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Citizenship U.S.A.

EDUCATION & TRAINING

YALE UNIVERSITY (NEW HAVEN, CONNECTICUT) **OCT 2011-PRESENT**

- *Associate Research Scientist/Postdoctoral Fellow*, Pharmacology
- Research Area: Elucidating the endothelial role of the Akt kinases in angiogenesis and vascular pathophysiology; characterizing novel Akt substrates in endothelial biology
- Principal Investigator/Advisor: William C. Sessa, Ph.D.

UNIVERSITY OF VIRGINIA (CHARLOTTESVILLE, VIRGINIA) **AUG 2007-APR 2011**

- *Doctorate of Philosophy (Ph.D.)*, Biomedical Engineering
- Dissertation Title: Nuclear Factor of Activated T-Cells (NFAT)-Mediated Regulation of Vascular Smooth Muscle Cell Phenotypic Modulation
- Principal Investigator/Advisor: Brian R. Wamhoff, Ph.D.

UNIVERSITY OF VIRGINIA (CHARLOTTESVILLE, VIRGINIA) **AUG 2006-MAY 2007**

- *Masters of Engineering (M.E.)*, Biomedical Engineering
- Thesis Title: Phenotypic Modulation of Human Umbilical Vein Smooth Muscle Cells
- Principal Investigator/Advisor: Brian R. Wamhoff, Ph.D.

UNIVERSITY OF VIRGINIA (CHARLOTTESVILLE, VIRGINIA) **AUG 2002-MAY 2006**

- *Bachelor of Science (B.S.)*, Biomedical Engineering, *With Distinction*
- 2nd Major in Psychology
- Thesis Title: Metabolic Network Reconstruction of *Leishmania major* Parasites
- Principal Investigator/Advisor: Jason A. Papin, Ph.D.

TEACHING EXPERIENCE

Cell & Molecular Biology, BIOM 204, University of Virginia (Spring 2008)

- *Graduate Teaching Assistant*
- An introduction to molecular biology for undergraduate students
- Mentored ~80 students, instructed weekly review sessions, lectured two classes, graded student-written review papers

Integrative Design and Experimental Analysis (IDEAS) Lab, BME 3080, University of Virginia (Fall 2009)

- *Graduate Teaching Assistant*
- An integration of concepts and skills from prior courses in order to formulate and solve problems in biomedical systems, including experimental design, performance, and analysis
- Aided ~80 students in basic molecular biology techniques (*i.e.* qRT-PCR), held review sessions, graded student-written lab reports

ADVISING & MENTORSHIP

- *Undergraduate Students*: Tudor Cisu (Univ. of Virginia)
- *Graduate Students*: Lee Ying (Yale University)
- *Postdoctoral Associates*: Ana Gamez-Mendez, M.D., Ph.D. (Yale University)

AREAS OF EXPERTISE

- *Mouse Biology/Models*: retinal angiogenesis model, atherosclerosis (high-fat diet models), adult hind-limb ischemia, Cre/loxP conditional deletions, whole-mount tissue imaging (blood vasculature, lymphatic vasculature), wire myography, Miles permeability assay, dermal wound healing
- *Molecular Biology*: cloning, quantitative real-time PCR, immunoblotting, immunofluorescence, cell culture, RNA interference technology, CRISPR technology, proliferation assays (EdU, BrdU), migration assays, viability assays, network formation assay, bead sprouting assay
- *Bioinformatics*: mRNA & miRNA expression array analysis (NanoString), primer design, sequence analysis, Ingenuity Pathway Analysis
- *Systems Biology*: metabolic network reconstructions, computational modeling, agent-based modeling
- *Computing Languages*: MS Excel, MATLAB, NetLogo

ACCOMPLISHMENTS & HONORS

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|---|------|
| ▫ Vascular Biology & Therapeutics (VBT) Best Poster Award, <i>Yale University</i> | 2013 |
| ▫ BIMS Outstanding Graduate Student, <i>Dept. of Biomedical Engineering, Univ. of Virginia</i> | 2011 |
| ▫ VPRGS Award for Excellence in Scholarship in Sciences & Engineering, <i>Univ. of Virginia</i> | 2011 |
| ▫ ATVB Graduate Student Travel Award, <i>Univ. of Virginia</i> | 2008 |
| ▫ Summer Research Internship Program, <i>Univ. of Virginia</i> | 2007 |
| ▫ Best Presentation Award, Vascular Biology Course, <i>Univ. of Virginia</i> | 2007 |

PROFESSIONAL AFFILIATIONS

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| ▫ American Heart Association (AHA) | 2008-present |
| ▫ North American Vascular Biology Organization (NAVBO) | 2007-present |
| ▫ Biomedical Engineering Society (BMES) | 2003-2011 |

PEER-REVIEWED PUBLICATIONS

1. Kuo AK, **Lee MY**, Yang K, Gross, RW, Sessa, WC. Regulation of endothelial lipid droplets by cAMP-mediated lipolysis via caveolin-1. (*submitted*)
2. **Lee MY**, Gamez-Mendez A, Zhang J, Zhuang Z, Vinyard DJ, Kraehling J, Velazquez H, Brudvig GW, Kyriakides TR, Simons M, Sessa WC. Endothelial Akt1-dependent activation of eNOS is critical for vascular tone regulation and vessel remodeling. (*submitted*)
3. JinY, Xie Y, Ostriker AC, Zhang X, Liu R, **Lee MY**, Leslie KL, Tang W, Du J, Lee SH, Wang Y, Sessa WC, Hwa J, Yu J, Martin KA. Opposing actions of AKT isoforms in vascular smooth muscle injury and therapeutic response. (*submitted*)
4. Protack C, Foster T, Hashimoto T, Yamamoto K, **Lee MY**, Kraehling J, Bai H, Hu H, Santana J, Wang M, Sessa WC, and Dardik A. Eph-B4 regulates flow dependent venous remodeling and improves arteriovenous fistula patency. (*submitted*)
5. Nakamura T, Fujiwara Y, Yamada R, Fujii W, Hamabata T, **Lee MY**, Maeda S, Aritake K, Roers A, Sessa WC, Nakamura M, Urade Y, Murata T. Mast cell-derived prostaglandin D2 attenuates anaphylactic reactions in mice. *J Allergy Clin Immunol.* 2017 Apr 22. pii: S0091-6749(17)30476-1. doi: 10.1016/j.jaci.2017.02.030. [Epub ahead of print] PMID: 28457595
6. Kuo A, **Lee MY**, Sessa WC. Lipid Droplet Biogenesis and Function in the Endothelium. *Circ Res.* 2017 Apr 14;120(8):1289-1297. doi: 10.1161/CIRCRESAHA.116.310498. Epub 2017 Jan 24. PMID: 28119423
7. Ola R, Dubrac A, Han J, Zhang F, Fang JS, Larrivée B, **Lee MY**, Urarte AA, Kraehling JR, Genet G, Hirschi KK, Sessa WC, Canals FV, Graupera M, Yan M, Young LH, Oh PS, Eichmann A. PI3 kinase inhibition improves vascular malformations in mouse models of hereditary haemorrhagic telangiectasia. *Nat Commun.* 2016 Nov 29;7:13650. doi: 10.1038/ncomms13650. PMID: 27897192

8. Kraehling JR, Chidlow JH, Rajagopal C, Sugiyama MG, Fowler JW, **Lee MY**, Zhang X, Ramírez CM, Park EJ, Tao B, Chen K, Kuruvilla L, Larrivéé B, Folta-Stogniew E, Ola R, Rotllan N, Zhou W, Nagle MW, Herz J, Williams KJ, Eichmann A, Lee WL, Fernández-Hernando C, Sessa WC. Genome-wide RNAi screen reveals ALK1 mediates LDL uptake and transcytosis in endothelial cells. *Nat Commun*. 2016 Nov 21;7:13516. doi: 10.1038/ncomms13516. PMID: 27869117
9. Kraehling JR, Hao Z, **Lee MY**, Vinyard DJ, Velazquez H, Liu X, Stan RV, Brudvig GW, Sessa WC. Uncoupling Caveolae From Intracellular Signaling In Vivo. *Circ Res*. 2016 Jan 8;118(1):48-55. doi: 10.1161/CIRCRESAHA.115.307767. PMID: 26602865
10. Chamorro-Jorganes A, **Lee MY**, Araldi E, Landskroner-Eiger S, Fernández-Fuertes M, Sahraei M, Quiles Del Rey M, van Solingen C, Yu J, Fernández-Hernando C, Sessa WC, Suárez Y. VEGF-Induced Expression of miR-17-92 Cluster in Endothelial Cells Is Mediated by ERK/ELK1 Activation and Regulates Angiogenesis. *Circ Res*. 2016 Jan 8;118(1):38-47. doi: 10.1161/CIRCRESAHA.115.307408. PMID: 26472816
11. Landskroner-Eiger S, Qiu C, Perrotta P, Siragusa M, **Lee MY**, Ulrich V, Luciano AK, Zhuang ZW, Corti F, Simons M, Montgomery RL, Wu D, Yu J, Sessa WC. Endothelial miR-17~92 cluster negatively regulates arteriogenesis via miRNA-19 repression of WNT signaling. *Proc Natl Acad Sci*. 2015 Oct 13;112(41):12812-7. doi: 10.1073/pnas.1507094112. PMID: 26417068
12. Bancroft T, Bouaouina M, Roberts S, **Lee MY**, Calderwood DA, Schwartz M, Simons M, Sessa WC, Kyriakides TR. Upregulation of Thrombospondin-2 in Akt1-null Mice Contributes to Compromised Tissue Repair due to Abnormalities in Fibroblast Function. *J Biol Chem*. 2015 Jan 2;290(1):409-22. doi: 10.1074/jbc.M114.618421. PMID: 25389299
13. **Lee MY**, Luciano AK, Ackah E, Rodriguez-Vita J, Bancroft TA, Eichmann A, Simons M, Kyriakides TR, Morales-Ruiz M, Sessa WC. Endothelial Akt1 mediates angiogenesis by phosphorylating multiple angiogenic substrates. *Proc Natl Acad Sci*. 2014 Sep 2;111(35):12865-70. doi: 10.1073/pnas.1408472111. PMID: 25136137
14. **Lee MY**, Skoura A, Park EJ, Landskroner-Eiger S, Jozsef L, Luciano AK, Murata T, Pasula S, Dong Y, Bouaouina M, Ferguson SM, Calderwood DA, De Camilli P, Sessa WC. Dynamin2 regulation of integrin endocytosis, but not VEGF signaling, is crucial for developmental angiogenesis. *Development*. 2014. 141, 1465-1472. doi: 10.1242/dev.104539. PMID: 24598168
15. Lohman AW, Billaud M, Straub AC, Johnstone SR, Best AK, **Lee MY**, Barr K, Penuela S, Laird DW, Isakson BE. Expression of pannexin isoforms in the systemic murine arterial network. *J Vasc Res*. 2012; 49:405-416. doi: 10.1159/000338758. PMID: 22739252
16. Straub AC, Lohman AW, Billaud M, Johnstone SR, Dwyer ST, **Lee MY**, Shoppee Bortz P, Best AK, Columbus L, Gaston B, Isakson BE. Endothelial cell expression of hemoglobin α regulates nitric oxide signaling. *Nature*. 2012; 491, 473-477. doi: 10.1038/nature11626. PMID: 23123858
17. **Lee MY**, Garvey SM, Ripley ML, Wamhoff BR. Genome-wide microarray analyses identify the Protein C Receptor (PROCR/EPCR) as a novel Cn/NFAT-dependent gene in vascular smooth muscle cell phenotypic modulation. *Arterioscler Thromb Vasc Biol*. 2011 Nov; 31(11):2665-75. doi: 10.1161/ATVBAHA.111.235960. PMID: 21903947
18. Kadl A, Meher AK, Sharma PR, **Lee MY**, Doran AC, Elliot MR, Gruber F, Han J, Chen W, Kensler T, Ravichandran KS, Isakson BE, Wamhoff BR, Leitinger N. Identification of a novel macrophage phenotype that develops in response to atherogenic phospholipids via Nrf2. *Circ Res*. 2010 Sep 17; 107(6):737-46. doi: 10.1161/CIRCRESAHA.109.215715. PMID: 20651288
19. **Lee MY**, Garvey SM, Baras AS, Lemmon JA, Gomez MF, Daum G, LeBoeuf RC, Schoppee Bortz PD, Wamhoff BR. Integrative genomics identifies DSCR1 (RCAN1) as a novel NFAT-dependent mediator of phenotypic modulation in vascular smooth muscle cells. *Hum Mol Genet*. 2010 Feb 1;19(3):468-79. doi: 10.1093/hmg/ddp511. PMID: 19926569
20. Long X, Tharp DL, Georger MA, Slivano OJ, **Lee MY**, Wamhoff BR, Bowles DK, Miano JM. The smooth muscle cell-restricted KCNMB1 ion channel subunit is a direct transcriptional target of serum response factor and myocardin. *J Biol Chem*. 2009 Nov 27;284(48):33671-82. doi: 10.1074/jbc.M109.050419. PMID: 19801679

21. Hastings NE, Feaver RE, **Lee MY**, Wamhoff BR, Blackman BR. Human IL-8 regulates smooth muscle cell VCAM-1 expression in response to endothelial cells exposed to atheroprone flow. *Arterioscler Thromb Vasc Biol.* 2009 May;29(5):725-31. doi: 10.1161/ATVBAHA.109.184382. PMID: 19229069
22. Orr AW, **Lee MY**, Lemmon JA, Yurdagul A Jr, Gomez MF, Schoppee-Bortz PD, Wamhoff BR. Molecular mechanisms of collagen isotype-specific modulation of smooth muscle cell phenotype. *Arterioscler Thromb Vasc Biol.* 2009 Feb;29(2):225-31. doi: 10.1161/ATVBAHA.108.178749. PMID: 19023090

BOOK CHAPTERS

1. **Lee MY**, Wamhoff BR. (2011) Down Syndrome & Vascular Disease: DSCR1 and NFAT signaling. *Genetics and Etiology of Down Syndrome*, Subrata Dey (Ed.), InTech; ISBN 978-953-307-631-7. Available from: <http://www.intechopen.com/articles/show/title/down-syndrome-and-vascular-disease-dscr1-and-nfat-signaling>

ORAL PRESENTATIONS

1. **Lee MY**, Gamez-Mendez A, Zhang J, Zhuang Z, Vinyard DJ, Kraehling J, Velazquez H, Brudvig GW, Kyriakides TR, Simons M, Sessa WC. Endothelial Akt1-dependent activation of eNOS is critical for vascular tone regulation and vessel remodeling. *International Vascular Biology Meeting*; Boston, MA, 2016.
2. **Lee MY**, Garvey SM, Wamhoff BR. The Endothelial Protein C Receptor (PROCR/EPCR) is regulated by NFAT in vascular smooth muscle cell phenotypic modulation. *Experimental Biology Annual Meeting*; Washington, D.C., 2011.
3. **Lee MY**, Garvey SM, Baras AS, Lemmon JA, Gomez MF, Daum G, LeBoeuf RC, Schoppee Bortz PD, Wamhoff BR. Integrative genomics identifies DSCR1(RCAN1) as a novel NFAT-dependent mediator of phenotypic modulation in vascular smooth muscle cells. *US-Korea Conference on Science, Technology and Entrepreneurship*; Raleigh, NC, 2009.

ABSTRACTS

1. **Lee MY**, Gamez-Mendez A, Rotllan N, Fernandez-Hernando C, Sessa WC. Endothelial-specific Akt1 deficiency exacerbates atherosclerotic lesion formation. Poster, Gordon Conference – Atherosclerosis. Newry, ME, 2017.
2. Kuo A, **Lee MY**, Harrison K, Sessa WC. Characterization of lipid droplets and their regulation by caveolin-1 in endothelial cells. Poster, FASEB, Saxton Rivers, VT, 2014.
3. **Lee MY**, Skoura A, Park EJ, Landskroner-Eiger S, Jozsef L, Luciano AK, Murata T, Pasula S, Dong Y, Bouaouina M, Ferguson SM, Calderwood DA, De Camilli P, Sessa WC. Dynamin 2 regulation of integrin turnover is necessary for endocytosis and developmental angiogenesis. Poster, NAVBO Annual Meeting, Cape Cod, MA, 2013.
4. **Lee MY**, Skoura A, Park EJ, Bouaouina M, Murata T, Jozsef L, Luciano AK, Ferguson SM, Calderwood DA, De Camilli P, Sessa WC. Dynamin 2 regulates integrin endocytosis and angiogenesis. Poster, Gordon Conference – Vascular Cell Biology. Ventura, CA. 2013.
5. Kuo A, **Lee MY**, Harrison KD, Sessa WC. Characterization of Lipid Droplets and Their Regulation by Caveolin-1 in Endothelial Cells. Poster, FASEB J. 26: A597.1 2012.
6. **Lee MY**, Garvey SM, Cisu T, Wamhoff BR. The Endothelial Protein C Receptor (PROCR/EPCR) is regulated by NFAT in vascular smooth muscle cell phenotypic modulation. Poster, ATVB Annual Meeting, Chicago, IL, 2011.
7. **Lee MY**, Garvey SM, Wamhoff BR. Genomics approach using calcineurin/NFAT inhibitors to identify novel effectors of vascular smooth muscle phenotypic modulation. Poster, EB Annual Meeting, Anaheim, CA, 2010.

8. Garvey SM, **Lee MY**, Miano JM, Wamhoff BR. Expression analysis of microRNAs associated with vascular smooth muscle cell phenotypic modulation. Poster. Joint Meeting of the Scandinavian and German Physiological Societies. Copenhagen, Denmark. 2010.
9. **Lee MY**, Garvey SM, Baras AS, Lemmon JA, Gomez MF, Daum G, LeBoeuf RC, Schoppee Bortz PD, Wamhoff BR. Integrative genomics identifies DSCR1(RCAN1) as a novel NFAT-dependent mediator of phenotypic modulation in vascular smooth muscle cells. Poster, ATVB Annual Meeting, Washington D.C., 2009.
10. Agrawal R, Sharma PR, **Lee MY**, Wamhoff BR, Leitinger N. The JNK signaling pathway mediates cross-talk between dying adipocytes and macrophages. Poster, ATVB Annual Meeting, Washington D.C., 2009.
11. **Lee MY**, Baras AS, Garvey SM, Mika MD, Wamhoff BR. Unmasking the transcriptional genomics of NFAT in smooth muscle cell phenotypic modulation. Poster, ATVB Annual Meeting, Atlanta, GA, 2008.
12. Hastings NE, **Lee MY**, Orr AW, Wamhoff BR, Blackman BR. A Hemodynamic Role for Endothelial-derived Interleukin-8 to Limit an Inflammatory Smooth Muscle Cell Phenotype. Poster, ATVB Annual Meeting, Atlanta, GA, 2008.
13. Garvey SM, Lemmon JA, **Lee MY**, Sanders JM, Wamhoff BR. Calcineurin signaling is upregulated in smooth muscle cell phenotypic modulation and vascular disease. Poster, ATVB Annual Meeting, Atlanta, GA, 2008.
14. Orr AW, **Lee MY**, Lemmon JA, Schoppe-Bortz PD, Wamhoff BR. Molecular mechanisms of collagen isotype-specific modulation of smooth muscle cell phenotype. Poster, ATVB Annual Meeting, Atlanta, GA, 2008.

RESEARCH SUPPORT

Active/Pending/Completed: **Active**
 Project Number/PI: 1K99HL130581-01, MY Lee
 Source: NIH/NHLBI – Pathway to Independence Award
 Title of Project: *Akt-mediated regulation of endothelial functions*
 Dates of Approved Project: 07/01/2016-06/30/2018

Active/Pending/Completed: **Completed**
 Project Number/PI: 1F32HL119147-01, MY Lee
 Source: NIH/NHLBI – Postdoctoral Fellowship
 Title of Project: *An isoform-specific, conditional deletion approach to decipher Akt1 and Akt2 function*
 Dates of Approved Project: 07/01/2013-06/30/2016

Active/Pending/Completed: **Completed**
 Project Number/PI: 09PRE2060381, MY Lee
 Source: American Heart Association – Predoctoral Fellowship
 Title of Project: *DSCR1-mediated negative regulation of vascular smooth muscle cell phenotypic modulation*
 Dates of Approved Project: 07/01/2009-06/31/2011

Active/Pending/Completed: **Completed**
 Project Number/PI: T32 HL007284-32, BR Duling
 Source: NIH/NHLBI – Cardiovascular Training Grant
 Title of Project: *NFAT-mediated regulation of vascular smooth muscle cell phenotype*
 Dates of Approved Project: 07/01/2008-06/30/2009

REFERENCES

PRIMARY REFERENCES:

William C. Sessa, Ph.D. (Postdoctoral Advisor)

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Vice Chairman, Department of Pharmacology

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Brian R. Wamhoff, Ph.D. (Predoctoral Advisor)

HemoShear Therapeutics, LLC

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Former Associate Professor, *University of Virginia*

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Yale University

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Associate Professor

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