Curriculum Vitae

Name: Jason Merrell Hansen

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Education:

1994	B.S. Zoology-Human Biology. Brigham Young University, Provo, UT.
1997	M.S. Zoology-Physiology and Developmental Biology. Brigham Young University, Provo, UT. (Mentor: Robert Seegmiller, Ph.D. Department of Physiology and Developmental Biology)
2001	Ph.D. Toxicology, University of Michigan, Ann Arbor, MI. (Mentor: Craig Harris, Ph.D. Department of Environmental Health Sciences, Toxicology Program)
2001-2003	Post-doctorate, University of Michigan, Ann Arbor, MI. (Mentor: Marie Csete, M.D., Ph.D., Department of Anesthesiology/Cell Biology)
2003-2005	Post-doctorate, Emory University, Atlanta, GA. (Mentor: Dean P. Jones, Ph.D. Department of Biochemistry/Medicine)

Positions:

Professor, Department of Cell Biology and Physiology, College of Life Sciences, Brigham Young University, Provo, UT. 2022-Present.

Associate Professor, Department of Physiology and Developmental Biology, College of Life Sciences, Brigham Young University, Provo, UT. 2017-2022.

Assistant Professor, Department of Physiology and Developmental Biology, College of Life Sciences, Brigham Young University, Provo, UT. 2014-2017.

Assistant Professor, Division of Pulmonary, Allergy/Immunology, Cystic Fibrosis and Sleep, Department of Pediatrics, Emory School of Medicine, Emory University, Atlanta, GA. 2005-2014.

Assistant Professor, Department of Environmental and Occupation Health, School of Public Health, Emory University, Atlanta, GA. 2010-2014.

Director of the Cystic Fibrosis Mouse Core, Cystic Fibrosis Center of Excellence, Emory+Children's Health Care of Atlanta, School of Medicine, Emory University, 2010- 2014.

Assistant Professor, Department of Nutrition, School of Public Health, Emory University, Atlanta, GA. 2006-2014.

NIEHS National Research Service Award (F32 ES 013015-01). Department of Biochemistry/Pulmonary Medicine, School of Medicine, Emory University, 2003-2005 (Mentor: Dean P. Jones, Ph. D.).

NIH Postdoctoral Fellow (T32 AG 00114-17). Institute of Gerontology, School of Medicine, University of Michigan, 2001-2002.

NIEHS Toxicology Training Grant Trainee (T32 ES 07062). Toxicology Program, Department of Environmental Health Sciences, School of Public Health, University of Michigan. 1996-2001 (Mentor: Craig Harris, Ph.D.).

Current Teaching/Mentoring:

Human Physiology, CELL 305, 4 credits
Teaching Seminar, CELL 349R
Undergraduate Research, CELL 495R
Developmental Biology, CELL 482, guest lecturer
Human Toxicology, CELL 550R, 1 credit
Graduate Physiology, CELL 601, lecturer
Scientific Communication, CELL 610

Awards:

Toxicological Sciences paper of the year award, 2017. Jilek, J. L., Sant, K. E., Cho, K. H., Reed, M. S., Pohl, J., **Hansen, J. M.** and C. Harris. Ethanol attenuates histiotrophic nutrition pathways and alters the intracellular redox environment and thiol proteome during rat organogenesis. *Toxicological Sciences*, **147** (2): 475-489.

Finalist for Wilson Publication Award in Birth Defects Research, Teratology Society for 2012: Harris, C and **J. M. Hansen**. Nrf2-mediated resistance to oxidant-induced redox disruption in embryos. *Birth Defects Research Part B: Developmental and Reproductive Toxicology*, **95**:213-218.

Free Radical Biology and Medicine, Most Cited Paper Award for 2008: **Hansen, J. M**., Zhang, H. and D. P. Jones. Differential oxidation of thioredoxin-1, thioredoxin-2, and glutathione by metal ions. *Free Radical Biology and Medicine*, **40**: 138-145.

NIEHS National Research Service Award (F32 ES 013015-01). Department of Biochemistry/Pulmonary Medicine, School of Medicine, Emory University, 2003-2005 (Mentor: Dean P. Jones, Ph.D.).

Honorable mention Robert L. Dixon Award in Reproductive and Developmental Toxicology. San Francisco, CA. 2001.

Society of Toxicology travel award. San Francisco, CA. 2001.

Teratology Society travel award. Miami, FL. 2000.

Teratology Society travel award. San Diego, CA. 1998.
Teratology Society travel award. Keystone, CO. 1996.

Presentations:

1. Redox regulation of development and differentiation. Symposium organizer. Society for Radical Biology and Medicine. Washington DC, November 2025.
2. Developmental redox biology: Protein switches as control elements of development and dysmorphogenesis. Brigham Young University-Hawaii, Laie, HI, October, 2023.
3. The redox theory of development and dysmorphogenesis. Sanford Health, Sioux Falls, SD, December, 2019.
4. Glutathione and alterations in redox status during embryonic development. Experimental Biology, American Physiology Society, Orlando, FL, April, 2019.
5. Dysregulation of the redox proteome in teratogenesis: Mediation through Nrf2 activation. Teratology Meeting, Montreal, CAN, June, 2015.
6. Inhibition of valproic acid-induced malformation through Nrf2 activation. Teratology Society, Bellevue, WA, June, 2014.
7. Chemical-induced redox disruption during embryonic malformation and rescue through the Nrf2 pathway. Department of Physiology, Emory School of Medicine, Emory University. Atlanta, GA. February, 2013.
8. Dietary Nrf2 inducers and teratogenesis. School of Public Health Environmental Toxicology and Epidemiology Symposium, University of Michigan, Ann Arbor, MI. February, 2012.
9. Nrf2-mediated regulation of phase II detoxification enzymes during development. International Society for the Study of Xenobiotics, Atlanta, GA. November, 2011.
10. Redox regulation of cellular differentiation and organogenesis. Environmental Protection Agency, Developmental and Reproductive Research Group, Raleigh, NC. April 2009.
11. Redox regulation of Nrf2 during development. University of North Carolina, Department of Cell and Developmental Biology and Center for Alcohol Research, Raleigh, NC. April 2009.
12. Redox regulation during development and early embryonic organogenesis. Workshop on Oxidative stress and redox control during development and reproduction. Society of Toxicology, Baltimore, MD. March 2009.
13. Nrf2 redox control during embryonic development. Georgia Institute of Technology, Atlanta, GA., October, 2008.
14. Inhibition of ethanol effects by mitochondrial thioredoxin-2. Symposium on Drug-induced mitochondrial toxicity: Novel insights and tools. The Annual International meeting of the Society of Toxicology, Seattle, WA. March, 2008.

15. Extracellular redox control of Nrf2. The Ohio State University, Department of Pediatrics, Columbus, OH. September, 2007.
16. Oxidative stress and signal transduction in chemical teratogenesis. Symposium on Oxidative stress as a mechanism of teratogenesis. The Annual International meeting of the Teratology Society, Tuscon, AZ. June, 2006.
17. Redox regulation of adipogenesis and compartmentation of differentiation. Louisiana State University-Shreveport, Department of Physiology, Shreveport, LA., May, 2005.
18. Redox regulation of Nrf-2. University of Michigan, Toxicology Program, Department of Environmental Health Sciences, Ann Arbor, MI., April, 2005.
19. Regulation of Nrf-2 in the cytoplasm and nucleus. University of Texas at El Paso, Department of Biological Sciences, El Paso, TX., January, 2005.
20. Compartmentation of Nrf-2 redox signaling by cytoplasmic glutathione and nuclear thioredoxin-1. Brigham Young University, Department of Physiology and Developmental Biology, Provo, UT., October, 2004
21. Compartmentation of redox signaling. Medical College of Georgia, Department of Oral Biology, Augusta, GA. July, 2004.
22. Ambient oxygen regulates intracellular redox potential and transcription factor activity in culture of primary human myoblasts. Society of Toxicology, Salt Lake City, UT, March, 2003.
23. C2C12 myocyte differentiation is regulated by intracellular redox status. Great Lakes Mammalian Development. Toronto, ONT, Canada, March, 2002.
24. Rat and rabbit whole embryo culture and limb bud micromass assays: A species comparison. Annual meetings of the Midwest Teratology Association/ Middle Atlantic Reproductive and Teratology Association. Scranton, PA., November, 2001.
25. A novel mechanism for thalidomide teratogenesis: Redox misregulation of NF-kappa B in the limb bud outgrowth pathway. Brigham Young University, Department of Cellular and Molecular Biology, Provo, UT., November, 2001.
26. Redox regulation of stem cells and development. University of Michigan, Department of Anesthesiology, Ann Arbor, MI., December, 2001.

Acted as manuscript reviewer for (last five years):

PLoSONE Biology (IP: 13.5), Molecular Pharmaceutics (IP: 11.1), Antioxidants and Redox Signaling (IP: 8.2), Cancer Research (IP: 7.7), Clinical Cancer Research (IP: 7.3), Molecular Cancer Therapeutics (IP: 5.2), Scientific Reports (IP: 4.9), Biochimica et Biophysica Acta-General Subjects (4.7), Journal of Nutritional Biochemistry (IP: 4.5), Scientific Reports (IP: 4.1), Biochemical Journal (IP: 4.0), Biochemical Pharmacology (IP: 4.0), Toxicological Sciences (IP: 3.8), Journal of Pharmacology and Experimental Therapeutics (IP: 3.8),

Neurotoxicology and Teratology (IP:3.3), Reproductive Toxicology (IP: 3.2), Molecular Carcinogenesis (IP: 3.2), Neurotoxicology (IP: 3.0), Free Radical Research (IP: 2.9), Cytokine (IP: 2.2), Acta Physiologica (IP: 1.6), Birth Defects Research B (IP: 1.4)

Memberships and other scholarly activities:

2021-present. Journal editorial board for Frontiers in Physiology: Redox Physiology. Dr. Carsten Berndt, Specialty Chief Editor.

2020-present. Journal editorial board for Frontiers in Aging: Aging, Metabolism and Redox Biology. Dr. Jianhua Zhang, Specialty Chief Editor.

2018-present. Full member of the Society for redox biology and medicine.

2012-present: Journal editorial board member for Journal of Nutritional Biochemistry. Dr. Bernhard Hennig, Editor-in-Chief.

2012-present: Member of the Teratology Society.

2016-2020: Scientific review panel (SRP): Hazardous Substances Database, Toxicology Section. National Libraries of Medicine (NLM). The panel reviews chemical dossiers for accuracy and database management. Review of chemicals for proper classification and mechanisms of action.

2013-2018: Journal editorial board member for Reproductive Toxicology. Dr. Thomas Knudsen, Editor-in-Chief.

2015-2018: Member of the Teratology Society Program Committee. This committee organizes the upcoming year's annual meeting.

2015-2017: Member of the Teratology Society Science Committee. This committee organizes direction of the Teratology Society and disseminates information about new and exciting topics in the field of birth defects research.

2015: Symposium Chair, Teratology Society. Wilson Symposium: Student presentations on birth defects and developmental toxicology. Montreal, Quebec, CN.

2015: Symposium Chair, Teratology Society. Symposium: Reactive oxygen species, oxidative stress and redox signaling in developmental toxicology. Montreal, Quebec, CN.

2014-2015: Chair of the Teratology Society Student Affairs Committee (SAC).

2014: Visiting Professor, Toxicology Program, School of Public Health, University of Michigan. Lecture: Nrf2 regulation and activation through dietary chemicals. Phytochemicals in Toxicology.

2014: Symposium Chair, Teratology Society. Symposium: Grant Officers Roundtable. Bellevue, WA.

2012-2015: Committee member of The Teratology Society Student Affairs Committee. Involved in the organization of events and networking of student members of the Teratology Society.

2013: Visiting Professor Toxicology Program, School of Public Health, University of Michigan. Lecture: Nrf2 control and activation. Phytochemcials in Toxicology.

2012-2015: Member of the Teratology Society Strategic Planning Committee. Involved in the organization of Teratology Society's meetings and the enhancement of their scientific profile.

2011: Symposium Chair, International Society for the Study of Xenobiotics, Symposium: Developmental Ontogenies of Drug Metabolizing Enzymes. Atlanta, GA.

2011-2013: Emory University Research Committee (URC) review panel. Acts as a reviewer for biological sciences pilot grant applications for Emory University.

2010-2014: Cystic Fibrosis Mouse Core Director. Cystic Fibrosis Center for Excellence. Department of Pediatrics, Emory University. Maintenance of many mouse models of cystic fibrosis, assists in the planning and design of animal experimentation.

2002: Embryonic Stem Cell Culture Training Course, Transgenic Animal Model Core, Medical School, University of Michigan. Production, manipulation and identification of embryonic stem (ES) cells that have undergone homologous recombination with a gene targeting vector.

Bibliography:
Peer-reviewed Articles (current h-score 44):

1. Piorczynski, T. B., J. Calixto, H. C. Henry, K. England, S. Cowley, **J. M. Hansen**, J. T. Hill and J. M. Hansen. 2024. Valproic acid causes redox-regulated post-translational protein modifications that are dependent upon P19 cellular differentiation states. *Antioxidants*, **13** (5).
2. Walton, C. M., Saito, E. R., Warren, C. E., Larsen, J. G., Remund, N. P., Reynolds, P. R., **Hansen, J. M.** and B. T. Bikman. 2023. Yerba mate (Ilex paraguariensis) supplement exerts beneficial, tissue-specific effects

on mitochondrial efficiency and redox status in healthy adult mice. *Nutrients*. **15**: 4454.

3. Golubkova, A., Leiva, T., Snyder, K., Schlegel, C., Bonvicino, S. M., Agbaga, M. P., Brush, R. S., **Hansen, J. M.**, Vitiello, P. F. and C. J. Hunter. 2023. Response of the Glutathione (GSH) Antioxidant Defense System to Oxidative Injury in Necrotizing Enterocolitis. *Antioxidants*, **12**: 1385.
4. Davies, B. M., Katayama, J. K., Monsivais, J. E., Adams, J. R., Dilts, M. E., Eberting, A. L. and **J. M. Hansen**. 2023. Real-time analysis of dynamic compartmentalized GSH redox shifts and H_2O_2 availability in undifferentiated and differentiated cells. *Biochima Biophysica Acta General Subjects,* **1867**: 130321.
5. Dixon, S. C., Calder, B. J., S. M., B. M., Martin, A., Peterson, M., **Hansen, J. M.** and A. Suli. 2023. Valproic acid affects neurogenesis during early optic tectum development in zebrafish. *Biology Open*. **15**:12(1).
6. Piorczynski, T. B., Larsen, M. W., Lee, S. J. and **J. M. Hansen.** 2022. Nrf2 activation inhibits valproic acid-induced disrupted neuronal differentiation in P19 cells. *Differentiation,* **123**: 18-29.
7. Piorczynski, T. B., Lapehn, S., Ringer, K. P., Allen, S. A., Johnson, G. A., Call, K., Lucas, S. M., Harris, C. and **J. M. Hansen**. 2022. Nrf2 activation inhibits valproic acid-induced neural tube defects in mice. *Neurotoxicology and Teratology*, **89**: 107039.
8. **Hansen, J. M.**, Lucas, S. M., Ramos, C. D., Green, E. J., Nuttall, D. J., Clark, D. S., Marchant, E. D., Hancock, C. R. and T. B. Piorczynski. 2021. Valproic acid promotes SOD2 acetylation: A potential developmental mechanism of valproic acid-induced oxidative stress. *Free Radical Research*, **55**: 1130-1144.
9. Krueger, E. S., Beales, J. L., Russon, K. B., Elison, W. S., Davis, J. R., Hansen, J. M., **Hansen, J. M.** and J. S. Tessem. 2021. Gut metabolite trimethylamine N-oxide protects β-cell function under diabetic glucolipotoxic conditions. *Biomolecules,* **11**: 1892.
10. Lapehn, S., Piorczynski, T. B., **Hansen J. M.** and C. Harris. 2021. Spatiotermporal evaluation of the mouse embryonic redox environment and histiotrophic nutrition following treatment with valproic acid during organogenesis. *Reproductive Toxicology*, **101**: 81-92.
11. Robbins, M. E., Cho, H-Y., **Hansen, J. M**., Luchsinger, J. R., Locy, M. L., Velten, V., Kleeberger, S. V., Rogers, L. K. and T. E. Tipple. 2021. Glutathione reductase deficiency alters lung development and hyperoxic responses in neonatal mice. *Redox biology*, **38**: 101797.
12. Carter, C. S., Huang, S. C., Searby, C. C., Cassaidy, B., Miller, M. J., Grzesik, W. J., Piorczynski, T. B., Zhang, Q., Bradberry, K., Pak, T. K., Walsh, S. A., Dick, D. W., Akurathi, V., Acevedo, M., Mapuskar, K. A., Milne, G. L., Hinton Jr., A., Guo, D-F., Falls-Hubert, K. C., Wagner, B. A., Carter, W. A., Wang, K., Norris, A. W., Rahmouni, K., Buettner, G. R., **Hansen, J. M.**, Spitz, D. R., Abel, R. E. and V. C. Sheffield. 2020.

Static magnetic and electric fields treat type 2 diabetes via redox dependent mechanisms, *Cell Metabolism*, **32**: 651-574.

13. Chen, T., Hill, J. T., Moore, T. M., Cheung, E. C. K., Olsen, Z. E., Piorczynski, T. B., Marriott, T. D., Tessem, J. S., Walton, C. M., Bikman, B. T., **Hansen, J. M.** and D. M. Thomson. 2020. Lack of skeletal muscle liver kinase B1 alters gene expression, mitochondrial content, inflammation and oxidative stress without affecting high-fat diet-induced obesity or insulin resistance, *Biochimica Biophysica Acta, Molecular Basis of Disease*, **1866**: 165805.
14. Hunt, W. R., **J. M. Hansen** and A. A. Stecenko. 2020. Glucose ingestion in cystic fibrosis induces severe redox imbalance: A potential role in diabetes. *Journal of Cystic Fibrosis*, **19**: 476-482.
15. **Hansen, J. M.,** Jones, D. P. and C. Harris. 2020. The redox theory of development. *Antioxidants and Redox Signaling*, **32**: 715-740.
16. Ross, M. M., Piorczynski, T. B., Harvey, Burnham, T. S., Francis, M., Larsen, M. W., Roe, K., **Hansen, J. M.** and M. R. Stark. 2019. Ceramide: a novel inducer for neural tube defects. *Developmental Dynamics*, **248**: 979-996.
17. **Hansen, J. M.** and T. B. Piorczynski. 2019. Use of primary mouse embryonic fibroblasts in developmental toxicity assessments. *Methods in Molecular Biology,* **1965**: 7-17.
18. **Hansen, J. M.** and L. M. Winn. 2019. Preface for Developmental Toxicology. *Methods in Molecular Biology*, **1965**: v2.
19. Mackay, A. D., Marchant, E. D., Munk, D. J., Watt, R. K., **Hansen, J. M.**, Thomson, D. M. and C. R. Hancock. 2019. Multitissue analysis of exercise or metformin on doxorubicin-induced iron dysregulation. *American Journal of Physiology: Endocrinology and Metabolism*, **316**: E922-E930.
20. Ringer, K. P., Roth, M. R., Garey, M. S., Piorczynski, T. B., Suli, A., **Hansen, J. M.** and J. K. Alder. 2018. Comparative analysis of lipid-mediated CRISPR-Cas9 genome editing techniques. *Cell Biology International*, **42**:849-858.
21. **Hansen, J. M.**, Jacob, B. R. and T. B. Piorczynski. 2018. Oxidative stress during development: Chemical-induced teratogenesis. *Current Opinion in Toxicology*, **7**: 110-115.
22. Timme-Laragy, A. R., Hahn, M. E., **Hansen, J. M.**, Rastogi, A. and M. A. Roy. 2018. Redox stress and signaling during vertebrate embryonic development: Regulation and response. *Seminars in Cell and Developmental Biology*, **80**: 17-28.
23. Rowely, T. J., Bitner, B. F., Ray, J. D., Lathen, D. R., Smithson, A. T., Dallon, B. W., Plowman, C. J., Bikman, B. T., **Hansen, J. M.**, Dorenkott, M. R., Goodrich, K. M., Ye, L., O'Keffe, S. F., Neilson, A. P and J. S. Tessem. 2017. Monomeric cocoa catechins enhance B-cell function by increasing mitochondrial respiration. *Journal of Nutritional Biochemistry*, **49**: 30-41.

24. Reid, G. K., Berardinelli, A. J., Ray, L., Jackson, A. R., Myers, L. S., Song, S-C., Neish, A. S., **Hansen, J. M.** and P. W. Denning. 2017. Developmental reduction in epithelial glutathione redox potential increases epithelial proliferation in the immature murine intestine. *Pediatric Research*, **82**: 362-369.
25. Sant, K. E., **Hansen, J. M.**, Williams, L. M., Tran, N. L., Goldstone, J. V., Stegeman, J. J., Hahn, M. E. and A. Timme-Laragy. 2017. The role of Nrf1 and Nrf2 in the regulation of glutathione and redox dynamics in the developing zebrafish. *Redox Biology*, **13**:207-208.
26. Molina, S. A., Moriarty, H. K., Infield, D. T., Imhoff, B. R., Vance, R. J., Kim, A. H., **Hansen, J. M.**, Hunt, W. R., Koval, M. and N. A. McCarty. 2017. Insulin signaling via the PI3-kinase/Akt pathway regulates airway glucose uptake and barrier function in a CFTR-dependent manner. *American Journal of Physiology Lung Cell and Molecular Physiology*, **312**:L688-L702.
27. Booze, M. L., **Hansen, J. M.**, and P. F. Vitiello. 2016. A novel mouse model for the identification of thioredoxin-1 protein interactions. *Free radical biology and medicine*, **99**:533-543.
28. Hunt, W. R., Helfman, B. R., McCarty, N. A. and **J. M. Hansen**. 2016. Advanced glycation end products are elevated in cystic fibrosis related diabetes and correlate with worse lung function. *Journal of Cystic Fibrosis*, **15**:681-688.
29. Shimizu, Y., Nicholson, C. K., Lambert, J. P., Barr, L. A., Kuek, N., Herszenhaut, D., Tan, L., Murohara, T., **Hansen, J. M.**, Husain, A., Naqvi, N. and J. W. Calvert. 2016. Sodium sulfide attenuates ischemic-induced heart failure by enhancing proteasomal function in an Nrf2-dependent manner. *Circulation: Heart Failure*, **9**: e002368.
30. Chen, T., Moore, T. M., Ebbert, M. T., McVey, N. L., Madsen, S. R., Hallowell, D. M., Harris, A. M., Mackay, R. P., Char, R. E., Hancock, C. R., **Hansen, J. M**., Kauwe, J. S. and D. M. Thomson. 2016. Liver kinase B1 inhibits the expression of inflammation-related genes post-contraction in skeletal muscle*. Journal of Applied Physiology*, **120**: 876-888.
31. Ghosh, S., Ihunnah, C. A., Hazra, R., Walker, A. L. **Hansen, J. M.**, Archer, D. R., Owusu-Ansah, A. T., and S. F. Ofori-Acquah. 2016. Nonhematopoietic Nrf2 dominantly impedes adult progression of sickle cell anemia in mice. *Journal of Clinical Investigation Insight,* **1**:e81090.
32. Harris, C., Jilek, J. L., Sant, K. E., Pohl, J., Reed, M. and **J. M. Hansen**. 2015. Amino acid starvation induced by protease inhibition produces differential alterations in redox status and the thiol proteome in organogenesis-stage rat embryos and visceral yolk sacs*. Journal of Biochemical Nutrition*, **26**:1589-1598.
33. Jilek, J. L., Sant, K. E., Cho, K. H., Reed, M. S., Pohl, J., **Hansen, J. M.** and C. Harris. 2015. Ethanol attenuates histotrophic nutrition pathways and alters intracellular redox environment and thiol proteome during rat organogenesis. *Toxicological Sciences*, **147**:475-489.

34. **Hansen, J. M.** and C. Harris. 2015. Glutathione during embryonic development. *Biochimica et Biophysica Acta: General Subjects,* **1850***:* 1527-1542.
35. Easely, C. A., Bradner, J. M., Moser, A., Rickman, C. A., McEachin, Z. T., Merritt, M. M., **Hansen, J. M.** and W. M. Caudle. 2015. Assessing reproductive toxicity of two environmental toxicants with a novel in vitro human sprematogenic model. *Stem Cell Research*, **14**: 347-355.
36. Downs, C, Kreiner, Zhao, X-M., Trac, P., Johnson, N., **Hansen, J. M.**, Brown, L. A. and M. Helms. 2015. Oxidized glutathione (GSSG) inhibits epithelial sodium channel activity in primary alveolar epithelial cells. *American Journal of Physiology Lung Cell and Molecular Physiology,* **308**: L943-952.
37. Ziady, A. G. and **J. M. Hansen**. 2014. Redox balance in cystic fibrosis. 2014. *International Journal of Biochemistry and Cellular Biology*, **52**:113-123. [Review].
38. Hunt, W. R., Zughaier, S. M., Guentert, D. E., Shenep, M. A., Koval, M., McCarty, N. A. and **J. M. Hansen**. 2014. Hyperglycemia impedes lung bacterial clearance in a murine model of cystic fibrosis-related diabetes. *American Journal of Physiology Lung Cell and Molecular Physiology*, **306(1)**:L43-49.
39. Timme-Laragy, A. R., Goldstone, J. V., Imhoff, B., Stegeman, J. J., Hahn, M. E. and **J. M. Hansen**. 2013. Glutathione redox dynamics and glutathione-related gene expression in the developing embryo. *Free Radical Biology and Medicine*, **65**:89-101.
40. Harris, C., Roman-Gomez, R., Shuster, D. Z., Sant, K. E., Reed, M. S., Pohl, J. and **J. M. Hansen**. 2013. Inhibition of Glutathione Biosynthesis Alters Compartmental Redox Status and the Thiol Proteome in Organogenesis-Stage Rat Conceptuses. *Free Radical Biology and Medicine*, **63**:325-37.
41. Kathiria, A. S., Butcher, M. A., **Hansen, J. M.** and A. L. Theiss. 2013. Nrf2 is not required for epithelial prohibitin-dependent attenuation of experimental colitis. *American Journal of Physiology-Gastrointestinal and Liver Physiology*, **304(10)**:G885-96.
42. **Hansen, J. M.** and C. Harris. 2013. Redox control of teratogenesis. *Reproductive Toxicology*, **35**:165-79. [Review].
43. Harris, C. and **J. M. Hansen.** 2012. Preface for Developmental Toxicology. *Methods in Molecular Biology*, **889**: v.
44. **Hansen, J. M.** 2012. Thioredoxin redox status assessement during embryonic development: The redox Western. *Methods in Molecular Biology*, **889**: 305-313.
45. **Hansen, J. M.** 2012. In vivo models of developmental toxicology. *Methods in Molecular Biology*, **889**: 7-13.
46. Harris, C. and **J. M. Hansen.** 2012. Oxidative stress, thiols and redox profiles. *Methods in Molecular Biology*, **889**: 325-346.
47. Siore, A. M., Parker, R. E., Cuppels, C., Thorn, N., **Hansen, J. M.**, Stecenko, A. A., and K. L. Brigham. 2012. The role of mitochondrial

oxidation in endotoxin-induced liver-dependent swine pulmonary edema. *Pulmonary Pharmacology and Therapeutics*, **25**:407-412.

48. Harris, C. and **J. M. Hansen**. 2012. Nrf2-mediated resistance to oxidant-induced redox disruption in embryos. *Birth Defects Research Part B: Developmental and Reproductive Toxicology*, **95**:213-218.
49. Fitzpatrick, A. M., Stephenson, S. T., Hadley, G. R., Burwell, L., Penugonda, M., Simon, D. M., **Hansen, J. M.**, Jones, D. P. and L. A. Brown. 2011. *Journal of Allergy and Clinical Immunology*, **127**:1604-1611.
50. Swanson, P. A., Kumar, A., Samarin, S., Vijay-Kumar, M., Kundu, K., Murthy, N., **Hansen, J. M.**, Nusrat, A. and A. S. Neish. 2011. *Proceedings of the National Academy of Sciences, U.S.A.*, **108**:8803-8808.
51. Roede, J. R., **Hansen, J. M.**, Go, Y-M. and D. P. Jones. 2011. *Toxicological Sciences,* **121**:368-375.
52. Imhoff, B. R. and **J. M. Hansen.** 2011. Differential redox profiles during adipogenesis and osteogenesis of human mesenchymal stem cells. *Cell and Molecular Biology Letters*, **16**:149-161.
53. Wu, J. J., **Hansen, J. M.**, Hao, L., Robert N. Taylor, R. N. and N. Sidell. 2011. Retinoic acid stimulation of VEGF secretion from human endometrial stromal cells is mediated by production of reactive oxygen species. *Journal of Physiology*, **589**:863-875.
54. Fischer, L. R., Igoudjil, A., Magrané, J., Li, Y., **Hansen, J. M**., Manfredi, G. and J. D. Glass. 2011. SOD1 targeted to the mitochondrial intermembrane space prevents motor neuropathy in the SOD1 knockout mouse. *Brain*, **134**:196-209.
55. Imhoff, B. R. and **J. M. Hansen.** 2010. *Tert*-butylhydroquinone induces mitochondrial oxidative stress causing Nrf2 activation. *Journal of Cell Biology and Toxicology*, **26**: 541-551.
56. Imhoff, B. R. and **J. M. Hansen.** 2010. Extracellular redox environments regulate adipocyte differentiation. *Differentiation*, **80**:31-9.
57. Imhoff, B. R. and **J. M. Hansen.** 2009. *Biochemical Journal*, **424**:491-500.
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Current funding:

Thioredoxin-Dependent thiol switches. NIH. (PI: Peter Vitiello, Sanford Research, SD). NIH R01 HL135112. June 2017-May 2022. Role: Co-Investigator, 1 calendar month support. $37,500 total costs/yr. This grant will use transgenic mice that express an inducible mutant thioredoxin to investigate thioredoxin-dependent roles in cell signaling and function. My specific role is to evaluate redox states through GSH measurements and determine redox-sensitive pathways.

Mechanisms of telomere-mediated lung disease. NIH. (PI: Jon Alder, University of Pittsburgh, PA). NIH R01 HL135062. June 2017-May 2022. Role: Co-Investigator, 1 calendar month support. $75,000 costs/yr. This grant will evaluate telomere system dysfunction in the pathogenesis of various lung diseases. My specific role will be to evaluate redox disregulation in lungs that fail to regulate telomeres and alter mitochondrial function.

Past funding:

Activation of Nrf2 during embryonic development: Mechanisms and consequences (PI: Alicia Timme-Laragy, UMass-Amherst). June 2016-May 2021. NIH R01 ES025748. 1 calendar support. $38,500 total costs/yr. Role: Co-investigator. To evaluate the role of GSH and Nrf2 in beta cell development and related processes during the zebrafish developmental model.

Grants under review:

Activation of Nrf2 during embryonic development: Mechanisms and consequences (PI: Alicia Timme-Laragy, UMass-Amherst). NIH. June 2022-May 2027. 1 calendar support. $38,500 total costs/yr. Renewal of previous grant. Role: Co-investigator. To evaluate the role of GSH and Nrf2 in beta cell development and related processes during the zebrafish developmental model.

Targeting mechanisms of mitochondrial dysfunction in type II diabetes. (Co-PI: Val Sheffield (Univ of Iowa) and Jason Hansen). NIH. June 2022-May 2027. 1.5 calendar support. $175,000 total costs/year. Role: principal investigator. The goals of this project are to better understand the roles of EMF in treating type 2 diabetic pathology.