CURRICULUM VITAE (revised 01-04-2023)

NAME John David Symons

HOME ADDRESS 5844 Sagebrook Drive
Park City, UT 84098

WORK ADDRESS Eccles Institute of Human Genetics
15 N 2030 E, Bldg 533, Rm 3420
Salt Lake City, UT 84112

LABORATORY AND OFFICE University of Utah
Department of Nutrition and Integrative Physiology
Bldg 533 Rm 3410 (office) Rm 3420 (lab)
Salt Lake City, UT 84112

CITIZENSHIP Canadian, Permanent Resident of the United States

EDUCATION AND EMPLOYMENT

1980 BPE University of British Columbia, Vancouver, BC, Canada
School of Human Kinetics

1982 M.S. University of Oregon, Eugene, Oregon
Department of Human Physiology

1984 PhD University of Oregon, Eugene, Oregon
Department of Human Physiology

1985-87 Visiting Fellowship, sponsored by the Natural Sciences and Engineering Research Council of Canada
Defense and Civil Institute of Environmental Medicine
Biosciences Division, Environmental Physiology Section
Downsview, Ontario, Canada

1987-90 Postdoctoral Fellowship, Visiting Scholars Program sponsored by the University of California (UC), Davis, CA
Department of Internal Medicine, Division of Cardiovascular Medicine

1990-94 Assistant Research Physiologist, UC Davis
Department of Internal Medicine, Division of Cardiovascular Medicine

1994-95 Senior Research Scientist
Department of Cardiovascular Pharmacology
Alliance Pharmaceutical Corporation, San Diego, CA

1995-2001 Assistant Adjunct Professor, UC Davis
Department of Internal Medicine, Division of Cardiovascular Medicine

2001-2005 Assistant Professor, University of Utah, College of Health

2005-2012 Associate Professor, University of Utah, College of Health

2006- Adjunct Professor, University of Utah, College of Health, Department of Nutrition

2007- Adjunct Professor, University of Utah, Department of Internal Medicine, Division of Endocrinology, Metabolism, and Diabetes

2013- Professor, University of Utah, Department of Nutrition and Integrative Physiology, College of Health

2014- Investigator, University of Utah Molecular Medicine Program

TEACHING (since UU appointment in 2001)

2002-present
Exercise Science 4310/6310/7310 Advanced Exercise Physiology, Now Nutrition and Integrated Physiology (NuIP 6384) (Masters/Ph.D. Students), Spring Semester (~ 20 students per semester). Since 2016, Fall semester, every second year

2002-2004
Exercise Science 6320 Exercise and Disease, (Masters/Ph.D. Students), Fall Semester (~ 10 students per semester)

2003-2017
Exercise Science 3091 Undergraduate Exercise Physiology (Summer) and Exercise Science 3094 Honors Undergraduate Exercise Physiology, Fall and Spring Semester (30-40 students per semester)

STUDENT MENTORING

2002-present - Undergraduate students
Each semester I have 1-5 undergraduate student volunteers in the laboratory. These students represent many Departments across campus e.g., HKR, NuIP, Biology, Chemistry, Physics, Bioengineering. Since 2002 > 95 UU Undergraduate Research Opportunities Program (UROP) Proposals have been funded. Each summer I host students from the American Heart Association, Western States Affiliate (> 28 since 2005), American Physiological Society (> 17 since 2005), UU Medical Student Research Fellowship (6 since 2005), Native American Research Internship Program (3), American Diabetes Association Minority Undergraduate Internship Program (1 student), Science without Borders – undergraduate students from Brazil (> 3 students).

2008 – present - Honors College students
Judd Cahoon (2008, ESS), Dix Pettey (2009, ESS); Bum Jun Kim (2011, Biology); Ting Ruan (2014, Bioengineering); Caroline Ramous (2020, HKR), Kellsey Ly (2020, Biology); Lauren Thompson (2020, Biology) have completed an Honors thesis based on research performed in my laboratory. All have presented their work at International, National, and Local conferences and published manuscripts.

2002 – present - Graduate students
MS Students: Committee Chair – R Pattathu, S McMillin, T Gillund, M Blackwell, T Johnson, K Lance, L Watson, T Martin, Michelle Hansen, Masters Students, Committee Member – R Edwards, T-C Wu, J Bosse, Z Barrett O'Keefe, W Soesanto, O Nunthakungwan, H-Y Lin, Ying Qian; Ruth Tanner, B Baumberg, R Wilson, J Kidde, J Monical, Tyler Mangum, Juyeon Lee, Brian Duke, Emma Toolson, Alex James Barker Smith, Chrissa Peterson Mower, Divya Bharat, Chrissy Andrus, SoungHoun Park, James Cerbie, Jimmy Miller, Jason Kofoed, Carson Hauser

PhD Students: Committee Chair - A Larson, J Carlstrom, L Young, Y Li (sponsored by the

Fourth Military Medical College in China to perform two years of PhD research work in my laboratory), Jae Min Cho, Maria Sara de Lima Coutinho Mattera (sponsored by Brazilian Government to perform 6 months of PhD research in my laboratory), Sohom Mookherjee. Committee Member - R. Pettitt, M Hayman-Witman, S Ives, J McDaniel, S Elmer, Z Barrett O'Keefe, S-Y Park, J Gifford, M Rossman, J Groot, T Mangum, C Hart, J Weavil, Jay Hydren, Trevor Tippetts, SongHoun Park, Jenna Link, Laura Wheatley, Sean Tatum, Chrissa Petersen, Jiabi Zhang, Omid Rouzbehani, Katherine Lorie Shields, Jared Iacovelli

Postdoctoral Fellows
Li Dong MD, PhD., 2002-2004; QJ Zhang MD, PhD., 2008-2011; L P Bharath Ph.D., 2012-2015, Ji-Seok Kim, 2016-2017, Seul-Ki Park 2016 – present; Rajeshwary Ghosh July 2019-present

Sabbatical Host
Dr. Bin Wang, Nanjing Sports Institute, Nanjing, China, 2013
rDr. Vincent Nethery, Central Washington University, WA, USA 2000-2001

FUNDING

ACTIVE

•The University of Utah – Washington University Diabetes Research Center Collaborative. 12-01-2022 – 11-30-2023 *Ceramide drives cerebral vascular dysfunction and cognitive decline in obese mice.* PI JD Symons

•Predoctoral Fellowship Award 23PRE1025910 American Heart Association. 01-01-2023-12-31-2024. *Targeting endothelial cell metabolism to improve recovery from acute ischemic stroke in older mice.* PI S Mookherjee, Sponsors JD Symons and R Campbell

•Career Development Award 22CDA941327 American Heart Association 05-2022 – 04-2025
The role of p62 in regulating hypoxia signaling in the heart. PI Ghosh, Sponsor JD Symons

•RTW Charitable Foundation Grant for Rare Disease Research. 05-2022 – 04-2025 *Desmin Related Cardiomyopathy* PI Ghosh, Sponsors JD Symons and S Boudina.

•Vice Presidents Clinical and Translational (VPCAT) Research Scholars Program, University of Utah. 12-10-2022 – 12-10-2024 PI Ghosh, Sponsor JD Symons

•R01HL153244 (MPI - Lee/Shiu/Symons) 04/01/2021-03/31/2025
NIH$485,317 1.8 CM
Autophagy and arteriovenous fistula maturation
The objective of this proposal is to investigate the role of autophagy in AVF maturation

•R01DK122001Summers (PI)07/01/2019-06/30/2024
NIH$366,0321.20 CM
Targeting a Ceramide Double Bond to Treat Cardiometabolic Disorders
We aim to investigate the potential of therapeutics that inhibit dihydroceramide desaturase-1, an enzyme required for ceramide biosynthesis, in the treatment of diabetes and heart disease.
Symons Role: Co-I

•R01HL142603 Trinity (PI) 07/01/2019 - 06/30/2024
NIH/NHLBI $380,647 0.60 CM
Targeting Oxidative Stress to Prevent Vascular and Skeletal Muscle Dysfunction during Disuse

The major goal of this project is to comprehensively examine two novel strategies, mitochondrial targeted antioxidants (MITO-AO) and the Nuclear Factor Erythroid-2-like 2 (Nrf2) activator, PB125, aimed at diminishing oxidative stress and thereby minimizing the negative impact of disuse in patients during increased oxidative stress and accelerated losses in vascular and skeletal muscle function
Symons Role: Co-I

PENDING

2RO1HL141150-05 Symons, Pires, Holland (MPI) 07/01/2018 – 06/30/2027
NIH $480,275 1.20 CM
The interplay among endothelial cell autophagy, endothelial cell metabolism, and cerebrovascular resilieince in the context of aging. Not discussed, renewal resubmission planned March 2023

1R21AG081780-01 Symons and Campbell (MPI) 04/01/2023 - 03/31/2025
NIH $150,000 1.20 CM
Targeting endothelial cell metabolisms to improve recovery from acute ischemic stroke in mice. Score = 35. Resubmission planned March 2023.

1R21AG084203-01 Symons, Holland, Campbell (MPI) 07/01/2023 - 06/30/2025
NIH $150,000 1.20 CM
Defining the contribution from endothelial cell sphingolipid metabolism to outcomes of acute ischemic stroke in mice. Study section meeting = Feb 16, 2023

College of Health Seed Grant. *Manipulating endothelial cell glucose transporter 1 to influence outcomes of acute ischemic stroke.* 05-01-2023 – 04-30-2024. $$22,500

Stephen I. Katz Early Stage Investigator Grant. *Chaperone Mediated Autophagy-Based Viral Transgene Technology to Degrade Rare Mutant Proteins – A Powerful Therapeutic Strategy for Treating Rare Disease Pathologies*
PI R Ghosh. Co-I JD Symons

W.M. Keck Foundation. *Chaperone Mediated Autophagy Based Precision Targeting Strategy to Clear Specific Intracellular Disease-Causing Proteins.*
PI R Ghosh. Co-I JD Symons

Symons active IACUC protocol #1907010 Vascular autophagy in adult and old mice
Symons active IRB protocol #00122420 Endothelial cell metabolism

Recently completed funding

University of Utah College of Health Seed Grant. *Generation of a Novel Bioluminescent Reporter Mouse System for Assessing Chaperone Mediated Autophagy Pathway In Vivo.* PI R Ghosh. Co-I JD Symons

R01HL141540 Symons (PI) 07/01/2018–05/31/2022
NIH/NHLBI $300,571 4.08 CM
Autophagy maintains vascular function through a novel glycolysis-linked pathway regulating eNOS
To determine if the age-related decline in endothelial cell (EC) autophagy leads to arterial dysfunction that is secondary to impaired EC glycolysis, limited extracellular ATP accumulation, disrupted purinergic signaling to endothelial nitric oxide synthase via protein kinase Cδ, and suppressed nitric oxide generation.

20PRE35110066 01/01/2020 – 12/31/2021
American Heart Association Predoctoral Fellowship $62,0000.01 CM
Defining the contribution from endothelial cell autophagy and PKC activation to vascular cognitive impairment. PI JM Cho, Sponsor JD Symons

R56HL155345 12/01/2021-11/30/2022 NIH$322,9390.50 CM
Role of the soluble (pro)renin receptor in blood pressure regulation
PI N Ramkumar, Co-I JD Symons

Postdoctoral Fellowship 17POST33670663 American Heart Association 07-2017 - 06-2019
Repressed autophagy impairs nitric oxide generation by human endothelial cells. PI Park, Sponsor Symons

R01AT010247 Velayutham (PI) 09/21/2018–08/20/2022
NIH/NCCIH $260,7560.60 CM *Biological signatures of blueberry derived microbial metabolites.* PI A Velayutham. Co-I JD Symons

R01HL142603 09/21/2018–08/31/2022 NIH/NHLBI
$400,4570.60 CM *Targeting Oxidative Stress to Prevent Vascular and Skeletal Muscle Dysfunction during Disuse.* PI J Trinity, Co-I JD Symons

List of Completed Work
http://www.ncbi.nlm.nih.gov/sites/myncbi/1hc1qC8WC8iAe/bibliography/46643892/public/?sort=date&directon=ascending

Submitted manuscripts
Ghosh R*, Jonavithulla A, Tandar M, Orton SN, Woodrum MC, **Symons JD**. A Fluorogenic-Based Assay to Measure Chaperone Mediated Autophagy Activity in Cells and Tissues. *Corresponding Author

Ghosh R, Fathanian AN, Hathaway M, Rouzbehan OT, Mosleh T, Vinod V, Vowles S, Stephens S, Chung D, **Symons JD**, and Boudina S. Lack of Cardiac p62/Sqstm1 Impairs Nrf2 Signaling and exacerbates cardiac pathology in response to hypoxic stress.

Published manuscripts

2022
●Park SK Cho JM, Mookherjee S, Pires PW, **Symons JD.** Recent insights concerning autophagy and endothelial cell nitric oxide generation. *Current Opinions in Physiology,*100614. 2022.

●Cho JM, Ghosh R, Mookherjee S, Boudina S, **Symons JD.** Reduce, Reuse, Recycle, Run ! : 4 Rs to improve cardiac health in advanced age. *Aging*,14. 2022. PMID: 36470665

●Petersen C, Bharat D, Wankhade UD, Kim JS, Cutler BR, Denetso C, Gholami S, Nelson S, Bigley J, Johnson A, Chintapalli SV, Piccolo BD, Satheesh Babu AK, Paz HA, Shankar K, **Symons JD,** Anandh Babu PV. Dietary Blueberry Ameliorates Vascular Complications in Diabetic Mice Possibly through NOX4 and Modulates Composition and Functional Diversity of Gut Microbes. *Molecular nutrition & food research.* 2022 April;66(8):e2100784. PubMed PMID: 35120277; PubMed Central PMCID: PMC9132135; DOI: 10.1002/mnfr.202100784.
●Cho JM, Park SK, Kwon OS, La Salle DT, Cerbie J, Fermoyle CC, Morgan D, Nelson A, Bledsoe A, Bharath LP, Tandar M, Kunapuli SP, Richardson RS, Anandh Babu PV, Mookherjee S, Kishore BK, Wang F, Yang T, Boudina S, Trinity JD, **Symons JD**. Activating P2Y1 receptors improves function in arteries with repressed autophagy. *Cardiovascular research.* 2022 April 14. PubMed PMID: 35420120; DOI: 10.1093/cvr/cvac061.
●Ghosh R, Gillaspie JJ, Campbell KS, **Symons JD**, Boudina S, Pattison JS. Chaperone Mediated Autophagy Protects Cardiomyocytes Against Hypoxic-Cell Death. *American journal of physiology. Cell physiology.* 2022 May 18. PubMed PMID: 35584327; DOI: 10.1152/ajpcell.00369.2021 (editors choice award).
●Hu J, Tan Y, Chen Y, Mo S, Hekking B, Su J, Pu M, Lu A, Du Y, **Symons JD,** Yang T. Role of (pro)renin receptor in cyclosporin A-induced nephropathy. *American journal of physiology. Renal physiology.* 2022 April 1;322(4):F437-F448. PubMed PMID: 35073210; DOI:
●Cho JM, Ly K, Ly S, Park SK, Babu PVA, Balagurunathan K, **Symons JD.** Procedures to Evaluate the Role of Heparan Sulfate on the Reactivity of Resistance and Conductance Arteries Ex Vivo. *Methods in molecular biology* (Clifton, N.J.). 2022;2303:495-511. PubMed PMID: 34626404; DOI: 10.1007/978-1-0716-1398-6_40.
●Miller JC, Satheesh Babu AK, Petersen C, Wankhade UD, Robeson MS 2nd, Putich MN, Mueller JE, O'Farrell AS, Cho JM, Chintapalli SV, Jalili T, **Symons JD,** Anandh Babu PV. Gut Microbes Are Associated with the Vascular Beneficial Effects of Dietary Strawberry on Metabolic Syndrome-Induced Vascular Inflammation. *Mol Nutr Food Res.* 2022 Sep 16:e2200112. doi: 10.1002/mnfr.202200112. PMID: 36112603

2021
●Cho JM, Mattera MSLC, Hansen M, Pires KM, Ferhat M, Whitehead K, Carter K, Buffolo M, Ramous C, Park SK, Boudina S, **Symons JD**. Late-in-life treadmill-training ameliorates the decline in cardiac autophagy associated with aging in mice. Online ahead of print. *Aging Cell.* PMID 34554626

●Fu Z, Wang F, Liu X, Hu J, Su J, Lu X, Lu A, Cho JM, **Symons JD**, Zou CJ, Yang T. Soluble (Pro) renin receptor induces endothelial dysfunction and hypertension in mice with diet- induced obesity via activation the angiotensin II type 1 receptor. *Clinical Science (Lond)* 2021 Feb

24:CS20201047. Doi 10.1042 PMID 3365485.

●Choi R-H, Tatum S, **Symons JD**, Summers SA, Holland WH. A heart-felt review on sphingolipids as drivers on the road to cardiovascular disease. *Nature Reviews Cardiology* 2021 Oct;18(10):701-711. doi: 10.1038/s41569-021-00536-1. Epub 2021 Mar 26.PMID: 33772258.

- Ramkumar N, Stuart D, Peterson CS, Wheatley W, Cho JM, **Symons JD**, Kohan DE. Loss of Soluble (Pro)renin Receptor Attenuates Angiotensin- II induced Hypertension and Renal Injury. *Circ Res.* 2021 Jun 25;129(1):50-62. doi: 10.1161/CIRCRESAHA.120.317532. Epub 2021 Apr 23. PMID: 33890822
- Cho JM, Ly K, Ly S, Park SK, Babu PVA, Balagurunathan K, Symons JD. Procedures to evaluate the Role of Heparan Sulfate on the Reactivity of Resistance and Conductance Arteries Ex Vivo. Methods in molecular biology (Clifton, N.J.). 2022;2303:495-511. PubMed PMID: 34626404; DOI: 10.1007/978-1-0716-1398-6_40.
- Klionsky D, ….. **Symons JD** et al. Guidelines for the use and interpretation of assays for monitoring autophagy. *Autophagy.* 2021 Feb 8:1-382. oi:10.1080/15548627.2020.1797280. PMID 33634751

2020

•Ghosh R, Vinod V, **Symons JD,** Boudina S. Protein and mitochondria quality control pathways in cardiac aging. *Cells.* Apr 10; 9(4) pii E933 PMID 32290135 Cells. 2020 Apr 10;9(4):933. doi: 10.3390/cells9040933. PMID: 32290135

•Cho JM, Shiu YT, **Symons JD,** Lee T. Vasoreactivity of carotid artery and external jugular vein in mice. *J Vasc Res*. 2020 *J Vasc Res*. 2020 Jun 15:1-11. doi: 10.1159/000508129. Online ahead of print. PMID: 32541137

2019

•**Symons JD,** Deeter L, Deeter N, Bonn T, Cho J, Ferrin P, McCreath L, Diakos N, Taleb I, Alharethi, R, McKellar S, Wever-Pinzon O, Navankasattusas, Selzman CH, Fang JC, Drakos SG. Effect of continuous-flow left ventricular assist device support on coronary artery endothelial function in ischemic and non-ischemic cardiomyopathy. *Circ Heart Fail.* **2019** Aug;12 (8) : e006085. Epub 2019 Aug 19. PMID:31422672

•Pike D, Shiu YT, Cho YF, Le H, Somarathna M, Isayeva T, Guo L, **Symons JD,** Kevil CG, Totenhagen J, Lee T. The effect of endothelial nitric oxide synthase on the hemodynamics and wall mechanics in murine arteriovenous fistulas. *Sci Rep.* 2019 Mar 12;9(1):4299. doi: 10.1038/s41598-019-40683-7.PMID 30862797

•Petersen C, Wankhade UD, Bharat D, Wong K, Mueller JE, Chintapalli SV, Piccolo BD, Jalili T, Zhenquan J, **Symons JD,** Shankar K, Babu PVA. Dietary supplementation with strawberry induces markded changes in the composition and functional potential of the gut microbiome in diabetic mice. *J Nutritional Biochemistry.* 2019 66; 63-99 PMID 30771735 PMCID PMC6490960

•Park S-K, La Salle DT, Cerbie J, Cho Jae Min, Bledsoe A, Nelson A, Morgan D, Richardson RS, Shiu Y-T, Boudina S, Trinity JD, **Symons JD**. Elevated arterial shear rate increases indices of endothelial cell autophagy and nitric oxide synthase activation in humans. *Am J Physiol Heart Circ Physiol*. 2019 Jan 1 316 (1) H106-H112. doi: 10.1152/ajpheart.00561. PMID 30412436. With accompanying editorial. PMID 30412440

2018

•Yang K, Yang TX, and **Symons JD.** Soluble (Pro)renin receptor as a potential therapy for diabetes insipidus. *Am J Physiol, Renal Physiology* 2018 Nov 5 315 F1416-1421 PMCID:PMC5688772 PMCID: 30019932.

•Petersen C, Bharat D, Cutler BR, Gholami S, Denetso C, Mueller JE, Cho JM, Kim JS, **Symons JD**, Anandh Babu PV. Circulating metabolites of strawberry mediate reductions in vascular inflammation and endothelial dysfunction in db/db mice. *Int J Cardiol*. 2018 Jul 15;263:111-117. PMID 29681407

•Bharat D, Cavalcanti RRM, Petersen C, Begaye N, Cutler BR, Costa MMA, Ramos RKLG, Ferreira MR, Li Y, Bharath LP, Toolson E, Sebahar P, Looper RE, Jalili T, Rajasekaran NS, Jia Z, **Symons JD**, Anandh Babu PV. Blueberry metabolites attenuate lipotoxicity-induced endothelial dysfunction. *Mol Nutr Food Res.* 2018. Jan;62(2).PMID:29024402.2018

2017

•Dey P, Mah E, Li J, Jalili T, **Symons JD**, Bruno RS. Improved hepatic y-tocopherol status limits oxidative and inflammatory stress-mediated liver injury in db/db mice with nonalcoholic steatohepatits. *Journal of Functional Foods*. 40, 670-678. doi:10.1016/j.jff.2017.12.007. 11/2017

•Hydren JR, Richardson RS, **Symons JD.** Are cardiovascular reflexes sensitive to subtle alterations in arterial waveform patterns? *Journal of Applied Physiology*. no. 5 (2017): 1408-1410. 10/15/2017.

•Yang K, Wang F, Lu X, Peng K, Yang TX, **Symons JD**. The soluble (pro)renin receptor does not influence lithium-induced diabetes insipidus but does provoke beiging of white adipose

tissue in mice. *Physiological Reports*. 2017 Nov;5(21). pii: e13410. doi: 10.14814/phy2.13410. PMID: 29138356.

- Pires KM, Buffolo M, Schaff C, **Symons JD,** Cox J, Abel ED, Selzman CH, Boudina S. Activation of IGF-1 receptors and Akt signaling by systemic hyperinsulinemia contributes to cardiac hypertrophy but does not regulate cardiac autophagy in obese diabetic mice. *Journal of Molecular and Cellular Cardiology.* 113:39-50. doi: 10.1016/j.yjmcc.2017.10.001. 10/15/2017
- Qian Y, Babu PVA, **Symons JD**, Jalili T. Metabolites of flavonoid compounds preserve indices of enothelial cell nitric oxide bioavailability under glucotoxic conditions. *Nutr Diabetes.* 2017 Sep 11; 7(9):e286. doi: 10.1038/nutd. 2017.34. PMID:28892039.
- Bharath LP, Cho JM, Park SK, Ruan T, Li YY, Mueller R, Bean T, Reese V, Richardson RS, Cai JJ, Sargsyan A, Pires K, Babu PVA, Boudina S, Graham TE, **Symons JD**. Endothelial cell autophagy maintains shear stress-induced nitric oxide generation via glycolysis-dependent purinergic signaling to eNOS. *Arterioscler Thromb Vasc Biol*. 2017 37 (9) 1646-1656. PMID: 28684613. **LPB Selected for 2018 Werner Risau Early Career Investigator Award in Vascular Biology: Most outstanding paper published during 2017 in the Vascular Biology section of ATVB (LPB; Postdoctoral Fellow).*

2016

- Park S-Y, Rossman MJ, Gifford JR, Bharath LP, Bauersachs J, Richardson RS, Abel ED, **Symons JD**, and Riehle CM. Exercise-training improves vascular mitochondrial function. *American Journal of Physiology, Heart and Circulatory Physiology*. Apr 2016; 1;310(7):H821-9. PMID: 26825520 PMCID: PMC4867356.
- Li Y, Bharath LP, Qian Y, Ruan T, Anandh Babu PV, Bruno RS, **Symons JD**, Jalili T. y-Carboxyethyl hydroxychroman, a metabolite of γ−tocopherol, preserves nitric oxide bioavailability in endothelial cells challenged with high glucose. *Experimental Biology and Medicine* (Maywood, N. J.). Dec 2016; 241(18):2056 2062. PubMed [journal] PMID: 27465143 PMCID: PMC5102138.

2015

- Bharath LP, Ruan T, Li Y, Ravindran A, Wan X, Nhan JK, Walker M, Deeter L, Goodrich R, Johnson E, Munday D, Mueller R, Kunz D, Jones D, Reese V, Summers SA, Babu PVA, Holland WL, Zhang QJ, Abel ED, **Symons JD.** Ceramide initiated protein phosphatase 2A activation contributes to arterial dysfunction in vivo. *Diabetes*. Nov 2015; 64: 3914 - 3926. PMID: 26253611 PMC4613970
- Kwon OS, Tanner RE, Barrows KM, Runtsch M, **Symons JD**, Jalili T, Bikman BT, McClain DA, O'Connell RM, Drummond MJ. MyD88 regulates physical inactivity-induced skeletal muscle inflammation, ceramide biosynthesis signaling, and glucose intolerance. *American Journal of Physiology, Endocrinology and Metabolism.* 2015 Jul 1; 309 (1) : E11-21. doi: 10.1152/ajpendo.00124.2015. Epub ahead of print] 2015 May 12. PMID: 25968578 PMC4490331
- Barbarroja N, Rodriguez-Cuenca S, Nygren H, Camargo A, Pirraco A, Relat J, Cuadrado I, Pellegrinelli V, Medina-Gomez G, Lopez-Pedrera C, Tinahones FJ, **Symons JD**, Summers SA, Oresic M, Vidal-Puig A. Increased dihydroceramide / ceramide ratio mediated by defective expression of degs1 impairs adipocyte differentiation and function. *Diabetes.* 2015 Apr; 64(4):1180-92. doi: 10.2337/db14-0359. Epub 2014 Oct 28. PMID: 25352638
- Park S-Y, Ives S, Gifford J, Andtbacka R, Hyngstrom J, Reese V, Layec G, Bharath LP, **Symons JD,** and Richardson R. The impact of age on the vasodilatory function of human skeletal muscle feed arteries, *American Journal of Physiology, Heart and Circulatory Physiology.* Nov 20:ajpheart.00716.2015. doi: 10.1152/ajpheart.00716.2015. [Epub ahead of print] PMID: 26589330

2014

•Panneerseelan-Bharath L, Mueller R, Li YY, Ruan T, Kunz D, Goodrich R, Mills T, Deeter L, Sargsyan A, Babu PVA , Graham TE, **Symons JD.** Impairment of autophagy in endothelial cells prevents shear-stress induced increases in nitric oxide bioavailability. *Can J Physiol Pharmacol.* 2014 92: 605–612 dx.doi.org/10.1139/cjpp-2014-0017 PMID 24941409**Selected for Grant Pierce New Investigator Award from the American Heart Association to LPB (Postdoctoral Fellow)*

2013

•Ives SJ, Andtbacka RH, Noyes RD, Morgan RG, Gifford J, Park SY, **Symons JD**, Richardson RS. Alpha 1-adrenergic responsiveness in human skeletal muscle feed arteries: the impact of reducing extracellular pH. *Exp Physiol.* 2013 98(1) : 256-67. PMID: 22798402

•Bosse JD, Lin HY, Soesanto W, Sloan C, Zhang QJ, Abel ED, Dolinsky VW, **Symons JD**, Jalili T. (2013) A low carbohydrate – high fat diet reduces blood pressure in spontaneously hypertensive rats without deleterious changes in insulin resistance. *Am J Physiol.* 304 (12): H1733-1742. doi: 10.1152/ajpheart.00631.2012. PMID 23604708. Selected for online podcast/editorial/Editors picks.

2012

•Ives S, Andtbacka R, Hyung Kwon S, Shiu Y-T, Ruan T, Noyes RD, Zhang Q-J, **Symons JD,** and Richardson R. Heat and alpha1-adrenergic responsiveness in human skeletal muscle feed arteries: The role of nitric oxide. *J Appl Physiol.* 2012 113(11) : 1690-8. PMID: 23042905 PMCID: PMC3544510

•Larson A, Witman MA, Guo Y, Ives S, Richardson RS, Bruno RS, Jalili T, **Symons JD**. Acute, quercetin-induced reductions in blood pressure in hypertensive individuals are not secondary to lower plasma angiotensin-converting enzyme activity or endothelin-1: nitric oxide. *Nutr Res.* 2012 32(8) : 557-64. PMID: 22935338

•Zhang QJ, Holland WL, Wilson L, Tanner JM, Kearns D, Cahoon JM, Pettey D, Losee J, Duncan B, Gale D, Kowalski CA, Deeter N, Nichols A, Deesing M, Arrant C, Ruan T, Boehme C, McCamey DR, Rou J, Ambal K, Narra KK, Summers SA, Abel ED, **Symons JD**. Ceramide mediates vascular dysfunction in diet-induced obesity by PP2A-mediated dephosphorylation of the eNOS-Akt complex. *Diabetes*. 2012 61 (7): 1848-59. PMID: 22586587 PMCID:PMC3379648

•Miller CJ, Gounder SS, Kannan S, Goutam K, Muthusamy VR, Firpo MA, **Symons JD**, Paine R 3rd, Hoidal JR, Rajasekaran NS. Disruption of Nrf2/ARE signaling impairs antioxidant mechanisms and promotes cell degradation pathways in aged skeletal muscle. *Biochim Biophys Acta*. 2012 1822 (6): 1038-50. PMID: 22366763

2011

•Ives SJ, Andtbacka RH, Noyes RD, McDaniel J, Amann M, Witman MAH, **Symons JD**, Wray DW, Richardson RS. Human skeletal muscle feed arteries studied in vitro: the effect of temperature on α-adrenergic responsiveness. *Exp Physiol.* 2011 96 : 907-918. PMID: 21685444

•**Symons JD**, Hu P, Yang Y, Wang X, Zhang QJ, Wende AR, Sloan CL, Sena S, Abel ED, Litwin SE. Knockout of insulin receptors in cardiomyocytes attenuates coronary arterial dysfunction induced by pressure overload. *Am J Physiol Heart Circ Physiol*. 2011 300 : H374 - H381. PMID: 20971769

2010

•Tanner JM, Kearns DT, Kim BJ, Sloan C, Jia Z, Yang T, Abel ED, **Symons JD**. Fasting-induced reductions in cardiovascular and metabolic variables occur sooner in obese versus lean mice. *Exp Biol Med*. 2010 235 (12) : 1489-97. PMID: 21127345 PMCID: PMC3367312

2009

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Invited review articles/commentaries

●Park SK Cho JM, Mookherjee S, Pires PW, **Symons JD.** Recent insights concerning autophagy and endothelial cell nitric oxide generation. *Current Opinions in Physiology,*100614. 2022.

●Cho JM, Ghosh R, Mookherjee S, Boudina S, **Symons JD.** Reduce, Reuse, Recycle, Run ! : 4 Rs to improve cardiac health in advanced age. *Aging*,14. 2022. PMID: 36470665

- Cho JM, Ly K, Ly S, Ramous C, Park SK, **Symons JD.** Methods to evaluate the contribution from heparan sulfate to arterial function *ex vivo*. Methods in Molecular Biology. Humana Press. Submitted. 2020.
- **Symons JD.** Opportunity "Nox" : a novel approach to preventing endothelial dysfunction in the context of insulin resistance. *Diabetes.* 2013 62:1818-1820; doi:10.2337/db13-0255
- **Symons JD** and Abel ED. Lipotoxicity contributes to endothelial dysfunction : a focus on the contribution from ceramide. *Reviews in Endocrine and Metabolic Disorders.* 2013 14 (1) 59-68. doi: 10.1007/s11154-012-9235-3 PMID: 23292334
- Wende AR,* **Symons JD**,* Abel ED. (2012) Mechanisms of lipotoxicity in the cardiovascular system. *Curr Hypertens Rep.* 2012 14(6):517-31. PMID:23054891 PMCID: PMC3491122
- Larson A, **Symons JD**, Jalili T. Therapeutic potential of Quercetin to reduce blood pressure; review of efficacy and mechanisms. *Advances in Nutrition.* 2012 3 (1): 39-46. PMID: 22332099 PMCID: PMC3262612
- Larson AJ, **Symons JD**, Jalili T. (2010) Quercetin: A treatment for hypertension? - A review of efficacy and mechanisms. *Pharmaceuticals* 3 (1) : 237-250 doi:10.3390/ph3010237
- Singhal AK, **Symons JD**, Boudina S, Jaishy B, Shiu Y-T E. (2010) Role of endothelial cells in myocardial ischemia-reperfusion injury. *Vascular Disease Prevention*. 7 : 1-14 doi: 10.2174/1567270001007010001]
- **Symons JD** and Stebbins CL. The role of vasopressin and angiotensin II in the hemodynamic response to dynamic exercise*. Control of cardiovascular and respiratory systems in health and disease.* CT Kappagoda and MP Kaufman (eds). *Adv Exp Med Biol*. 1995; 381:215-21. PMID: 8867837
- Longhurst JC and **Symons JD.** (1993) Function and development of coronary collateral vessels. *Collateral Circulation.* W Schaper and J Schaper (eds). Kluwer Academic Publishers. 195-214

Partial list of completed grant support

- R03AG052848-01A1 01/01/2017 – 12/31/2018
NIH/NIA $50,000 2.40 CM
Characterizing the phenotype of young and old mice with disrupted vascular autophagy
The purpose of this grant is to obtain preliminary data concerning mechanisms whereby compromised autophagy limits endothelial cell nitric oxide generation.
Role:PI
- 16GRNT31050004 American Heart Association Western States Affiliate Grant-In-Aid
07/01/2016 – 06-30-2018
Aging limits autophagic flux in endothelial cells
154K over 2 years Role: PI
The purpose of this grant is to determine the time course of autophagy repression in endothelial cells during aging.
Role:PI
- UU Seed Grant Symons (PI) 11/15/2017 – 11/14/2018

University of Utah, Office of the Vice President for Research $20,000 0.06 CM
Exercise-training improves endothelial cell autophagy in older adults
Role:PI

- 1-12-BS-208 American Diabetes Association Research Grant

Mechanisms whereby endogenous ceramide impairs eNOS signaling and arterial function
01/2012 – 12/2014
This grant is a renewal that uses intact animals, isolated vessels and cell systems assays to determine mechanisms responsible for ceramide-induced vascular dysfunction.
100K per year / 3 years

- 7-08-RA-164

07/2008 – 11/2011
American Diabetes Association Research Grant
Role of ceramide in obesity-related vascular dysfunction.
To test the hypotheses that ceramide contributes to lowering nitric oxide bioavailability using cell culture, isolated vessel, and whole animal systems. Role: PI
Role: PI

- UU Research Committee Faculty and Research and Creative Grant

07/2008 – 06/2010
Determining the contribution from ceramide to cardiovascular complications associated with obesity in Sptlcb2+ mice.
The goal of this research is to determine whether ceramide evokes endothelial dysfunction in a tissue autonomous manner using a genetic approach.
Role: PI

- UU Interdisciplinary Research Grant

01/2010 – 12/2010
Determination of reactive oxygen / nitrogen species in cell culture models of oxidant stress using electron paramagnetic spectroscopy (EPR). Optimize the use of EPR to test the hypothesis that ceramide accumulation generates superoxide anion which combines with nitric oxide to form peroxynitrite and disrupt agonist mediated eNOS dimerization.
Role: PI

- 2R15HL091493-02A1

National Institutes of Health
The role of ceramide in contributing to vascular dysfunction in diet-induced obesity.
08/2012 – 07-2015 100K per year / 3 years Role: PI

- 1R15HL091493-01

01/2008 – 11/2011
National Institutes of Health R15 Grant; The role of ceramide in contributing to vascular dysfunction in diet-induced obesity. To provide undergraduate students with research training experience.
Role: PI

- University of Utah Funding Incentive Seed Grant

07/2011 – 06/2012
Mechanisms for ceramide-mediated vascular dysfunction; This grant provides funds for investigators to obtain preliminary data to be used for extramural grant applications. These funds will be used to optimize cell imaging studies for mapping intracellular protein movement.
28 K per year; 1 year; Role: PI

- University of Utah College of Health Research and Creative Grant Fund

06/2011 – 05/2012
Ceramide binds I2PP2A and activates PP2A. This grant funds preliminary experiments to determine how ceramide activates PP2A. 6K per year; 1 year,

Role: PI
•University of Utah, Center on Aging : Pilot and Feasibility Grant
Links among autophagy, mitophagy, and nitric oxide bioavailability in aging vasculature.
01-01-2015 – 12-12-2015
20K / 1 year Role: PI
This grant is designed to provide funds to collect preliminary data for extramural applications.
•University of Utah, Diabetes and Metabolism Center : Pilot and Feasibility Grant
Characterizing a mouse model to study vascular autophagy in obesity and type 2 diabetes
01-01-2015 – 12-12-2015
This grant is designed to provide funds to generate / characterize iecAtg3KO mice.
25K / 1 year Role: PI
•University of Utah, Center on Aging : Pilot and Feasibility Grant
Links among autophagy, mitophagy, and nitric oxide bioavailability in aging vasculature.
01-01-2015 – 12-12-2015
20K / 1 year Role: PI
This grant is designed to provide funds to collect preliminary data for extramural applications.
•University of Utah, Diabetes and Metabolism Center : Pilot and Feasibility Grant
Characterizing a mouse model to study vascular autophagy in obesity and type 2 diabetes
01-01-2015 – 12-12-2015
25K / 1 year Role: PI
This grant is designed to provide funds to collect preliminary data for extramural applications.
•NRSA T32
National Institutes of Health, Institutional Research Training Grant
Training in Metabolism
07/2011 – 06/2014 Role: Investigator; PI: ED Abel.
•University of Utah Research Committee Faculty Research and Creative Grant- VP-0981
Does gamma tocopherol supplementation lessen endothelial dysfunction in mice with type 2 diabetes?
12/2012 – 11/2013 6K Role: PI
•VP-0672 University of Utah Funding Incentive Seed Grant
Mechanisms for ceramide-mediated vascular dysfunction
07/2011 – 06/2012 28K / 1 year, Role: PI
•University of Utah College of Health Research and Creative Grant
Ceramide binds I2PP2A and activates PP2A.
06/2011 – 05/2012 6K per year; 1 year, Role: PI
•University of Utah College of Health Research and Creative Grant
Reduction of blood pressure in hypertensive rats by feeding a high fat diet: mechanisms and metabolic effects.
07/2010 – 06/2011 6K per year; 1 year, Role: Co-I (Dr. T Jalili PI)
•National Institutes of Health RO1
Mechanisms of the diabetic myocardial vulnerability.
07/2005 – 06/2010 $1.25M Role: Co-I (Dr. S Litwin PI)
•University of Utah Research Committee Faculty Research and Creative Grant
Determining the contribution from ceramide to cardiovascular complications associated with obesity in Sptlcb2+ mice.
07/2008 – 06/2010 6K Role: PI
•University of Utah Office of the Vice President : Interdisciplinary Research Grant
Determination of reactive oxygen / nitrogen species in cell culture models of oxidant stress using electron paramagnetic spectroscopy (EPR).
01/2010 – 12/2010 8K Role: PI

•Grant in Aid
American Heart Association, Western States Affiliate
Exercise-training increases nitric oxide bioavailability in insulin receptor null mice Role: PI
2006-2008 70K per year Role: PI
•University of Utah College of Health Research and Creative Grant
Ceramide contributes to vascular insulin resistance, vascular dysfunction, and systemic hypertension in diet-induced obesity.
07/2007 – 06/2008 6K Role: PI
•University of Utah College of Health Research and Creative Grant
Physical activity lessens ischemia-induced myocardial and coronary vascular dysfunction in diabetes.
06/2004 - 05/2005 6K Role: PI
•University of Utah Teaching Committee: Individual Teaching Grant
Hardware / software to evaluate cardiac output in humans in ESS 4310 / 6310 laboratory
02-2004 3K, Role: PI
•University of Utah Technology Commercialization Project
Supplementing quercetin in the diet can prevent hypertension
07/2003 -06/2004 30K Role: Co-I (Dr. T Jalili PI)
•University of Utah Office of the Vice President : Research Foundation Seed Grant
Coronary vascular function in mice with cardiac-selective deletion of the insulin receptor.
01/2003 -12/2004 35K Role: PI
•Scientist Development Grant American Heart Association, National Affiliate
Hyperhomocysteinemia : Effects on arterial permeability, compliance, and lesion development in mice
01/2001 – 12/2005 75K per year, 4 years Role: PI

Presentations at National/International Meetings

a. Mookherjee S, Park SK, Cho JM, Brown R, Jacob J, Zhu W, Sun Z, Symons JD. *Brain endothelial cell barrier function is compromised by autophagy depletion.* UU Center of Aging (COA) Conference, UU, 2022; and Park et al., *FASEB J.* 2022 May;36. Philadelphia, PA.

2023 (submitted)

•Mookherjee S, Denorme F, Begaye L, Chaix A, Rondina M, Campbell RA, **Symons JD**. *Inducible depletion of Atg3 specifically in endothelial cells worsens outcomes of acute ischemic stroke.* Abstract submitted Dec 2022 for American Physiologiy Summit. Long Beach CA April 2023

Mookherjee S, Hill N, Fairbourn B, He Y, Boudina S, Shiu YT, Lee T, **Symons JD.** *Endothelial function of vascular segments that comprise a murine arteriovenous fistula.* Abstract submitted Dec 2022 for American Physiological Summit. Long Beach, CA April 2023

c. Mookherjee S, Cho JM, Park SK, Sultan H, Bourrant PE, Peterson CS, Begaye LJ, Chaix A, Symons JD. (July 2021) *The influence of time-restricted feeding on cerebral artery function in obese mice.* DMRC Conference. UU, Salt Lake City, UT. 2021.

d. Mookherjee S, Tobin SY, Symons JD, Chaix A. *Could TRF turn the cardiovascular clock?* Manuscript submitted August 2022

Mentee presentations. Presentations by mentees R Brown, M Tandar, H Sultan, N Hill and M Light are shown below.

• R Brown. *Assessing autophagic flux in primary arterial endothelial cells from humans.* Summer Undergraduate Research Symposium, UU, Salt Lake City, UT. 2020.

• R Brown. *Obtaining primary arterial endothelial cells from patients with cardiovascular complications.* Presented 2x (i) Utah Cardiac and Recovery Symposium. UU, Salt Lake City, UT. 2021; (ii) Utah Conference for Undergraduate Research (UCUR), Brigham Young University, 2021.

• Brown R. *Endothelial cell barrier function is compromised by autophagy depletion.* Presented 3x (i) DMRC conference, UU, Salt Lake City, UT. 2021; (ii) Summer Undergraduate Research Symposium, UU, Salt Lake City, UT. 2021; (iii) National Conference for Undergraduate Research (NCUR), California State University-Long Beach, 2021.

• Tandar M. *Repressed autophagy with aging associates with heightened blood-brain-barrier permeability.* Presented 3x (i) International Science & Engineering Fair, Atlanta, GA. 2022 (Award: University of Arizona Renewable Tuition Scholarship); (ii) UU Science & Engineering Fair (1st Place Biology & Microbiology Category,1st Place Journal of Young Investigators Best Abstract, UU College of Science Scholarship); (iii) SLC School District Science Fair, 2022 (2nd Place Senior Medicine, Health Sciences & Biomedical Engineering).

• Sultan H. *The influence of time-restricted feeding on arterial function in obese mice.* Presented 4x. (i) Utah Conference for Undergraduate Research, UW-Eu Claire, WI, 2022; (ii) Research on Capitol Hill (ROCH), Salt Lake City, UT 2022; (iii) Undergraduate Research Symposium, UU, 2022; (iv) Biomedical Engineering Undergraduate Symposium, UU, 2022.

• Hill N. *Vasoreactivity of a murine model of arteriovenous fistula.* Presented 2 x. (i) DMRC conference, UU, Salt Lake City, UT. 2022; (ii) Summer Undergraduate Research Experience Program conference, UU, Salt Lake City, UT. 2022.

• Light M. *Intact endothelial cell autophagy preserves outcomes of acute ischemic stroke in mice.* Accepted 2x. (i) Undergraduate Research Opportunity Program (UROP), (ii) UCUR conference, and Submitted 2x. (i) NCUR conference, (ii) ROCH conference.

2022

●Li J, Richmond B, Walsh M, Bia R, Shaw K, **Symons JD,** Franklin S, Rutter J, Funai K, Shaw R, Hong TT. Cardiac Bridging Integrator 1 Gene Therapy Rescues Diabetic Cardiomyopathy In Mice. American Heart Association Annual General Meeting 2022.

● Ghosh R, Fatahian F, Hathaway M, Stephens S, Siu-Lai Desmond Chung, Cao ID, Symons JD, and Boudina S. Cardiac P62/sqstm1 Deficiency Exacerbates Hypoxic Stress Via Impaired Hypoxia Inducible Factor 1α Signaling. 2022, American Heart Association Scientific Sessions.

●Park SK, Cho JM, Mookherjee S, Brown R, Jacob J, Zhu W, Sun Z, **Symons JD**. Brain endothelial cell barrier function is compromised by autophagy depletion. The FASEB Journal. May;36.

2021

•Brown R, Namdaran P, Park SK, Stephens S, Sultan H, Meaux S, Cho JM, Drake R, Dranow E, Tandar A, Boudina S, **Symons JD**. Obtaining primary arterial endothelial cells from patients with cardiovascular complications. Utah Cardiac and Recovery Symposium 2021

•Cho JM, Park SK, Kwon OS, La Salle DT, Cerbie J, Fermoyle CC, Morgan D, Nelson A, Bledsoe A, Bharath LP, Tandar M, Kunapuli SP, Richardson RS, Babu PVA, Mookherjee S, Kishore BK, Wang F, Yang T, Boudina S, Trinity JD, **Symons JD**. Activating P2Y1 receptors improves function in arteries with repressed autophagy. Vascular Discovery: From Genes to Medicine 2021

•Rajeshwary Ghosh, Nima Fatahian Vishaka Vinod, John David Symons, and Sihem Boudina. Sqstm1/P62 Regulates Hypoxia Inducible Factor 1 Alpha Stabilization and Protects the Heart from Hypoxic Injury. September 2021; Circulation Research, Basic Cardiovascular Sciences Scientific Sessions, 2021.

•Fatahian AN, Ghosh R, Pires KM, Mosleh T, Vinod V, Vowles S, Campbell KS, **Symons JD**, Boudina S. Sequestosome1/p62 Regulates Redox Homeostasis Via the Nrf2-keap1 Pathway in The Murine Heart. September 2021; Circulation Research Basic Cardiovascular Sciences Scientific Sessions, 2021.

2020

•Cho JM, Ly K, Hansen M, Ramous MS, Thompson L, Pires M, Ferhat M, Whitehead K, Carter K, Buffolo M, Ghosh R, Park SK, Boudina S, **Symons JD.** Late-in-life treadmill-training improves autophagy, protein clearance, and contractile function in mouse hearts. Integrative Biology of Exercise, Virtual Event

•Cho JM, Hansen M, Ly K, Ramous MS, Thompson L, Whitehead K, Carter K, Park SK, Petersen C, Kuppuswamy SBA, Zhong Y, Jalili T, Robeson II MS, Whankade UD, Shankar K, Boudina S, Babu PVA, **Symons JD.** Late-in-life exercise training improves composition of the intestinal microbiome. Oral presentation. Award winner. Integrative Biology of Exercise, Virtual Event

•Cho JM, Park SK, La Salle DT, Cerbie J, Bledsoe A, Nelson A, Morgan DE, Richardson RS, Shiu YT, Boudina S, Trinity JD, **Symons JD.** Age-associated arterial dysfunction is rejuvenated by targeted reactivation of protein kinase Cδ. The FASEB Journal 2020 April;34:1-1. Experimental Biology.

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1995

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1994

Symons JD, Stebbins CL. Angiotensin II (ANG II) modulates myocardial blood flow via AT-1 receptors in exercising miniswine. *FASEB J*, 1994; 8 : A289.

Symons JD, Stebbins CL. Splanchnic blood flow responses to nicotine infusion at rest and during treadmill running in miniswine. *Medicine & Science in Sports & Exercise*, 1994; 26 (5 Suppl.) : S132.

1993

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1992

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1991

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1990

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1989

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Stahl GL, Amsterdam EA, **Symons JD**, Longhurst JC. Complement C5A-induced myocardial ischemia role of cyclooxygenase and lipoxygenase metabolites. *Circulation*, 1989; 80 (4 Suppl. 2) : II547.

Stahl GL, **Symons JD**, Amsterdam EA, Longhurst JC. Zymosan-activated serum and C5A induce similar alterations in coronary flow and myocardial function. *Clinical Research*, 1989; 37 (2) : 522A.
Symons JD, Longhurst JC. Chronic beta-adrenergic blockade does not attenuate coronary collateral flow in miniswine. *Circulation*, 1989; 80 (4 Suppl. 2) : II310.

1988
Symons JD, Jacobs I. Force generation during repeated maximal muscle contractions is not impaired by low intramuscular glycogen. *Medicine and Science in Sports and Exercise*, 1988; 20 (2) : S26.

1987
Hermiston AJ, Jacobs I, **Symons JD**.Comparison of exercise-induced and drug-induced acidosis on supramaximal exercise performance: 98. *Medicine & Science in Sports & Exercise*, 1987; 19 (2 Suppl.) : S17.
Symons JD, VanHelder T, Myles WS. Sleep deprivation and its effect on selected physical performance parameters: 38. *Medicine & Science in Sports & Exercise*, 1987; 19 (2) : S7.
vanHelder T, **Symons JD**, Radomski MW. The effects of sleep deprivation and daily physical activity on plasma growth hormone *Canadian Journal of Applied Sports Sciences.* 12 (3)
Symons JD, Bell D, Pope J, vanHelder T, Myles WS. Electromechanical response times and rate of force development in males before and after sleep deprivation. *Canadian Journal of Applied Sports Sciences.* 12 (3)
vanHelder T, **Symons JD**, Radomski MW. The effects of sleep deprivation and physical activity on insulin sensitivity and carbohydrate metabolism. *Canadian Journal of Applied Sports Sciences.* 12 (3)

1986
Symons JD, Vigna S, and Evonuk E. The effect of chronic exercise on circulating levels of PGI2, high density lipoprotein, and total cholesterol. *Canadian Journal of Applied Sports Sciences.* 11 (3): 43P
Kavanagh MF, Jacobs I, Pope J, **Symons JD**, Hermiston A. The effects of hypoxia on performance of the Wingate anaerobic power test. *Canadian Journal of Applied Sports Sciences.* 11 (3): 23P

1985
Symons JD. The effects of chronic exercise on prostacyclin (PGI↓ 2, Epoprostenol), high density lipoproteins (HDL), and total cholesterol (TC). Dissertation. 1985.

1982
Symons JD, Agnew J, Evonuk E. The effect of chronic and acute exercise on ADP-induced aggregation times of blood platelets in rats. The Physiologist, 25 (4): 207. 9.7

SERVICE

Session Chairperson. At the following meetings: Experimental Biology, American Heart Association, American College of Sports Medicine, Utah Conference for Undergraduate Research, National Conference for Undergraduate Research, University of Utah Conference for Undergraduate Research, Diabetes and Metabolism Center Retreat.

Journal reviewer: Journals of the American Physiological Society (APS), American Heart Association (AHA), American College of Sports Medicine; American College of Cardiology,

American Diabetes Association, Diabetologia, Journal of Molecular and Cellular Cardiology, European Journal of Applied Physiology, British Journal of Pharmacology, Cardiovascular Research, American Journal of Clinical Nutrition, Journal of Nutritional Biochemistry, Journal of Physiology, Experimental Physiology, Life Sciences, Food and Function, Chinese Journal of Physiology, Nutrition Research, Journal of Cardiovascular Medicine, Scientific Reports, Cardiovascular Diabetologia, Heart and Vessels, Cell Death and Disease, Cellular and Molecular Life Sciences, Abstract reviewer for ACSM and SWACSM AGM, International Heart Journal, Canadian Journal of Cardiology, International Journal of Biological Macromolecules; Cellular and Molecular Life Sciences

Editorial Board: American Journal of Physiology; Endocrinology and Metabolism

Laboratory host: UU Undergraduate research opportunities program (UROP), APS and AHA Summer Research Fellowship Programs, Biology UROP, Honors College, LEAP Program; UU Medical Student Research Program, Native American Research Internship Program. Moderator / organizer – multiple times for UU Undergraduate research conference (URC), UCUR, AHA Summer Research Roundtable meeting; Mentor for APS Minority Travel Award Program; ADA Minority Undergraduate Research Internship Program; APS STEP Fellowship Program; APS STRIDE Fellowship Program.

Grant reviewer: AHA Western States Affiliate; External reviewer-Medical Research Council of Canada; Alberta Heart and Stroke Foundation; Veterans Affairs Merit Review-External Grant Examiner; Alcoholic Beverage Medical Research Foundation; UU VP for Research; UU Research Committee; UU COH Research Committee; UU Center on Aging; UU UROP; Mock study section member for grants submitted by RHSCI 7020 Principles of Clinical Research II (UU Physical Therapy students), AHA Career Development Award Vascular Basic Sciences 2 Committee

University committees: UU Research Committee; Institutional Animal Use and Care Committee; UU Graduate Research Fellowship Committee; UU SOM Awards Committee, UU Academic Senate.

Poster Judge. EB, Diabetes and Metabolism Center

College/Departmental Committees: COH Research Committee; Faculty search committees (ESS, NuIP, Nephrology, NUTR); Chair search committee (ESS/NUTR); RPT Committee (2-time chair ESS) and NUTR; Student award committee; Organized outside seminar speakers to COH and ESS (I Jacobs, D McKirnan, C Stebbins, P Thomas); ESS Curriculum streamlining committee; ESS Graduate student selection committee; College of Health Realignment Committee; College Council Committee Chair (2014-2020); NuIP RPT Committee Chair; COH Research Committee (present).

National committees: APS Cardiovascular Section Fellowship Committee

STUDENT AWARDS (UU only)

2002 Jamie Vener, Ph.D. Student – Exercise and Sport Science Alice Oakes Bronson Award
2003 Roshny Pattathu, Masters Student - Exercise and Sport Science Outstanding Masters Student; Southwest Chapter ACSM (SWACSM) – Gail Butterfield Award Winner; Finalist – Best Abstract SWACSM Annual General Meeting.
2003 Robert Pettit, Ph.D. Student – National Strength and Conditioning Association (NSCA) Graduate Student Research Award

2005-present 72 undergraduate students have received UROP funding ($130K); 8 have received APS Summer Research Awards ($52K), 18 have received AHA Summer Research Awards (117K), 6 have received UU Medical School Summer Research Awards, and one has received funding from the Native American Research Internship Program.
2005 S McMillin, Masters Student - Exercise and Sport Science Outstanding Masters Student; Finalist – Best oral presentation SWACSM Annual General Meeting.
2006 S McMillin, Best oral presentation SWACSM Annual General Meeting; Gail Butterfield Award Winner
2006 M Palionyte, Bamberger Award, Top UU UROP application
2002-present J Lloyd, L Wilson, J Tanner, A Nichols, T Ruan, JK Nhan, Nominees and / or Finalists for the David Bruce Award for Excellence in Undergraduate Research. This is a national award presented at Experimental Biology.
2010 Stephen Elmer - University of Utah Teaching Assistant Award (J Martin and JD Symons co-sponsors)
2010 Jason Tanner - National Consortium for Measurement and Signature Intelligence Research Scholars Program Scholarship (JD Symons sponsor).
2011 T Ruan, 2nd place, Senior Project Presentation, Bioengineering Dept
2013 J Nhan, David Bruce Award for best abstract; Finalist: Outstanding Undergraduate Researcher Award, Experimental Biology 2013
2013 L Deeter, University of Utah Undergraduate Research Opportunities Program “Super Scholar Award.”
2013 L Bharath. Grant Pierce Biomedical Research Prize, Top Conference Abstract, Invited Symposium Speaker, Travel Award Winner: The cardiovascular forum for promoting centers of excellence and young investigators. Louisville, Kentucky August 2013.
2014 L Bharath, EB Travel Award, American Society for Molecular Biology
2014 T Ruan, Honors Thesis Marriott Award, Top Honors College Thesis, University of Utah
2015 L Deeter, Outstanding Ex Phys Student
2016 Seul-Ki Park, AHA Postdoctoral Fellowship
2017 L Bharath, Werner Risau Early Career Investigator Award, American Heart Association
2018 Jaemin Cho UU Graduate Research Fellowship
2019 Jaemin Cho AHA Predoctoral Fellowship
2018 Caroline Ramous, Dee Scholarship
2019 Kellsey Ly, American Society for Microbiology Top presentation award at American Biomedical Research Conference for Minority Students
2021 JaeMin Cho, Outstanding graduate student, Nutrition and integrative Physiology

CANDIDATE AWARDS

1985-1987 Visiting Fellowship, Natural Sciences and Engineering Research Council of Canada
1989American Heart Association Young Investigator Travel Award
1993 Elected Fellow, American College of Sports Medicine
1993, 1998 Recognition by the University of California for outstanding commitment and participation in mentorships for undergraduate researchers in Agriculture, Letters, and Science Program
1991-2000Academic Federation Research Travel Award
1999Clinical Nutrition Research Unit New Investigator Award
2000American College of Sports Medicine Visiting Scholar Award
2000American Physiological Society Research Career Enhancement Award
2000 Scientist Development Award, American Heart Association, National Affiliate, Scientist Development Award

2006 Elected Fellow, Cardiovascular Section, American Physiological Society
2010 Finalist, University Professor Award
2011 University of Utah, College of Health, Outstanding Senior Researcher Award
2013 University of Utah, College of Health, Distinguished Mentor Award

Student presentations (since UU appointment in 2001)
My laboratory has important undergraduate student involvement. As such, their presentations are highlighted below. At the time research was performed, * = undergraduate student; # = graduate student; & = medical student; + = postdoctoral fellow; no mark = faculty member.

Each of the major programs that students participate in is described below.

Research Posters on the Hill. The University of Utah Office of the Vice President for Research selects laboratories to submit abstracts for possible presentation to the Legislators at the State Capitol Building in Salt Lake City. Selected laboratories present their research, together with laboratories from other Institutions, in January of each year.

Undergraduate Research Opportunities Program (UROP). The University of Utah (UU) UROP provides undergraduate students and faculty members the opportunity to work together on research projects. Research activity is defined to include projects that pursue evidence to test their hypotheses and / or projects designed to solve specific problems.

American Heart Association Western States Affiliate, Undergraduate Summer Research Fellowship. The purpose of this undergraduate research training program is to encourage promising students from all disciplines, including women and members of minority groups underrepresented in the sciences, to consider research careers while supporting the highest quality scientific investigation broadly related to cardiovascular disease and stroke.

American Diabetes Association, Minority Undergraduate Internship. Current ADA award holders are eligible to apply for an award to support a minority undergraduate intern to train in their laboratory or clinical setting. For the purposes of this award, eligible minority groups include: African American, Spanish, Hispanic or Latino, Native American or Alaskan Native, and Native Hawaiian or Pacific Islander.

American Physiological Society/National Heart Lung Blood Institute Short-Term Research Education Program to Increase Diversity in Health-Related Research (STRIDE) and Undergraduate Research Fellowship Program (APS UGRF). The APS Short-Term Research Education Program to Increase Diversity in Health-Related Research (STRIDE) Fellowship provides hands-on summer research experience for underrepresented undergraduate students interested in exploring biomedical research careers. The program provides exposure to the core National Heart, Lung, and Blood Institute (NHLBI) mission areas of cardiovascular, pulmonary, hematologic, and sleep disorders research. Summer 2013 STRIDE student:

Science Without Borders (Brazil)– Undergraduate Summer Research Program. This program provides more than 100,000 scholarships until 2014. They choose top students from Brazil (high GPA, academic commitment, and other skills) and the scholarship for undergrad, master degree and doctor degree. For undergrad students this scholarship lasts 1 year and pays travel, tuition, meals, housing, and a modest monthly stipend.

Native American Research Internship A unique program in the Intermountain West, the Native American Research Internship Program (NARI) offers paid research internships to Native American undergraduate students pursuing careers in the biomedical and health sciences professions. Students from across the U.S. come to the U to work in laboratory or clinical research settings with research faculty. They are mentored by indigenous U faculty, staff, and community members; attend a Native American health conference; engage with the local Native American community; and learn the "ins and outs" of applying to graduate or medical school.

Frank Tyler Research Trainee Symposium: Molecular Medicine and Medical School Research Program. The University of Utah Medical School has an ongoing training grant from the NIH to support current medical students for a 10-week research experience between the 1st and 2nd year of their medical training program at UU.

Undergraduate Presentations

- 2022
- Mookherjee S, Park SK, Cho JM, Brown R, Jacob J, Zhu W, Sun Z, **Symons JD**. Brain endothelial cell barrier function is compromised by autophagy depletion. UU Center on Aging Conference, Salt lake city August.
- Mookherjee S, Hill N, Fairbourn B, He Y, Boudina S, Lee T, Shiu YT, **Symons JD.** Endothelial function of vascular segments that comprise a murine arteriovenous fistula. Submitted for Graduate student award at Graduate Student Cardiovascular Renal Research Symposium, The University of Mississippi Medical Center, Jackson, MS.
- Mookherjee S, Denorme F, Begaye L, Chaix A, Rondina M, Campbell RA, **Symons JD**. Inducible depletion of *Atg3* specifically in endothelial cells worsens outcomes of acute ischemic stroke. Diabetes and Metabolism Research Center Retreat Conference, Salt lake city, September.
- Sultan H, Mookherjee S, Chaix A, Symons JD. The influence of time-restricted feeding on arterial function in obese mice. Utah Conference for Undergraduate Research, UW-Eu Claire, WI, February
- Sultan H, Mookherjee S, Chaix A, Symons JD. The influence of time-restricted feeding on arterial function in obese mice. Biomedical Engineering Undergraduate Symposium, Salt lake city, April
- Hill N, Mookherjee S, Fairbourn B, He Y, Boudina S, Shiu YT, Lee T, Symons JD. Vasoreactivity of a murine model of arteriovenous fistula. Summer Undergraduate research symposium, April
- Hill N, Mookherjee S, Fairbourn B, He Y, Boudina S, Shiu YT, Lee T, Symons JD. Vasoreactivity of a murine model of arteriovenous fistula. Diabetes and Metabolism Research Center retreat conference, September
- Hill N, Mookherjee S, Fairbourn B, He Y, Boudina S, Shiu YT, Lee T, Symons JD. Vasoreactivity of a murine model of arteriovenous fistula. Submitted for acceptance-Utah Conference for Undergraduate Research, 2023
- Light M, Mookherjee S, Denorme F, Campbell R, Symons JD. Intact endothelial autophagy preserves outcomes of acute ischemic stroke in mice. Utah Research Opportunity Program.
- Light M, Mookherjee S, Denorme F, Campbell R, Symons JD. Intact endothelial autophagy preserves outcomes of acute ischemic stroke in mice. Submitted for acceptance-Utah Conference for Undergraduate Research, 2023
- Light M, Mookherjee S, Denorme F, Campbell R, Symons JD. Intact endothelial autophagy preserves outcomes of acute ischemic stroke in mice. Submitted for acceptance-Research on Capitol hill, 2023

2021

- Brown R, Stephens S, Meaux S, Sultan H. Obtaining primary arterial endothelial cells from patients with cardiovascular complications. Utah Conference for Undergraduate Research, Brigham Young University, Virtual Event, February
- Brown R, Stephens S, Meaux S, Sultan H. Obtaining primary arterial endothelial cells from patients with cardiovascular complications. Utah Cardiac and Recovery Symposium, Virtual Event, March
- Brown R, Stephens S, Meaux S, Sultan H. Obtaining primary arterial endothelial cells from patients with cardiovascular complications. National Conference for Undergraduate Research,

California State University-Long Beach, Virtual Event, April
- Sultan H, Mookherjee S, Chaix A, Symons JD. The influence of time-restricted feeding on arterial function in obese mice. Research on Capitol Hill, Salt lake city, UT, October
- Brown R, Stephens S, Meaux S, Sultan H. University of Utah Undergraduate Research Symposium (planned submission), April – planned submission
- Stephens S, Brown R, Meaux S, Sultan H. University of Utah Undergraduate Research Symposium (planned submission), April – planned submission

2020

- Ramous C, Thompson L, Ly Kellsey, Ly Sebastian, **Symons JD.** Training-induced vascular adaptations occur in mice with endothelial cell specific deletion of Atg3. *Utah Conference for Undergraduate Research.* Utah State University.
- Kellsey Ly Ramous C, Thompson L, Ly Sebastian, **Symons JD.** Aging-associated accumulation of myocardial protein aggregates in mice is attenuated by late-in-life exercise training. *Utah Conference for Undergraduate Research.* Utah State University.
- Thompson L, Ramous C, Ly Kellsey, **Symons JD.** Inducible disruption of endothelial cell ceramide biosynthesis: Vascular implications *Utah Conference for Undergraduate Research.* Utah State University.
- Ramous C, Thompson L, Ly Kellsey, Ly Sebastian, **Symons JD.** Training-induced vascular adaptations occur in mice with endothelial cell specific deletion of Atg3. *National Conference for Undergraduate Research.* Montana State University, Bozeman, MT

2019

- Ramous C, Thompson L, Ly Kellsey, Li Sebastian, **Symons JD.** Late-in-life treadmill-training ameliorates the decline in cardiac autophagy associated with aging in mice. *Utah Conference for Undergraduate Research.* Weber State University.

• Ramous C, Thompson L, Ly Kellsey, Li Sebastian, **Symons JD.** Late-in-life treadmill-training ameliorates the decline in cardiac autophagy associated with aging in mice. *Research on Capitol Hill.* Utah State Legislature, Salt Lake City, UT
• Ramous C, Thompson L, Ly Kellsey, Li Sebastian, **Symons JD.** Late-in-life treadmill-training ameliorates the decline in cardiac autophagy associated with aging in mice. *University of Utah Undergraduate Research Symposium.* Salt Lake City, UT.
• Luu K, Thompson L, Ly Kellsey, Thompson L, Ramous C, Tippetts T, Warren T, Summers S, **Symons JD.** Inducible disruption of dihydroceramide desaturase : Vascular implications. *Summer Program for Undergraduate Research Symposium.* University of Utah.
• Ramous C, Thompson L, Ly Kellsey, Ly Sebastian, **Symons JD.** Training-induced vascular adaptations occur in mice with endothelial cell specific deletion of Atg3. *Summer Program for Undergraduate Research Symposium.* University of Utah.
• Kellsey Ly Ramous C, Thompson L, Ly Sebastian, **Symons JD.** Aging-associated accumulation of myocardial protein aggregates in mice is attenuated by late-in-life exercise training. *Summer Program for Undergraduate Research Symposium.* University of Utah.
• Thompson L, Ramous C, Ly Kellsey, **Symons JD.** Inducible disruption of endothelial cell ceramide biosynthesis: Vascular implications. *Summer Program for Undergraduate Research Symposium.* University of Utah.
• Kellsey Ly Ramous C, Thompson L, Ly Sebastian, **Symons JD.** Aging-associated accumulation of myocardial protein aggregates in mice is attenuated by late-in-life exercise training. *American Biomedical Research Conference for Minority Students.* Top Abstract / Presentation Winner for American Microbiology Society.

2018

•Wallace A, Hauck B, Hansen M, White M, **Symons JD.** Can exercise training limit endothelial dysfunction in aged mice by preserving vascular autophagy? *Research on Capitol Hill,* Salt Lake City, UT February, 2018.
•Wallace A, Hauck B, Hansen M, White M, **Symons JD** Can exercise training limit endothelial dysfunction in aged mice by preserving vascular autophagy? *Utah Conference on Undergraduate Research*, Southern Utah University, Cedar City, UT February, 2018.
•Wallace A, Hauck B, Hansen M, White M, **Symons JD** Can exercise training limit endothelial dysfunction in aged mice by preserving vascular autophagy? *National Conference on Undergraduate Research*, University of Central Oklahoma, Edmond, OK April, 2018.
•Yang K, **Symons JD**. Exercise-training increases basal autophagy-related gene expression in murine arterial endothelial cells. University of Utah Undergraduate Research Symposium, April, 2017. Conference Paper, Presented, 04/2017.
•Bonn T, **Symons JD**. Coronary vascular function is improved in ischemic patients after continuous-flow left ventricular assist device implantation. University of Utah Undergraduate Research Symposium, April, 2017. Conference Paper, Presented, 04/2017.
•Harmon M, **Symons JD**. Mice with endothelial cell specific disruption of autophagy: a histological evaluation. University of Utah Undergraduate Research Symposium, April, 2017. Conference Paper, Presented, 04/2017.

2017

•Yang K, **Symons JD**. Exercise-training increases indices of autophagy in endothelial cells and intact arteries. Utah Conference for Undergraduate Research (Utah Valley University), Feb, 2017. Conference Paper, Presented, 02/2017.
•Bean T, and **Symons JD**. Exercise-training increases basal autophagy to an extent that improves arterial function. Posters on the Hill. Conference Paper, Presented, 01/2017.
•Bonn T, **Symons JD**. Coronary Vascular Function Is Improved in Ischemic Patients After

Continuous-Flow Left Ventricular Assist Device Implantation. Utah Cardiac and Recovery Symposium, Jan, 2017. Conference Paper, Presented, 01/2017.

- Bean T, and Symons. Exercise-training increases basal autophagy to an extent that improves arterial function. *Posters on the Hill*, January, 2017
- Bonn T, **Symons JD**. Coronary vascular function is improved in ischemic patients after continuous-flow left ventricular assist device implantation. *Utah Cardiac and Recovery Symposium,* January, 2017.
- Yang K, and **Symons JD**. Exercise-training increases basal autophagy-related gene expression in murine arterial endothelial cells. *Utah Conference for Undergraduate Research,* Utah Valley University, February, 2017.
- Bonn T, **Symons JD**. Coronary vascular function is improved in ischemic patients after continuous-flow left ventricular assist device implantation. *University of Utah Undergraduate Research Symposium*, April, 2017.
- Yang K, and **Symons JD**. Exercise-training increases basal autophagy-related gene expression in murine arterial endothelial cells. *University of Utah Undergraduate Research Symposium*, April, 2017.
- Harmon M, and **Symons JD**. Mice with endothelial cell specific disruption of autophagy : a histological evaluation. *Undergraduate Research Symposium*, April, 2017.

2016

- Bean T, **Symons JD**. Endothelial cell specific disruption of autophagy: Effect on blood pressure, arterial stiffness, and Arterial Permeability in Mice. *University of Utah Undergraduate Research Symposium*, April, 2016.
- Hestwood G, **Symons JD**. Histological Evaluation Of Arteries From Mice With Endothelial-Cell Specific Disruption of Autophagy. *University of Utah Undergraduate Research Symposium,* April, 2016.

2015

- Goodrich R, Mueller R, Munday D, Jaojaco B (LP Bharath, YY Li, PVA Babu , TE Graham, JD Symons) Vascular autophagy, nitric oxide bioavailability, and arterial aging. *Posters on the Hill,* January, 2015.
- Goodrich R, Bharath LP, Ruan T, Forostyan T, Sargsyan A, Han Y, Mueller R, Babu PVA, Boudina S, Graham TE, **Symons JD**. Cross-talk between autophagy and mitophagy regulates shear-induced nitric oxide production in endothelial cells. *Utah Conference on Undergraduate Research,* Dixie State University, St. George, UT February 2015
- Munday D, **Symons JD**. Protein phosphatase 2A inhibition preserves arterial function in obese mice. *Utah Conference on Undergraduate Research,* Dixie State University, St. George, UT February 2015
- Goodrich R, and **Symons JD**. Cross-talk between autophagy and mitophagy regulates shear-induced nitric oxide production in endothelial cells. *National Conference for Undergraduate Research,* Eastern Washington University, Cheney, WA, March 2015
- Munday D, **Symons JD**. Protein phosphatase 2A inhibition preserves arterial function in obese mice. *National Conference for Undergraduate Research,* Eastern Washington University*, Cheney, WA, March 2015*
- Goodrich R, **Symons JD** Cross-talk between autophagy and mitophagy regulates shear-induced nitric oxide production in endothelial cells. *Undergraduate Research Symposium*, 2015.
- Munday D, **Symons JD**. Protein phosphatase 2A inhibition preserves arterial function in obese mice. *Undergraduate Research Symposium*, 2015. *University of Utah Undergraduate Research Journal*, Spring 2015.

Research Posters On The Hill, Utah State Capital, Salt Lake City, January 2014
Deeter L, Uzoigwe E, Kunze D, Mills T, Jionang-Dapeu E (J. David Symons, Timothy E. Graham, Leena Panneerseelan, Youyou Li, Ashot Sargsyan). Physiological and pathophysiological stimuli alte endothelial cell autophagy.

Utah Conference on Undergraduate Research, Brigham Young University, February 2014
Uzoigwe E, **Symons JD**. Physiological and pathophysiological stimuli alter endothelial cell autophagy. *Utah Conference on Undergraduate Research.*

Wan X, **Symons JD.** Protein phosphatase 2A activation contributes to endothelial dysfunction that occurs in mice with diet-induced obesity. *Utah Conference on Undergraduate Research.*
Deeter L, **Symons JD.** Coronary vascular function is improved in ischemic patients following continuous-flow left ventricular assist device implantation. *Utah Conference on Undergraduate Research.*

Walker M, **Symons JD.** PP2A inhibition using LB1 negates palmitate-induced reductions in nitric oxide production in endothelial cells. *Utah Conference on Undergraduate Research.*
Ruan T, **Symons JD**. Protein phosphatase (PP) 1 and PP2B do not contribute to palmitate-induced disruption of eNOS enzyme function. *Utah Conference on Undergraduate Research.*
National Conference on Undergraduate Research, The University of Kentucky, April 2014
Lance Deeter, Emmanuella Uzoigwe, Leena Panneerseelan, Youyou Li, David Kunz, Elisee Jionang-Dapeu, Timothy E Graham, J. David Symons. Physiological and pathophysiological stimuli alter endothelial cell autophagy
Lance Deeter, Nikos Diakos, Josef Stehlik, Craig Selzman,Abdallah Kfoury, Bruce Reid, Abdulfatah Saidi, Omar Wever- Pinzon, Divya R Verma, Chi-Gang Yen, Emmanuella Uzoigwe, Shawn Guo, Dean Li, Stavros Drakos, J David Symons. Coronary vascular function is improved in ischemic patients after continuous-flow left ventricular assist device implantation

Research Posters On The Hill, Utah State Capital, Salt Lake City, January 2013
Ruan T, Nhan J, Johnson E, Wan X, Ravindran A, **Symons JD**. Ceramide disrupts the association between PP2A and I2PP2A and impairs eNOS enzyme function and endothelium-dependent vasorelaxation.
Utah Cardiac Recovery Symposium, University of Utah School of Medicine, Salt Lake City, January 2013
Johnson E, Diakos N, Selzman C, Reid B, Stehlik J, Kfoury A, Saidi A, Wever-Pinzon O, Verma D, Yen C, Li D, Drakos S, **Symons JD**. Coronary arterial function is not impaired in patients following continuous-flow left ventricular assist device implantation.
Utah Conference on Undergraduate Research, Utah State University, February 2013
Ravindran A, **Symons JD**. Measuring cellular ceramide accrual using immunofluorescence. *Utah Conference on Undergraduate Research, 76.*
Wan X, **Symons JD.** PP2A activation is required for lipid-induced arterial dysfunction in mice. *Utah Conference on Undergraduate Research, 81.*
Nhan J, **Symons JD.** Measuring nitric oxide production by endothelial cells using electron paramagnetic resonance spectroscopy. *Utah Conference on Undergraduate Research,74.*
Johnson E, **Symons JD.** Continuous-flow left ventricular assist device does not impair coronary arterial function after implantation. *Utah Conference on Undergraduate Research,67.*
Hawkins M, **Symons JD,** Jalili T. Does gamma-tocopherol lower blood pressure in diabetic mice? *Utah Conference on Undergraduate Research,64.*
National Conference on Undergraduate Research, The University of Wisconsin-LaCrosse, April 2013

Ruan T, Panneerseelan L, Ravindran A, Li Y, Zhang Q, Abel E, **Symons JD**. Ceramide initiates PP2A localization with eNOS by dissociating PP2A from I2PP2A
Wan X, Nhan J, Panneerseelan L, Ruan T, Johnson E, Li Y, Zhang Q, Abel E, **Symons JD**. Protein phosphatase 2A activation is required for lipid-induced arterial dysfunction in mice.
Ravindran A, **Symons JD**. Measuring cellular ceramide accrual using immunofluorescence.

Undergraduate Research Symposium, University of Utah, April 2013

D'Elia P, Dapeu E, Wan X, Johnson E, Hawkins M, Uzoigwe E, Deeter L, (**Symons JD**, Panneerseelan L, Li Y, Jalili T). Gamma tocopherol supplementation attenuates dysfunction in db/db mice. *Undergraduate Research Abstracts 1*: (13), 2013, p. 31.
Hawkins M, Fernandes P, Dapeu E, Wan X, Johnson E, Deeter L, Zhang C, (Panneerseelan L, Li Y, Bruno R, **Symons JD**, Jalili T). Does gamma-tocopherol lower blood pressure in diabetic mice? *Undergraduate Research Abstracts 1*: (13), 2013, p. 37
Johnson E, **Symons JD.** Coronary arterial function is not impaired in patients following continuous-flow left ventricular assist device implantation. *Undergraduate Research Abstracts 1*: (13), 2013, p. 121
Nhan J, **Symons JD**. Measuring nitric oxide production by endothelial cells using electron paramagnetic resonance spectroscopy. *Undergraduate Research Abstracts 1*: (13), 2013, p. 127
Ravindran A, **Symons JD**. Measuring cellular ceramide accrual using immunofluorescence. *Undergraduate Research Abstracts 1*: (13), 2013, p. 129
Ruan T, **Symons JD.** Ceramide initiates PP2A co-localization with eNOS by dissociating PP2A from I2PP2A. *Undergraduate Research Abstracts 1*: (13), 2013, p. 130
Wan X, **Symons JD.** Protein phosphatase 2A activation is required for lipid-induced arterial dysfunction in mice. *Undergraduate Research Abstracts 1*: (13), 2013, p. 135
Ruan T**,** Johnson E, Nhan J, Wan X, **Symons JD**. Ceramide disrupts the association between PP2A and I2PP2A and impairs eNOS enzyme function and endothelium-dependent vasorelaxation. *Undergraduate Research Abstracts 2*: (13), 2013, p. 29

Experimental Biology, Boston, MA April 2013

Nhan J, Panneerseelan L, Ruan T, Wan X, Johnson E, Li YY, Zhang QJ, Abel ED, **Symons JD**. PP2A activation is required for lipid-induced arterial dysfunction in mice. *FASEB J*, 2013; 27 : 917.10

Panneerseelan L, Ruan T, Ravindran A, Li YY, Zhang QJ, Abel ED, **Symons JD**. Ceramide initiates PP2A colocalization with eNOS at the cell membrane by dissociating PP2A from I2PP2A in the cytosol. *FASEB J*, 2013; 27 : 924.14 Featured Topics Session

Johnson E, Diakos N, Selzman C, Reid B, Stehlik J, Kfoury A, Saidi A, Wever-Pinzon O, Verma DR, Yen CG, Li D, Drakos S, **Symons JD**. Coronary arterial function is not impaired in patients following continuous-flow left ventricular assist device implantation. *FASEB J*, 2013; 27 : 1185.11

American Diabetes Association, Chicago, IL June 2013

Panneerseelan L, Ruan T, Ravindran A, Li YY, Zhang QJ, Holland W, Abel ED, **Symons JD.** Ceramide disrupts the association between I2PP2A and PP2A and causes endothelial dysfunction in vivo. *American Diabetes Association Scientific Sessions*, June 2013.

American Heart Association Summer Student Roundtable, August, 2013

Ruan T, **Symons JD**. Ceramide initiates PP2A colocalization with eNOS by dissociating PP2A from I2PP2A.

Wan X, **Symons JD**. Protein phosphatase 2A activation is required for lipid-induced arterial dysfunction in mice.
The cardiovascular forum for promoting centers of excellence and young investigators. Louisville, KY August 2013

Panneerseelan L, Ruan T, Nhan J, Ravindran A, Li YY, Zhang QJ, Holland W, Abel ED, **Symons JD.** PP2A inhibition *in vivo* attenuates lipid-induced disruption among vascular Akt-Hsp90-eNOS and negates endothelial dysfunction. **TOP CONFERENCE ABSTRACT WINNER**

Native American Research Internship (NARI) Program Conference.
Begay W, **Symons JD.** 2013

2012
American Heart Association Roundtable Meeting
*Morton M, **Symons JD**. Ceramide causes PP2A translocation from cytosol to membrane.
*Nhan J, **Symons JD**. Measuring nitric oxide production by endothelial cells using electron paramagnetic resonance spectroscopy.
*Ruan T, **Symons JD**. Lipid-induced arterial dysfunction is less severe after PP2A inhibition in conscious mice.

University of Utah Undergraduate Research Conference

*Calvert R, **Symons JD**. Sirtuin-1 gain of function increases endothelium-dependent vasorelaxation in murine arteries. *University of Utah Undergraduate Research Abstracts*, Spring 2012; 12 : 117.

*Ravindran A, **Symons JD**. Measuring cellular ceramide accrual using immunofluorescence. *University of Utah Undergraduate Research Abstracts*, Spring 2012; 12 : 135.

*Ruan T, **Symons JD**. Ceramide mediates vascular dysfunction in diet-induced obesity by PP2A-mediated dephosphorylation of the eNOS-Akt complex. *University of Utah Undergraduate Research Abstracts,* Spring 2012; 12 : 136.

*Shelton Q, *Wood L, *Calvert R, Drakos S, Diakos N, Pinzon OW, Li D, **Symons JD**. The influence of left ventricular assist device implantation on coronary vascular function. *University of Utah Undergraduate Research Abstracts*, Spring 2012; 12 : 141.

Research Posters On The Hill
*Ravindran A, *Ruan T, *Calvert R, **Symons JD**. How does ceramide activate protein phosphatase 2A.
National Conference for Undergraduate Research / Utah Conference of Undergraduate Research Weber State University, UT (joint meeting in 2012)
*Ravindran A, *Ruan T, *Calvert R, **Symons JD**. Measuring cellular ceramide accrual using immunofluorescence.
*Ruan T, *Ravindran A, *Calvert R, **Symons JD**. Ceramide mediates vascular dysfunction in diet-induced obesity by PP2A-mediated dephosphorylation of the eNOS-Akt complex
Other
*Kim BJ, **Symons JD**. Does ceramide contribute to vascular dysfunction in type 1 diabetes? Korean Student Technical Leadership Conference, Chicago, IL

*Kivimaki A, **Symons JD**. Lipid-induced ceramide accrual decreases vascular function in a protein phosphatase 2A mediated manner. Native American Research Internship (NARI) Program Conference, Salt Lake City, UT
*Kivimaki A, **Symons JD**. Lipid-induced ceramide accrual decreases vascular function in a protein phosphatase 2A mediated manner. SACNAS National Conference, Advancing Hispanics,/Chicanos and Native Americans in Science, Seattle, WA Fri-342.

2011

American Heart Association Roundtable Meeting

&Ostler E**, Symons JD**. Procedures required to track intracellular protein movement and protein-protein interactions.
*Ruan T**, Symons JD**. Endogenous ceramide decreases the association between PP2A and I2PP2A.
***Ravindran A, **Symons JD**. Quantification of ceramide using immunofluorescence.

University of Utah Undergraduate Research Conference

*Nichols A, *Deeter NB, +Zhang QJ, *Kowalski C, Abel ED, **Symons JD**. Ceramide biosynthesis impairs endothelial nitric oxide synthase phosphorylation secondary to protein phosphatase 2A activation in endothelial cells. *University of Utah Undergraduate Research Abstracts*, May 2011; 11 : 24.
*Deeter NB, **Symons JD**. Mice with targeted disruption of the enzyme dihydroceramide desaturase display metabolic disturbances but not vascular dysfunction in response to high-fat feeding. *University of Utah Undergraduate Research Abstracts*, May 2011; 11 : 65.
*Petersen B, **Symons JD**. Myocardial function and substrate use in fat-fed mice with targeted disruption of dihydroceramide desaturase. *University of Utah Undergraduate Research Abstracts*, May 2011; 11 : 67.
*Nichols A, *Deeter N, **Symons JD**. Pharmacological and genetic evidence that ceramide evokes vascular dysfunction in mice with diet-induced obesity. *University of Utah Undergraduate Research Abstracts,* May 2011; 11 : 132.
*Sarmiento J, **Symons JD.** Mice with targeted disruption of the enzyme dihyrdoceramide desaturase (des) develop characteristics of the metabolic syndrome. *University of Utah Undergraduate Research Abstracts,* May 2011; 11:155.
*Pham A, **Symons JD**. Coronary arteries from Cirko mice are less vulnerable to dysfunction evoked by chronic pressure overload: examining several mechanism that might be responsible. *University of Utah Undergraduate Research Abstracts,* May 2011; 11 : 155.

Research Posters On The Hill

*Nichols A, *Deeter N, *Deesing M, +Zhang QJ, #Holland W, *Kowalski C, Summers SA, Abel ED, **Symons JD**. Mice with targeted disruption of the enzyme dihydroceramide desaturase display metabolic disturbances but not vascular dysfunction in response to high-fat feeding.

Utah Conference on Undergraduate Research, Weber State University, Ogden, UT

*Nichols A, *Deeter N, *Deesing M, +Zhang QJ, #Holland W, *Kowalski C, Summers SA, Abel ED, **Symons JD**. Mice with targeted disruption of the enzyme dihydroceramide desaturase display metabolic disturbances but not vascular dysfunction in response to high-fat feeding.
*Deeter N, *Nichols A, *Deesing M, +Zhang QJ, #Holland W, *Kowalski C, Summers SA, Abel ED, **Symons JD**. Ceramide biosynthesis impairs endothelial nitric oxide synthase phosphorylation secondary to protein phosphatase 2A activation in endothelial cells

Other

+Zhang QJ, *Deeter N, *Nichols A, *Deesing M, *Kowalski C, #Holland W, Summers SA, Abel ED, **Symons JD**. Ceramide induced vascular dysfunction results from PP2A association with eNOS. Keystone Symposia on Molecular and Cellular Biology : Lipotoxicity. Kerry, Ireland, May 2011.

[&]Ostler E, Sabic H, *Ruan T, *Ravindran A, [#]Kim C, [+]Q-J Zhang, and **Symons JD**. Mechanisms whereby ceramide might activate the protein phosphatase 2A. Frank Tyler Research Trainee Symposium: Molecular Medicine and Medical School Research Programs, Snow Park Lodge, Deer Valley Resort, Park City, UT

2010

American Heart Association Roundtable Meeting

No AHA student

University of Utah Undergraduate Research Conference

*Barton C, [#]Bosse J, **Symons JD**. Dietary carbohydrate composition influences the severity of vascular dysfunction in spontaneously hypertensive rats. *University of Utah Undergraduate Research Abstracts,* Spring 2010; 10 : 9.

*Deesing MA, *Deeter NB, **Symons JD**. Do mice with targeted disruption of the enzyme dihydroceramidedesaturase (DES) develop characteristics of the metabolic syndrome? *University of Utah Undergraduate Research Abstracts*, Spring 2010; 10 : 22.

*Deeter NB, *Deesing MA, **Symons JD**. Does ceramide contribute to vascular dysfunction? evidence from mice with targeted disruption of the enzyme dihydroceramide desaturease. *University of Utah Undergraduate Research Abstracts*, Spring 2010; 10 : 23.

*Kowalski C, *Wilson L, #Rou J, **Symons JD**. Ceramide-induced disruption of endothelial nitric oxide synthase dimerization in bovine aortic endothelial cells (BAECs) is not secondary to peroxynitrite formation. *University of Utah Undergraduate Research Abstracts*, Spring 2010; 10 : 48.

*Peterson B, *Kim BJ, **Symons JD**. Does ceramide accumulation contribute to cardiac dysfunction in mice with type-1 diabetes? *University of Utah Undergraduate Research Abstracts,* Spring 2010; 10 : 63.

Research Posters On The Hill

*Kowalski C, *Deesing M, *Deeter N, **Symons JD**. Ceramide-induced disruption of endothelial nitric oxide synthase dimerization in bovine aortic endothelial cells (BAECs) is not secondary to peroxynitrite formation.

National Conference on Undergraduate Research, University of Montana, Missoula, MT

*Kowalski C, *Wilson L, [+]Zhang QJ, [&]Arrant CJ, *Pettey DH, [+]McCamey D, Boehme C, [#]Baker W, Soorappan RN, Abel ED, **Symons JD**. Ceramide-induced disruption of endothelial nitric oxide synthase dimerization in bovine aortic endothelial cells (BAECs) is not secondary to peroxynitrite formation.

*Deeter N, *Deesing M, **Symons JD**. Does ceramide contribute to vascular dysfunction in des1+/- mice?

Utah Conference on Undergraduate Research, Southern Utah University, Cedar City, UT

*Deeter N, *Deesing M, **Symons JD**. Do mice with targeted disruption of the enzyme dihydroceramide desaturase (des) develop characteristics of the metabolic syndrome?

*Pettey DH, [+]Zhang QJ, *Wilson L, [&]Arrant CJ, *Kowalski C, **Symons JD**. Palmitate evokes ceramide-dependent reactive oxygen species (ROS) generation from sources other than NADPH oxidase in bovine aortic endothelial cells (BAECs).

Other

*Deeter N, *Deesing M, [+]Zhang QJ, *Nichols A, *Kowalski C, Abel ED, **Symons JD**. Mice with targeted disruption of the enzyme dihydroceramide desaturase display metabolic disturbances but not vascular dysfunction in response to high-fat feeding. International Society for Heart and Vascular Metabolism Kananaskis, Alberta, Canada August 2010.

[+]Zhang QJ, *Wilson L, *Kowalski C, [+]McCamey D, Boehme C, [#]Baker W, *Rou J, [#]Ambal K, Soorappan R, Abel ED, **Symons JD**. Ceramide-induced impairment of endothelial nitric oxide synthase function in bovine aortic endothelial cells (BAECs) is not secondary to defective upstream signaling kinases or peroxynitrite formation. Invited talk given by JD Symons at

International Society for Heart and Vascular Metabolism Kananaskis, Alberta, Canada August 2010.

2009

American Heart Association Roundtable Meeting

*Mitchell C, **Symons JD**. Does ceramide contribute to vascular dysfunction in mice with type 1 diabetes?

*Wilson L, **Symons JD**. Ceramide increases ROS production in a ceramide-dependent and independent manner.

&Arrant CJ, **Symons JD**. Ceramide increases superoxide anion production as assessed via EPR.

University of Utah Undergraduate Research Conference

Finnerty N, Shelton L, **Symons JD**. Insulin-mediated phosphorylation of endothelial nitric oxide synthase occurs predominantly within the endothelial layer of arterial vessels. *University of Utah Undergraduate Research Abstracts,* Spring 2009; 9 : 19.

Pettey DH, Wilson LJ, Gale DC, Zhang QJ, Tanner JM, **Symons JD**. Endogenous ceramide biosynthesis inpairs insulin-mediated NO production in BAECs via mechanisms independent of Akt. *University of Utah Undergraduate Research Abstracts*, Spring 2009; 9 : 47.

Research Posters On The Hill

*Wilson L, *Gale D, *Pettey DH, *Cahoon J, *Tanner J, #Narra K, Wang LP, Abel ED, **Symons JD**. Endogenous ceramide biosynthesis impairs vascular function in a tissue autonomous manner.

National Conference on Undergraduate Research, University of LaCrosse, Lacrosse, WI

*Tanner J, *Kim BJ, **Symons JD**. Cardiovascular and metabolic responses to fasting in lean and obese mice.

Utah Conference on Undergraduate Research, Westminster College, Salt Lake City, UT

*Gale D, *Pettey DH, *Wilson L, *Tanner JM, **Symons JD**. Pharmacological and genetic models indicate that ceramide accrual impairs vascular function in a tissue autonomous manner.

Other

#Larson A, Bruno R, Guo Y, *Gale D, *Tanner J, Jalili T, **Symons JD**. Acute quercetin supplementation does not lower blood pressure or ACE activity in normotensive males. American Dietetics Association Annual General Meeting, Denver, CO.

Symons JD, +Holland W, *Gale D, *Tanner J, *Wilson L, &Cahoon J, *Losee J, *Pettey DH, #Narra K, Wang LP, Abel ED, Summers SA. Endogenous ceramide biosynthesis impairs vascular function in a tissue autonomous manner. Keystone Symposia: dissecting the vasculature: function, molecular mechanisms, and malfunction; and complications of diabetes and obesity.

Symons JD, +Holland W, *Gale D, *Tanner J, *Wilson L, *Cahoon J, *Losee J, *Pettey DH, #Narra K, Wang LP, Abel ED, Summers SA. Endogenous ceramide biosynthesis impairs vascular function in a tissue autonomous manner. Joint Conference on Complications of Diabetes and Obesity / Dissecting the vasculature: function, molecular mechanisms and malfunction. Vancouver, BC, Canada, March, 2009.

&Arrant CJ, **Symons JD**. Ceramide increases superoxide anion production as assessed via EPR. Frank Tyler Research Trainee Symposium: Molecular Medicine and Medical School Research Programs, Snow Park Lodge, Deer Valley Resort, Park City, UT

2008

American Heart Association Roundtable Meeting

*Smith R, **Symons JD**. Does ceramide contribute to vascular dysfunction in mice with type 1 diabetes?
*Tanner T, **Symons JD**. The effects of exercise and obesity on endothelial nitric oxide synthase (eNOS) and cardiovascular homeostasis.

University of Utah Undergraduate Research Conference

*Losee J, *Tanner JM, *Kearns DT, *Cahoon J, *Palionyte M, *Duncan BB, *Simpson S, **Symons JD**. Inhibiting vascular ceramide synthesis prevents arterial dysfunction and hypertension in mice with diet-induced obesity. *University of Utah Undergraduate Research Abstracts,* Spring 2008; 8 : 57.
*Liljenquist JC, *Smith J, *McMillin S, **Symons JD**. Acute exercise increases intracellular signaling kinase activity that can phosphorylate eNOS in mice. *University of Utah Undergraduate Research Abstracts*, Spring 2008; 8 : 86.
*Tanner JM, *Kearns DT, *Cahoon J, **Symons JD**. Cardiovascular responses to fasting in lean and obese mice.*University of Utah Undergraduate Research Abstracts*, Spring 2008; 8 : 92.

Research Posters on the Hill

*Losee J, *Tanner T, *Kearns DT, *Cahoon J, *Palionyte M, *Duncan B, *Simpson S, **Symons JD**. Inhibiting vascular ceramide synthesis prevents arterial dysfunction and hypertension in mice with diet-induced obesity.

Utah Conference on Undergraduate Research, Utah Valley University, Orem, UT

*Tanner J, *Kearns D, *Cahoon J, *Duncan B, *Losee J, *Palionyte M, **Symons JD**. Inhibiting vascular ceramide prevents arterial dysfunction and hypertension in mice with diet-induced obesity.
*Tanner J, *Kearns D, *Cahoon J, **Symons JD**. Cardiovascular responses to fasting in lean and obese mice.

National Conference on Undergraduate Research, Salisbury University, Salisbury, MD

*Tanner J, *Kearns DT, *Cahoon J, *Palionyte M, *Duncan B, *Losee J, *Simpson S, **Symons JD**. Inhibiting vascular ceramide synthesis prevents arterial dysfunction and hypertension in mice with diet-induced obesity.
*Cahoon J, *Palionyte M, *Simpson S, *Grisham J, *Lee J, *Boehm K, **Symons JD**. Ceramide accumulation impairs vascular function: increased reactive oxygen species production and decreased eNOS phosphorylation might play a role.

Other

&Edwards R, **Symons JD**. The effects of lipid infusion to mice on ceramide and vascular function. Frank Tyler Research Trainee Symposium: Molecular Medicine and Medical School Research Programs, Snow Park Lodge, Deer Valley Resort, Park City, UT
&Thuet W, **Symons JD**. Residue targets of Akt, PKA, ERK, and AMPK on the eNOS enzyme in arteries from treadmill-running mice. Frank Tyler Research Trainee Symposium: Molecular Medicine and Medical School Research Programs, Snow Park Lodge, Deer Valley Resort, Park City, UT
*Cahoon J, #Holland W, *Gale D, *Boehm K, *Pettey DH, *Tanner J, *Losee J, *Wilson L, *Palmer D, #Narra K, Wang LP, Abel ED, Summers SA, **Symons JD**. Endogenous ceramide biosynthesis impairs vascular function. Keystone Symposia on Metabolism and Cardiovascular Risk, Breckenridge, CO.
Jalili T, *Soesanto WS, *Hu E, *Han-Yi L, **Symons JD**. mTOR plays a critical role in the development of cardiac hypertrophy in spontaneously hypertensive rats. Keystone Symposia on Metabolism and Cardiovascular Risk, Breckenridge, CO.
Symons JD, #McMillin S, *Tanner J, *Birnbaum MJ, #Riehle C, *Palionyte M, Abel ED. Vascular resistance to insulin-mediated signal transduction via Akt1 is not sufficient to produce

hypertension in mice. Keystone Symposia on Metabolism and Cardiovascular Risk, Breckenridge, CO.
#Liu H, #Jia Z, #Soodvilai S, #Guan G, **Symons JD**, Yang T. Nitro-oleic acid protects the mouse kidney from ischemia and reperfusion injury. American Society of Nephrology, Philadelphia, PA.
#Wang N, **Symons JD**, #Jia Z, Gonzalez FJ, Yang T. Distinct functions of vascular endothelial and smooth muscle PPARg in regulation of blood pressure and vascular tone. American Society of Nephrology, Philadelphia, PA.
#Wang N, #Jia Z, #Yang G, +Zhang H, #Soodvilai S, **Symons JD**, Gonzalez FJ, Litwin SE, Yang T. Vascular PPARg controls circadian variation of blood pressure and heart rate via activation of Bmal1. American Society of Nephrology, Philadelphia, PA.

2007

American Heart Association Roundtable Meeting

*Cahoon J and **Symons JD.** Measurements of nitric oxide via amperometric and fluorescent methods.
*Palionyte M and **Symons JD.** Ceramide inhibition improves insulin-mediated signal transduction in the vasculature of mice with diet-induced obesity.
*Simpson S and **Symons JD.** Endogenous ceramide production impairs insulin-mediated signal transduction in bovine aortic endothelial cells.

University of Utah Undergraduate Research Conference

*Duncan B, *Cahoon J, *McDonald B, *Palionyte M, **Symons JD**. Contributions from ceramide to vascular dysfunction. *University of Utah Undergraduate Research Abstracts*, Spring 2007; 7 : 21.
*Schumman C, **Symons JD**. Insulin-mediated vasorelaxation in a genetic and diet-induced model of insulin resistance. *University of Utah Undergraduate Research Abstracts*, Spring 2007; 7 : 62.
*Liljenquist JD, *Smith J, #McMillin S, **Symons JD**. Acute exercise increases intracellular signaling kinase activity that can phosphorylate eNOS in mice. *University of Utah Undergraduate Research Abstracts,* Spring 2007; 7 : 71.

Research Posters on the Hill

*Palionyte M, *McDonald B, *Duncan B, *Cahoon J, **Symons JD.** The contribution from Ceramide to vascular dysfunction in diet-induced obesity.

Utah Conference on Undergraduate Research, University of Utah, SLC, Utah

*Palionyte M, *McDonald B, *Duncan B, *Cahoon J, **Symons JD.** The contribution from Ceramide to vascular dysfunction in diet-induced obesity.

Other

&deAmorimFilho J and **Symons JD.** Vascular signaling kinases activate eNOS during acute treadmill-running. Frank Tyler Research Trainee Symposium: Molecular Medicine and Medical School Research Programs, Snow Park Lodge, Deer Valley Resort, Park City, UT

2006

American Heart Association Roundtable Meeting

&deAmorimFilho J, **Symons JD.** Treadmill running increases intracellular signaling kinases that phosphorylate eNOS in intact blood vessels.
#McMillin S, **Symons JD.** Differential effects of selective vs. total loss of vascular insulin signaling on blood pressure regulation.

University of Utah Undergraduate Research Conference

*Clark M, #McMillin S, **Symons JD**. Selective insulin resistance in the vasculature leads to hypertension. *University of Utah Undergraduate Research Abstracts*, Spring 2006; 6 : 14.

*Cueva C, *Smith A, *Lefler S, **Symons JD**, #Carlstrom J, Jalili T. Activation of ERK1/2 Akt and S6 kinase, but not PKC, prior to cardiac hypertrophy in spontaneously hypertensive rats. *University of Utah Undergraduate Research Abstracts*, Spring 2006; 6 : 18.
*Healy E, **Symons JD**. Coronary arteries form mice with cardiac-selective deletion of the insulin receptor are resistant to dysfunction evoked by pressure-overload. *University of Utah Undergraduate Research Abstracts*, Spring 2006; 6 : 31.

National Conference on Undergraduate Research, UNC-Asheville, NC
*Healy E, **Symons JD.** Coronary arteries from mice with cardiac-selective deletion of the insulin receptor are resistant to dysfunction evoked by pressure-overload.

Research Posters on the Hill
*Healy E, **Symons JD.** Coronary arteries form mice with cardiac-selective deletion of the insulin receptor are resistant to dysfunction evoked by pressure-overload.

2005

University of Utah Undergraduate Research Conference
*Daniels WD, *Johnson J, *Clegg D, *Crapo R, **Symons JD**. Arterial reactivity in insulin receptor-deficient mice: the splanchnic and skeletal muscle circulations. *University of Utah Undergraduate Research Abstracts*, Spring 2005; 5 : 19.
*Dobson C, *Johnson J, *Lloyd J, **Symons JD**. Coronary vascular function in insulin receptor-deficient mice. *University of Utah Undergraduate Research Abstracts*, Spring 2005; 5 : 22.

Research Posters on the Hill
*Johnson J, *Daniels DW, *Dobson C, *Clegg D, *Crapo R, *Lloyd J, **Symons JD**. Coronary vascular function in insulin receptor deficient mice.

2004

American Heart Association Roundtable Meeting

*Lloyd J, **Symons JD.** Dihydroethidium staining to assess superoxide anion production in the vasculature of mice with whole-body deletion of the insulin receptor.

*Snedeger B, **Symons JD.** Coronary vascular reactivity in mice with whole body deletion of the insulin receptor.
*Crapo R, **Symons JD.** Peripheral vascular reactivity in mice with whole-body deletion of the insulin receptor.

University of Utah Undergraduate Research Conference
*Johnson J, +Dong L, **Symons JD**. Do low folate and hyperhomosyteinemia contribute independently to vascular dysfunction. *University of Utah Undergraduate Research Abstracts,* Spring 2004; 4 : 35.

2003

American Heart Association Roundtable Meeting
*Purcell R, **Symons JD**. Spontaneously hypertensive rats: aortic, coronary, and mesenteric vascular dysfunction is lessened by chronic quercetin feeding.

2002

American Heart Association Roundtable Meeting
*Williams B, **Symons JD**. Chronic quercetin feeding improves vascular reactivity of rat thoracic aorta.
#Pattathu R, **Symons JD**. Low folate, hyperhomocysteinemia, and their combination : effects on superoxide anion production.
*Q Nguyen, **Symons JD**. Chronic quercetin feeding lessens vascular dysfunction evoked by pressure-overload hypertrophy.

Other

#Pattathu RA, Rodesch C, **Symons JD**. Do low folate and hyperhomocysteinemia contribute independently to vascular superoxide production? Presented at the: 1) American College of Sports Medicine, Southwest Chapter, Annual Meeting; 2) Student award competition at the American College of Sports Medicine, Southwest Chapter.
*Tenorio F, **Symons JD**. Does manganese deficiency reduce arginase activity to an extent whereby vascular function is altered? American Heart Association, Arteriosclerosis, Thrombosis and Vascular Biology Meeting, Salt Lake City, UT
*Zaid UB, **Symons JD**. Arterial permeability is increased in mice with hyperhomocysteinemia evoked by methionine supplementation. American Heart Association, Arteriosclerosis, Thrombosis, and Vascular Biology, Salt Lake City, Utah.

2001

American Heart Association Roundtable Meeting

*Zaid UB, **Symons JD**. Arterial permeability is increased in mice with hyperhomocysteinemia evoked by methionine supplementation.

Other

+Nethery VM, **Symons JD**. Na+/H+ exchanger subtype 1 inhibition limits ischemia and reperfusion-induced coronary vascular dysfunction. American Heart Association: Molecular, Integrative, and Clinical Approaches to Myocardial Ischemia. Seattle, WA.

RESEARCH SUPPORT PRIOR TO UU APPOINTMENT IN 2001 *(only grants/contracts > $30,000 listed)*

1999-2002 NIH Clinical Nutrition Research Unit Pilot and Feasibility Grant
1999-2000 Hibbard E Williams Research Award, UC Davis School of Medicine
1998-2001 American Heart Association, Western States Affiliate, Grant-In-Aid
1997 Faculty Research Grant - University of California, Davis
1997 Research contract from Merck Laboratories, West Point, PA
1996-1998 Canadian Heart and Stroke Foundation Grant-In-Aid (declined)
1995-1997 Canadian Heart and Stroke Foundation Grant-In-Aid (declined)
1995 Research contract from Berlex Biosciences, Richmond, CA
1994-1996 American Heart Association, California Affiliate, Grant-In-Aid
1985-1987 Natural Sciences and Engineering Research Council of Canada Visiting Fellowship
1980-84 Graduate Teaching Fellowship, University of Oregon, Eugene, OR
1984 Sigma Xi Pre-doctoral Research Grant

Grants with Graduate students / Postdoctoral fellows

Abigail Larson (grant funded via Peak Academy), Laura Young (ACSM Foundation), Q-J Zhang (American Heart Association, Western States Affiliate Postdoctoral Fellowship awarded in 2010); Seul Ki Park (American Heart Association, Western States Affiliate Postdoctoral Fellowship awarded in 2016); Jae Min Cho University of Utah Graduate Research Fellowship awarded in 2018 and AHA Predoctoral Fellowship in 2019; Sohom Mookherjee awarded AHA Predoctoral Fellowship in 2022.

Invited Guest Lectures

University of Utah (College of Health; Endocrinology, Metabolism, and Diabetes; Geriatrics; Nutrition; Cardiology; Nephrology; Pediatrics); University of Toronto; Defense and Civil Institute of Environmental Medicine (Downsview, ON), Simon Fraser University (Vancouver, BC); Kansas State University; Queens University (Kingston, ON), University of Ottawa; Concordia University (Montreal, QC); Merck Research Laboratories; University of Missouri; UC Davis; University of Aarhus; Lane Community College (Eugene, OR); California State University-Bakersfield, California State University-Sacramento; University of Louisville; University of Iowa; Alliance Pharmaceutical Company (San Diego); Berlex Biosciences (Richmond, CA); Western

Washington University; University of Washington; University of Oregon; University of Calgary; Southern Utah University; Shandong University (China); American College of Sports Medicine 2013; University of British Columbia-Okanagan; UU Center on Aging:Symposia on Autophagy and Aging

American College of Sports Medicine Predoctoral Award
Submitted Fall 2012
PI-L Young; Sponsor: JD Symons
This grant tests the hypothesis that RBP4 contributes importantly to exercise-induced increases in skeletal muscle glucose uptake - unfunded

American Heart Association, Western States Affiliate, Grant in Aid
Submitted July 2013
PI- T Jalili; CoI JD Symons
This grant tests the hypothesis that metabolites of polyphenolic parent compounds lessen cardiovascular complications of type 2 diabetes using pharmacological and genetic approaches in cells, isolated organs, and intact animals

American Heart Association, National Affiliate, Scientist Development Grant
Submitted July 2013
PI-A Velayutham; CoI JD Symons
This grant tests the hypothesis that anthocyanins improve diabetic vascular disease using pharmacological and genetic approaches in cells, isolated organs, and intact animals.

American Heart Association, Western States Affiliate, Beginning Grant in Aid
Submitted July 2013
PI-A Velayutham; CoI JD Symons
This grant tests the hypothesis that anthocyanins improve diabetic vascular disease using pharmacological and genetic approaches in cells, isolated organs, and intact animals.

American Heart Association, Western States Affiliate, Postdoctoral Fellowship
Submitted July 2013
PI-L Panneerseelan; Sponsor: JD Symons
This grant tests the hypothesis that autophagy is requisite for exercise-induced vascular remodeling to occur in the vasculature.

NIH R36 Aging Research Dissertation Award
Submitted Fall 2012
PI-L Young; Sponsor: JD Symons
This grant tests the hypothesis that RBP4 contributes importantly to exercise-induced increases in skeletal muscle glucose uptake

• University of Utah, Center on Aging : Pilot and Feasibility Grant
Links among autophagy, mitophagy, and nitric oxide bioavailability in aging vasculature.
01-01-2015 – 12-12-2015
20K / 1 year Role: PI

• University of Utah, Diabetes and Metabolism Center : Pilot and Feasibility Grant
Characterizing a mouse model to study vascular autophagy in obesity and type 2 diabetes
01-01-2015 – 12-12-2015
25K / 1 year Role: PI

• Washington University Diabetes Research Center Pilot and Feasibility Award.
Characterizing a mouse model to study vascular autophagy in obesity and type 2 diabetes
12-01-2015 – 11-12-2016
40K / 1 year Role: PI

• University of Utah, Diabetes and Metabolism Center : Pilot and Feasibility Grant
Characterizing a mouse model to study vascular autophagy in obesity and type 2 diabetes
03-01-2016 – 02-28-2017
25K / 1 year Role: PI