

## CV Philip V. Toukach

Born in 1976.

*Education:* Russian University of Chemical Technology in 1998.

*Academic degree:* PhD, 2001

(N.D. 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: N.D. Zelinsky Institute of Organic Chemistry, Russian Academy of Sciences (Russia), *senior scientist*

2002-present: M.V. Lomonosov Moscow Academy of Fine Chemical Technology (Russia), *associate professor*

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

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

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

### Major activities:

1. Leadership in a glycoinformatic software project (Carbohydrate Structure Database, <http://csdb.glycoscience.ru>)
2. Structural elucidation of natural glycopolymers and glycoconjugates with 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 NMR data;
3. Theoretical modelling of NMR-spectroscopic properties of carbohydrates;
4. NMR-spectroscopic elucidation of structure of bacterial carbohydrates;

### Publications, conferences, grants:

67 articles in peer-reviewed referenced scientific journals;

2 book chapters and 7 educational textbooks (NMR);

28 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 list:* <http://toukach.ru/publist.htm>

*Total citations:* 885 (of them, 404 in 2009-2013)

*Hirsh index:* 16

### Lecturing (own courses):

1. Moscow Acad. Of Fine Chem. Technology "NMR spectroscopy in biochemical research" (since 2003), "Digital photography and image processing" (since 2012)
2. Higher Chem. College, Russ. Acad. Scis. "NMR spectroscopy: practice" (1998-2003)
3. Russ. Univ. of Chem. Technology: "Personal computer usage and system administration" (2000-2002)
4. Web-programming (PHP, SQL, JS) (since 2010)

**Selected publications:**

- F.V. Toukach, A.S. Shashkov "**Computer-assisted structural analysis of regular glycopolymers on the basis of  $^{13}\text{C}$  NMR data**" (*Carbohydrate Research*, 2001, v.335(2), pp. 101-114)
- 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)
- 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)
- S. Herget, Ph. Toukach, R. Ranzinger, W.E. Hull, Y. Knirel, C.-W. von der Lieth "**Statistical analysis of the Bacterial Carbohydrate Structure Data Base (BCSDB): Characteristics and diversity of bacterial carbohydrates in comparison with mammalian glycans**" (*BMC Structural Biology*, 2008, v.8, id.35)
- Ph. Toukach "**Bacterial Carbohydrate Structure Database 3: Principles and Realization**" (*Journal of Chemical Information and Modelling*, 2011, v. 51(1), pp.159-170)
- 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)
- 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)