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### Vladimir A. Kostyuk - Laboratory of Physiology // Belarusian State University

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[Laboratory of Physiology](#)

#### Vladimir A. Kostyuk



**Head.** He graduated in 1974, Belarusian State University, majored in the department of physiology of humans and animals. In 1976, after serving in the army, joined the staff of the Faculty of Biology at BSU. Worked as a junior (1976-1981), Senior (1981-1989) and a leading researcher (1989-1992). Since 1992 until now he is a Head of Research Laboratory at the Department of Human and Animal Physiology. Ph.D. in Biological Sciences (1981, BSU). Doctor of Chemical Sciences, specializing in biochemistry, he defended his thesis in 1994, "Mechanisms of action of natural and synthetic polyhydric phenols and quinones in the initiation of free radical processes in biological systems" at the Institute of Chemical Physics, Academy of Sciences. In 1988, the rank of senior research fellow specializing in biochemistry. " He is an expert in biological oxidation and free radical biology. The main direction of scientific research - to elucidate the role of bioradicals and antioxidants in the vital functions in normal and pathological conditions. Under his leadership, a number of fundamental studies that are making a contribution to the development of ideas on the mechanisms of hepatotoxicity galagenzameschennyh hydrocarbons, the elucidation of the molecular mechanisms of the protective effect of natural and synthetic polyphenols and quinones in oxidative stress conditions. The fact of and the mechanism of activating effect of metal ions on the biological activity of bioflavonoids. Developed and teaches a course "Fundamentals of biology and human physiology for students of Chemical Faculty, and a special course for the Masters, specializing in the Department of Physiology, produced three PhD. Has published one monograph and more than 200 scientific papers, including 105 articles, 20 of them in leading international English language journals. Citation of published papers exceeds 700. Kostyuk, VA author of 5 inventions awarded with "USSR Inventor". He developed methods for the study of free radical processes in biological systems are widely known and used in many research laboratories in Belarus, Russia, USA and other countries. VA Kostyuk has extensive experience in research centers in Japan, Canada, Germany and Italy, supporting numerous scientific contacts and conducting joint studies and has general publications with renowned scientists from Russia, Germany, Japan, Canada, Italy, the Czech Republic. Biographical information on VA Kostyuk is given in the biographical directory Who's Who in Science and Technology "(7 edition 2003-2004, USA) and included in several editions of the International Biographical Centre (Cambridge, England). Kostyuk, VA participated in more than 40 scientific conferences, including presentations made at international conferences: in Russia (1994, 1998, 1999, 2002), Japan (1991, 1997), Czech Republic (2000, 2004), China (2001) , Greece (2003), Poland (2004), Portugal (2007), Italy (2007), Luxembourg (2008).

#### Key publications:

1. Kostyuk V.A., Komura S., and Yagi K. Reduction of Various Lipid Hydroperoxides by Rat Liver Homogenate // Biochem. Int. -1985-Vol.11, -P.803-808.  
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2. Afanas'ev I.B., Dorozhko A.I., Brodskii A.V., Kostyuk V.A., Potapovitch A.I. Chelating and Free Radical Scavenging Mechanisms of Inhibitory Action of Rutin and Quercetin in Lipid Peroxidation // *Biochem Pharmacol.*-1989.- Vol.38, -P.1763-1769.  
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3. Kostyuk V.A., Potapovitch A.I. Superoxide-driven Oxidation of Quercetin and a Simple Sensitive Assay for Determination of Superoxide Dismutase // *Biochem. Int.* -1989.-Vol.19, -P.1117-1124.  
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4. Kostyuk V.A., Potapovich A.I., Tereshchenko S.M. 4-(4-R-phenylamino)-5-methoxy-1,2-benzoquinones are New Selective Inhibitors of Carbon Tetrachloride-initiated Free Radical Reactions in Liver // *Biochem. Int.* -1991-Vol.25, -P.167-172.  
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5. Kostyuk V.A., Potapovich A.I. Damage of rat liver microsomal mixed function oxidase system by carbon tetrachloride. In vivo study with selective inhibitor of lipid peroxidation // *Biochem. Int.* -1991-Vol.25, -P.349-353.  
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6. Moroz L.L., Rubakhin S.S., Frolov A.A., and Kostyuk V.A. Free Radical Damage of Identified Neurones in *Lymnaea stagnalis* (1992) *Acta Biol Hungarica* 43 (1-4), 423-431.  
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7. Kostyuk V.A., Komura S., Ohishi N., Yagi K. (1992) Protective Effect of a Benzoquinone Derivative on the Injury of Cultured Aortic Endothelial Cell Induced by Linoleic Acid Hydroperoxides // *J.Clin.Biochem. Nutr.* 12, 69-75.
8. Kostyuk V.A., Potapovich A.I., Speransky S.D. Maslova G.T. // Protective effect of natural flavonoids on rat peritoneal macrophages injury caused by asbestos fibers (1996) *Free Radic. Biol. Med.* 21/4 P. 487-493.  
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9. Kostyuk V., A. Potapovich. Antiradical and chelating effects in flavonoids protection against silica-induced cells injury (1998) *Arch. Biochem. Biophys.*355/1 P.43-48.  
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11. Kostyuk V.A., Potapovich A.I., Vladykovskaya E.N., Korkina L.G., and Afanas'ev I.B. Influence of metal ions on flavonoid protection against asbestos-induced cell injury. (2001) *Arch. Biochem. Biophys* 385(1). 129-137.  
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12. Kostyuk V. A., Kraemer T., Sies H., Schewe T. Myeloperoxidase/nitrite-mediated lipid peroxidation of low-density lipoprotein as modulated by flavonoids // *FEBS Lett.* 2003 Feb 27;537(1-3):146-50.  
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13. Kostyuk V.A., Potapovich A.I., Strigunova E.N., Kostyuk T.V., Afanas'ev I.B. Experimental evidence that flavonoids metal complexes may act as mimics of superoxide dismutase // *Arch. Biochem. Biophys.* 2004. 428(1). 204-208.  
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