p>NICHD</p> <p>Role: Key Personnel</p>