

Jacob Levi Brown: VA Research Health Scientist/Oklahoma Medical Research Foundation Assistant Professor

Location: 825 N.E. 13th Street Oklahoma City, Oklahoma 73104

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Education:

Postdoctoral Fellow 2018-2022
Aging and Metabolism, Oklahoma Medical Research Foundation
Oklahoma City, Oklahoma 73104
Mentor: Holly Van Remmen, Ph.D.

Doctor of Philosophy 2014-2018
Cell and Molecular Biology, University of Arkansas
Fayetteville, AR 72701
Mentor: Nicholas P. Greene, Ph.D.

Bachelor of Science 2009-2014
Biology, Missouri Southern State University
Joplin, MO 64801

Research Experience and Professional Positions:

- *Assistant Professor* 2025-Current
Florida State University
Tallahassee, Florida 32306
- *Research Health Scientist* 2022-2025
Oklahoma City VA
Oklahoma City, Oklahoma 73104
- *Research Assistant Professor* 2022-2025
Aging and Metabolism, Oklahoma Medical Research Foundation
Oklahoma City, Oklahoma 73104
- *Postdoctoral Fellow* Grant 5T32AG052363-02 2018-2022
Aging and Metabolism, Oklahoma Medical Research Foundation
Oklahoma City, Oklahoma 73104
Mentor: Holly Van Remmen, Ph.D.
- Graduate Research Assistant NIH/NIAMS Grant R15AR069913 (Greene PI) 2017-2018
University of Arkansas Cell and Molecular Biology Program
Fayetteville, Arkansas 71656
Mentor: Nicholas P. Greene
- Graduate Research Assistant 2014-2017
University of Arkansas Cell and Molecular Biology Program
Fayetteville, Arkansas 71656
Mentor: Nicholas P. Greene

Funded Grants

Active

Are oxylipins a therapeutic target to improve recovery from disuse-atrophy during aging?

We hypothesize that oxylipins generated by 12/15-Lipoxygenase impair the recovery of muscle mass and function after disuse atrophy in aged rats. We will use pharmacological approaches designed to block 12/15-Lox or reduce lipid hydroperoxides in aged rats.

AFAR Junior Faculty Award 013

J Brown PI

American Federation for Aging Research

Florida State University

07/01/2025 – 06/30/2027

A Novel Role for Oxidized Lipid Mediators as Effectors of Muscle Atrophy and Weakness in Aging.

The goal of this study is to determine if oxPLs/oxylipins induced by denervation cause damage to membranes, promote mitochondrial changes and activate proteolytic and cell death pathways to induce age-related muscle atrophy and weakness.

R01 AG077812

Van Remmen PI, Brown Co-Investigator

NIH/NIA

Oklahoma Medical Research Foundation

10/01/2022 – 05/31/2027

\$875

Year Calendar Months

1. 2023	0.60 calendar
2. 2024	0.60 calendar
3. 2025	0.60 calendar
4. 2026	0.60 calendar
5. 2027	0.60 calendar

Inactive

Lipid Hydroperoxides in Sarcopenia and Muscle Wasting: Mechanisms and Intervention

This study will determine the effect of reducing lipid hydroperoxides through pharmacological intervention, genetic deletion of 12/15-Lipoxygenase in muscle, or overexpression of glutathione peroxidase 4 in muscle. These findings will help to uncover a better understanding of ways to approach therapeutic intervention of sarcopenia.

IK2 BX005620

J Brown, PI

Department of Veteran Affairs

Oklahoma City VA Medical Center

10/01/2021 – 09/30/2026

\$1,030,095

Year Calendar Months

2. 2023	7.2 calendar
3. 2024	7.2 calendar
4. 2025	7.2 calendar

The Role of Lipid Hydroperoxides in Cancer Cachexia

This study will determine if reducing lipid hydroperoxides via or overexpression of glutathione peroxidase 4 can ameliorate cancer cachexia. These findings will help to uncover a better understanding of ways to approach therapeutic intervention of cancer cachexia.

Pilot Project Award D001

J Brown, PI

Department of Veteran Affairs

Oklahoma City VA Medical Center

10/01/2022 – 09/30/2024

\$110,000

Year Calendar Months

1. 2023 4.2 calendar

2. 2024 4.2 calendar

Honors

-2024 William G. Thurman Award for Outstanding Research Assistant Professor.

-2024 Honorable Mention for the GeroScience Outstanding Original Research Paper Award.

Professional Memberships

- Society for Redox Biology and Medicine: October 2020-Current
- AGE: April 2018-Current
- American Physiological Society: July 2017- December 2017
- American College of Sports Medicine: December 2014- December 2017

Research Service

-Oklahoma City VA IACUC member: 2020-2025

- Rehabilitation Research and Development VA SPIRE grant reviews.

-Peer reviewed manuscripts/editorials for *Journal of Physiology*, *Journal of Cachexia, Sarcopenia and Muscle*, *Aging Cell*, *Scientific Reports*, *Journal of Applied Physiology*, *Redox Biology*, and *Communications Biology*.

Peer Reviewed Publications

1. Adam Nyul-Toth, Santny Shanmugarama, Roland Patai; Rafal Gulej, Janet Faakye, Dorina Nagy, Mark Nagykaladi, Tamas Kiss, Tamas Csipo, Madison Milan, Shoba Ekambaram, Sharon Negri, Raghavendra Y Nagaraja, Anna Csiszar, **Jacob L. Brown**, Holly Van Remmen, Andriy Yabluchanskiy, Anna Ungvari, Stefano Tarantini, Zoltan Ungvari. Endothelial IGF-1R Deficiency Disrupts Microvascular Homeostasis, Impairing Skeletal Muscle Perfusion and Endurance: Implications for Age-Related Sarcopenia. *GeroScience*. 2025.
2. **Jacob L. Brown***, Hongyang Xu, Elizabeth Duggan, Craig Rosenfeld, Holly Van Remmen*. Pharmacological reduction of lipid hydroperoxides as a potential modulator of sarcopenia. *Journal of Physiology*. 2025. * Means co-corresponding Author.
3. Hongyang Xu, **Jacob L. Brown**, Shylesh Bhaskaran, Holly Van Remmen. Reactive oxygen species in the pathogenesis of sarcopenia. *Free Radical Biology and Medicine*. 2025. <https://doi.org/10.1016/j.freeradbiomed.2024.11.046>.
4. Shylesh Bhaskaran, Katarzyna M. Piekarz, **Jacob L. Brown**, Brian Yang, Sarah R. Ocañas, Jonathan D. Wren, Constantin Georgescu, Christopher Bottoms, Ashley Murphy, Jessica Thomson, Debra Saunders,

Nataliya Smith, Rheal Towner, Holly Van Remmen. The nitron compound OKN-007 delays motor neuron loss and disease progression in the G93A mouse model of Amyotrophic Lateral Sclerosis. *Frontiers in Neuroscience*. 2024.

5. Madison Sanford, **Jacob L. Brown**, Colleen O'Reilly, Matthew Bubak, Sharon Negri, Priya Balasubramanian, Arjune S. Dhanekula, Gavin Pharaoh, Zeke Reyff, Cade Ballard, Helen Shi, Mike Rudolph, Zoltan Ungvari, David Marcinek, Benjamin F. Miller, Holly Van Remmen, Stefano Tarantini. Time-Restricted Feeding Improves Aortic Endothelial Relaxation by Enhancing Mitochondrial Function and Attenuating Oxidative Stress in Aged Mice. *Redox Biology*. 2024.
6. Hongyang Xu*, Katarzyna M. Piekarz*, **Jacob L. Brown**, Shylesh Bhaskaran, Nataliya Smith, Rheal A. Towner, Holly Van Remmen. Neuroprotective treatment with the nitron compound OKN-007 mitigates age-related muscle weakness in aging mice. *GeroScience*. 2024. * means co-first author.
7. Agnieszka K. Borowik, Marcus M. Lawrence, Frederick F. Peelor III, Katarzyna M. Piekarz, Benjamin F. Miller, Arlan Richardson, Holly Van Remmen, **Jacob L. Brown**. Senolytic treatment does not ameliorate oxidative stress-induced muscle atrophy but improves muscle force generation in CuZn superoxide dismutase knockout mice. *GeroScience*. 2024. doi: 10.1007/s11357-024-01070-x.
8. Hongyang Xu, Agnieszka Czyżowska, Holly Van Remmen* and **Jacob L. Brown***. Modulation of sarcopenia phenotypes by glutathione peroxidase 4 overexpression in mice. *Journal of Physiology*. 2023. doi: 10.1113/JP285259. * **Means co-corresponding authors.**
9. Agnieszka Czyżowska, **Jacob L. Brown**, Hongyang Xu, Kavitha Sataranatarajan, Michael Kinter, Victoria J. Tyrell, Valerie B. O'Donnell, Holly Van Remmen. Elevated phospholipid hydroperoxide glutathione peroxidase (GPx4) expression modulates oxylipin formation and inhibits age-related skeletal muscle atrophy and weakness. *Redox Biology*. 2023. doi: 10.1016/j.redox.2023.102761.
10. Tyrone A Washington, Eleanor R Schrems, Wesley S Haynie, Megan E Rosa-Caldwell, **Jacob L. Brown**, Landen Saling, Seongkyun Lim, Richard A Perry Jr, Lemuel A Brown, David E Lee, Nicholas P Greene. Development of Skeletal Muscle Fibrosis in a Rodent Model of Cancer Cachexia. *Cell Biochem Funct*. 2023. doi: 10.1002/cbf.3797.
11. Shylesh Bhaskaran, Gaurov Kumar, Nidheesh Thadathil, Katarzyna Piekarz, Sabira Jazir, Sergio Domingo Lopez, Rizwan Qaisar, Dorothy Walton, **Jacob L. Brown**, Ashley Murphy, Nataliya Smith, Debra Saunders, Michael Beckstead, Scott Plafker, Tommy Lewis, Rheal Towner, Sathyaseelan S. Deepa, Arlan Richardson, Robert Axtell, and Holly Van Remmen. Neuronal deletion of MnSOD in mice leads to demyelination, inflammation and progressive paralysis that mimics phenotypes associated with multiple sclerosis. *Redox Biology*. 2023. doi: 10.1016/j.redox.2022.102550.
12. **Jacob L. Brown**, Fredrick F. Peelor III, Constantin Georgescu, Jonathan D. Wren, Michael Kinter, Victoria J. Tyrrell, Valerie B. O'Donnell, Benjamin F. Miller, Holly Van Remmen. Lipid hydroperoxides and oxylipins are mediators of denervation induced muscle atrophy. *Redox Biology*. 2022. doi: 10.1016/j.redox.2022.102518.
13. Nidheesh Thadathil, Ramasamy Selvarani, Sabira Mohammed, Evan H. Nicklas, Albert L. Tran, Maria Kamal, Wenyi Luo, **Jacob L. Brown**, Marcus M. Lawrence, Agnieszka K. Borowik, Benjamin F. Miller, Holly Van Remmen, Arlan Richardson, Sathyaseelan S. Deepa. Senolytic treatment reduces cell senescence and necroptosis in Sod1 knockout mice that is associated with reduced inflammation and hepatocellular carcinoma. *Aging Cell*. 2022. doi: 10.1111/ace.13676. Epub 2022 Jul 23.

14. Tyrone A. Washington, Wesley S. Haynie, Eleanor R. Schrems, Richard A. Perry Jr, Lemuel A. Brown, Breanna M. Williams, Megan E. Rosa-Caldwell, David E. Lee, **Jacob L. Brown**. Effects of PGC-1 α overexpression on the myogenic response during skeletal muscle regeneration. *Sports Med Health Sci*. 2022. doi: 10.1016/j.smhs.2022.06.005. eCollection 2022 Sep.
15. Francielly Morena da Silva, Megan E. Rosa-Caldwell, Eleanor R. Schrems, Lauren Martinez, Madeline G. Amos, Seongkyun Lim, Ana Regina Cabrera, **Jacob L. Brown**, Tyrone A. Washington, Nicholas P. Greene. PGC-1 α overexpression is not sufficient to mitigate cancer cachexia in either male or female mice. *Appl Physiol Nutr Metab*. 2022. doi: 10.1139/apnm-2022-0086. Epub 2022 Jun 14.
16. Megan E. Rosa-Caldwell, Wesley S. Haynie, Seongkyun Lim, **Jacob L. Brown**, David E. Lee, Kirsten R. Dunlap, Lisa T. Jansen, Tyrone A. Washington, Michael P. Wiggs, Nicholas P. Greene. Mitochondrial Aberrations during the Progression of Disuse Atrophy Differentially Affect Male and Female Mice. *Journal of Cachexia Sarcopenia Muscle*. 2021. doi: 10.1002/jcsm.12809.
17. **Jacob L. Brown**, Marcus M. Lawrence, Agnieszka Borowik, Lauren Oliver, Fredrick F. Peelor III, Holly Van Remmen, Benjamin F. Miller. Tumor burden negatively impacts protein turnover as a proteostatic process in non-cancerous liver, heart, and muscle, but not brain. *Journal of Applied Physiology*. 2021. doi: 10.1152/jappphysiol.01026.2020.
18. David E. Lee, **Jacob L. Brown**, Richard A. Perry, Jr., Megan E. Rosa-Caldwell, Lemuel A. Brown, Wesley S. Haynie, Tyrone A. Washington, Michael P. Wiggs, Narasimhan Rajaram, Nicholas P. Greene. Cancer-induced Cardiac Atrophy Adversely Affects Myocardial Redox State and Mitochondrial Oxidative Characteristics. *JCSM Rapid Communications*. 2021. doi: 10.1002/rco2.18.
19. Megan E. Rosa-Caldwell, Seongkyun Lim, Wesley A. Haynie, **Jacob L. Brown**, William Deaver, Francielly Morena Da Silva, Lisa T. Jansen, David E. Lee, Michael P. Wiggs, Tyrone A. Washington, Nicholas P. Greene Females may have exacerbated catabolic signaling response compared to males during the development and progression of disuse atrophy. *Journal of Cachexia, Sarcopenia and Muscle*. 2021. doi: 10.1002/jcsm.12693.
20. Seongkyun Lim, **Jacob L. Brown**, Nicholas P. Greene. Development and Progression of Cancer Cachexia: Perspectives from Bench to Bedside. *Sports Medicine and Health Science*. 2020. doi: 10.1016/j.smhs.2020.10.003.
21. Brown, L. A., Perry, R. A., Haynie, W. S., Lee, D. E., Rosa-Caldwell, M. E., **Jacob L. Brown**, Greene, N. P., Wolchok, J. C., Washington, T. A. (2020). Moderators of skeletal muscle maintenance are compromised in sarcopenic obese mice. *Mechanisms of Aging and Development*. 2021. doi: 10.1016/j.mad.2020.111404.
22. Megan E. Rosa-Caldwell, Conner A. Benson, David E. Lee, **Jacob L. Brown**, Tyrone A. Washington, Nicholas P. Greene, and Michael P. Wiggs. Mitochondrial function and protein turnover in the diaphragm are altered in LLC tumor model of cancer cachexia. *International Journal of Molecular Sciences*. 2020. doi: 10.3390/ijms21217841.
23. Gavin Pharaoh, **Jacob L. Brown**, Zoltan Ungvari, Holly Van Remmen. Reduced ADP Sensitivity in Skeletal Muscle Mitochondria Increases ROS Production in Mouse Models of Aging and Oxidative Stress but Not Denervation. *JCSM Rapid Communications*. 2020. doi: 10.1002/rco2.29.
24. **Jacob L. Brown**, Marcus M. Lawrence, Bumsoo Ahn, Parker Kneis, Katarzyna M. Piekarczyk, Rizwan Qaisar, Rojina Ranjit, Jan Bian, Gavin Pharaoh, Chase Brown, FF Peelor 3rd, Michael T. Kinter, Benjamin

F. Miller, Arlan Richardson, Holly Van Remmen. Cancer cachexia in a mouse model of oxidative stress model. *Journal of Cachexia, Sarcopenia and Muscle*. 2020. doi: 10.1002/jcsm.12615.

25. Shylesh Bhaskaran, Natalie Pollock, Peter Macpherson, Bumsoo Ahn, Katarzyna M Piekarz, Caroline A. Staunton, **Jacob L. Brown**, Rizwan Qaisar, Aphrodite Vasilaki, Arlan Richardson, Anne McArdle, Malcolm Jackson, Susan V. Brooks, Holly Van Remmen. Motor neuron deletion of CuZnSOD leads to an advanced sarcopenic phenotype in older mice. *Aging Cell*. 2020. doi: 10.1111/acer.13225
26. Gavin Pharaoh, **Jacob L. Brown**, Kavithalakshmi Sataranatarajan, Parker Kneis, Jan Bian, Rojina Ranjit, Niran Hadad, Constantin Georgescu, Peter Rabinovitch, Qitao Ran, Jonathan D. Wren, Willard Freeman, Michael Kinter, Arlan Richardson, Holly Van Remmen. Targeting cPLA2 derived lipid hydroperoxides as a potential intervention for sarcopenia. *Scientific Reports*. 2020. doi: 10.1038/s41598-020-70792-7.
27. Kavithalakshmi Sataranatarajan, Gavin Pharaoh, **Jacob L. Brown**, Rojina Ranjit, Katarzyna M. Piekarz, Kaitlyn Street, Jonathan D. Wren, Constantin Georgescu, Caroline Kinter, Michael Kinter, Willard M. Freeman, Arlan Richardson, Holly Van Remmen. Molecular changes in transcription and metabolic pathways underlying muscle atrophy in the CuZnSOD null mouse model of sarcopenia. *GeroScience*. 2020. doi: 10.1007/s11357-020-00189-x.
28. Megan E. Rosa-Caldwell, **Jacob L. Brown**, David E. Lee, Michael P. Wiggs, Richard A. Perry Jr., Wesley S. Haynie, Aaron R. Caldwell, Tyrone A. Washington, Nicholas P. Greene. Hepatic alterations during the development and progression of cancer cachexia. *Appl Physiol Nutr Metabol*. 2019. doi: 10.1139/apnm-2019-0407.
29. Megan E. Rosa-Caldwell*, **Jacob L. Brown***, Richard A. Perry, Jr, Kevin L. Shimkus, Yasamini Shirazi-Fard, Lemuel A. Brown, Harry A. Hogan, James D. Fluckey, Tyrone A. Washington, Michael P. Wiggs, Nicholas P. Greene. Regulation of mitochondrial quality following repeated bouts of hindlimb unloading. *Appl Physiol Nutr Metabol*. 2019. doi: 10.1139/apnm-2019-0218. **First two authors claim equal credit for presented work.**
30. David E. Lee, Richard A. Perry, Jr, **Jacob L. Brown**, Megan E. Rosa-Caldwell, Lemuel A. Brown, Wesley S. Haynie, Narasimhan Rajaram, Tyrone A. Washington, Nicholas P. Greene. Mitochondrial mRNA Translation Initiation Contributes to Oxidative Metabolism in the Myocardia of Aged, Obese Mice. *Experimental Gerontology*. 2019. doi: 10.1016/j.exger.2019.03.009
31. Thomas A. Blackwell, Igor Cervenka, Bhuwan Khatri, **Jacob L. Brown**, Megan E. Rosa-Caldwell, David E. Lee, Richard A. Perry, Lemuel A. Brown, Wesley S. Haynie, Michael P. Wiggs, Walter G. Bottje, Tyrone A. Washington, Byungwhi Caleb Kong, Jorge L. Ruas, Nicholas P. Greene. A Transcriptomic Analysis of the Development of Skeletal Muscle Atrophy in Cancer-Cachexia in Tumor-Bearing Mice. *Physiological Genomics*. 2018. doi: 10.1152/physiolgenomics.00061.2018
32. **Jacob L. Brown**, David E. Lee, Megan E. Rosa-Caldwell, Lemuel A. Brown, Richard A. Perry, Jr., Wesley S. Haynie, Kendra Huseman, Kavitha Sataranatarajan, Holly, Van Remmen, Tyrone A. Washington, Michael P. Wiggs, Nicholas P. Greene. Protein Imbalance in the Development of Skeletal Muscle Wasting in Tumor-Bearing Mice. *Journal of Cachexia, Sarcopenia and Muscle*. 2018. doi: 10.1002/jcsm.12354.
33. Richard A. Perry Jr., Lemuel A. Brown, Wesley S. Haynie, **Jacob L. Brown**, Megan E. Rosa-Caldwell, David E. Lee, Nicholas P. Greene, Tyrone A. Washington. Cardiac hypertrophy in sarcopenic obese C57BL/6J mice is independent of Akt/mTOR cellular signaling. *Experimental Gerontology*. 2018. doi: 10.1016/j.exger.2018.06.023

34. **Jacob L. Brown**, Megan E. Rosa-Caldwell, David E. Lee, Thomas A. Blackwell, Lemuel A. Brown, Richard A. Perry, Jr., Wesley S. Haynie, Justin P. Hardee, James A. Carson, Michael P. Wiggs, Tyrone A. Washington, Nicholas P. Greene. Mitochondrial Degeneration Precedes the Development of Muscle Atrophy in Progression of Cancer-Cachexia in Tumor-Bearing Mice. *Journal of Cachexia, Sarcopenia and Muscle*. 2017. doi: 10.1002/jcsm.12232.
35. Megan E. Rosa-Caldwell, **Jacob L. Brown**, David E. Lee, Thomas A. Blackwell, Kyle W. Turner, Lemuel A. Brown, Richard A. Perry Jr, Wesley S. Haynie, Tyrone A. Washington, and Nicholas P. Greene. Autophagy activation, not PGC-1 α , may mediate exercise-induced improvements in glucose handling during diet-induced obesity. *Experimental physiology*. 2017. doi:10.1113/ep086406.
36. David E. Lee, **Jacob L. Brown**, Megan E. Rosa-Caldwell, Thomas A. Blackwell, Richard A. Perry Jr., Lemuel A. Brown et al. Cancer cachexia-induced muscle atrophy: evidence for alterations in microRNAs important for muscle size. *Physiological genomics*. 2017. doi:10.1152/physiolgenomics.00006.
37. Megan E. Rosa-Caldwell, David E. Lee, **Jacob L. Brown**, Lemuel A. Brown, Richard A. Perry, Jr., Elizabeth S. Greene, Francisco R. Carvallo Chaigneau, Tyrone A. Washington, and Nicholas P. Greene. Moderate physical activity promotes basal hepatic autophagy in diet-induced obese mice. *Applied physiology, nutrition, and metabolism*. 2017. doi:10.1139/apnm-2016-0280.
38. Nicholas P. Greene, **Jacob L. Brown**, Megan E. Rosa-Caldwell, David E. Lee, Thomas A. Blackwell, Tyrone A. Washington. Skeletal muscle insulin resistance as a precursor to Diabetes: Beyond glucoregulation. *Current diabetes reviews*. 2016. doi: 10.2174/1573399813666161122123636.
39. **Jacob L. Brown**, Megan E. Rosa-Caldwell, David E. Lee, Lemuel A. Brown, Richard A. Perry, Kevin L. Shimkus, Thomas A. Blackwell, James D. Fluckey, James A. Carson, Sami Dridi, Tyrone A. Washington, and Nicholas P. Greene. PGC-1 α gene expression is suppressed by the IL-6—MEK—ERK 1/2 MAPK signaling axis and altered by resistance exercise, obesity and muscle injury. *Acta Physiol*. 2016. doi: 10.1111/apha.12826.
40. Richard A. Perry Jr, Lemuel A. Brown, David E. Lee, **Jacob L. Brown**, Jamie I. Baum, Nicholas P. Greene, Tyrone A. Washington. The Akt/mTOR pathway: Data comparing young and aged mice with leucine supplementation at the onset of skeletal muscle regeneration. *Data Brief*. 2016. doi: 10.1016/j.dib.2016.08.013.
41. Richard A. Perry Jr., Lemuel A. Brown, David E. Lee, **Jacob L. Brown**, Jamie I. Baum, Nicholas P. Greene, Tyrone A. Washington. Differential effects of leucine supplementation in young and aged mice at the onset of skeletal muscle regeneration. *Mech Ageing Dev*. 2016. doi: 10.1016/j.mad.2016.05.007.
42. David E. Lee*, **Jacob L. Brown***, Megan E. Rosa, Lemuel A. Brown, Richard A. Perry, Tyrone A. Washington, Nicholas P. Greene. Translational machinery of mitochondrial mRNA is promoted by physical activity in Western diet-induced obese mice. *Acta Physiologica*. 2016. doi: 10.1111/apha.12687.
First two authors claim equal credit for presented work.
43. David E. Lee, **Jacob L. Brown**, Richard A. Perry Jr., Lemuel A. Brown, Megan E. Rosa, Mats I. Nilsson, Stephen F. Crouse, James D. Fluckey, Tyrone A. Washington, Nicholas P. Greene. microRNA-16, Downregulated in Insulin Resistance, Controls Skeletal Muscle Protein Turnover. *Journal of Cellular Biochemistry*. 2016. doi: 10.1002/jcb.25476.

44. Nicholas P. Greene, David E. Lee, **Jacob L. Brown**, Megan E. Rosa, Lemuel A. Brown, Richard A. Perry, Jordan N. Henry, Tyrone A. Washington. Mitochondrial quality control, driven by PGC1-1 α , is dysregulated by western diet feeding and partially restored by physical activity in mice. *Physiological Reports*. 2015. doi: 10.14814/phy2.12470.
45. Lemuel A. Brown, David E. Lee, Jillian F. Patton, Richard A. Perry Jr., **Jacob L. Brown**, Jamie I. Baum, J., Nan Smith-Blair, Nicholas P. Greene, Tyrone A. Washington. Diet-induced obesity alters anabolic signaling in mice at the onset of muscle regeneration. *Acta Physiologica*. 2015. doi: 10.1111/apha.12537.

Research Presentations/Invited Lectures

1. **Jacob L. Brown** (2025, May). The Role of Oxylipins in Sarcopenia and Cancer Cachexia. Florida State Seminar.
2. **Jacob L. Brown** (2025, April). The Role of Oxylipins in Sarcopenia and Cancer Cachexia. Oklahoma GeroScience Symposium.
3. **Jacob L. Brown** (2024, October). GPx4 Overexpression Mitigates Cancer Cachexia. OMRF. Aging and Metabolism Departmental Seminar.
4. **Jacob L. Brown** (2023, September). The Role of Oxylipins in Skeletal Muscle Atrophy. University of Arkansas Integrative Metabolic Research Center.
5. **Jacob L. Brown** (2023, August). Glutathione Peroxidase 4 Overexpression Ameliorates Cancer Cachexia. Oklahoma Symposium on Pancreatic Cancer Cachexia.
6. **Jacob L. Brown** (2023, April). Bridging Studies of Sarcopenia to Provide New Insights on Cancer Cachexia. Oklahoma Gero-Oncology Symposium.
7. **Jacob L. Brown** (2021, February). Skeletal Muscle Aging: The Influence of Lipid Hydroperoxides. OMRF Aging and Metabolism departmental seminar.
8. **Jacob L. Brown** (2020, July). Lipid Hydroperoxides in Denervation: Mechanisms and Intervention. OMRF Aging and Metabolism departmental seminar.
9. **Jacob L. Brown** (2019, September). Age-Induced Loss of Innervation. OMRF Aging and Metabolism departmental seminar.
10. **Jacob L. Brown** (2018, December). Oxidative Stress does not exacerbate Cancer Cachexia. OMRF Aging and Metabolism departmental seminar.
11. **Jacob L. Brown** (2017, September). Cancer-Induced Muscle Wasting. Departmental seminar presentation at University of Arkansas, Fayetteville.
12. **Jacob L. Brown** (2016, September). Mitochondrial Degeneration in Cancer-Cachexia. Departmental seminar presentation at the University of Arkansas, Fayetteville.
13. **Jacob L. Brown** (2015, September). PGC-1 α 4 is Regulated by the ERK-1/2 Signaling Axis. Departmental seminar presentation at the University of Arkansas, Fayetteville, AR.
14. **Jacob L. Brown** (2014, October). Mitochondrial Biogenesis Following Multiple Bouts of Hind-limb Unloading. Departmental seminar presentation at the University of Arkansas, Fayetteville, AR.

Abstracts Presented at Institutional, Regional and National Meetings

2025

1. Elizabeth Duggan, **Jacob L. Brown**. GPx4 overexpression mitigates cancer cachexia. Presented at the 2025 Advances in Skeletal Muscle Biology Conference in Gainesville Florida.

2024:

1. **Jacob L. Brown**. GPx4 overexpression mitigates cancer cachexia. Presented at the Society of Free Radical Biology and Medicine Conference in Savannah Georgia.
2. Elizabeth Duggan, **Jacob L. Brown**. GPx4 overexpression mitigates cancer cachexia. Presented at the Cachexia Keystone Symposia at the Buck Institute in Marin Valley California.

2023:

1. **Jacob L. Brown**, Holly Van Remmen, Joshua Butcher. Skeletal muscle oxylipin profile in sarcopenic obese mice. Presented at the AGE conference in Oklahoma City.
2. Agnieszka K Borowik, Marcus M Lawrence, Fredrick F. Peelor III, Katarzyna M Piekarz, Benjamin F. Miller, Holly Van Remmen, **Jacob L. Brown**. Senolytics do not prevent muscle loss in Sod1 knockout mice. Presented at the APS Summit in Long Beach California.
3. **Jacob L. Brown**, Agnieszka Czyżowska, Victoria Tyrrell, Valerie O'Donnell, Holly Van Remmen. Overexpression of phospholipid hydroperoxide glutathione peroxidase 4 ameliorates sarcopenia. Presented at the Advances in Skeletal Muscle Biology in Health and Disease at the University of Florida.
4. **Jacob L. Brown**, Agnieszka Czyżowska, Victoria Tyrrell, Valerie O'Donnell, Holly Van Remmen. Overexpression of phospholipid hydroperoxide glutathione peroxidase 4 ameliorates sarcopenia. Presented at Oklahoma City Geroscience Conference March 2023 in Oklahoma City.

2022:

1. **Jacob L. Brown**, Annemarie E. Edmonds, Valerie B. O'Donnell, Victoria J. Tyrrell, Holly Van Remmen. The Role of Oxylipins in Muscle Atrophy. Presented at Redox Biology and Medicine Conference November 2022 in Orlando Florida.
2. Paul Pierce, Xiu Wang, Alec Cooper, Aristides Rivera, Jared Ailts, Holly Van Remmen, **Jacob L. Brown** and Peter Vitiello. Decreased mitochondrial respiration in cardiac fibers isolated from a mouse model of Friedreich's ataxia. Presented at Redox Biology and Medicine Conference November 2022 in Orlando Florida.
3. **Jacob L. Brown**, Hongyang Xu, Agnieszka Czyżowska, Holly Van Remmen. Scavenging lipid hydroperoxides by glutathione peroxidase 4 overexpression attenuates contractile and mitochondrial dysfunction in a murine model of accelerated sarcopenia. Presented at Society for Redox Biology and Medicine Conference November 2022 in Orlando Florida.

2021:

1. **Jacob L. Brown**, Fredrick Peelor III, Benjamin Miller, Holly Van Remmen. Lipid hydroperoxides are key drivers of denervation-induced muscle atrophy. Oral Presentation at the Society for Redox Biology and Medicine Conference November, 2021.

2020:

1. **Jacob L. Brown**, Rojina Ranjit, Lauren Oliver, Holly Van Remmen. The lipid hydroperoxide scavenger liproloxstatin-1 reduces denervation-induced muscle pathology. Presented at Society for Redox Biology and Medicine Conference November 20, 2020.

2019:

1. Madeline G. Amos, Megan E. Rosa-Caldwell, Wesley S. Haynie, Kirsten R. Dunlap, Seongkyun Lim, Lisa T. Jansen, **Jacob L. Brown**, David E. Lee, Tyrone A. Washington, Michael P. Wiggs, Nicholas P. Greene. Oxidative metabolism during the time-course of disuse atrophy in male and female mice. Presented at Central States American College of Sports Medicine Regional Meeting October 24, 2019.
2. **Jacob L. Brown**, Bumsoo Ahn, Rizwan Qaisar, Parker Kneis, Katarzyna Piekarz, Gavin Pharaoh, Jan Bian, Rojina Ranjit, Holly Van Remmen. Deletion of Cu/Zn Superoxide Dismutase does not Exacerbate Cancer Cachexia. April 2019. Presented at Geroscience Symposium at the Oklahoma Medical Research Foundation.
3. **Jacob L. Brown**, Bumsoo Ahn, Rojina Ranjit, Jan Bian, Holly Van Remmen. Deletion of Cu/Zn Superoxide Dismutase does not Exacerbate Cancer Cachexia. March 2019. Presented at Advances in Skeletal Muscle Biology in Health and Disease at the University of Florida.
4. Seongkyun Lim, Megan E. Rosa-Caldwell, Wesley S. Haynie, Lisa T. Jansen, Kirsten R. Dunlap, Katarina Bejarano, **Jacob L. Brown**, David E. Lee, Tyrone A. Washington, Michael P. Wiggs, Nicholas P. Greene. Atrophy-related Genes are Differentially Expressed During Progression of Disuse-induced Atrophy in Male and Female Mice. March 2019. Presented at Advances in Skeletal Muscle Biology in Health and Disease at the University of Florida.

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