Curriculum Vitae Prof. Barbara Ukropcová, MD, PhD

**Born**: September 6th 1974, in Bratislava

**Address**: Biomedical Research Center Slovak Academy of Sciences, Dúbravská cesta 9, 845 05 Bratislava, Slovakia

**Personal profiles**: <https://www.researchgate.net/profile/Barbara_Ukropcova>

<http://www.biomedcentrum.sav.sk/centre-for-physical-activity-bmc-sas/?lang=en>

**ORCID**: 0000-0002-3309-7713 **Scopus Author ID**: 57192418878

**Education and Academic degrees**:

2021- date Full Professor, clinical pathophysiology, Faculty of Medicine, CU, BA

2016-2021 Associated Professor, Inst. of Pathophysiology, Faculty of Medicine, CU, BA

2013-2016 Assistant Professor, Faculty of Physical Education & Sports, CU, BA

2010-date Senior researcher, clinical studies coordinator, Inst. Exp. Endocrinol, BMC, SAS, BA

2010-2016 Assistant Professor, Inst. of Pathophysiology, Faculty of Medicine, CU, BA

2010 Dr. Philos (PhD), Normal and pathological physiology, Comenius University, BA

2002 Clinical Specialization degree in Internal medicine

1998-2002 Physician, Department of Internal Medicine, National Institute of Oncology, BA

1992-1998 Medical student, Faculty of Medicine, CU, BA

**Academic positions**:

2017-date Head of the Center of Physical Activity & Integrative Physiology, Biomedical Research Center, Slovak Academy of Sciences

2002-2005 PostDoc, Endocrinology Lab. PBRC, LSU, Baton Rouge, LA (prof. SR Smith, MD)

**Main Areas of Research**:

* Synchronized systemic adaptive response to exercise and its role in the muscle-brain crosstalk.
* Integrative physiology of the whole-body and tissue-specific energy metabolism in the context of chronic diseases in humans.
* Skeletal muscle in the pathogenesis of metabolic disease and adaptive response to exercise

**Short statement of the most important scientific results achieved to date**

I am working in the field of integrative physiology with a focus on molecular, cellular, tissue and systemic regulation of energy metabolism under metabolic challenge such as obesity, type 2 diabetes and exercise in humans. My career as a researcher started in 2002 in the laboratory of prof. S.R. Smith, where I focused on the role skeletal muscle in the pathogenesis of obesity and insulin resistance. My observations from human primary muscle cells and clinical trials pointed at an altered adaptive response to a high fat load in individuals with insulin resistance and/or family history of type 2 diabetes (JCI 2005; Diabetes 2007). I have explored muscle – adipose tissue cross-talk via adipokine adiponectin (Cell Metabolism, 2006) and the impact of calorie restriction on skeletal muscle phenotypes in humans (Plos Medicine, 2007). In Bratislava, my focus shifted to the integrative patho/physiology of chronic diseases “from physical inactivity”, exercise-induced adaptive response and the role of physical exercise in the prevention and treatment of chronic diseases. We showed that regular exercise improved clinical state of patients with Parkinson disease (Frontiers Neurol. 2017), patients with Mild Cognitive Impairment (Journal of Alzheimer Disease, 2016; Neuroimage: Clinical, 2018), or sedentary patients with obesity and metabolic syndrome (Journal of Physiology, 2014). We showed that acute aerobic exercise regulates adiponectin and specific cytokines in cerebrospinal fluid in young healthy volunteers, indicating periphery-brain cross-talk (SciRep, 2019). Since 2010, we have been enjoying a very fruitful collaboration with prof. M. Krššák (MUW, Vienna) which enabled us to implement highly sophisticated MRS techniques enabling dynamic *in vivo* measurements of energy metabolism in human skeletal muscle as well as high resolution MRI brain volumetry.

**Publication summary (1999-2020)**

68 *in extenso* scientific papers (23 as first/ senior author), 10 book chapters. >150 conference contributions/proceedings

**Ten most important peer-reviewed publications in career to date to the research proposal**

1. **UKROPCOVA B**, MCNEIL M, SEREDA O, DE JONGE L, XIE H, BRAY GA, SMITH SR. Dynamic changes in fat oxidation in human primary myocytes mirror metabolic characteristics of the donor. J Clin Invest. 2005 Jul;115(7):1934-41. doi: 10.1172/JCI24332, CIT 150x
2. CIVITARESE AE, CARLING S, HEILBRONN LK, HULVER MH, **UKROPCOVA B**, DEUTSCH WA, SMITH SR, RAVUSSIN E; CALERIE Pennington Team Calorie restriction increases muscle mitochondrial biogenesis in healthy humans. PLoS Med. 2007 Mar;4(3):e76. doi: 10.1371/journal.pmed.0040076. CIT 539x
3. CIVITARESE AE, **UKROPCOVA B**, CARLING S, HULVER M, DEFRONZO RA, MANDARINO L, RAVUSSIN E, SMITH SR. Role of adiponectin in human skeletal muscle bioenergetics. Cell Metab. 2006 Jul;4(1):75-87. doi: 10.1016/j.cmet.2006.05.002., CIT 190x
4. **UKROPCOVA B**, SEREDA O, DE JONGE L, BOGACKA I, NGUYEN T, XIE H, BRAY GA, SMITH SR. Family history of diabetes links impaired substrate switching and reduced mitochondrial content in skeletal muscle. Diabetes. 2007 Mar;56(3):720-7. doi: 10.2337/db06-0521. CIT 120x
5. deCOURTEN, B. - JAKUBOVA, M. - deCOURTEN, M.P. - JUST-KUKUROVA, I - VALLOVA, S. - KRUMPOLEC, P - VALKOVIC, L - KURDIOVA, T - GARZON, D - BARBARESI, S - TEEDE, H.J. - DERAVE, W. - KRSSAK, M. - ALDINI, G - UKROPEC, J - **UKROPCOVA, B**. Effects of carnosine supplementation on glucose metabolism in sedentary individuals with overweight and obesity: Pilot Clinical Trial. Obesity (Silver Spring) 2016 May;24(5):1027-34 (3.734 - IF2015), doi: 10.1002/oby.21434, CIT 68x
6. KURDIOVA T, BALAZ M, VICIAN M, MADEROVA D, VLCEK M, VALKOVIC L, SRBECKY M, IMRICH R, KYSELOVICOVA O, BELAN V, JELOK I, WOLFRUM C, KLIMES I, KRSSAK M, ZEMKOVA E, GASPERIKOVA D, UKROPEC J, **UKROPCOVA B**. Effects of obesity, diabetes and exercise on Fndc5 gene expression and irisin release in human skeletal muscle and adipose tissue: in vivo and in vitro studies. J Physiol. 2014 Mar 1;592(5):1091-107. doi: 10.1113/jphysiol.2013.264655. CIT 221x
7. VALKOVIC, L. - CHMELÍK, M. - **UKROPCOVÁ, B**. - HECKMANN, T. - BOGNER, W. - FROLLO, I. TSCHAN, H. - KREBS, M. - BACHL, N. - UKROPEC, J. - TRATTNIG, S. - \*KRŠŠÁK, M. Skeletal muscle alkaline pi pool is decreased in overweight-to-obese sedentary subjects and relates to mitochondrial capacity and phosphodiester content. Sci Rep. 2016 feb 3;6:20087. doi: 10.1038/srep20087. (5.578 – IF 2015, Q1), CIT 24x
8. SCHÖN M, KOVANICOVÁ Z, KOŠUTZKÁ Z, NEMEC M, MÁDEROVÁ D, SLOBODOVÁ L, VALKOVI? P, UKROPEC J, **UKROPCOVÁ B**. Effects of running on adiponectin, insulin and cytokines in cerebrospinal fluid in healthy young individuals. Sci Rep. 2019 Feb 13;9(1):1959. doi: 10.1038/s41598-018-38201-2. Q1 IF (JCR) 2018=4,011 (Q1), CIT 11x
9. TSAI CL, UKROPEC J, **UKROPCOVÁ B**, PAI MC. An acute bout of aerobic or strength exercise specifically modifies circulating exerkine levels and neurocognitive functions in elderly individuals with mild cognitive impairment. Neuroimage Clin. 2017 Oct 31;17:272-284. doi: 10.1016/j.nicl.2017.10.028. eCollection 2018. (IF 2017, 5.426), CIT 26x
10. SLOBODOVÁ L, …UKROPEC J, **UKROPCOVÁ B** et al., Effects of Exercise Training on Preferred and Maximal Walking Speed in the Elderly. Gerontology. 2021 May 10:1-11. doi: 10.1159/000515325 IF (JCR) 2020=5,140 (Q1)

***Top 10 scientific/scholarly research achievements beyond publications***

1. Scientific Societies: (i) founding member of the Exercise and Physical Activity study group by European Association to Study Diabetes (2015) (ii) member of the board of Obesity Section of Slovak Diabetes Society; (2018) (iii) founding member of Slovak Obesity Association

**2.** Awards

2021 SAS - Prize (CENA SAV) for the results of scientific work in 2020

2017 The Slovak Woman of the Year for research & promotion of physical activity

2015 Alzheimer Association International Conference travel grant award 2015 Slovak Diabetes Society & Sanofi Aventis award for the best published work

2012 Slovak Diabetes Society award for the best published work

2011 Slovak Diabetes Society & Sanofi Aventis award for the best published work

2010 Slovak Diabetes Society & Pfizer joined award for the best published work

2009 IASO stock conference Cairns, Australia, 2009 (based on the nomination by IASO)

2007 EASO Travel Grant - Basic Science: 15th European Congress on Obesity

2007 Student personality of Slovakia for academic year 2006/2007 (Junior Chamber Int.), with the award of the president of Slovak Republic, J.E. Ivan Gašparovič

2003 Pennington Biomedical Research Center Grand Award for Young Scientists

**3.** Co-organizer of 10 conferences and symposia including Central European Congress on Obesity (2017), Obesitology Days (2014-2019); ExPas-EASD symposia (2016-2019).

**4.** Principal investigator former international projects **(i)** EFDS & Lilly research fellowship (2011-2013), **(ii)** SAS – NSC Joint Research Cooperation Project #2013/17„Skeletal muscle as a mediator of beneficial effects of regular exercise on cognitive functions and metabolism in patients with Alzheimer's disease (2014-2016), **(iii)** Grant of the Ministry of health Czech rep. „Skeletal muscle metabolic abnormalities in patients with idiopathic inflammatory myopathies“ (2016-2019)

**5.** Principal investigator currently running projects **(i)** SAS MOST JRP 10/2018 (2019-2022), **(ii)** APVV-15-0253, Molecular mediators of physical activity and carnosine in patients with pre-clinical and early stage neurodegenerative disease. (2016-2020), **(iii)** APVV-19-0411 Identification and validation of biomarkers and underlying molecular pathways of late toxicity of curative treatment in testicular germ cell tumours (2020-2024).

**6.** Committee for Creation of the new and innovative preventive and therapeutic strategies for translation to clinical practice Expert panel for prevention of neurodegenerative & metabolic diseases (member) Ministry of Health SR (2019-date)

**7**. Center for Disease Control & Prevention; collaboration - exercise prescription (2018-date)

**8**. Generali Balans – partnership to support Center for Physical Activity BMC SAS (2017-date)

**9.** Teaching activities

- Faculty of Physical Education & Sports, Diseases from Physical Inactivity (2013-date)

- Faculty of Medicine, Integrated pathophysiology of chronic diseases (2007-date)

- PhD students (completed/ongoing, 4/2), masters students (completed/ongoing, 19/4)

**10.** Invited speaker in 18 international conferences & symposia, including:

* 24th WONCA Europe Conference, Bratislava, Slovakia, 2019 (plenary lecture)
* EASO-OMTF - Obesity Teaching Course” 24th WONCA Europe Conference. Bratislava, 2019
* 12th Symp. on Catecholamines in Stress. 2019, Smolenice, Slovakia (plenary lecture)
* TAISPO International Congress on Sports Nutrition, Taipei, Taiwan 2019 (plenary lecture)
* International Conference for Adaptations and Nutrition in Sports (ICANS), Thailand 2018
* National Cheng Kung University, Tainan, Taiwan, 2014
* EFSD/Lilly Symposium, Bad Homburg, Germany, 2013

Bratislava 26.10.2021 Barbara Ukropcová