


PERSONAL INFORMATION

Zuzana Brnoliaková

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Sex Female | Date of birth 19/04/1976 | Nationality Slovak

Dr. Brnoliaková has been conducting independent research on metabolic diseases, pharmacological interventions, applied glycomics and proteomics for more than 15 years. Dr. Brnoliaková is Deputy Director of IEPT CEM and the Head of the Department of Tissue Cultures and Biochemical Engineering at IEPT CEM. Dr. Brnoliaková has got extensive biochemistry & molecular biology laboratory experiences. She is familiar with animal handling and led various *in vivo* and *in vitro* studies including preclinical trials. Dr. Brnoliaková is also practising pedagogical activities in the field of biochemistry. She completed her PhD studies at the Institute of Experimental Pharmacology and Toxicology, Slovak Academy of Sciences (IEPT SAS) in 2004. Within 2005-2007 accomplished post-doctoral studies at the Chemistry Department of Indiana University in Bloomington, US.

WORK EXPERIENCE

2020 - ongoing

Member of the Department of Tissue cultures and Biochemical Engineering and Deputy Head of the Institute of Experimental Toxicology and Pharmacology, CEM Head of the Quality Assurance Unit of the GLP-compliant laboratories at CEM

Centre of Experimental Medicine, Slovak Academy of Sciences, Dúbravská cesta 9, 841 04 Bratislava, Slovakia

- Preclinical trials (in vivo and in vitro studies) focused on metabolic diseases and the possibilities of their pharmacological preventions.
- Coordinating research projects and administration
- Supervising PhD students and junior scientific personnel
- Responsible for the internal GLP audits at the laboratories compliant to the quality system

2017 – 2019

Senior research scientist (IIa)

Centre of Experimental Medicine, Slovak Academy of Sciences, Dúbravská cesta 9, 841 04 Bratislava, Slovakia

- Preclinical trials (in vivo and in vitro studies) focused on metabolic diseases and the possibilities of their pharmacological preventions.
- Building up the quality assurance unit of the GLP-compliant laboratories
- Biochemical parameters: HDL, LDL, Triglycerides, cholesterol, Oral Glucose tolerance test,
- Cytokines and chemokines analysis in the samples: IL-1, IL-6, IL-10, TNF α , CRP assay

2011 – 2017

Maternity leave

- Maternity leave – two sons (2011, 2014)

2005 - 2007 Post-doctoral researcher

Indiana University, Chemistry Department

- Post-doctoral position at the Indiana University, Chemistry Department – prof. Milos V. Novotny's group, Member of the National Center for Glycomics and Glyco-proteomics and METACyt Biochemical Analysis Center
- Glycobiology, glycomics and proteomics biomarkers quest in cancer research, AB MALDI TOF/MS and AB LCMS SCIEX instrumentations experiences
- Ex vivo rat lens culturing in a static conditions.

EDUCATION AND TRAINING

2018 Academic Qualification Degree (IIa)

Institute of Experimental Pharmacology & Toxicology, Slovak Academy of Sciences, Bratislava

2004 Doctoral degree (PhD.)

Institute of Experimental Pharmacology & Toxicology, Slovak Academy of Sciences, Bratislava

- PhD Thesis: „Oxidative injury of eye lens proteins in the aetiology of diabetic cataract.“
- Specialisation: Biochemistry

2000 Master degree (Ing.)

Faculty of Chemical Technology, Slovak University of Technology

- Master Thesis: „Biodegradation of pentachlorophenol (PCP) in soils“,
- Specialisation: Biochemistry
Studies completed with honours

2019 Certified postgraduate course: Good Laboratory Practice

Slovak National Accreditation Service, Bratislava, Slovakia (Exam, Certificate)

2018 Certified postgraduate course: Protection of animals used for scientific and educational purposes

State Veterinary and Food Administration of the Slovak Republic, Bratislava, Slovakia (Exam, Certificate)

2007 EUROTOX Basic Toxicology Course

EUROTOX, Stará Lesná, Slovakia (Exam, Certificate)

PERSONAL SKILLS

Mother tongue(s) Slovak

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
French	B2	B2	B2	B2	B2
Czech	C2	C2	B2	B2	B2
Spanish	A2	A2	A1	A1	A1
Russian	A2	A2	A1	A1	A1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Computer skills	Good command of Microsoft Office™ tools, basic statistical programmes, Word press
Personal qualities	Ambitiousness, Enthusiasm, Resilience, Commitment, Willingness, Empathy
Driving licence	Driving licence category B

ADDITIONAL INFORMATION

Current Memberships	<p>Slovak Pharmacological Society</p> <p>Slovak Diabetological Society</p> <p>Slovak Toxicological Society</p>
Honours and Awards	<p>2018 – Finalist of state fellowship competition For Women In Science: L'Oréal – UNESCO - with project: "The assessment of profiles derived from blood sera of rats by means of mass spectrometry as a tool for preclinical testing of novel therapeutical approaches"</p> <p>2010 – Interactive Conference for Young Scientists - PreVeda 2010 - awarded poster - Kyselova et al. -The alternative assessment of eye lens opacification on an in vitro model of cataract in rats within the category „Organic, Bioorganic, Pharmaceutical Chemistry, Pharmacology and Toxicology. “</p> <p>2009 - The national contest Scientist of the year 2009 - organised by Journalist Studio - Honourable mention within category „Young scientist“</p> <p>2009 - Slovak Diabetological Society Annual Award for publishing the monography – Kyselova Z.: Experimental approaches in diabetic cataract research. VDM Verlag Dr. Müller, 2009. ISBN 978-3-639-20646-3</p> <p>2006 - BEST HPLC POSTER FINALIST - 2nd ranked position - Award of Scientific Committee of 30th International Symposium & Exhibit on High Performance Liquid Phase Separations and Related Techniques, July 17th – 21st, 2006 San Francisco - CA, US A</p> <p>2005 - SERVIER Award for best scientific publication of the year – Kyselova et al., Molecular Vision 11:56-65, 2005</p> <p>2005 - YOUNG SCIENTISTS COMPETITION of Slovak Academy of Sciences -II. Department of Life Sciences and Chemistry - 3rd ranked position</p> <p>2004 - PFIZER Award for best scientific publication of the year - Kyselova et al., Journal of Diabetes and its Complications 18:129-140, 2004</p> <p>2004 - Stefan Schwarz Fellowship - granted by foundation for post-doctoral employment support at SAS</p>
Patents	2008 US patent - US 20080318332 A1 – Disease diagnosis by profiling serum glycans
Academic ranking	<p>Hirsch index (Scopus): 18 (under the maiden name Kyselova)</p> <p>Citation count (Scopus): 1463</p> <p>Hirsch index (Scopus): 4 (under the maiden name Brnoliaková)</p> <p>Citation count (Scopus): 40</p>

FUNDED RESEARCH

Projects

Innovative approaches in toxicology of ageing

Position in project: Co-worker

Term: 07/2019 – 06/2023

Evidentiary code: APVV – 18 - 0336

Effect of fructose diet in experimental models of metabolic syndrome and in healthy subjects: proposal of effective pharmacological treatment

Position in project: Deputy of principal investigator

Term: 01/2019 – 12/2022

Evidentiary code: VEGA- 2/0120/19

Centre of Excellence for Glycomics

Position in project: IEPT SAS partnership coordinator

Term: 1/2010 – 12/2013

Evidentiary code: ITMS 26240120031

Transfer of knowledge and technologies from research and development in toxicology on evaluation of environmental and health risk

Position in project: Co-worker

Term: 1/2010 – 12/2013

Evidentiary code: ITMS 26240220005

Could the diabetic cataract prevention be achieved by substituted pyridoindoles with their antioxidant and aldose reductase inhibitory potential?

Position in project: Principal investigator

Term: 1/2009 – 12/2011

Evidentiary code: VEGA- 2/0056/09

Developmental origin of metabolic syndrome: hypertension, diabetes, dislipidemia.

Position in project: Deputy of principal investigator

Term: 1/2008 – 12/2010

Evidentiary code: VEGA- 2/0086/08

Substituted pyridoindoles as antioxidants and aldose reductase inhibitors in multitarget treatment of diabetic complications: a preclinical study.

Position in project: Co-worker

Term: 1/2008 – 12/2010

Evidentiary code: VEGA- 2/0001/08

Center for Biomedical Studies and Instrumentation in Proteomics/Glycomics.

Position in project: Co-worker

Term: 1/2005 – 9/2008

Evidentiary code: # 1 P41 RR018942

Funding agency: NCRR/NIH, US.

Carboxymethylated pyridoindoles as inhibitors of aldose reductase with antioxidant activity: preclinical implications for pharmacological prevention of diabetic complications.

Position in project: Co-worker

Term: 1/2005 – 12/2007

Evidentiary code: VEGA - 2/5005/25

Antioxidants and aldose reductase blockade in prevention of late diabetic complications: study on new pyridoindole derivatives.

Position in project: Co-worker

Term: 1/2002 – 12/2004

Evidentiary code: VEGA - 2/2050/22

 SELECTED PUBLICATIONS

Monograph

KYSELOVA Z.: Experimental approaches in diabetic cataract research: the involvement of free radicals in oxidative modification of eye lens proteins and the role of hyperglycemia-induced oxidative stress in the development of diabetic cataract - the effect of pyridoindole stobadine compared to other natural and synthetic antioxidants. Saarbrücken: *VDM Verlag Dr. Müller*, **2009**. 108 p. ISBN 978-3-639-20646-3. <http://www.amazon.com/Experimental-approaches-diabetic-cataract-research/dp/3639206460>

Chapters in monographs

1. BEZEK S., BRNOLIAKOVA Z., SOTNIKOVA R., KNEZL V., NAVAROVA J., DRIMAL J., BAUER V.: **Efficacy and safety of a new therapy of cholesterol metabolic disorders in hereditary hypertriglyceridemic rats.** In *Drugs: their action in pharmacology and toxicology*. Editors Viktor Bauer, Mojmir Mach, Jana Navarova, Ruzena Sotnikova. - Bratislava: Institute of Experimental Pharmacology and Toxicology SAS, p. 142-150. ISBN 978-80-971042-0-7, **2012**.
2. KYSELOVA Z., WEISMANN P., DRIMAL J., STEFEK M.: Seleničnanom-indukovaná katarakta - vhodný in vitro model na testovanie látok s potenciálom ovplyvniť zákal očnej šošovky u potkanov: [Selenite-induced cataract - suitable in vitro model for testing substances potentially affecting rat eye lens opacity]. In *Pokroky vo farmakológii v Slovenskej republike VI*. Editori: Pavel Švec, Magdaléna Kuželová, Ján Kyselovič. - Bratislava: Univerzita Komenského v Bratislave, Farmaceutická fakulta, s. 97-104. ISBN 978-80-223-3073-2, **2011**.
3. SUROVCIKOVA L., KYSELOVA Z., RACKOVA L., BEZEK S.: Vplyv stobadínu na oxidačné poškodenie hepatocytov potkana: [The effects of stobadin on oxidative injury of rat hepatocytes]. In *Pokroky vo farmakológii v Slovenskej republike VI*. Editori: Pavel Švec, Magdaléna Kuželová, Ján Kyselovič. - Bratislava: Univerzita Komenského v Bratislave, Farmaceutická fakulta, s. 91-96. ISBN 978-80-223-3073-2, **2011**.
4. STEFEK M., GAJDOSIK A., GAJDOSIKOVA A., JUSKOVA M., KYSELOVA Z., MAJEKOVA M., RACKOVA L., SNIRC V., DEMOPOULOS V.J., KARASU Ç.: **Stobadine and related pyridoindoles as antioxidants and aldose reductase inhibitors in prevention of diabetic complications:** chapter 14. In *Advances in molecular mechanisms and pharmacology of diabetic complications*. Editor Milan Stefek – RESEARCH SIGNPOST, TRANSWORLD RESEARCH NETWORK – Kerala, India, p. 285-307, ISBN: 978-81-7895-499-8, **2010**.
5. KYSELOVA Z.: **Post-translational modifications of eye lens proteins in diabetic cataract.** Chapter 4. In *Advances in Molecular Mechanisms and Pharmacology of Diabetic Complications*. Editor Milan Stefek – RESEARCH SIGNPOST, TRANSWORLD RESEARCH NETWORK – Kerala, India - p. 61-86, ISBN: 978-81-7895-499-8, **2010**.
6. KYSELOVA Z., BERNATOVA I., SOTNIKOVA R., NAVAROVA J., GAJDOSIK A., BEZEK S.: **Effect of Sme1EC2 on lipid profile of hHTG rats fed with high cholesterol diet.** In *The advances in pharmacology in Slovak republic V – Meeting on behalf of Prof. Frantisek Svec, MD, DrSc. – 14th annual*. Editors: Pavel Svec, Jan Kyselovic, Magdalena Kuzelova - Bratislava: Dept. of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University, p. 47 – 53, ISBN 8978-80-223-2883-8, **2010**.
7. BAUER V., SOTNIKOVA R., NOSALOVA V., NAVAROVA J., MATYAS S., PUCOVSKY V., REKALOV V., SZOCS K., NEDELCEVOVA J., KYSELOVA Z., DYTRICHOVA V., FATYKOVA J., KOLLAROVA M., MALEKOVA L., SRNOVA M., STOJKOVICOVA Z., TOTHOVA G.: **Smooth muscle tissues as models for study of drug action.** In *Trends in pharmacological research*. Editor Viktor Bauer, Michal Dubovicky, Magda Kourilova, Mojmir Mach, Jana Navarova, Radomir Nosal, Ruzena Sotnikova. - Bratislava: Institute of Experimental Pharmacology, Slovak Academy of Sciences, p.15-24, ISBN 978-80-970003-7-0, **2008**.
8. STEFEK M., DJOUBISSIE P.O., GAJDOSIK A., GAJDOSIKOVA A., JUSKOVA M., KRIZANOVA L., KYSELOVA Z., MAJEKOVA M., RACKOVA L., SNIRC V.: **Substituted pyridoindoles as antioxidants and aldose reductase inhibitors in prevention of diabetic complications. A preclinical study in vitro and in an animal model of experimental diabetes in vivo.** In *Trends in pharmacological research*. Editor Viktor Bauer, Michal Dubovicky, Magda Kourilova, Mojmir Mach, Jana Navarova, Radomir Nosal, Ruzena Sotnikova. - Bratislava: Institute of Experimental Pharmacology, Slovak Academy of Sciences, p. 109 – 117, ISBN 978-80-970003-7-0, **2008**.
9. NEDELCEVOVA J., NAVAROVA J., KYSELOVA Z., SNIRC V., NOSALOVA V., SOTNIKOVA R.: **Study of endothelial dysfunction on experimental model of mild-diabetes: the effect of antioxidant Sme1EC2.** In *The advances in pharmacology in Slovak republic I. – Meeting on behalf of Prof. Frantisek Svec, MD, DrSc. – 10th annual*. Editors: Pavel Svec, Jan Kyselovic, Magdalena Kuzelova - Bratislava: Dept. of Pharmacology and Toxicology, Faculty of Pharmacy, Comenius University: PEEM - Peter Macura, p. 27 – 31, ISBN 80-89197-49-3, **2006**.

Publications

1. BRNOLIAKOVÁ, Zuzana - MICHÁLIKOVÁ, Dominka - ŠVÍK, Karol - SLOVÁK, Lukáš - BITTNER FIALOVÁ, Silvia - GÁSPÁROVÁ, Zdenka. The levels of inflammatory markers within the experimental model of metabolic syndrome. In *Metabolický syndróm: kardiovaskulárne a metabolické riziká: zborník abstraktov*. - Bratislava: Ústav normálnej a patologickej fyziológie CEM SAV, **2019**, s. 14. ISBN 978-80-89991-04-4. Typ: AFH.
2. BEZEK, Štefan - BRNOLIAKOVÁ, Zuzana - SOTNÍKOVÁ, Ružena - KNEZL, Vladimír - PAULOVÍČOVÁ, Ema - NAVAROVÁ, Jana - BAUER, Viktor. Monotherapy of experimental metabolic syndrome: I. Efficacy and safety. In *Interdisciplinary toxicology*, **2017**, vol. 10, no. 3, p. 81-85. (2016: 0.409 - SJR, Q3 - SJR). (2017 - SCOPUS). ISSN 1337-6853. Typ: ADNB.
3. KNEZL, Vladimír - SOTNÍKOVÁ, Ružena - BRNOLIAKOVÁ, Zuzana - STANKOVIČOVÁ, Tatiana - BAUER, Viktor - BEZEK, Štefan. Monotherapy of experimental metabolic syndrome: II. Study of cardiovascular effects. In *Interdisciplinary toxicology*, **2017**, vol. 10, no. 3, p. 86-92. (2016: 0.409 - SJR, Q3 - SJR). (2017 - SCOPUS). ISSN 1337-6853. Typ: ADNB.
4. KUČEROVÁ, Dana - DÓKA, Gabriel - KRUŽLIAK, Peter - TURČEKOVÁ, Katarína - KMECOVÁ, Jana - BRNOLIAKOVÁ, Zuzana - KYSELOVIČ, Ján - KIRCHHEFER, Uwe - MÜLLER, Frank U. - KRĚNEK, Peter - BOKNÍK, Peter - KLIMAS, Ján. Unbalanced upregulation of ryanodine receptor 2 plays a particular role in early development of daunorubicin cardiomyopathy. In *American journal of translational research*, **2015**, vol. 7, no. 7, p. 1280-1294. (2014: 3.402 - IF, Q2 - JCR, 1.482 - SJR, Q1 - SJR). ISSN 1943-8141. Typ: ADMA.
5. MÉZEŠOVÁ, Lucia - JENDRUCHOVÁ, Veronika - VLKOVIČOVÁ, Jana - OKRUHLICOVÁ, Ľudmila - FRIMMEL, Karel - NAVAROVÁ, Jana - BRNOLIAKOVÁ, Zuzana - VRBJAR, Norbert. Effect of LPS-induced inflammation on renal Na,K-ATPase in male rats. In *Advances in Cardiovascular Research: From the bench to the patient's bed, Program & Book of Abstracts, 2-5 September 2015, Smolenice, Slovakia*. - Bratislava: VEDA, Publishing House of the Slovak Academy of Sciences, **2015**, p. 82. ISBN 978-80-224-1452-4. Typ: AFH.
6. Broskova Z., Kyselova Z., Knezl V.: Ischemia-reperfusion injury of the isolated diabetic rat heart: Effect of the antioxidant stobadine. *Gen Physiol Biophys*, **32(2)**: 285-292, **2013**.
7. Kyselova Z.: The nutraceutical potential of natural products in diabetic cataract prevention. *J Food Nutr Res*, **51(4)**: 185–200, **2012**.
8. Dubovicky M., Csaszarova E., Brnoliakova Z., Ujhazy E., Navarova J., Mach M.: Effect of prenatal administration of venlafaxine on postnatal development of rat offspring. *Interdiscip Toxicol*, **5(2)**:92-97, **2012**.
9. Jankyova S., Kmecova J., Cernecka H., Mesarosova L., Musil P., Brnoliakova Z., Kyselovic J., Babal P., Klimas J.: Glucose and blood pressure lowering effects of Pycnogenol® are inefficient to prevent prolongation of QT interval in experimental diabetic cardiomyopathy. *Pathol Res Pract*, **208(8)**:452-457, **2012**.
10. Isailovic D., Plasencia M.D., Gaye M.M., Stokes S.T., Kurulugama R.T., Pungpapong V., Zhang M., Kyselova Z., Goldman R., Mechref Y., Novotny M.V., Clemmer D.E.: Delineating diseases by IMS-MS profiling of serum N-linked glycans. *J Proteome Res*, **11(2)**:576-585, **2012**.
11. Mezesova L., Jendruchova-Javorkova V., Vlkovicova J., Kyselova Z., Navarova J., Bezek S., Vrbjar N.: Antioxidant SMe1EC2 may attenuate the disbalance of sodium homeostasis in the organism induced by higher intake of cholesterol. *Mol Cell Biochem*, **366(1-2)**: 41-48, **2012**.
12. Kyselova Z.: The consideration of toxicological aspects for polyphenols use in diseases prevention. *Interdiscip Toxicol*, **4(4)**:173-183, **2011**.
13. Kyselova Z.: Mass spectrometry-based proteomics approaches applied in cataract research. *Mass Spectrom Rev*, **30(6)**:1173-1184, **2011**.
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15. Weismann P., Stefek M., Kubikova E., Kyselova Z.: The alternative assessment of rat eye lens opacification in cataract. *Folia Medica Cassoviensia*, **65(2)**:31-35, **2010**.
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17. Kyselova Z.: Different experimental approaches in modelling cataractogenesis – an overview of selenite-induced nuclear caract in rats. *Interdisc Toxicol*, **3(1)**:3-14, **2010**.
18. Skalska S., Kucera P., Goldenberg Z., Stefek M., Kyselova Z., Jariabka P., Gajdosikova A., Klobucnikova K., Traubner P., Stolc S. Neuropathy in streptozotocin-induced diabetic rats: effects of the antioxidant stobadine in comparison with a-lipoic acid. *Gen Physiol Biophys*, **29**:50-8, **2010**.
19. Tang Z., Varghese R.S., Bekesova S., Loffredo C., Abdel-Hamid M., Kyselova Z., Mechref Y., Novotny M.V., Goldman R., Resson H.W.: Identification of N-glycan Serum Markers Associated with Hepatocellular Carcinoma from Mass Spectrometry Data. *J Proteome Res*, **9(1)**:104-12, **2010**.
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21. Jankyova S., Kucera P., Goldenberg Z., Yaghi D., Navarova J., Kyselova Z., Stolc S., Klimas J., Racanska E., Matyas S. Pycnogenol® efficiency on glycaemia, motor nerve conduction velocity and markers of oxidative stress in mild type diabetes in rats. *Phytother Res*, **23**(8):1169-74, **2009**.
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