

Philip V. Toukach

Born in 1976.

Education: Russian University of Chemical Technology, 1998

Languages: Russian (native), English (full professional)

Academic degree: PhD, 2001, in organic chemistry

(Zelinsky Institute of Organic Chemistry, Russ. Acad. Scis.),

thesis: "Computer-assisted NMR-spectroscopic structural studies of *Proteus* glycopolymers"

Academic rank: associate professor, 2010.

Positions:

2001-present: Zelinsky Institute of Organic Chemistry, Russian Academy of Sciences (Russia), *senior scientist*

2002-2016: Lomonosov Moscow Academy of Fine Chemical Technology (Russia), *associate professor*

2012-present: Lomonosov Moscow State University (Russia), *lecturer*

2002-2005: Borstel Forschungszentrum (Germany), *invited scientist*

2006-2009: Deutsches Krebsforschungszentrum (Germany), *invited scientist*

2003-present: Moscow Chemical Lyceum, Russian Academy of Sciences (Russia), *IT specialist*

2000-present: freelancer, *studio photographer and polygraphy designer*

Major activities:

1. Leadership in a glycoinformatic software project (Carbohydrate Structure Database, <http://csdb.glycoscience.ru>)

2. Structural elucidation of natural glycopolymers and glycoconjugates by the NMR methods

3. The NMR course in the university and scientific supervision

Major fields of research:

1. Carbohydrate databases and general glycoinformatics;

2. Automated prediction of carbohydrate structure basing on the NMR data;

3. Theoretical modeling of the NMR observables of carbohydrates;

4. NMR elucidation of structure of natural carbohydrates;

Publications, conferences, grants:

75 articles in peer-reviewed referenced scientific journals;

3 book chapters and 7 educational textbooks (NMR);

34 attended international symposia;

Multiple grants by Russian Federation for Basic Research, International Soros Scientific & Educational Program, and other (ISTC, ISF, INTAS, Polish. Acad. Scis., Rus. President Grant)

Publication and grant list: <http://toukach.ru/publist.htm>

Total citations: 1492 (of them, 754 since 2012)

Hirsh index: 19 (total), 15 (since 2012)

Lecturing (own courses):

Moscow State University "NMR spectroscopy" (since 2013)

Moscow Acad. Of Fine Chem. Technology "NMR spectroscopy in biochemical research" (2002-2016), "Digital photography and image processing" (2012-2015)

Higher Chem. College, Russ. Acad. Scis. "NMR spectroscopy for chemists" (1998-2003 and since 2014)

Russ. Univ. of Chem. Technology: "Personal computer usage and system administration" (2000-2002)

Web-programming (PHP, SQL, JS) (since 2010)

Photography (since 2010)

Selected publications: (5-year impact factors on the date of publication are in parentheses)

- Ph. Toukach, K. Egorova "**Carbohydrate Structure Database (CSDB): examples of usage**" (in "*A Practical Guide to Using Glycomics Databases*", ed: K.F. Aoki-Kinoshita, Springer Japan, 2017, ch.5, pp. 75-113, ISBN 978-4-431-56452-2, DOI [10.1007/978-4-431-56454-6_5](https://doi.org/10.1007/978-4-431-56454-6_5))
- K.S. Egorova, Ph.V. Toukach "**CSDB_GT : a new curated database on glycosyltransferases**" (*Glycobiology*, 2017, v. 27(4), pp. 285-290, DOI [10.1093/glycob/cww137](https://doi.org/10.1093/glycob/cww137)) (IF 3.5)
- R.R. Kapaev, Ph.V. Toukach "**Simulation of 2D NMR Spectra of Carbohydrates Using GODESS Software**" (*Journal of Chemical Information and modeling*, 2016, v. 56(6), pp. 1100–1104, DOI [10.1021/acs.jcim.6b00083](https://doi.org/10.1021/acs.jcim.6b00083)) (IF 4.0)
- Ph.V. Toukach, K.S. Egorova "**Carbohydrate Structure Database merged from bacterial, archaeal, plant and fungal parts**" (*Nucleic Acid Research - Database Issue*, 2016, v. 44(D1), pp. D1229-D1236, DOI [10.1093/nar/gkv840](https://doi.org/10.1093/nar/gkv840)) (IF 8.9)
- K.S. Egorova, A.N. Kondakova, Ph.V. Toukach "**Carbohydrate Structure Database: tools for statistical analysis of bacterial, plant and fungal glycomes**" (*Database*, 2015, ID bav073, DOI [10.1093/database/bav073](https://doi.org/10.1093/database/bav073)) (IF 4.5)
- R.R. Kapaev, Ph.V. Toukach "**Improved carbohydrate structure generalization scheme for ¹H and ¹³C NMR simulations**" (*Analytical Chemistry*, 2015, v. 87(14), pp. 7006–7010) (IF 5.8)
- Ph. Toukach, K. Egorova "**Bacterial, Plant, and Fungal Carbohydrate Structure Databases: daily usage**" (in "*Glycoinformatics*", eds: T. Lütteke, M. Frank, series: *Methods in Molecular Biology*, v. 1273. Springer Berlin / Humana Press, 2015, ch.5, ISBN 978-1-4939-2342-7, DOI [10.1007/978-1-4939-2343-4_5](https://doi.org/10.1007/978-1-4939-2343-4_5))
- R.R. Kapaev, K.S. Egorova, Ph.V. Toukach "**Carbohydrate structure generalization scheme for database-driven simulation of experimental observables, such as NMR chemical shifts**" (*Journal of Chemical Information and modeling*, 2014, v. 54(9), pp. 2594–2611, DOI [10.1021/ci500267u](https://doi.org/10.1021/ci500267u)) (IF 4.1)
- F.V. Toukach, V.P. Ananikov "**Recent advances in computational predictions of NMR parameters for structure elucidation of carbohydrates: methods and limitations**" (*Chemical Society Reviews*, 2013, v. 42, pp. 8376-8415, DOI [10.1039/C3CS60073D](https://doi.org/10.1039/C3CS60073D)) (IF 30.2)
- K.S. Egorova, Ph.V. Toukach "**Critical analysis of CCSD data quality**" (*Journal of Chemical Information and Modelling*, 2012, v. 52(11), pp.2812-2814, DOI [10.1021/ci3002815](https://doi.org/10.1021/ci3002815)) (IF 4.1)
- Ph. Toukach "**Bacterial Carbohydrate Structure Database 3: Principles and Realization**" (*Journal of Chemical Information and Modelling*, 2011, v. 51(1), pp.159-170, DOI [10.1021/ci100150d](https://doi.org/10.1021/ci100150d)) (IF 4.1)
- Ph. Toukach, H. Joshi, R. Ranzinger, Yu. Knirel, C.-W. von der Lieth "**Sharing of worldwide distributed carbohydrate-related digital resources: online connection of the Bacterial Carbohydrate Structure DataBase and GLYCOSCIENCES.de**" (*Nucleic Acid Research - Database Issue*, 2007, v.35, pp. D280-D286, DOI [10.1093/nar/gkl883](https://doi.org/10.1093/nar/gkl883)) (IF 8.9)
- B.A. Dmitriev, F.V. Toukach, S. Ehlers "**Towards a comprehensive view of the bacterial cell wall**" (*Trends in Microbiology*, 2005, v.13(12), pp. 569-574, DOI [10.1016/j.tim.2005.10.001](https://doi.org/10.1016/j.tim.2005.10.001)) (IF 9.0)
- F.V. Toukach, A.S. Shashkov "**Computer-assisted structural analysis of regular glycopolymers on the basis of ¹³C NMR data**" (*Carbohydrate Research*, 2001, v.335(2), pp. 101-114, DOI [10.1016/S0008-6215\(01\)00214-2](https://doi.org/10.1016/S0008-6215(01)00214-2)) (IF 2.1)

Hobbies:

Autonomous motorized off-road expeditions to wild regions;

Photography (own studio) and image design;

Contacts:

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