

Pamela Lloyd, PhD

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Education:

1988-1991: B.A., Russian Area Studies, University of Missouri
1990-1991: Study Abroad, University of Manchester
1991: B.A., Russian Area Studies (*summa cum laude*), University of Missouri
1992-1995: Post-B.A. Study, Biological Sciences, University of Missouri
1995-2000: Ph.D., Physiology, University of Missouri
2000-2003: Postdoctoral Fellow, Physiology, University of Missouri College of Veterinary Medicine

Academic Appointments:

1995-2000: Graduate Research Assistant, Physiology (lab of Chris Hardin, Ph.D.) University of Missouri School of Medicine
2000-2003: Postdoctoral Fellow, Biomedical Sciences (lab of Ronald Terjung, Ph.D.) University of Missouri College of Veterinary Medicine
2003-2004: Research Assistant Professor, Medical Pharmacology & Physiology (lab of Chris Hardin, Ph.D.) University of Missouri School of Medicine
2004-2006: Assistant Research Professor, Cellular & Integrative Physiology (lab of Mike Sturek, Ph.D.) Indiana University School of Medicine
2006-2012: Assistant Professor (tenure-track), Physiological Sciences Oklahoma State University Center for Veterinary Health Sciences
2012-present: Associate Professor, Physiological Sciences Oklahoma State University Center for Veterinary Health Sciences
2013-present: Graduate Program Coordinator, Oklahoma State University Center for Veterinary Health Sciences

Awards and Honors:

1988-1991: National Merit Scholar
1991-present: Phi Beta Kappa Honor Society
1995-1999: G. Ellsworth Huggins Doctoral Fellowship, 1995-1999
1997-1999: NIH Training Grant Fellowship
1998: International Society for Heart Research Travel Award
1998: Molecular Biology Travel Award
1999: Biophysical Society Travel Award
1999: Second Prize, University of Missouri Research and Creative Activities Forum
1999: University of Missouri Professional Presentation Travel Fellowship
1999-2000: American Heart Association Predoctoral Fellowship
1999: First Prize, School of Medicine Research Day
2000-2003: NIH NRSA Postdoctoral Fellowship
2000 and 2001: Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Award
2009: Big 12 Faculty Fellowship to Texas A&M University
2009: J. Wiley Wolfe Award
2012: Regents Distinguished Research Award, OSU

2013: Charter member, Gamma of Oklahoma chapter of Phi Beta Kappa
2015: Zoetis Award for Research Excellence

Other Professional Experiences and Memberships:

2010-2014: Member, American Heart Association South Central Affiliate Research Advisory Committee
1996-present: American Physiological Society
2010-present: American Heart Association
2010-present: Microcirculatory Society

Research Funding:

Current:

- 10/2018-9/2019: Bridge Grant, Research Advisory Committee, OSU CVHS, "Role of advanced glycation end products (AGE) in angiogenic growth factor signaling.", Awarded: \$15,000, Role: PI

Past:

- 07/17/2009-06/30/2014: NIH R01 HL-084494, "Regulation of placenta growth factor by hemodynamics and reactive oxygen species.", Awarded: \$1,811,587, Role: PI, Extension from 09/15/2016-08/31/2017
 - 11/20/2013-12/31/2014: OSU Vice-President for Research & Technology Transfer's Core Facility Support Program, "Acquisition of a BD FACSAria cell sorter to expand the capabilities of OSU's Flow Cytometry Core Facility.", Awarded: \$466,766, Role: PI
 - 09/01/2013-08/31/2017: NIH COBRE/OCRID, "A novel tissueequivalent respiratory model to study airway reactivity to infectious agents.", Role: Project Mentor for Project 2
 - 07/01/2014-06/30/2015: Oklahoma Center for Adult Stem Cell Research, "Adult stem cells to enhance repair of lung vasculature in chronic obstructive pulmonary disease.", Awarded: \$111,571, Role: PI
 - 11/01/2010-10/31/2013: NSF Major Research Instrumentation grant, "An acquisition for a SELDI ProteinChip reader.", Role: PI
 - 01/01/2013-12/31/2013: Oklahoma Center for Adult Stem Cell Research, "Mesenchymal stem cells and inflammatory signaling in COPD.", Awarded: \$112,000, Role: PI
 - 01/01/2012-12/31/2012: Oklahoma Center for Adult Stem Cell Research, "Mesenchymal stem cell therapy to support maintenance and repair of lung vasculature in experimental COPD.", Awarded: \$72,800, Role: PI
 - 01/01/2012-06/01/2012: Oklahoma Center for Adult Stem Cell Research, "Shared equipment for creating a lung disease model to test efficacy of adult stem cell therapy.", Awarded: \$21,280, Role: Co-I
 - 2010-2011: Oklahoma Center for Adult Stem Cell Research, "Endothelial progenitor cell survival and function in emphysema: role of VEGF-A/PLGF signaling.", Awarded: \$72,800, Role: PI
 - 01/01/2010-12/31/2010: Research Advisory Committee, "Effect of hyperlipidemia on signaling pathways mediating exercise-induced vascular remodeling.", Awarded: \$9,947, Role: Mentor
 - 2009-2010: Research Advisory Committee, "VEGF and PLGF expression in hyperoxic lung and cultured pulmonary cells.", Awarded: \$20,000, Role: PI
 - 2007-2008: Seed grant proposal, Research Advisory Committee, "PLGF expression in mouse models of hyperlipidemia and hyperglycemia.", Awarded: \$18,500
 - 2004-2006: NIH R01 HL62552, "Exercise, diabetes, and coronary smooth muscle Ca²⁺.", Role: Co-I
 - 2000-2003: NIH National Research Service Award 1 F32 HL10406, "Angiogenic growth factors in exercising skeletal muscle.", Awarded: \$105,944
 - 1999-2001: "Cytoplasmic organization of carbohydrate metabolism in vascular smooth muscle cells." American Heart Association Heartland Affiliate Pre-Doctoral Fellowship 9910198Z, Awarded: \$32,000
 - 2000-2002: American Heart Association Postdoctoral Fellowship, "Changes in angiogenic growth factor content and expression in skeletal muscle in response to exercise.", Awarded: \$56,000. Awarded but declined to accept NRSA
- Manuscript Review Service (Ad Hoc)
- Microcirculation, Cardiovascular Research, Microvascular Research, American Journal of Physiology: Heart and Circulatory Physiology, American Journal of Physiology: Cell Physiology, Circulation Research, Journal of Applied Physiology, Journal of Vascular Research, Vascular Pharmacology, Pflügers Archiv – European Journal of Physiology, Physiological Research, International Journal of Physiology Pathophysiology and Pharmacology, American Journal of the Medical Sciences, Lipids, BioMedical Engineering Online, Antioxidants, Cell Death & Disease, Archives of Medical Research, Cellular Physiology & Biochemistry, Journal of Cardiology and Cardiovascular Sciences*

Selected Publications:

1. Shoop SA, Rashdan N, Maria Z, Campolo AR, Martin D, Jackson EE, **Lloyd P**, Lacombe VA. Glial growth factor 2 regulates glucose transport in cardiac myocytes via an Akt-dependent pathway. Submitted to American Heart Association Scientific Sessions 2016.
2. Rouf F and **Lloyd PG**. Placental growth factor expression is inhibited by hyperglycemia in cardiac cells. Presented at "Experimental Biology 2016."
3. Rouf F and **Lloyd PG**. Effect of diabetes-associated metabolic factors on placental growth factor in skeletal muscle cells. Presented at "Experimental Biology 2016."
4. Silva AT and **Lloyd PG**. Abnormal regulation of placental growth factor in skeletal muscle of Western-diet fed mice. Presented at "Experimental Biology 2015."
5. Rashdan NA and **Lloyd PG**. Autocrine and paracrine effects of VEGF-A on PLGF in an *in vitro* model of the vessel wall. Presented at "Experimental Biology 2015."
6. Rashdan NA and **Lloyd PG**. Nox4 and HO-1 mediate effects of fluid shear stress on PLGF in an *in vitro* model of the vessel wall. Presented at "Experimental Biology 2015."
7. Rashdan NA and **Lloyd PG**. Regulation of PLGF by shear stress in an *in vitro* model of the vessel wall via redox signaling. Presented at Keystone Symposium on "Metabolism and Angiogenesis," 2014.
8. Silva A and **Lloyd PG**. Placenta growth factor expression in mouse heart correlates with long term diet induced hyperlipidemia and oxidative stress. Presented at Keystone Symposium on "Metabolism and Angiogenesis," 2014.
9. Zhai B, Zhang L, Huang C, Varshney R, Sivasami P, Hinsdale M, Liu L, **Lloyd PG**. Mesenchymal stem cell expressed VEGF-E protects pulmonary endothelial cells from cigarette smoke toxicity. Accepted to "Experimental Biology 2014."
10. Rashdan NA and **Lloyd PG**. Shear stress upregulates placenta growth factor in an *in vitro* model of the vessel wall in a reactive oxygen species dependent manner. Presented at "Arteriosclerosis, Thombosis, and Vascular Biology 2013."
11. Silva, AT and **Lloyd PG**. Effect of long-term diet-induced hyperglycemia and hyperlipidemia on placenta growth factor expression in mouse heart. Presented at "Arteriosclerosis, Thombosis, and Vascular Biology 2013."
12. Shaw JH, Rashdan NA, and **Lloyd PG**. Shear stress induces the expression of connexin-43 in human coronary smooth muscle. Presented at "Arteriosclerosis, Thombosis, and Vascular Biology 2013."
13. Varshney R, Sivasami P, Zhang L, Rubenstein D, Liu L, Hinsdale M, and **Lloyd PG**. Mesenchymal stem cell conditioned medium protects lung endothelial cells against cigarette smoke induced cell death. Presented at Keystone Symposium on "Stem cell regulation in homeostasis and disease," 2013.
14. Zhang L, Huang C, Sivasami P, Varshney R, **Lloyd PG**, Hinsdale M, Liu L. MicroRNAs enhance the differentiation of mouse induced pluripotent stem cells into alveolar type II cells. Presented at Keystone Symposium on "Stem cell regulation in homeostasis and disease," 2013.
15. Sivasami P, Varshney R, Zhang L, **Lloyd PG**, Liu L, and Hinsdale M. Molecular understanding of proteoglycans and adult stem cell niches. Accepted to Keystone Symposium "Stem cell regulation in homeostasis and disease," 2013.
16. Rashdan NA and **Lloyd PG**. Shear stress upregulates PLGF protein expression in an endothelial cell/vascular smooth muscle cell coculture system. *FASEB Journal* 26: 683.8, 2012.
17. Shaw JH and **Lloyd PG**. Placenta growth factor is regulated by hydrogen peroxide at the post-transcriptional, but not the transcriptional, level in vascular smooth muscle. *FASEB Journal* 26: 863.5, 2012.
18. Varshney RR and **Lloyd PG**. Mesenchymal stem cells isolated from bone marrow and compact bone express both VEGF and PLGF. *FASEB Journal* 26: 856.4, 2012.
19. Xiang L and **Lloyd PG**. Evidence for a role of endothelial-cell derived PLGF in paracrine communication. *FASEB Journal* 26: 1129.23, 2012.
20. Rashdan NA, Soulek J, and **Lloyd PG**. PLGF expression in coronary artery smooth muscle cells is sensitive to changes in shear stress. *FASEB Journal* 25:lb462, 2011.
21. Shaw JH and **Lloyd PG**. Hydrogen peroxide increases PLGF mRNA half-life via a p38 and ERK1/2 kinase dependent mechanism. *FASEB Journal* 25: 821.36, 2011.
22. Rubenstein DA, Mujib T, Shaw JH, **Lloyd PG**, and Yin W. Altered gravity promotes platelet-endothelial cell interactions that precede cardiovascular diseases. *FASEB Journal* 25:668.5, 2011.
23. Bilko SJ, Xiang L, Liu L, and **Lloyd PG**. VEGF family growth factor ratio is abnormal in bronchopulmonary dysplasia. *FASEB Journal* 25:660.3, 2011.

24. Xiang L, Yin W, and **Lloyd PG**. Cell-type specific patterns of gene expression predict the existence of VEGF and PLGF homo- and heterodimer gradients in the vascular wall. *FASEB Journal* 24:1031.11, 2010.
25. Shaw JH and **Lloyd PG**. Hydrogen peroxide upregulates PLGF and VEGF-A expression in primary human coronary artery smooth muscle cells. *FASEB Journal* 24:1031.9, 2010.
26. Lloyd PG, Xiang L, Coleman K, and Yin W. VEGF and PLGF levels vary strikingly across vascular cell lines. *Microcirculation* 2009.
27. Shah A, Poore D, and **Lloyd PG**. Reactive oxygen species regulate placenta growth factor expression in vascular smooth muscle cells. *Journal of Molecular and Cellular Cardiology* 46(5), supplement: S21, 2009.
28. Shah A, Poore D, and **Lloyd PG**. Cardiac expression of placenta growth factor is inhibited by hyperlipidemia in mice. *Journal of Molecular and Cellular Cardiology* 46(5), supplement: S46, 2009.
29. Shah A, Sitzmann JV, and **Lloyd PG**. Expression of placenta growth factor in cardiac and vascular tissue and in hemangioendothelioma cells. *Journal of Molecular and Cellular Cardiology* 46(5), supplement: S21, 2009.
30. Lloyd PG, Shah A, and Yin W. Placenta growth factor gene expression is increased in vascular smooth muscle cells in association with metabolic stress. *FASEB Journal*, 2008.
31. Lloyd PG, Alloosh M, and Sturek M. Hyperlipidemia induced dysregulation of placenta growth factor expression. *FASEB Journal*, 2007.
32. Lloyd PG, Dick GM, Alloosh M, Unthank JL, and Sturek M. Exercise training improves peripheral vascular function following chronic femoral artery occlusion in the Ossabaw swine model of cardiometabolic risk. *Medicine & Science in Sports & Exercise* 38, Suppl. 1:S1, 2006.
33. Long X, Edwards JM, **Lloyd PG**, Mokolke EA, and Sturek M. Activation of adenosine A1 receptors induces coronary smooth muscle cell proliferation in an *in vitro* model of atherosclerosis. *Medicine & Science in Sports & Exercise* 38, Suppl. 1:S34, 2006.
34. Lloyd PG and Sturek M. Coronary artery placenta growth factor expression is reduced by diabetes and hyperlipidemia. *FASEB Journal* 20(4): A716, 2006.
35. Lloyd PG, Fang M, Brisbin IL, Andersson L, and Sturek M. AMP kinase gene mutation is consistent with a thrifty phenotype (metabolic syndrome) in a population of feral swine. *FASEB Journal* 20(4): A299, 2006.
36. Lloyd PG, Mokolke EA, Kaser S, Alloosh M, Hou Y, Clauss M, and Sturek M. Placenta growth factor expression is regulated by stretch and correlates with microvascular dysfunction and plasma LDL. *FASEB Journal* 20(4): A716, 2006.
37. Long X, **Lloyd PG**, Sheehy AJ, Mokolke EA, and Sturek M. Bare metal stents increase mitogenic receptor gene expression in coronary artery of Ossabaw pig model of the metabolic syndrome. *FASEB Journal* 20(4): A699, 2006.
38. Hand A, **Lloyd PG**, Alloosh M, Cameron JA, and Sturek M. Adenosine A1 receptors in the metabolic syndrome and coronary artery disease. *FASEB Journal*, 2006.
39. Sheehy AJ, Mokolke EA, **Lloyd PG**, Sturek J, and Sturek M. Reduced expression of leukemia inhibitory factor correlates with coronary atherosclerosis in the metabolic syndrome. *FASEB Journal* 20(4): A698, 2006.
40. Hardin CD, **Lloyd PG**, Mattern HM, Stricklin C, Sturek M, and Roberts TM. Smooth muscle caveolin-1 mRNA levels are reduced in a genetic model of type 2 diabetes and modulated by high fat diets. *FASEB Journal* 19(4): A195, 2005.
41. Hardin CD, Raikar LS, **Lloyd PG**, and Roberts TM. Overexpression of caveolin-1 results in increased plasma membrane targeting of phosphofructokinase (PFK): The structural basis for a membrane associated metabolic compartment. *FASEB Journal* 19(4): A27, 2005.
42. Mattern HM, **Lloyd PG**, Sturek M, Hardin CD. Gender and genetic differences in bladder smooth muscle PPAR mRNA in a porcine model of the metabolic syndrome. *FASEB Journal* 19(4): A260, 2005.
43. Prior BM, **Lloyd PG**, Ren J, Li H, Yang HT, and Terjung RL. Exercise-induced collateral vascular remodeling and function in rats with femoral artery occlusion. *FASEB Journal* 17(4): A501, 2003.
44. Yang HT, **Lloyd PG**, Prior BM, Li H, and Terjung RL. VEGF receptor antagonist blocks training-induced collateral vascular remodeling. *FASEB Journal* 17(4): A498, 2003.
45. Yang HT, **Lloyd PG**, Prior BM, Li H, and Terjung RL. VEGF receptor antagonist reduces training-induced angiogenesis in active muscle. *Medicine & Science in Sports & Exercise* 35(5) supplement, 2003.
46. Prior BM, **Lloyd PG**, Yang HT, and Terjung RL. Exercise training increases angiogenic growth factor mRNA expression in muscle of rats with hindlimb ischemia. *FASEB Journal* 16(4): A90-91, 2002.
47. Lloyd PG, Prior BM, Yang HT, Yan Z, and Terjung RL. Angiotensin and Tie-2 mRNA expression in rat white gastrocnemius is altered by exercise and femoral ligation. *FASEB Journal* 15(4): A118, 2001.
48. Lloyd PG, Prior BM, Gale NW, Yancopoulos GD, and Terjung RL. Angiotensin-2 expression in adult mouse skeletal muscle vasculature. *FASEB Journal* 15(4): A118, 2001.

49. Prior BM, **Lloyd PG**, Yang HT, Yan Z, and Terjung RL. Angiopoietin and Tie-2 mRNA expression in adult skeletal muscle of rat hindlimb varies with fiber type. *FASEB Journal* 15(4): A792, 2001.
50. Lloyd PG, Yang HT, Chen JP, and Terjung RL. Exercise-induced angiogenesis in rat white gastrocnemius is unaffected by nitric oxide synthesis blockade. *The Physiologist* 43(4): 350, 2000.
51. Lloyd PG and Hardin CD. Caveolae and metabolic organization. *FASEB Journal* 14(4): A149, 2000.
52. Lloyd PG and Hardin CD. Channeling and organization of glycolysis and gluconeogenesis in permeabilized pig cerebral microvessels (PPCMV). *FASEB Journal* 13(4): A33, 1999.
53. Lloyd PG and Hardin CD. The role of microtubules in the regulation of glycolysis in freshly isolated pig cerebral microvessels (PCMV). *Biophysical Journal* 76(1): A42, 1999.
54. Hardin CD, **Lloyd PG**, Jeffrey TM, Roberts TM, and Finder DR. Organization and integration of metabolism in vascular smooth muscle (VSM) assessed by ¹³C-NMR. *Biophysical Journal* 74(2): A224, 1998.
55. Lloyd PG, Hardin CD, and Sturek M. Use of a small fluorescent glucose analog as an indicator of glucose transport in pig vascular smooth muscle cells (VSMC). *Journal of Molecular and Cellular Cardiology* 30: A63, 1998.
56. Lloyd PG, Thompson AD, and Hardin CD. Examining the structural basis of compartmented glycolysis in pig cerebral microvessels (PCMV). *Journal of Molecular and Cellular Cardiology* 30: A122, 1998.