

Ass. prof. Lukáš Kubala, Ph.D.

PROFESSIONAL EXPERIENCE

Activity/ Occupation	Start Date (MM/YY)	Ending Date (MM/YY)	Field	Institution/ Company
junior research	1/2000	12/2002	Department of Free Radicle Pathophysiology,	Institute of Biophysics, Academy of Sciences of the Czech Republic, Brno, Czech Republic
postdoctoral fellow	1/2003	12/2005	Department of Internal Medicine	University of California, Davis, USA
senior research scientist	11/2005	3/2016	Department of Free Radicle Pathophysiology	Institute of Biophysics, Academy of Sciences of the Czech Republic, Brno, Czech Republic
assistant professor	4/2010	5/2016	Department of Experimental Biology	Faculty of Science, Masaryk University, Brno, Czech Republic
principal investigator	1/2016		The International Clinical Research Center	St. Anne's University Hospital Brno (FNUSA-ICRC), Brno, Czech Republic
head of department	3/2016		Department of Biophysics of Immune System	Institute of Biophysics, Academy of Sciences of the Czech Republic, Brno, Czech Republic
associate professor	6/2016		Department of Experimental Biology	Faculty of Science, Masaryk University, Brno, Czech Republic

EDUCATION AND ACADEMIC QUALIFICATIONS

1991-1994 - B.S. in General Biology Masaryk University, Brno, Czech Republic

1994-1996 – M.Sc. in Animal Physiology, Faculty of Sciences, Masaryk University, Brno, Czech R.

1996-2001 - PhD. in Animal Physiology and Immunology, Faculty of Sciences, Masaryk U., Brno, Czech R.

2016 - associate professor in Animal Physiology, Faculty of Sciences, Masaryk University, Brno, Czech R.

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

2000 - Present Member, Czech Society for Biochemistry and Molecular Biology

2003 - Present Member, Czech Society for Analytical Cytometry

2010 - Present Member, Czech Immunological Society

2015 - Present Member, Society for Leukocyte Biology

TEACHING

Full semester lectures at Faculty of Science, Masaryk University, Brno, Czech Republic:

Immunology, Biology of Free Radicals; Photobiology, Blood Physiology

Member of doctoral Committee (Animal Physiology)

Supervising the work of current PhD students: Petra Dařová, Radim Jaroušek, Daniela Rubanová, Michaela Chorvátová, Miriam Sandanusová

15 PhD students graduated – Lucia Binó, Veronika Hájková, Jana Kudová, Silvie Kremserová, Hana Kolářová, Roman Konopka, Lukáš Kučera, Martina Moravcová, Kristina Nešporová, Ema Ruzsová, Svitlana Skoroplyas, Barbora Šafránková, Romana Ševčíková, Daniela Viačková, Lucie Vištejnová

Supervising the work of Bachelor's and Master's students (10 Bc and 15 M.Sc. students graduated during last 10 years)

FELLOWSHIPS AND AWARDS

The Best Young Investigator Award, Institute of Biophysics Acad. Sci. Czech Rep., Brno (2002)

Praemium Academiae Otto Wichterle - Investigator Award of The Acad. Sci. Czech Rep (2007)

COMPLETED AND ONGOING RESEARCH SUPPORT (AS A PRINCIPAL INVESTIGATOR OR CO-INVESTIGATOR)

Role: PI Czech Science Foundation 2001-2002

Role of nitric oxide in the damage of epithelial cells by reactive oxygen metabolites

Role: PI Czech Science Foundation 2006-2008

Role of free radicals in the regulation of lung inflammation induced by acute and chronic exposure to endotoxin

Role: PI MEYS CR and German DAAD 2007-2008

Modulation of trombocytes physiological functions by myeloperoxidase

Role: PI Czech Science Foundation 2008-2010

Role of hyaluronan of different molecular weight in the course of inflammation

Role: PI MEYS CR - COST project 2011-2013

Hypoxia sensing, signalling and adaptation - Role of Hypoxia in deregulation of intracellular balance in regulation of self renewal and differentiation

Role: PI Czech Science Foundation & DFG Germany 2012-2014

Importance of the interaction of myeloperoxidase with the endothelial glycocalyx for leukocyte recruitment and vascular function

Role: PI Czech Science Foundation 2017-2019

Natural pseurotin alkaloids as significant immunotoxic contaminants

Role: co-PI MEYS Czech Rep. 2018-2023

Preclinical Progression of New Organic Compounds with Targeted Biological Activity (Preclinprogress) - CZ.02.1.01/0.0/0.0/16_025/0007381

Role: co-PI MEYS CR 2018-2022

Engineering of new biomaterials and biopharmaceuticals for the diagnosis and treatment (Inbio) CZ.02.1.01/0.0/0.0/16_026/0008451

Kubala L. Role: co-PI Ministry of Trade CR 2019-2022

Engineering of new biomaterials and biopharmaceuticals for the diagnosis and treatment (NANOHA)
CZ.01.1.02/0.0/0.0/17_176/0015514

Kubala L. Role: co-PI Grant Agency of the Czech Ministry of Health 2020-2023

Targeted polymer therapeutics for advanced treatment of site-specific rheumatic musculoskeletal diseases

PATENTS AND APPLIED RESULTS

Co-author of United States Patent Application: Schmelzer et al. 2004 "Soluble Epoxide Hydrolase Inhibitors Prevent Acute Septic Inflammation," (University of California Office of Technology Transfer 2004-302-1).

Utility model Czech patent office # 2019-36196 - Kubala et al. "Kit for determining the specific effect of adenylate isoforms activity."

Utility model Czech patent office # 2019-36197 Kubala et al. "Equipment for determining the specific effect of adenylate cyclase isoforms using HEK293 cell membrane fractions."

PEER-REVIEWED PUBLICATIONS

RESEARCHERID: H-6329-2014 ORCID 0000-0002-7729-7338

Number of papers: WOS "article" 141 (48 as first/corresponding author)

Times cited (WoS): 3706 Times cited without self-citations (WoS): 3407 h-index (WoS): 32

SELECTED ORIGINAL PAPERS:

Molecular weight and gut microbiota determine the bioavailability of orally administered hyaluronic acid. Šimek M, Turková K, Schwarzer M, Nešporová K, Kubala L, Hermannová M, Foglová T, Šafránková B, Šindelář M, Šrůtková D, Chatzigeorgiou S, Novotná T, Hudcovic T, Velebný V. *Carbohydr Polym.* 2023 Aug 1;313:120880.

Convergent Assembly of the Tricyclic Labdane Core Enables Synthesis of Diverse Forskolin-like Molecules. Szczepanik PM, Mikhaylov AA, Hylse O, Kučera R, Dařová P, Nečas M, Kubala L, Paruch K, Švenda J. *Angew Chem Int Ed Engl.* 2023 Jan 2;62(1):e202213183.

Single-cell RNA sequencing analysis of T helper cell differentiation and heterogeneity. Jaroušek R, Mikulová A, Dařová P, Tauš P, Kurucová T, Plevová K, Tichý B, Kubala L. *Biochim Biophys Acta Mol Cell Res.* 2022 Oct;1869(10):119321.

Myeloperoxidase Deficiency Alters the Process of the Regulated Cell Death of Polymorphonuclear Neutrophils. Kremserová S, Kocurková A, Chorvátová M, Klinke A, Kubala L. *Front Immunol.* 2022 Feb 8;13:707085.

How the molecular weight affects the in vivo fate of exogenous hyaluronan delivered intravenously: A stable-isotope labelling strategy. Šimek M, Nešporová K, Kocurková A, Foglová T, Ambrožová G, Velebný V, Kubala L, Hermannová M. *Carbohydr Polym.* 2021 Jul 1;263:117927.

Myeloperoxidase mediated alteration of endothelial function is dependent on its cationic charge. Kolářová H, Víteček J, Černá A, Černík M, Příbyl J, Skládal P, Potěšil D, Ihnatová I, Zdráhal Z, Hampl A, Klinke A, Kubala L. *Free Radic Biol Med.* 2021 Jan;162:14-26.

Natural pseudotins inhibit proliferation and inflammatory responses through the inactivation of STAT signaling pathways in macrophages. Vasicek O, Rubanova D, Chytkova B, Kubala L. *Food Chem Toxicol.* 2020 Jul;141:111348.

MPO (Myeloperoxidase) Reduces Endothelial Glycocalyx Thickness Dependent on Its Cationic Charge. Manchanda K, Kolarova H, Kerkenpaß C, Mollenhauer M, Vitecek J, Rudolph V, Kubala L, Baldus S, Adam M, Klinke A. *Arterioscler Thromb Vasc Biol.* 2018 Aug;38(8):1859-1867.

- Asymmetric dimethyl arginine induces pulmonary vascular dysfunction via activation of signal transducer and activator of transcription 3 and stabilization of hypoxia-inducible factor 1-alpha. Pekarova M, Koudelka A, Kolarova H, Ambrozova G, Klinke A, Cerna A, Kadlec J, Trundova M, Sindlerova Svihalkova L, Kuchta R, Kuchtova Z, Lojek A, Kubala L. *Vascul Pharmacol*. 2015 Oct;73:138-48.
- Low molecular weight hyaluronan mediated CD44 dependent induction of IL-6 and chemokines in human dermal fibroblasts potentiates innate immune response. Vistejnova L, Safrankova B, Nesporova K, Slavkovsky R, Hermannova M, Hosek P, Velebny V, Kubala L. *Cytokine*. 2014 Dec;70(2):97-103
- Chondrogenic differentiation of mesenchymal stem cells in a hydrogel system based on an enzymatically crosslinked tyramine derivative of hyaluronan. Dvořáková J, Kučera L, Kučera J, Švík K, Foglarová M, Muthný T, Pravda M, Němcová M, Velebný V, Kubala L. *J Biomed Mater Res A*. 2014 Oct;102(10):3523-30.
- Myeloperoxidase induces the priming of platelets. Kolarova H, Klinke A, Kremserova S, Adam M, Pekarova M, Baldus S, Eiserich JP, Kubala L. *Free Radic Biol Med*. 2013 Aug;61:357-69.
- Myeloperoxidase attracts neutrophils by physical forces. Klinke A, Nussbaum C, Kubala L, Friedrichs K, Rudolph TK, Rudolph V, Paust HJ, Schröder C, Benten D, Lau D, Szocs K, Furtmüller PG, Heeringa P, Sydow K, Duchstein HJ, Ehmke H, Schumacher U, Meinertz T, Sperandio M, Baldus S. *Blood*. 2011 Jan 27;117(4):1350-8.
- Modulation of arachidonic and linoleic acid metabolites in myeloperoxidase-deficient mice during acute inflammation. Kubala L, Schmelzer KR, Klinke A, Kolarova H, Baldus S, Hammock BD, Eiserich JP. *Free Radic Biol Med*. 2010 May 15;48(10):1311-20.
- Soluble glucomannan isolated from *Candida utilis* primes blood phagocytes. Hájková V, Svobodová A, Krejcová D, Cíz M, Velebný V, Lojek A, El-Benna J, Kubala L. *Carbohydr Res*. 2009 Oct 12;344(15):2036-41.
- Isolation and characterization of mesenchymal stem cell population entrapped in bone marrow collection sets. Dvorakova J, Hrubá A, Velebny V, Kubala L. *Cell Biol Int*. 2008 Sep;32(9):1116-25
- Enhancement of antinociception by coadministration of nonsteroidal anti-inflammatory drugs and soluble epoxide hydrolase inhibitors. Schmelzer KR, Inceoglu B, Kubala L, Kim IH, Jinks SL, Eiserich JP, Hammock BD. *Proc Natl Acad Sci U S A*. 2006 Sep 12;103(37):13646-51.
- Heparins increase endothelial nitric oxide bioavailability by liberating vessel-immobilized myeloperoxidase. Baldus S, Rudolph V, Roiss M, Ito WD, Rudolph TK, Eiserich JP, Sydow K, Lau D, Szöcs K, Klinke A, Kubala L, Berglund L, Schrepfer S, Deuse T, Haddad M, Risius T, Klemm H, Reichenspurner HC, Meinertz T, Heitzer T. *Circulation*. 2006 Apr 18;113(15):1871-8.
- Soluble epoxide hydrolase is a therapeutic target for acute inflammation. Schmelzer KR, Kubala L, Newman JW, Kim IH, Eiserich JP, Hammock BD. *Proc Natl Acad Sci U S A*. 2005 Jul 12;102(28):9772-7.

BOOK CHAPTER:

- Nickova K., Kubala L., Ruzickova J., Velebny V., Bystricky S., Lojek A. (2005). The response of Immune Cells to Hyaluronan modified to resist hyaluronidase digestion. In *Hyaluronan: Structure, Metabolism, Biological Activities, Therapeutic Applications* (Eds. Balazs, E. A. , and Hascall, V. C.), Matrix Biology Institute, Edgewater, NJ 07020 (USA) Volume II, pages 835-839.
- Kubala L, Lojek A (2008): Neutrophil-Derived Oxidants as Modulators of Polyunsaturated Fatty Acid Metabolism. In: *Oxidants in Biology: A Question of Balance*, Editors: Valacchi, Giuseppe, Davis, Paul A, p. 111-128, ISBN 978-1-4020-8399-0, Publisher: Springer (Netherlands)
- Podhorec J., Kubala L. (2015). Onemocnění imunitního systému. pages 327-347 In Ondřej Slabý et al.: *Molekulární medicína*. Praha: Galén, ISBN 978-80-7492-121-6.

INVITED PRESENTATIONS

- Lukas Kubala "Myeloperoxidase Modulation of Acute Vascular Inflammation" The Annual NKF Nephrology Young Investigators Forum, San Francisco, USA, May 22, 2004
- Lukas Kubala "Myeloperoxidase Functions as a Modulator of Acute Inflammatory Responses", Symposium of Inflammatory processes and disease. Lansdowne, Virginia, USA, December 10-12, 2006

ORGANIZATION OF CONFERENCES & MEETINGS

2nd European workshop on the Analysis of the Phagocyte Functions, 15. - 17. 6. 2006, Křtiny, Czech Republic

OrganoNET 2014, 19.-20.6.2014, Brno, Czech Republic

International workshop „New aspects/horizons in regulation of cellular functions in health and disease“, 4. - 5. 5. 2015, Brno, Czech Republic

9th International Human Peroxidase Meeting, 14. -17. 9. 2015 Cologne, Germany

11th International Human Peroxidase Meeting, 4. - 7. 9. 2019, Brno, Czech Republic

COORDINATION OF NETWORKS:

L. Kubala has demonstrated the experience in the project management as demonstrated by the coordination of projects HistoPARK (CZ.1.07/2.3.00/20.0185) and OrganoNET (CZ.1.07/2.4.00/31.0245) with main goals to develop the networks of excellent research facilities in Brno region (Masaryk University, Institute of Biophysics AS CR and FNUSA-ICRC).

European Commission, COST Action TD0901 Hypoxia sensing, signalling and adaptation - member of management committee