PERSONAL INFORMATION

Family name, First name: Zítka, Ondřej
Status: married
Email: ondrej.zitka@mendelu.cz
Researcher ID: L-5588-2019
ORCID: 0000-0001-7607-5058
Scopus Author ID: 14012648400
Date of birth: 30/6/1985
URL for web site: https://ucb.af.mendelu.cz/veda-a-vyzkum/vyzkumna-skupina-biomarkeru/

- **EDUCATION**

2018 Associate Professor (Doc.). Agricultural chemistry. Thesis: Development of advanced materials for bionanotechnological applications
Faculty of AgriSciences, Mendel University in Brno

2014 Doctor rerum naturalium (RNDr.). Biochemistry. Thesis: Method for study of oxidation stress of oncology patients using flow injection analysis with electrochemical detection.
Faculty of science, Charles University

2012 Ph.D., Chemistry, branch: Agriculture Chemistry. Thesis: Electrochemical study of interaction of aminoacids and peptides with heavy metals.
Faculty of AgriSciences, Mendel University in Brno

2010 M.Sc., Biochemistry, Thesis: Multi-instrumental investigation of heavy metal ions interaction with free aminoacids
Faculty of Science, Masaryk University

2008 B.Sc., Biochemistry, Thesis: Investigation of link between metalloproteinases and metallothionein
Faculty of Science, Masaryk University

- **CURRENT POSITIONS**

2019–onwards Chief scientiffic officer (2023-onwards), Chief executive officer (2019-2023), NANTEO s.r.o., startup company focused on developement in the area of nanotechnology and human point of need diagnostics, Brno, Czech Republic.

2018–onwards Senior scientist
Central European Institute of Technology, Brno University of Technology

2014–onwards Assistant Professor (2014-2015), Associated Professor (2018-onwards), Deputy Head of Department of Chemistry and Biochemistry (2016 onwards). Head of Research Group of Biomarkers (2016 onwards).
Faculty of AgriSciences, Mendel University in Brno

- **PREVIOUS POSITIONS**

2012–2017 Junior scientist
Central European Institute of Technology, Brno University of Technology

2012 – 2014 Assistant Professor, Head of laboratory of organic pollutants
Faculty of Veterinary Hygiene and Ecology, University of Veterinary and Pharmaceutical Sciences Brno

2009 – 2012 Technical and application support for high performance liquid chromatography with electrochemical detection
Radanal s.r.o.

2008 – 2014 Researcher

Faculty of AgriSciences, Mendel University in Brno

- **AWARDS**

2012 2nd Prize, Sensors Best Paper Award 2012, „Supalkova, V., Huska, D., Diopan, V., Hanustiak, P., Zitka, O., Stejskal, K., Baloun, J., Pikula, J., Havel, L., Zehnalek, J., Adam, V., Trnkova, L., Beklova, M. and Kizek, R. (2007) Electroanalysis of plant thiols. Sensors, 7, 932-959."

2012 Honourable mention for excellent solution of individual project of IGA AF MENDELU with title: „ Designing a method for evaluating plant hyperaccumulators of heavy metals" in project „Excelence of Ph.D. study in faculty of Agriscience on Mendel University in Brno, for further research carieer".

2011 1st place, International conference „Mendelnet 2011" , section „Applied chemistry and biochemistry" with work „A novel method for analysis of plants' resistance to heavy metals"

2010 Prize of Ministry of education, youth and sports for outstanding students and graduates of degree programs (Nomination by chancellor of Masaryk University, for extraordinary results in research).

2005 3rd place, Region round of Secondary school scientific activity competition. Work: influence of heavy metals on production of thiol compounds in maize (*Zea mays*), *Section: Biology*

2005 1st place, Poster section, The Conference IX. Working meeting for Biochemists and Molecular biologists. O. Zitka, A. Kleckerova, K. Stejskal, R. Mikelova, V. Adam and R. Kizek, Influence of heavy metals on thiol compounds synthesis in maize (*Zea mays*) and fibre flax (*Linum usitatissimum*) plants

- **SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

2013–onwards Postdocs (4)/ PhD (9)/ Master and Bachelor Students (16)

Faculty of AgriSciences, Mendel University in Brno

8 successfully defended PhDs, 5 as supervisor, 3 as co-supervisor (currently they works: 5 as postdocs, 1 as Research group leader, 1 as scientific project manager) and 9 master students (5 went to PhD).

Faculty of AgriSciences, Mendel University in Brno

Faculty of Veterinary Hygiene and Ecology, University of Veterinary and Pharmaceutical Sciences Brno

Faculty of Science, Masaryk University

- **TEACHING ACTIVITIES**

2018–onwards Associate professor – Biochemistry, Bioanalytical chemistry, Special methods of Biochemistry, Organic chemistry and Biochemistry

Faculty of Agronomy, Mendel University in Brno

2015–2017 Assistant Professor –Biochemistry, Bioanalytical chemistry, Special methods of Biochemistry

Faculty of Agronomy, Mendel University in Brno

2012 – 2015 Assistant Professor –Biochemistry, Bioanalytical chemistry, Biochemistry of Plants, Biochemistry of Animals, Special methods of Biochemistry, Ecotoxicology, Ecological risks

Faculty of Agronomy, Mendel University in Brno

2012 – 2014 Assistant Professor – Environmental Chemistry, Chemistry of Food Chains, Foreign matter in food

Faculty of Veterinary Hygiene and Ecology, University of Veterinary and

Pharmaceutical Sciences Brno

- **INSTITUTIONAL RESPONSIBILITIES**

2024 – onwards ACE-EX (AGRICULTURE CIRCULAR ECONOMY – EXPERT, Project nr. 101110547) advisory board member

2021 – onwards Guarantor of bachellor study programme „Molecular biology and biotechnology“ - Faculty of Agronomy, Mendel University in Brno

2017 – onwards Member of Academic Senate - Faculty of Agronomy, Mendel University in Brno

2017 – onwards Postgraduate Branch Commision - Agriculture chemistry, Mendel University in Brno

- **PEER-REVIEWER and EDITORIAL ACTIVITIES**

Reviewing for: *ACS Accounts of Chemical Research, ACS Applied Nano Materials, Analytical Biochemistry, Analytica chimica acta, Antioxidants, Biosensors and bioelectronics, Bioelectrochemistry, Biomaterials, Food Chemistry, Chemosphere, IJERPH, Journal of Functional Food, Microchemical Journal, Molecules, Nanomaterials, STOTEN, Talanta, Tetrahedron, Trends in Analytical Chemistry.*

Member of editorial boarad: Molecules, MDPI, 4052 Basel, Switzerland (ISSN 1420-3049)

Hosting editor: (2018 – 2019) Molecules MDPI, 4052 Basel, Switzerland (ISSN 1420-3049).

Ediotr-in-chief: (2013-2015) Journal of Metallomics and Nanotechnologies (ISSN: 2336-3940, MK: E21693)

- **FUNDING (as solver/co-solver achieved for the institution 4 M Euro in total)**
  - ✓ 2023-2025: FW01010052, “APLICATION in the area of modern diagnostic technologies”, Co-solver, budget 600 000 Euro.
  - ✓ 2023-2028: TACR National Center of Competence (TN02000017). “National Center of Biotechnology in the Veterinary Medicine”, Manager of the workpackage “Diagnostics”, budget 348 000 Euro.
  - ✓ 2022: TACR GAMA2 (TP1010018): Protocol for the magnetic isolation of nucleic acids from biological sample, Main-solver of partial project, budget 20 000 Euro.
  - ✓ 2021-2022: Safety research, Ministry of the Interior of Czech republic (VI04000057). “An ultrafast portable system to detect SARS-CoV-2“, Co-solver, budget 588 000 Euro.
  - ✓ 2020-2023: TACR TREND (FW01010052) “Development of new laboratory tests for the diagnosis of inflammation, sepsis and cardiovascular disease based on chemiluminescence analysis on automated platforms “, Co-solver, budget 872 000 Euro.
  - ✓ 2020-2022: TACR TREND (FW01010202) “Research and development of innovative solutions in the laboratory diagnostics“, Co-solver, budget 596 000 Euro.
  - ✓ 2020/2022: GACR (20-30129Y), Portable Point-of-Care Platform Based on Lock-in Amplifier, co-solver, budget 120 000 Euro
  - ✓ 2019-2020: SME Instrument Brno, “CLIA analyzer for point of care diagnostics”, Main-solver, budget 44 000 Euro.
  - ✓ 2018/2022 - Towards the Understanding a Metal-Tumor Metabolism, ERC Starting Grant, ERC-2017-STG, senior staff, total budget 1 300 000 Euro.
  - ✓ 2018-2020: TAČR Zeta (TJ01000311), Automated electrochemical analyzer of liquid samples using disposable electrodes, Key worker - mentor, budget 80 000 Euro.
  - ✓ 2018-2019: AF-IGA-2018-tym005: “The introduction of mass spectrometric techniques to proteomic study of processes in bacterial infection of pigs”, Main-

solver, budget 80 000 Euro.

- ✓ 2018-2019: OPPIK (CZ.01.1.02/0.0/0.0/16_084/0008833), "Aplication project TestLine Clinical Diagnostics s.r.o.", Co-solver budget 220 000 Euro.
- ✓ 2017-2018: TACR GAMA (TG02010074): Automated testing of analytical electrodes in liquid samples, Main-solver of partial project, budget 32 000 Euro.
- ✓ 2013-2016: IGAMZ (NT14337): Study and characterization of spinocellular carcinoma of head and necks and its malignant potential, Co-solver, budget 384 000 Euro.
- ✓ 7/2013-6/2014: League against cancer Prague (LPR 2013): observing of interaction of anticancer drug doxorubicin with aminoacids, Main-solver, budget 6 000 Euro.
- ✓ 2013: FRVŠ-A (940/2013/A/a): Development of scholar and analytical laboratory. Department of veterinary ecology and preservation of environment, Co-solver, budget 10 000 Euro.
- ✓ 2012-2015: CZ.1.05/2.1.00/03.0072: Sensor, Information and Communication Systems (SIX), Coordinator of research activities of group of "Sensors", total budget 11 792 000 Euro.
- ✓ 2012: IGA IP23/2012: Study of complexes of complexes of animal metal-binding proteins with platinum cytostatics, Main-solver, budget 4 800 Euro.
- ✓ 2011-2013: CZ.1.07/2.3/.00/09.0224, Building of research teams and developing university education of research experts for micro- and nanotechnologies (NANOTEAM), Expert project manager, total budget 636 000 Euro.
- ✓ 2011: IGA MENDELU 2/2011, Designing a method for evaluating plant hyperaccumulators of heavy metals, Main-solver, budget 4 800 Euro.

- **EARLY ACHIEVEMENTS TRACK-RECORD**

Author or co-author of 193 original scientific papers and reviews in ISI-indexed journals with a total of 5665 citations and h-index = 37 according to Web of Science.

Book chapters

- ✓ **ZITKA, O.**; KRYSTOFOVA, O.; HYNEK, D.; SOBROVA, P.; KAISER, J.; SOCHOR, J.; ZEHNALEK, J.; BABULA, P.; FERROL, N.; KIZEK, R.; ADAM, V. Metal Transporters in Plants. In: GUPTA, D. K., ed. Heavy Metal Stress in Plants. New York: Springer, 2013; pp 19-41.
- ✓ KRIZKOVA, S.; RYVOLOVA, M.; MASARIK, M.; **ZITKA, O.**; ADAM, V.; HUBALEK, J.; ECKSCHLAGER, T.; KIZEK, R. Modern Bioanalysis of Metallothionein by Electrophoretic Techniques. In: LABROU, N., ed. Protein Downstream Processing. New York: Springer, 2014; pp 381-396.
- ✓ **ZITKA, O.**; ANJUM, N. A.; PLANELLS, E. M.; MICHALEK, P.; MOLINA-LOPEZ, J.; AHMAD, I.; ADAM, V.; KIZEK, R. Glutathione – Role in stress-alleviation in plants and animals/mammals, and prospects in analytical chemistry and nanobiotechnology. In: WILBER, A., ed. Glutathione: Dietary Sources, Role in Cellular Functions and Therapeutic Effects. New York: NOVA Publishers, 2014; pp 1-51.

List of selected ISI indexed papers

- ✓ Krejcova L, Nejdl L, Merlos MAR, Zurek M, Matousek M, Hynek D, **Zitka O**, Kopel P, Adam V, Kizek R (2014) 3D printed chip for electrochemical detection of influenza virus labeled with CdS quantum dots. Biosens Bioelectron 54: 421-427. Cited 105x.
- ✓ Kudr J, Haddad Y, Richtera L, Heger Z, Cernak M, Adam V, **Zitka O** (2017a) Magnetic nanoparticles: From design and synthesis to real world applications. Nanomaterials 7: 1-28. Cited 388x.

- ✓ Kudr J, Klejdus B, Adam V, **Zitka O** (2018) Magnetic solids in electrochemical analysis. TRAC-Trends Anal Chem 98: 104-113. Cited 38x.
- ✓ Kudr J, Michalek P, Adam V, **Zitka O** (2021) COVID-19: A challenge for electrochemical biosensors. TRAC-Trends Anal Chem 136: 1-9. Cited 73x.
- ✓ Kudr J, Richtera L, Xhaxhiu K, Hynek D, Heger Z, **Zitka O**, Adam V (2017b) Carbon dots based FRET for the detection of DNA damage. Biosens Bioelectron 92: 133-139. Cited 99x.
- ✓ Kudr J, Zhao L, Nguyen EP, Arola H, Nevanen TK, Adam V, **Zitka O**, Merkoci A (2020) Inkjet-printed electrochemically reduced graphene oxide microelectrode as a platform for HT-2 mycotoxin immunoenzymatic biosensing. Biosens Bioelectron 156: 1-8. Cited 45x.
- ✓ Ruttkay-Nedecky B, Nejdl L, Gumulec J, **Zitka O**, Masarik M, Eckschlager T, Stiborova M, Adam V, Kizek R (2013) The role of metallothionein in oxidative stress. Int J Mol Sci 14: 6044-6066. Cited 590x.
- ✓ **Zitka O**, Skalickova S, Gumulec J, Masarik M, Adam V, Hubalek J, Trnkova L, Kruseova J, Eckschlager T, Kizek R (2012) Redox status expressed as GSH:GSSG ratio as a marker for oxidative stress in paediatric tumour patients. Oncol Lett 4: 1247-1253. Cited 468x.

Selected invited lectures

- ✓ **ZITKA, O.,** "Developing POC and PON diagnostics for biomarkers", Invited lecture, Conference – Smyposium of FIT center. October 22, 2022, Brno, Czech republic.
- ✓ **ZITKA, O.,** KUDR, J., ZITKA, J., SILENY, J., RICHTERA, L., KOUDELKOVA, Z., ADAM, V., "A novel technology for automatic testing of the screen printed electrodes", Invited lecture, Trends in Nanotechnology International Conference (TNT2021). October 4-8, 2021, 2021, Tirana, Albania.
- ✓ **ZITKA, O.,** 2018, Research group: biomarkers, Invited lecture, Català de Nanociencia i Nanotecnologia (ICN2) a BIST centre situated at Autonomous University of Barcelona (UAB), Nanobioelectronics & Biosensors Group (director: ICREA Prof. Arben Merkoci), Barcelona, Spain.
- ✓ **ZITKA, O.**; KRIZKOVA, S.; TRNKOVA, L.; HORNA, A.; HUBALEK, J.; ADAM, V.; KIZEK, R. Electrochemical detection of 8-hydroxy-2´-dexyguanosine isolated from a real sample by use of antobody-modified paramagnetic particles In BLATTNA, J.; HORNA A.; ZIMA T.; ZOBEL A. (eds.). *11th International Nutrition & Diagnostics Conference*: August 28-31, Univerzita Pardubice. Brno, Czech Republic, 2011, s. 32-32. ISBN 978-80-7395-378-2
- ✓ **ZITKA, O.**; KRIZKOVA, S.; TRNKOVA, L.; JELEN, F.; ADAM, V.; HORNA, A.; HUBALEK, J.; KIZEK, R. Isolation of 8-hydroxy-2´-dexyguanosine from a real sample by using antibody-modified paramagnetic particles followed by FIA-UV/ED In ZAGATTO, E.; TROJANOVITZ M.; MCKELVIE I. D.; LIMA J. L. F. C.; CERDA V. (eds.). *Flow Analysis XI*: September 14-18, University of Balearic Islands. Pollensa, Mallorca, Spain, 2009, s. 35-35, L27.

Applied results

- ✓ Brno University of Technology, Instrument for purification of air. Hubálek, J., Kizek, R., Adam, V. Sochor, J., Zítka, O., Koudelka, P. Aplication number 2013-421, Industrial property office, Czech Republic.

- ✓ Brno University of Technology, Instrument for purification of air. Hubálek, J., Kizek, R., Adam, V. Sochor, J., Zítka, O., Koudelka, P. Aplication number 2013-421, Industrial property office, Czech Republic.
- ✓ Brno University of Technology, Instrument for purification of air. Hubálek, J., Kizek, R., Adam, V. Sochor, J., Zítka, O., Koudelka, P. Aplication number UV CZ025724 05 JUN 2013, Industrial property office, Czech Republic.
- ✓ Mendel University in Brno. Information system for weighing. Ruzicka, J., Matousek, M., Zítka, O., Kizek, R., Adam, V., Aplication No. 2013-28822, Industrial property office, Czech Republic.
- ✓ Screening methodics for determination of antioxidative activity in appricots. Sochor, J., Sobrova, P., Zitka, O., Havlicek, Z., Adam, V., Skladanka, J., Hubalek, J., Provaznik, I., Kizek, R., and Krska, B. (2012), Mendel University in Brno, Brno, Czech Republic. (ISBN: 978-80-7375-575-1).
- ✓ Metodics for determination of phytochelatin synthase activity for evaluationg of heavy metal stres. Zitka, O., Kominkova, M., Krystofova, O., Adam, V., Skladanka, J., Havlicek, Z., Zehnalek, J., Merlos, M. R. A., Beklova, M., and Kizek, R. (2013) Mendel University in Brno, Brno, Czech Republic. (ISBN: 978-80-7375-700-7).
- ✓ Mendel Univerzity in Brno. Electrode handling equipment. Zítka, O., Kudr J.,Zítka J., Richtera, L., Plátenník M., Adam, V.. Utility model No. 32793, Application No. 2019-36012, Industrial property office, Czech Republic.
- ✓ Mendel Univerzity in Brno. Polarographic equipment and polarographic analysis method. Richtera, L., Zítka J., Zítka, O., Koudelková Z., Adam, V.. Patent No. 308715, Application No. PV 2019-668 , Industrial property office, Czech Republic.

- **REFEREES**

  Prof. Jan Labuda, Institute of Analytical Chemistry, Slovak University of Technology in Bratislava, Vazovova 5, 812 43 Bratislava, Slovakia, email; jan.labuda@stuba.sk

  ICREA. Prof. Arben Merkoci, Nanobioelectronics & Biosensors Group, Català de Nanociencia i Nanotecnologia (ICN2) a BIST centre situated at Autonomous University of Barcelona (UAB), Barcelona, Spain, e-mail: arben.merkoci@icn2.cat

December 2024