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Personal

Place of Birth Kiev, Ukraine
Citizenship USA

Education

1993 M.S. in Biophysics, Taras Shevchenko National University of Kiev. Kiev, Ukraine.
1997 Ph.D. in Biochemistry, National Academy of Sciences of Ukraine. Kiev, Ukraine.

Professional Experience

1993- Graduate student, Department of Protein Structure and Functions, Institute of
1997 Biochemistry, Kiev, Ukraine.
1997- Postdoctoral Fellow, Joseph J. Jacobs Center for Thrombosis and Vascular Biology,
2003 Department of Molecular Cardiology, Cleveland Clinic, Cleveland, OH. Ed plow
2003- Research Associate, Joseph J. Jacobs Center for Thrombosis and Vascular Biology,
2006 Department of Molecular Cardiology, Lerner Research Institute, Cleveland Clinic.
2006- Project Scientist, Department of Cell Biology/Molecular Cardiology, Lerner Research
2014 Institute, Cleveland Clinic, Cleveland, OH.
2014- Staff Scientist, Department of Molecular Cardiology, Lerner Research Institute,
2015 Cleveland Clinic, Cleveland, OH
2015- Assistant Professor, Department of Biomedical Sciences, Quillen College of
present Medicine, East Tennessee State University, Johnson City, TN.

Awards

1995 The International Science Foundation award for investigation of structural organization
of GPII_bIII_a
1996 Travel award for XII International Biophysical Congress (Amsterdam).
2004- Scientist Development Grant from the National Affiliate of the American Heart
2008 Association
2014- R56 scientific grant from the National Institute of Diabetes and Digestive and Kidney
2015 Diseases, (NIH)

- 2014-2016 Grant-in-Aid from the Great River Affiliate of the American Heart Association
- 2014-2020 R01 scientific grant from the National Institute of Diabetes and Digestive and Kidney Diseases, (NIH)
- 2016 ATVB Council Award for outstanding Research by Early Career Investigator, American Heart Association Scientific Sessions 2016, New Orleans.
- 2020-2022 AIREA grant from the American Heart Association
- 2020-2021 Intramural Quillen College of Medicine Research Enhancement Award

Research Support

Ongoing:

American Heart Association, (AIREA)

20AIREA35150018 (Yakubenko) 01/01/2020-01/01/2022

“Targeting the product of DHA oxidation as potential substrate for macrophage retention during atherosclerosis”.

Role: Principal Investigator.

The major goal of this study is to determine the molecular mechanism of interaction between macrophage integrins and ECM proteins modified by the end-product of DHA oxidation during the development of atherosclerosis.

Intramural Quillen College of Medicine Research Enhancement Award

Yakubenko 01/01/2021-01/01/2022

Contribution of $\alpha 7$ nicotinic acetylcholine receptor ($\alpha 7$ nAChR) to macrophage migration during inflammation.

Role: Principal Investigator.

The major goal of this award to evaluate the role of $\alpha 7$ nAChR in macrophage functions during inflammatory response.

Department of Veterans Affairs (VA)

BX004045 Singh, Krishna (PI) 04/01/2018 - 03/31/2023

Investigation of therapeutic potential of exogenous ubiquitin following myocardial ischemia/reperfusion injury.

Role: Co-I

Completed last 3 years:

National Institute of Health, NIDDK

1R01 DK102020-01 (Yakubenko) 07/01/2014 - 04/30/2020 (no cost extension)

“Role of β_2 integrins in macrophage retention and egress during inflammation”.

Role: Principal Investigator

The purpose of this proposal is to test the role of leukocyte migratory receptors, integrins $\alpha_M\beta_2$ and $\alpha_D\beta_2$, in the retention and egress of macrophages within the site of chronic inflammation during the development of metabolic syndrome.

American Heart Association, Great Rivers Affiliate, Grant-in-Aid

14GRNT20410074 (Yakubenko) 07/01/2014 – 06/30/2016

“The contribution of integrin $\alpha_D\beta_2$ to the macrophage migration and lipid deposition during atherogenesis.”

Role: Principal Investigator

This project will focus on the determination of the impact of integrin $\alpha_D\beta_2$ on the development of atherosclerosis, focusing on both components of early atherogenesis – macrophage accumulation and lipid deposition.

Professional Membership

2000- present	American Heart Association
2017-present	American Association of Immunologist
2016-present	Member of Center of Excellence for Inflammation, Infectious Disease and Immunity, ETSU

Teaching

2016-current	Medical Physiology (PHYS-1312)
2018-current	Biomedical Sciences IV (BIOM 6040)

Service

2016-2019	Member of NIH Study Section review committee “Surgical Sciences, Biomedical Imaging and Bioengineering
2017	Chair of the Search committee for the new cancer/genetic faculty in the Department of Biomedical Sciences
2016-2017	Member of the Search committee for the new cardiovascular faculty in the Department of Biomedical Sciences
2016-present	Member of Microscopy Core Advisory Committee
2020-present	Chair of Faculty Advisory Committee at the Quillen College of Medicine

Publications

1. Makogonenko EM, **Yakubenko VP**, Ingham KC, Medved LV. Thermal stability of individual domains of platelet glycoprotein IIb/IIIa. *Eur. J. Biochem.* 1996,237, 205-211. PMID: 8620874.
2. **Yakubenko VP**, Lukinova NI, Platonova TN. Effect of COOH-terminal end of fibrinogen B β -chain on fibrin polymerization. *Ukr. Biochem. Zh*, 1996,68,18-25.
3. **Yakubenko VP**, Makogonenko EM. Isolation of platelet integrin GPIIb/IIIa, its chymotrypsin fragment and IIIa subunit. *Ukr. Biochem. Zh* 1997, 69, 17-22. PMID: 9463240.

4. **Yakubenko VP**, Lobb RR, Plow EF, Ugarova TP. Differential induction of gelatinase B (MMP-9) and gelatinase A (MMP-2) in T lymphocytes upon $\alpha_4\beta_1$ -mediated adhesion to VCAM-1 and the CS-1 peptide of fibronectin. *Exp Cell Res.* 2000 Oct 10; 260(1):73-84. PMID: 11010812.
5. Ugarova TP, **Yakubenko VP**. Recognition of fibrinogen by leukocyte integrins. *Ann N Y Acad Sci.* 2001; 936:368-85.
6. **Yakubenko VP**, Solovjov DA, Zhang L, Yee VC, Plow EF, Ugarova TP. Identification of the binding site for fibrinogen recognition peptide gamma 383-395 within the α_M -domain of integrin $\alpha_M\beta_2$. *J Biol Chem.* 2001 Apr 27; 276(17): 13995-4003. PMID: 11278633.
7. Lishko VK, **Yakubenko VP**, Hertzberg K, Grieninger G, Ugarova TP. The alternatively spliced α_E C domain of human Fibrinogen-420 is a ligand for leukocyte Integrins $\alpha_M\beta_2$ and $\alpha_X\beta_2$. *Blood*, 2001, v.98, 8, pp.2448-2455. PMID: 11588042.
8. Lishko VK, Kudryk B., **Yakubenko VP**, Yee VC, Ugarova TP. Regulated Unmasking of the Cryptic Binding Site for Integrin $\alpha_M\beta_2$ in the γ C-domain of Fibrinogen. *Biochemistry*, 2002, 41, 12942-12951. PMID: 12390020.
9. **Yakubenko VP**, Lishko VK, Lam S., Ugarova TP. Molecular Basis for Integrin $\alpha_M\beta_2$ Ligand Binding Promiscuity. *J Biol Chem*, 2002 Dec 13; 277(50):48635-42. PMID: 12377763.
10. Lishko VK, **Yakubenko VP**, Ugarova TP. The interplay between Integrins $\alpha_M\beta_2$ and $\alpha_5\beta_1$ During Cell Migration to Fibronectin. *Exp Cell Res.* 2003, 283, 116-126. PMID: 12565824.
11. Ugarova TP, Lishko VK, Podolnikova NP, **Yakubenko VP**, Yee VC, Haas TA. Sequence γ 383-395 (P2-C), but not γ 190-202 (P1), is the Binding Site for the α_M -domain of Integrin $\alpha_M\beta_2$ in the γ C-domain of Fibrinogen. *Biochemistry*. 2003 Aug 12;42(31):9365-73. PMID: 12899623.
12. Podolnikova NP, **Yakubenko VP**, Volkov GL, Plow EF, Ugarova TP. Identification of a Novel Binding Site for Platelet Integrins $\alpha_{IIb}\beta_3$ (GPIIb/IIIa) and $\alpha_5\beta_1$ in the γ C-Domain of Fibrinogen. *J Biol Chem.* 2003 Aug 22;278(34):32251-8. PMID: 12799374.
13. Lishko VK, Novokhatny VV, **Yakubenko VP**, Skomorovska-Prokvolit HV, Ugarova TP. Characterization of plasminogen as an adhesive ligand for integrins $\alpha_M\beta_2$ (Mac-1) and $\alpha_5\beta_1$ (VLA-5). *Blood*. 2004 Aug 1;104(3):719-26. PMID: 15090462.
14. Lishko VK, Podolnikova NP, **Yakubenko VP**, Yakovlev S, Medved L, Yadav SP, Ugarova TP. Multiple binding sites in fibrinogen for integrin $\alpha_M\beta_2$ (Mac-1). *J Biol Chem.* 2004 Oct 22;279(43):44897-44906. PMID: 15304494
15. **Yakubenko VP**, Yadav SP, Ugarova TP. Integrin $\alpha_D\beta_2$, an adhesion receptor upregulated on macrophage foam cells, exhibits multiligand binding properties. *Blood*. 2006 Feb 15;107(4):1643-50. PMID: 16239428
16. **Yakubenko VP***, Belevych N, Schurin A, Lam S., Ugarova TP. The role of integrin $\alpha_D\beta_2$ in monocyte/ macrophage migration. *Exp Cell Res*, 2008 Aug 15; 314(14):2569-78. PMID: 18621369.
17. ElSORI D, **Yakubenko VP**, Bhattacharjee A, Cathcart MK. Dectin-1 signaling in primary human monocytes is controlled by protein kinase C δ . *J. Leuk. Biol.* 2011 Sep; 90(3):599-611.

18. **Yakubenko VP***, Bhattacharjee A, Pluskota E, Cathcart MK. $\alpha_M\beta_2$ integrin activation prevents alternative activation of human and murine macrophages and impedes foam cell formation. *Circulation Research*, 2011, Mar 4;108(5):544-54.
19. Bhattacharjee A, Shukla M, **Yakubenko VP**, Mulya A, Kundu S, Cathcart MK. IL-4 and IL-13 employ discrete signaling pathways for target gene expression in alternatively activated monocytes/macrophages. *Free Radic Biol Med*. 2013 Jan;54:1-16. PMID: PMC3534796.
20. **Yakubenko VP**, Hsi LC, Cathcart MK, Bhattacharjee A. From macrophage IL-13 receptor to foam cell formation: mechanisms for $\alpha_M\beta_2$ integrin interference. *J Biol Chem*. 2013 Jan 5;288(4):2778-88. PMID: PMC3554943.
21. Kundu S, Roome T, Bhattacharjee A, Carnevale KA, **Yakubenko VP**, Hammock BD and Cathcart MK. Metabolic products of soluble epoxide hydrolase are essential for monocyte chemotaxis to MCP-1 *in vitro* and *in vivo*. *J Lipid Res*. 2013 Feb;54(2):436-47, PMID: PMC3588870.
22. Thiagarajan PS, **Yakubenko VP**, ElSORI DH, Yadav SP, Willard B, Tan CD, Rodriguez ER, Febbraio M, Cathcart MK. Vimentin is an endogenous ligand for the pattern recognition receptor Dectin-1. *Cardiovasc Res*. 2013 Aug 1;99(3):494-504.
23. Podolnikova NP, Yakovlev S, **Yakubenko VP**, Wang X, Gorkun OV, Ugarova TP. The interaction of integrin $\alpha_{IIb}\beta_3$ with fibrin occurs through multiple binding sites in the α_{IIb} β -propeller domain. *J Biol Chem*. 2014 Jan 24;289(4):2371-83.
24. Liu J, Das M, Yang J, Ithychanda SS, **Yakubenko VP**, Plow EF, and Qin J. Structural mechanism of integrin inactivation by filamin. *Nature Structural and Molecular Biology* 2015 May;22(5):383-9.
25. Kim YW, **Yakubenko VP**, West XZ, Kutralanathan R, Crabb JW, Gao D., Podrez EA, Salomon RG, Byzova TV. Novel Receptor-mediated Mechanism Controlling Tissue Levels of Bioactive Lipid Oxidation Products. *Circulation Research*. 2015 Jul 31;117(4):321-32.
26. Biswas S, Xin L, Panigrahi S, Zimman A, Wang H, **Yakubenko V**, Byzova TV, Salomon RG, Podrez EA. Novel phosphatidylethanolamine derivatives accumulate in circulation in hyperlipidemic ApoE^{-/-} mice and activate platelets via TLR2. *Blood*. 2016 May 26;127(21):2618-29
27. **Yakubenko VP***, Byzova TV. Biological and pathophysiological roles of end-products of DHA oxidation. *Biochim. Biophys. Acta*. 2017 Apr;1862(4):407-415.
28. Aziz M, Cui K, Das M, Brown KE, Ardell CL, Febbraio M, Pluskota E, Wu H, Ballantyne CM, Smith JD, Cathcart MK, **Yakubenko VP***. The upregulation of integrin $\alpha_D\beta_2$ (CD11d/CD18) on inflammatory macrophages promotes macrophage retention in vascular lesions and development of atherosclerosis. *Journal of Immunology*. 2017 Jun 15;198(12):4855-4867.
29. Shen D, Podolnikova NP, **Yakubenko VP**, Ardell CL, Balabiyev A, Ugarova TP, Wang X. Pleiotrophin, a multifunctional cytokine and growth factor, induces leukocyte responses through the integrin $\alpha_M\beta_2$ (Mac-1). *J. Biol Chem*. 2017 Sep 22.
30. Wolf D., Anto-Michel N., Blankenbach H., Wiedemann A., Buscher K., Hohmann JD, Lim B, Bäuml M, Marki A, Mauler M, Duerschmied D, Fan Z., Winkels H, Sidler D, Diehl P, Zajonc D., Hilgendorf I., Stachon P, Schell M, Sommer B., von Muhlen K., Plow E., **Yakubenko V**, Libby P., Bode C., Ley K., Peter K., and Zirlik A. A ligand-specific

- blockade of the integrin Mac-1 selectively targets pathologic inflammation while maintaining protective host-defense. *Nature Communications* 2018 Feb 6;9(1):525.
31. Szpak D, Izem L, Verbovetskiy D, Soloviev DA, **Yakubenko VP**, Pluskota E. α M β 2 Is Antiatherogenic in Female but Not Male Mice. *Journal of Immunology*, 2018 Apr 1;200(7):2426-2438.
 32. Lishko VK, **Yakubenko VP**, Ugarova TP, Podolnikova NP. Leukocyte integrin Mac-1 (CD11b/CD18) acts as a functional receptor for platelet factor 4. *J Biol Chem*. 2018 May 4;293(18):6869-6882
 33. **Yakubenko VP***, Cui K, Ardell CL, Brown KE, West XZ, Salomon RG, Podrez EA, Byzova TV. Oxidative modifications of extracellular matrix promote the second wave of inflammation via β ₂ Integrins. *Blood*. 2018 Jul 5;132(1):78-88.
*- corresponding author
 34. Dhabal S, Das P, Biswas P, Kumari P, **Yakubenko VP**, Kundu S, Cathcart MK, Kundu M, Biswas K, Bhattacharjee A. Regulation of monoamine oxidase A (MAO-A) expression, activity and function in IL-13-stimulated monocytes and A549 lung carcinoma cells. *J Biol Chem*. 2018 Jul 18.
 35. Cui K, Ardell CL, Podolnikova NP, **Yakubenko VP***. Distinct migratory properties of resident, classically and alternatively-activated macrophages are regulated by α _D β ₂ and α _M β ₂ integrin-mediated adhesion. *Frontiers in immunology*. 2018; 9:2650
 36. Podolnikova NP, Hlavackova M, Wu Y, **Yakubenko VP**, Faust J, Balabiyev A, Wang X, Ugarova TP. Interaction between the integrin Mac-1 and signal regulatory protein α (SIRP α) mediates fusion in heterologous cells. *J Biol Chem*. 2019 May 10;
 37. Cui K, Podolnikova NP, Bailey W, Szmuc E, Podrez EA, Byzova TV, **Yakubenko VP**. Inhibition of Integrin α D β 2-mediated Macrophage Adhesion to End-product of DHA Oxidation Prevents Macrophage Accumulation during Inflammation. *J Biol Chem*. 2019 Sep 27;294(39)
 38. Bailey WP, Cui K, Ardell CL, Keever KR, Singh S, Rodriguez-Gil DJ, Ozment TR, Williams DL, **Yakubenko VP**. The expression of integrin α D β 2 (CD11d/CD18) on neutrophils orchestrates the defense mechanism against endotoxemia and sepsis. *J Leuk Biol*. 2020. Accepted December 9, 2020.