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FROM CHEMICAL ELEMENTS THROUGH MICROMOLECULES TO ENDOTHELIAL CELLS

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Through the eyes of biochemist, the body is composed of elements. The biological function of a number of essential elements will be discussed. Carbon-based life depends on two important molecules: oxygen and nitric oxide. Both have been known for more than 200 years, but their biological function was only elucidated at the end of the 20th century. Which of these mole-cules is the more important for the brain, heart and vessels, and the immune system will be examined. The importance of the amino acid arginine and its presence in foodstuffs will be explained. The influence of some important co-factors controlling the synthesis of nitric oxide from arginine will be presented. Finally, some clinical data relating to vascular and neurologi-cal degenerative diseases will be given. The importance of 25OH vitamin D (D3) as an inde-pendent risk factor in developing above-mentioned pathologies is soon to be confirmed in sci-entific publications. The second part of the presentation will deal with the elemental/chemical composition of the human body itself, with some new data given on the effect of elemental deficiencies. Some practical recommendations will be given for every-day life in support of basic cellular function.

Recent Publications

1. Piechota-Polanczyk A, Jozkowicz A, Nowak W, Eilenberg W, Neumayer C, Malinski T, Huk I and Brostjan C (2015): The abdominal aortic aneurysm and intraluminal thrombus: current concepts of development and treatment(review). 2015 Front. Cardiovasc. Med. 2015 Volume 2 Article 19
2. W. Eilenberg, S. Stojkovic, A. Piechota-Polanczyk, C. Kaun, S. Rauscher, M. Gröger, M. Klinger, J. Wojta, C. Neumayer, I. Huk, S. Demyanets. Neutrophil Gelatinase-Associated Lipocalin (NGAL) is associated with symptomatic carotid atherosclerosis and drives pro-inflammatory state in vitro Eur J Vasc Endovasc Surg (2016) 51(5):623-31
3. W. Eilenberg, S. Stojkovic, A. Kaider, N. Kozakowski, C.M. Domenig, C. Burghuber, J. Nanobachvili, K. Huber, C. Neumayer, I. Huk, J. Wojta, S. Demyanets. NGAL and MMP-9/NGAL as biomarkers of plaque vulnerability and targets of statins in patients with carotid atherosclerosis. Clinical Chemistry and Laboratory Medicine. (2017) June
4. W. Eilenberg, S. Stojkovic, A. Piechota-Polanczyk, A. Kaider, N. Kozakowski, W. Weninger, J. Nanobachvili, J. Wojta, I. Huk, S. Demyanets, C. Neumayer. Neutrophil Gelatinase Associated Lipocalin (NGAL) is elevated in type 2 diabetics with carotid artery stenosis and reduced under metformin treatment. Cardiovascular Diabetology (2017) 16:98
5. Jabłońska A, Neumayer C, Bolliger M, Gollackner B, Klinger M, Paradowska E, Nanobachvili J, Huk I. Analysis of host Toll-like receptor 3 and RIG-I-like receptor gene expression in patients with abdominal aortic aneurysm. J Vasc Surg. 2018 Mar 19. S0741-5214(17)32687-3;

Biography

Ihor Huk is the Chairman of Division of Vascular Surgery since 2013 and Director of Vascular Laboratory since 1994, Department of Surgery Medical University Vienna. He completed his Post-graduate education from University of Chicago, Heidelberg. His expertise in Transplant Surgery: since 1984 - kidney, liver transplantations And Vascular Surgery: clinical, experimental research (SPACE-Study, L-arginine study), Carotid Study (Lancet 2010). His is a member of Austrian Society of Surgery, Austrian Society of Angiology, Austrian Society of Vascular Surgery, Ukrainian Academy of High Education, Ukrainian Academy of Sciences, Member of Senats - Zaporizhzhia Medical, Postgraduate Academy. He has been given Honorary titles of: Professor Honoris Causa Universities Medicinalis Leopoliensis No. 009, University of Lwiw, Ukraine und Med. Universitat in Ternopil, Ukraine. He has more than 320 Scientific publications in German, English and Ukrainian national and international. A comprehensive list of publications of journal articles provides an overview of Prof. Huk's research activities. Concurrently, the expert in vascular surgery also gives many international lectures at the most distinguished vascular surgery and medical conferences.

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