

Jozef Nosek
Curriculum vitae

Current Position (since 2010)

Professor of Biochemistry
Comenius University in Bratislava
Faculty of Natural Sciences
Department of Biochemistry
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Academic Degrees

2008: Professor of Biochemistry (Comenius University in Bratislava)
2006: DSc in Molecular Biology (Comenius University in Bratislava)
2000: Associate Professor of Biochemistry (Comenius University in Bratislava)
1994: PhD in Genetics (Supervisor: Prof. Ladislav Kováč, Comenius University in Bratislava)
1990: MSc in Genetics and Molecular Biology (Supervisor: Prof. Ladislav Kováč, Comenius University in Bratislava)

Research Interests

biology and evolution of telomeres
biology of non-conventional yeasts
evolution of biochemical pathways
mitochondrial nucleoids
nanopore sequencing
organelle biogenesis and inheritance
yeast genomics

Previous Positions

2000-2010: Associate Professor, Department of Biochemistry, Comenius University in Bratislava, Faculty of Natural Sciences
2003 (2 months): Visiting scientist, Institute of Microbiology and Genetics, University of Paris XI, Orsay, France (Lab Director: Prof. Monique Bolotin-Fukuhara)
2002 (3 months): Visiting scientist, Institute of Microbiology and Genetics, University of Paris XI, Orsay, France (Lab Director: Prof. Monique Bolotin-Fukuhara)
1996-1997: Visiting scientist, Institute Curie, Orsay, France (Lab Director: Prof. Hiroshi Fukuhara)
1995-2000: Assistant Professor, Department of Biochemistry, Comenius University in Bratislava, Faculty of Natural Sciences
1995 (2 months): Visiting scientist, Institute Curie, Orsay, France (Lab Director: Prof. Hiroshi Fukuhara)
1994-1995: Research Associate, Department of Genetics, Comenius University in Bratislava, Faculty of Natural Sciences
1992-1994: Visiting scientist, Institute Curie, Orsay, France (Lab Director: Prof. Hiroshi Fukuhara)
1992-1994: Research Associate, Department of Molecular Biology, Comenius University in Bratislava, Faculty of Natural Sciences
1990-1992: PhD training, Department of Genetics and Molecular Biology, Comenius University in Bratislava, Faculty of Natural Sciences

Fellowships

- 2014:** Federation of European Microbiological Societies (FEMS) Invited Speaker Meeting Grant
- 2014:** Travel Grant, European Molecular Biology Organization (EMBO)
- 2012:** Federation of European Microbiological Societies (FEMS) Invited Speaker Meeting Grant
- 2010:** Federation of European Microbiological Societies (FEMS) Invited Speaker Meeting Grant
- 2002:** Short Term Fellowship, European Molecular Biology Organization (EMBO)
- 1996:** Postdoctoral Fellowship, Ministry of Education and Research of the French Government
- 1993:** Research Training Fellowship, Commission of the European Communities (Community's Action for Cooperation in Science and Technology with Central and Eastern European Countries)
- 1992:** Research Training Fellowship, University of Paris XI, Orsay, France

Awards

- 2017:** The Silver Medal of the Comenius University in Bratislava for the excellent research team "Bioinformatics and functional analysis of biological systems (INFO-BIO-FUN)" (team member)
- 2015:** Honorary Member of the Hungarian Microbiological Society
- 2015:** The Medal of the Faculty of Natural Sciences, Comenius University in Bratislava for outstanding research achievements in 2014
- 2012:** Plaque of Appreciation from the Philippine Society for Microbiology
- 2006-2010:** Howard Hughes Medical Institute International Research Scholar
- 2001-2005:** Howard Hughes Medical Institute International Research Scholar
- 2001:** Outstanding Junior Scientist Award (Dean of the Faculty of Natural Sciences, Comenius University in Bratislava)
- 2000:** Award of the Czechoslovak Microbiological Society for Junior Czech and Slovak Microbiologist
- 2000:** Junior Researcher of the Year 1999 in the Slovak Republic
- 1999:** Outstanding Junior Scientist Award (Dean of the Faculty of Natural Sciences, Comenius University in Bratislava)
- 1990:** The Medal of the Rector of the Comenius University in Bratislava for Excellent Study Achievements

Research Projects (P.I.)

- 2019-2023:** Slovak Research and Development Agency (APVV 18-0239) Non-conventional applications of emerging sequencing technologies in comparative and functional genomics
- 2019-2022:** Slovak Grant Agency (VEGA 1/0027/19) - Functional analysis of metabolic gene clusters coding for the enzymes of catabolic degradation of hydroxyaromatic compounds
- 2015-2018:** Slovak Research and Development Agency (APVV 14-0253) Comparative and functional analysis of non-conventional yeast genomes
- 2015-2018:** Slovak Grant Agency (VEGA 1/0333/15) - Comparative and functional analysis of the metabolic gene clusters in eukaryotic genomes
- 2011-2014:** Slovak Research and Development Agency (APVV 0123-10) Molecular architecture, dynamics and evolution of chromosomes in yeast mitochondria
- 2011-2014:** Slovak Grant Agency (VEGA 1/0405/11) - Functional analysis of genes implicated in the control of hydroxyaromatic compounds metabolism in the pathogenic yeast *Candida parapsilosis*
- 2008-2011:** Slovak Research and Development Agency (APVV 0024-07) Molecular mechanisms implicated in the control of mitochondrial integrity in eukaryotic cells
- 2008-2010:** Slovak Grant Agency (VEGA 1/0219/08) Molecular-genetic analysis of dimorphism of the pathogenic yeast *Candida parapsilosis*
- 2006-2010:** Slovak Research and Development Agency (APVV LPP-0164-06) Analysis of the molecular architecture and dynamics of mitochondrial chromosomes
- 2006-2011:** Howard Hughes Medical Institute International Research (#55005622) Molecular architecture and dynamics of mitochondrial chromosomes: A paradigm for evolution and maintenance of linear DNA genomes

- 2005-2007:** Slovak Grant Agency (VEGA 1/2331/05) - Molecular analysis of functional elements involved in the control of replication and segregation of mitochondrial genomes
- 2005:** Slovak Ministry of Education (Support for Innovation of Laboratory Infrastructure): Application of biolistics in the functional analysis of genomes in eukaryotic organelles
- 2002-2004:** Slovak Agency for Science and Technology (APVT 20-003902) - The study of complex biological phenomena at the level of functional analysis of yeast genomes
- 2002-2004:** Slovak Grant Agency (VEGA 1/9153/02) - Alternative pathways of telomere replication: The molecular architecture and the replication of telomeric structures of linear DNA genomes
- 2001-2005:** Howard Hughes Medical Institute International Research Scholars (#55000327) Evolutionary and developmental tinkering of modules for alternative, telomerase-independent replication of linear genomes
- 1999-2001:** Slovak Grant Agency (VEGA 1/6168/99) - Alternative mechanisms of telomere replication: Linear mitochondrial DNA of yeast as a model system
- 1995-1998:** Slovak Grant Agency (VEGA 1/2173/95) - The study of interactions between nuclear and mitochondrial genomes in yeast-like microorganisms: The model of regulation of the replication and expression of linear mitochondrial DNAs

Selected Papers (for the full list see <http://www.biocenter.sk/jnpublics.html>)

1. Brejová, B., Boršová, K., Hodorová, V., Čabanová, V., Gafurov, A., Fričová, D., Neboháčová, M., Vinař, T., Klempa, B., and **Nosek, J.** (2021) Nanopore sequencing of SARS-CoV-2: Comparison of short and long PCR-tiling amplicon protocols. *PLoS One* 16: e0259277.
2. Červenák, F., Sepšiová, R., **Nosek, J.**, and Tomáška, Ľ. (2021) Step by step evolution of yeast telomeres. *Genome Biology & Evolution* 13: evaa268.
3. Tóth, R., **Nosek, J.**, Mora-Montes, H.M., Gabaldón, T., Bliss, J.M., Nosanchuk, J.D., Turner, S.A., Butler, G., Vágvölgyi, C., and Gácsér, A. (2019) *Candida parapsilosis*: from genes to the bedside. *Clinical Microbiology Reviews* 32: e00111-18.
4. Cillingová, A., Zeman, I., Tóth, R., Neboháčová, M., Dunčková, I., Hölcová, M., Jakúbková, M., Gérecová, G., Pryszcz, L.P., Tomáška, Ľ., Gabaldón, T., Gácsér, A., and **Nosek, J.** (2017) Eukaryotic transporters for hydroxyderivatives of benzoic acid. *Scientific Reports* 7: 8998.
5. Pevala, V., Truban, D., Bauer, J.A., Košťan, J., Kunová, N., Bellová, J., Brandstetter, M., Marini, V., Krejčí, L., Tomáška, Ľ., **Nosek, J.**, and Kutejová, E. (2016) The structure and DNA-binding properties of Mgm101 from a yeast with a linear mitochondrial genome. *Nucleic Acids Research* 44: 2227-2239.
6. Pryszcz, L.P., Németh, T., Saus, E., Ksiezopolska, E., Hegedúsová, E., **Nosek, J.**, Wolfe, K.H., Gácsér, A., and Gabaldón, T. (2015) The genomic aftermath of hybridization in the opportunistic pathogen *Candida metapsilosis*. *PLoS Genetics* 11: e1005626.
7. **Nosek, J.**, Tomáška, Ľ., Burger, G., and Lang, B.F. (2015) Programmed translational bypassing elements in mitochondria: structure, mobility and evolutionary origin. *Trends in Genetics* 31: 187-194.
8. Lang, B.F., Jakúbková, M., Hegedúsová, E., Daoud, R., Forget, L., Brejová, B., Vinař, T., Kosa, P., Fričová, D., Neboháčová, M., Griač, P., Tomáška, Ľ., Burger, G., and **Nosek, J.** (2014) Massive programmed translational jumping in mitochondria. *Proceedings of the National Academy of Sciences of the United States of America* 111: 5926-5931.
9. Gerhold, J.M., Sedman, T., Višacká, K., Slezáková, J., Tomáška, Ľ., **Nosek, J.**, and Sedman, J. (2014) Replication intermediates of the linear mitochondrial DNA of *Candida parapsilosis* suggest a common recombination based mechanism for yeast mitochondria. *Journal of Biological Chemistry* 289: 22659-22670.
10. Valach, M., Farkas, Z., Fričová, D., Kováč, J., Brejová, B., Vinař, T., Pfeiffer, I., Kucsera, J., Tomáška, Ľ., Lang, B.F., and **Nosek, J.** (2011) Evolution of linear chromosomes and multipartite genomes in yeast mitochondria. *Nucleic Acids Research* 39: 4202-4219.
11. Tomáška, Ľ., **Nosek, J.**, Kramara, J., and Griffith, J.D. (2009) Telomeric circles: universal players in telomere maintenance? *Nature Structural & Molecular Biology* 16: 1010-1015.
12. Gunišová, S., Elboher, E., **Nosek, J.**, Gorkovoy, V., Brown, Y., Lucier, J.-F., Laterreur, N., Wellinger, R.J., Tzfati, Y., and Tomáška, Ľ. (2009) Identification and comparative analysis of telomerase RNAs from *Candida* species reveal conservation of functional elements. *RNA* 15: 546-559.
13. **Nosek, J.**, Kosa, P., and Tomáška, Ľ. (2006) On the origin of telomeres: A glimpse at the pre-telomerase world. *BioEssays* 28: 182-190.

14. Kosa, P., Valach, M., Tomáška, L., Wolfe, K.H., and **Nosek, J.** (2006) Complete DNA sequences of the mitochondrial genomes of the pathogenic yeasts *Candida orthopsilosis* and *Candida metapsilosis*: Insight into the evolution of linear DNA genomes from mitochondrial telomere mutants. *Nucleic Acids Research* 34: 2472-2481.
15. **Nosek, J.**, Ryčovská, A., Makhov, A.M., Griffith, J.D., and Tomáška, L. (2005) Amplification of telomeric arrays via rolling-circle mechanism. *Journal of Biological Chemistry* 280: 10840-10845.
16. Tomáška, L., **Nosek, J.**, Makhov, A.M., Pastoráková, A., and Griffith, J.D. (2000) Extragenomic double-stranded DNA circles in yeast with linear mitochondrial genomes: Potential involvement in telomere maintenance. *Nucleic Acids Research* 28: 4479-4487.
17. **Nosek, J.**, Tomáška, L., Pagáčová, B., and Fukuhara, H. (1999) Mitochondrial telomere-binding protein from *Candida parapsilosis* suggests an evolutionary adaptation of a nonspecific single-stranded DNA-binding protein. *Journal of Biological Chemistry* 274: 8850-8857.
18. **Nosek, J.**, Tomáška, L., Fukuhara, H., Suyama, Y., and Kováč, L. (1998) Linear mitochondrial genomes: 30 years down the line. *Trends in Genetics* 14: 184-188.
19. Tomáška, L., **Nosek, J.**, and Fukuhara, H. (1997) Identification of a putative mitochondrial telomere-binding protein of the yeast *Candida parapsilosis*. *Journal of Biological Chemistry* 272: 3049-3056.
20. **Nosek, J.** and Fukuhara, H. (1994) NADH dehydrogenase subunit genes in the mitochondrial DNA of yeasts. *Journal of Bacteriology* 176: 5622-5630.