

## **Lijun Xia, M.D., Ph.D.**

Member and Program Chair, Cardiovascular Biology Research Program  
Merrick Foundation Chair in Biomedical Research

Adjunct Professor, Department of Biochemistry and Molecular Biology  
Oklahoma Medical Research Foundation

### **Contact Information:**

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### **Education:**

1982: M.D., Medicine, Binzhou Medical College, China

1990: M.S., Hematology, Qingdao Medical College, China

1995: Ph.D., Molecular Medicine, Suzhou Medical College, China

1995-2003: Postdoctoral Fellow, Department of Medicine, University of Oklahoma Health Sciences Center, OK

### **Academic Appointments:**

1982-1987: Resident, Internal Medicine, Rizhao Municipal Hospital, China

1990-1992: Physician, Internal Medicine, Rizhao Municipal Hospital, China

2003-2008: Assistant Member, Cardiovascular Biology Research Program, Oklahoma Medical Research Foundation, OK

2006-2009: Adjunct Assistant Professor, Department of Biochemistry and Molecular Biology, University of Oklahoma Health Sciences Center, OK

2008-2011: Associate Member, Cardiovascular Biology Research Program, Oklahoma Medical Research Foundation, OK

2009-2012: Adjunct Associate Professor, Department of Biochemistry and Molecular Biology, University of Oklahoma Health Sciences Center, OK

2011-present: Member, Cardiovascular Biology Research Program, Oklahoma Medical Research Foundation, OK

2012-present: Adjunct Professor, Department of Biochemistry and Molecular Biology, University of Oklahoma Health Sciences Center, OK

2014-present: Merrick Foundation Chair in Medical Research, Oklahoma Medical Research Foundation, OK

2017-present: Program Chair, Cardiovascular Biology Research Program, Oklahoma Medical Research Foundation, OK

### **Awards and Honors:**

2003: National Scientist Development Award, American Heart Association

2006: Scientific Consultant, American Stem Cell, Inc., CA

2007: Merrick Award for Outstanding Research, Oklahoma Medical Research Foundation

2009: Merrick Foundation Distinguished Scientist, Oklahoma Medical Research Foundation

2012: Edward L. & Thelma Gaylord Prize for Scientific Excellence, Oklahoma Medical Research Foundation

2016: Merrick Foundation Outstanding Research Award, Oklahoma Medical Research Foundation

## **Other Professional Experiences and Memberships:**

1998: Present Member, American Society of Hematology  
2006: Present Member, Society for Glycobiology  
2008: Present Guest Professor, Soochow University, China  
2010: Present Member, International Society of Thrombosis and Hemostasis Research Support  
2008: Ad hoc reviewer, Cell Biology #2 Review Panel, Congressionally Directed Medical Research Programs  
2009: Ad hoc reviewer, Region III Peer Review Committee 4B, American Heart Association  
2011: Ad hoc reviewer, NIH Tumor and Microenvironment Study Section  
2015: Ad hoc reviewer, NIH Special Emphasis Panel "Accelerating Translation of Glycoscience"  
2015: Ad hoc reviewer, NIH Special Emphasis Panel/ Scientific Review Group 2016/01 HLBP 1

## **Research Support:**

Current:

- 2010-2021: NIH/NIDDK, "Role of Mucin-type O-glycans in Intestinal Inflammation", Role: PI
- 2015-2020: NIH/NICHHD, "Podoplanin-mediated platelet activation and vascular integrity in the developing brain", Role: PI
- 2016-2020: NIH/NHLBI, "Platelet CLEC-2 regulation of vascular integrity in inflammation", Role: PI (MPI)
- 2016-2021: NIH/NIGMS, "Interdisciplinary Research in Vascular Biology", Role: Cardiovascular Phenotyping Core Director, Admin Core Co-Director
- 2016-2021: NIH/NCI, "Safer approaches to CRC chemoprevention", Role: Consortium PI

Past:

- 2014-2018: NIH/NHLBI, "Epsin in Angiogenesis and Vascular Remodeling", Role: Co-Investigator
- 2015-2018: Pfizer, "Novel function of site-1 protease in pathogenesis of lysosome storage disease", Role: PI
- 2016-2018: Oklahoma Center for the Advancement of Science and Technology (OCAST), "Antisense mediated splicing therapy for Mucopolysaccharidosis-III", Role: PI
- 2016-2017: Oklahoma Center for Adult Stem Cell Research (OCASCR), "Modulation of intestinal epithelial stem cells and their niches as a colitis therapy", Role: PI
- 2015-2016: Presbyterian Health Foundation, "Platelet CLEC-2 Regulation of Vascular Integrity", Role: PI
- 2015-2016: Stephenson Cancer Center, "Role of Intestinal O-glycans in caspase-1 dependent colonic inflammation and tumorigenesis", Role: PI
- 2015-2016: Oklahoma Center for Advanced Stem Cell Research (OCASCR), "Function of mucus layer in the intestinal stem cell niche", Role: PI
- 2011-2017: NIH/NHLBI, "Protein-glycan Interactions in the Vascular System", Role: Project 3 Leader, Project 1 Co-Investigator
- 2011-2011: Oklahoma Center for Adult Stem Cell Research, "Glycoengineering of endothelial progenitor cells for therapeutic neovascularization in ischemic stroke", Role: PI
- 2010-2015: NIH/NCRR COBRE, "Podoplanin Regulation of Lymphatic Endothelial Cell Identity In Vivo" Role: Project 5 Leader
- 2011-2014: DOD/USAMRAA, "Epsin, a Novel Regulator in Prostate Cancer Progression and Metastasis", Role: Co Investigator
- 2012-2013: NIH, "The microbiota in a novel mouse model of ulcerative colitis, Role: Collaborator
- 2009-2014: NIH/NHLBI, "Epsin in angiogenesis and vascular remodeling", Role: Co-Investigator
- 2008-2010: Oklahoma Center for the Advancement of Science and Technology (OCAST), "Exogenous Mucins as Treatment for Inflammatory Bowel Disease", Role: PI
- 2006-2011: NIH/NHLBI, "Protein-glycan Interactions in the Vascular System", Role: Project 3 PI,
- 2001-2004: American Heart Association (AHA), Scientist Development Grant, "Functional Analysis of Core 1 Beta 1,3-galactosyltransferase in Vivo", Role: PI
- 1998-2001: American Heart Association Heartland Affiliate, " In vivo analysis of P-selectin glycoprotein ligand-1", Role: PI
- 2003-2008: NIH/NCRR, Core II: "Intravital Microscopy", Role: Core II Director

- 2003-2008: NIH/NCRR, "Post-Translational Modifications in Host Defense", Role: Project Leader
- 2006-2009: Crohn's & Colitis Foundation of America (CCFA), Senior Research Award, "Role of Intestinal O-Glycans in the Pathogenesis of Ulcerative Colitis", Role: PI

### **Selected Publications:**

1. Li Y, Fu J, Ling Y, Yago T, McDaniel JM, Song J, Bai X, Kondo Y, Qin Y, Hoover C, McGee S, Shao B, Liu Z, Sonon R, Azadi P, Marth JD, McEver RP, Ruan C, and Xia L\*. Sialylation on O-glycans protects platelets from clearance by liver Kupffer cells. *PNAS*. 2017 July 17. pii: 201707662. doi: 10.1073/pnas.1707662114. [Epub ahead of print].  
\*Corresponding author.
2. Bergstrom K, Liu X, Zhao Y, Gao N, Wu Q, Song K, Cui Yi, Li Y, McDaniel JM, McGee S, Chen W, Huycke MM, Houchen CW, Zenewicz LA, West CM, Chen H, Braun J, Fu J, Xia L\*. Defective intestinal mucin-type O-glycosylation causes spontaneous colitis-associated cancer in mice. *Gastroenterology*. 2016 July;15:152-164.e11. PMID: 27059389.  
\*Corresponding author.
3. Bergstrom K, Fu J, Johansson ME, Liu X, Gao N, Wu Q, Song J, McDaniel JM, McGee S, Chen W, Braun J, Hansson GC, Xia L\*. Core 1- and 3-derived O-glycans collectively maintain the colonic mucus barrier and protect against spontaneous colitis in mice. *Mucosal Immunol*. 2016 May 4. [Epub ahead of print]. PMID: 27143302. \*Corresponding author.
4. Pan J, Dinh TT, Rajaraman A, Lee M, Scholz A, Czupalla CJ, Kiefel H, Zhu L, Xia L, Morser J, Jiang H, Santambrogio L, Butcher EC. Patterns of expression of factor VIII and von Willebrand factor by endothelial cell subsets in vivo. *Blood*. 2016 Jul 7;128(1):104-9. PMID: 27207787. PMCID: PMC4937354.
5. Cha B, Geng X, Mahamud MR, Fu J, Mukherjee A, Kim Y, Jho EH, Kim TH, Kahn ML, Xia L, Dixon JB, Chen H, Srinivasan RS. Mechanotransduction activates canonical Wnt/ $\beta$ -catenin signaling to promote lymphatic vascular patterning and the development of lymphatic and lymphovenous valves. *Genes Dev*. 2016 Jun 16. [Epub ahead of print], PMID: 27313318.
6. Chen WS, Cao Z, Sugaya S, Lopez MJ, Sendra VG, Laver N, Leffler H, Nilsson UJ, Fu J, Song J, Xia L, Hamrah P, Panjwani N. Pathological lymphangiogenesis is modulated by galectin-8-dependent crosstalk between podoplanin and integrin-associated VEGFR-3. *Nat Commun*. 2016 Apr 12;7:11302. PMID: 27066737.
7. Rahman HA, Wu H, Dong Y, Pasula S, Wen A, Sun Y, Brophy ML, Tessneer KL, Cai X, McManus J, Chang B, Kwak S, Rahman NS, Xu W, Fernandes C, Mcdaniel JM, Xia L, Smith L, Srinivasan S, Chen H. Selective Targeting of a Novel Epsin-VEGFR2 Interaction Promotes VEGF-Mediated Angiogenesis. *Circ Res*. 2016 Mar 18;118:957-69. PMID: 26879230.
8. Dong Y, Wu H, Rahman HN, Liu Y, Pasula S, Tessneer KL, Cai X, Liu X, Chang B, McManus J, Hahn S, Dong J, Brophy ML, Yu L, Song K, Silasi-Mansat R, Saunders D, Njoku C, Song H, Mehta-D'Souza P, Towner R, Lupu F, McEver RP, Xia L, Boerboom D, Srinivasan RS, Chen H. Motif mimetic of epsin perturbs tumor growth and metastasis. *J Clin Invest*. 2016 Apr 1;126:1607. PMID: 26999611.
9. Crosswhite PL, Podsiadlowska JJ, Curtis CD, Gao S, Xia L, Srinivasan RS, Griffin CT. CHD4-regulated plasmin activation impacts lymphovenous hemostasis and hepatic vascular integrity. *J Clin Invest*. 2016 Jun 1;126(6):2254-66. doi: 10.1172/JCI84652. Epub 2016 May 3. PMID: 27140400.
10. Song K, Herzog BH, Fu J, Sheng M, Bergstrom K, McDaniel JM, Kondo Y, McGee S, Cai X, Li P, Chen H, Xia L\*. Loss of core 1-derived O-glycans decreases breast cancer development in mice. *J Biol Chem*. 2015 Aug 14;290(33):20159-66. PMID: 26124270. \*Corresponding author.
11. Sweet DT, Jiménez JM, Chang J, Hess PR, Mericko-Ishizuka P, Fu J, Xia L, Davies PF, Kahn ML. Lymph flow regulates collecting lymphatic vessel maturation in vivo. *J Clin Invest*. 2015 Aug 3;125(8):2995-3007.
12. Chang B, Tessneer KL, McManus J, Liu X, Hahn S, Pasula S, Wu H, Song H, Chen Y, Cai X, Dong Y, Brophy ML, Rahrna R, Ma JX, Xia L, Chen H. Epsin is required for disheveled stability and Wnt signaling activation in colon cancer development. *Nat Commun*. 2015 Mar16;6:6380. PMID: 25871009.
13. Astarita JL, Cremasco V, Fu J, Darnell MC, Peck JR, Nieves-Bonilla JM, Song K, Woodruff MC, Gogineni A, Onder L, Ludewig B, Weimer RM, Carroll MC, Mooney DJ, Xia L, Turley SJ. The CLEC-2-podoplanin axis controls fibroblastic reticular cell contractility and lymph node microarchitecture. *Nat Immunol*. 2015 Jan;16(1):75-84. PMID: 25347465.
14. Pan Y, Yago T, Fu J, Herzog B, McDaniel JM, Padmaja Mehta-D'souza, Cai X, Ruan C, McEver RP, West C, Dai K, Chen H, Xia L\*. Podoplanin requires sialylated O-glycans for stable expression on lymphatic endothelial cells and for interaction with platelets. *Blood*. 2014 Dec 4;124(24):3656-65. \*Corresponding author.
15. Liu X, Pasula S, Song H, Tessneer KL, Dong Y, Hahn S, Yago T, Brophy ML, Chang B, Cai X, Wu H, McManus J, Ichise H, Georgescu C, Wren JD, Griffin C, Xia L, Srinivasan RS, Chen H. Temporal and spatial regulation of epsin abundance and VEGFR3 signaling are required for lymphatic valve formation and function. *Sci Signal*. 2014 Oct14;7(347)ra97.doi:10.1126/scisignal.2005413.

16. Hess PR, Rawnsley DR, Jakus Z, Yang Y, Sweet DT, Fu J, Herzog B, Lu M, Nieswandt B, Oliver G, Makinen T, Xia L, Kahn ML. Platelet mediate lymphovenous hemostasis to maintain blood-lymphatic separation throughout life. *J Clin Invest.* 2014 Jan 2;124(1):273:84.
17. Song K, Herzog BH, Sheng M, Fu J, McDaniel JM, Ruan J, Xia L\*. Lenalidomide inhibits lymphangiogenesis in preclinical models of mantle cell lymphoma. *Cancer Res.* 2013 Dec 15;73(24):7254-64. NIHMSID: NIHMS535361. \*Corresponding author.
18. Hess PR, Rawnsley DR, Jakus Z, Yang Y, Sweet DT, Fu J, Herzog B, Lu M, Nieswandt B, Oliver G, Makinen T, Xia L, Kahn ML. Platelets mediate lymphovenous hemostasis to maintain blood-lymphatic separation throughout life. *J Clin Invest.* 2013 Dec 2. doi:10.1172/JCI70422. PMCID: PMC3871239.
19. Herzog BH, Fu J, Wilson SJ, Hess PR, Sen A, McDaniel JM, Pan Y, Sheng M, Yago T, Silasi-Mansat R, McGee S, May F, Nieswandt B, Morris AJ, Lupu F, Coughlin SR, McEver RP, Chen H, Kahn ML, Xia L\*. Podoplanin maintains high endothelial venule integrity by interacting with platelet CLEC-2. *Nature.* 2013 Oct 3;502(7469):105-9. PMCID: PMC3791160. \*Corresponding author.
20. Pasula S, Cai X, Dong Y, Messa M, McManus J, Chang B, Liu X, Zhu H, Mansat RS, Yoon SJ, Hahn S, Keeling J, Saunders D, Ko G, Knight J, Newton G, Luscinskas F, Sun X, Towner R, Lupu F, Xia L, Cremona O, De Camilli P, Min W, Chen H. Endothelial epsin deficiency decreases tumor growth by enhancing VEGF signaling. *J Clin Invest.* 2012 Dec 3;122(12):4424-38. PMCID: PMC3533553.
21. Wang S, Zhang C, Zhang M, Liang B, Zhu H, Lee J, Viollet B, Xia L, Zhang Y, Zou MH. Activation of AMP-activated protein kinase alpha2 by nicotine instigates formation of abdominal aortic aneurysms in mice in vivo. *Nat Med.* 2012 Jun; 18(6):902-10. PMCID: PMC3559018.
22. Fu J, Wei B, Wen T, Johansson ME, Liu X, Bradford E, Thomsson KA, McGee S, Mansour L, Tong M, McDaniel JM, Sferra TJ, Turner J, Chen H, Hansson GC, Braun J, Xia L\*. Loss of intestinal core 1-derived O-glycans causes spontaneous colitis in mice. *J Clin Invest.* 2011 Apr;121(4):1657-66. PMCID: PMC3069788. \*Corresponding author.
23. Yago T, Fu J, McDaniel JM, Miner JJ, McEver RP\*, Xia L\*. Core 1-derived O-glycans are essential E-selectin ligands on neutrophils. *Proc Natl Acad Sci U S A.* 2010 May 18;107(20):9204-9. PMCID: PMC2889084. \*Co-corresponding author.
24. Fabene PF, Navarro Mora G, Martinello M, Rossi B, Merigo F, Ottoboni L, Bach S, Angiari S, Benati D, Chakir A, Zanetti L, Schio F, Osculati A, Marzola P, Nicolato E, Homeister JW, Xia L, Lowe JB, McEver RP, Osculati F, Sbarbati A, Butcher EC, Constantin G. A role for leukocyte-endothelial adhesion mechanisms in epilepsy. *Nat Med.* 2008 Dec;14(12):1377-83. PMCID: PMC2710311.
25. Fu J, Gerhardt H, McDaniel JM, Xia B, Liu X, Ivanciu L, Ny A, Hermans K, Silasi-Mansat R, McGee S, Nye E, Ju T, Ramirez MI, Carmeliet P, Cummings RD, Lupu F, Xia L\*. Endothelial O-glycan deficiency causes blood/lymphatic misconnections and consequent fatty liver disease in mice. *J Clin Invest.* 2008 Nov;118(11):3725-37. PMCID: PMC2567837. \*Corresponding author.
26. Miner JJ, Xia L\*, Yago T, Kappelmayer J, Liu Z, Klopocki AG, Shao B, McDaniel JM, Setiadi H, Schmidtke DW, McEver RP. Separable requirements for cytoplasmic domain of PSGL-1 in leukocyte rolling and signaling under flow. *Blood.* 2008 Sep 1;112(5):2035-45. PMCID: PMC2518905. \*Co-first author.
27. An G, Wang H, Tang R, Yago T, McDaniel JM, McGee S, Huo Y, Xia L\*. P-Selectin Glycoprotein Ligand-1 is highly expressed on Ly-6Chi monocytes and a major determinant for Ly-6Chi monocyte recruitment to sites of atherosclerosis in mice. *Circulation.* 2008 Jun 24;117(25):3227-37. PMCID: PMC2596619. \*Corresponding author.
28. An G, Wei B, Xia B, McDaniel JM, Ju T, Cummings RD, Braun J, Xia L\*. Increased susceptibility to colitis and colorectal tumors in mice lacking core 3-derived O-glycans. *2007 J Exp Med.* Jun 11;204(6):1417-29. PMCID: PMC2118614. \*Corresponding author.