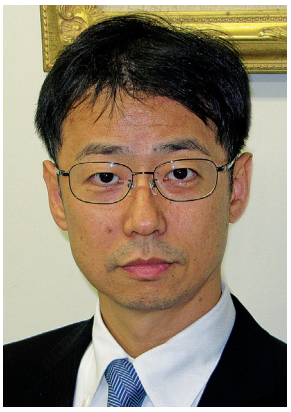

N. Shibata

*The author presented on this page has published more than **25 articles** since 2000 in Angewandte Chemie, most recently:*
"*S*-((Phenylsulfonyl)difluoromethyl)thiophenium Salts: Carbon-Selective Electrophilic Difluoromethylation of β-Ketoesters, β-Diketones, and Dicyanoalkylidenes": X. Wang, G. Liu, X.-H. Xu, N. Shibata, E. Tokunaga, N. Shibata, *Angew. Chem. Int. Ed.* **2014**, *53*, 1827–1831; *Angew. Chem.* **2014**, *126*, 1858–1682.

Norio Shibata

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Position:	Professor, Department of Nanopharmaceutical Science, Department of Frontier Materials, Nagoya Institute of Technology, Japan
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Homepage:	http://www.ach.nitech.ac.jp/~organic/shibata/index.html
Education:	1988 BS with Prof. Takushi Kurihara, Osaka University of Pharmaceutical Sciences 1993 PhD with Prof. Yasuyuki Kita, Faculty of Pharmaceutical Sciences, Osaka University 1993 Postdoctoral position with Prof. Yasuyuki Kita, Osaka University 1994–1996 Postdoctoral position with Prof. Sir Jack E. Baldwin, Oxford University 1996 Postdoctoral position with Dr. Shiro Terashima, Sagami Chemical Research Institute
Awards:	**2000** Takeda Pharmaceutical Company Award in Synthetic Organic Chemistry; **2003** Fujifilm Award in Synthetic Organic Chemistry; **2004** Incentive Award in Synthetic Organic Chemistry; **2005** RSC Fluorine Prize; **2005** 20th Lectureship Award for Young Chemists, Chemical Society of Japan; **2009** Fluorine Chemistry Research Incentive Award, Research Foundation ITSUU Laboratory; **2010** The Pharmaceutical Society of Japan Award for Divisional Scientific Promotions; **2014** Prize for Science and Technology (Research Category) in the Commendation for Science and Technology by the Ministry of Education, Culture, Sports, Science and Technology; W.-Y. Huang Fluorine Prize, Chinese Chemical Society
Current research interests:	Fluorine chemistry, including synthesis of organofluorine compounds; asymmetric catalysis; design of drugs and functional materials; phthalocyanines
Hobbies:	Listening to music (new wave and classical), art appreciation (impressionists)

If I had one year of paid leave I would … work for a Buddhist temple on a mountain whilst studying to become a priest.

In a spare hour, I … listen to "new wave" music.

If I could be any age I would be … a child aged 6 in elementary school, as I was full of adventure but not yet involved in chemistry.

My favorite time of day is … dawn.

I admire … my parents and grandparents.

My favorite molecule is … penicillin.

My science "heroes" are … Professor Sir Jack E. Baldwin and Professor Sir Robert Robinson.

The most important thing I learned from my parents is … to be sincere, polite, and patient.

My favorite painter is … Marc Chagall.

My favorite musicians are … Marc Almond and Billy Mackenzie.

My favorite book is … *L'Aiguille creuse* (*The Hollow Needle*) by Maurice Leblanc.

My motto is … "be creative and original".

The greatest scientific advance of the last decade was … the invention of the iPad.

When I was eighteen I wanted to be … a professional music critic or a music producer.

Chemistry is fun because … I can create something exciting.

My favorite drink is … coffee.

The most important future applications of my research are … drug development and energy generation.

Has your approach to publishing your results changed since the start of your career?

At the early stage of my research career, I was very happy to publish any results, even more trivial chemistry. After acceptance of submitted manuscripts, I was always curious to see the reprints of papers from publishers, since the reprints always looked very different from the original manuscripts, which were written double-spaced on A4 paper. Besides, the cover art, colors, and/or styles of the reprints also interested me, for example those of *Tetrahedron Lett.* were blue and those of *J. Am. Chem. Soc.* light yellow. I suppose I did chemistry for my own enjoyment, more like a child. However, I now think that research is important not only for me, but also for everyone else in the world. I have told my students that the quality and significance of research is important in order to attract many people with general interests.

What do you think the future holds for your field of research?

Fluorination and trifluoromethylation reactions are one of the oldest research topics in fluorine chemistry, and these topics have been developed gradually. To our great pleasure, they have attracted more attention than ever in the last ten years, as if they have emerged as a new research area, thus resulting in significant progress. However, there are still many challenges in fluoroorganic chemistry, such as direct pentafluorosulfanylation of aromatic compounds. Fluorine in medicinal chemistry and chemical biology is rather immature, despite large successes in the pharmaceutical and agrochemical markets. The biological aspect of fluorine effects also needs to be deeply researched. Since I was in pharmaceutical sciences in the early stage of my career and am now in engineering, I would fuse these two areas for further progress in the field. I have been interested in thalidomide for over 15 years. Thalidomide was a popular drug for the relief of morning sickness in pregnant women in the 1950s; however, it was withdrawn from the market because of unexpected teratogenic side effects. Since the one of the enantiomers of thalidomide was responsible for these effects, we designed fluorinated thalidomide as a non-epimerizable isostere of thalidomide. The structural similarities between fluorinated and nonfluorinated thalidomide led us to expect that they have similar chemical, physiological, and biological properties. However, the results are more than unexpected. Their crystallographic structures, polarities, stabilities, and biological activities are very different. Furthermore, from the biological point of view, most of the properties of fluorinated thalidomide are beneficial. Thus, fluorine is not just a small atom next to hydrogen for designing isosteres, but also an "eccentric" atom that can generate something unexpected.

My 5 top papers:

1. "Enantioselective Fluorination Mediated by Cinchona Alkaloid Derivatives/Selectfluor Combinations: Reaction Scope and Structural Information for *N*-Fluorocinchona Alkaloids": N. Shibata, E. Suzuki, T. Asahi, M. Shiro, *J. Am. Chem. Soc.* **2001**, *123*, 7001 – 7009.
   Established a fundamentally new approach to enantioselective electrophilic fluorination.
2. "Highly Enantioselective Catalytic Fluorination and Chlorination Reactions of Carbonyl Compounds Capable of Two-Point Binding": N. Shibata, J. Kohno, K. Takai, T. Ishimaru, S. Nakamura, T. Toru, S. Kanemasa, *Angew. Chem. Int. Ed.* **2005**, *44*, 4204 – 4207; *Angew. Chem.* **2005**, *117*, 4276 – 4279.
   Achievement of extremely high enantioselectivities for catalytic enantioselective electrophilic fluorination reactions.
3. "Fluorobis(phenylsulfonyl)methane: A Fluoromethide Equivalent and Palladium-Catalyzed Enantioselective Allylic Monofluoromethylation": T. Fukuzumi, N. Shibata, M. Sugiura, H. Yasui, S. Nakamura, T. Toru, *Angew. Chem. Int. Ed.* **2006**, *45*, 4973 – 4977; *Angew. Chem.* **2006**, *118*, 5095 – 5099.
   Debut paper of the title compound as a fluoromethide equivalent.
4. "Efficient Access to Extended Yagupolskii – Umemoto-Type Reagents: Triflic Acid Catalyzed Intramolecular Cyclization of *ortho*-Ethynylaryltrifluoromethylsulfanes": A. Matsnev, S. Noritake, Y. Nomura, E. Tokunaga, S. Nakamura, N. Shibata, *Angew. Chem. Int. Ed.* **2010**, *49*, 572 – 576; *Angew. Chem.* **2010**, *122*, 582 – 586.
   Electrophilic trifluoromethylation can be achieved with high yields. This paper is in memory of Professor Lev Moiseevich Yagupolskii.
5. "Kinetic Resolution of Allyl Fluorides by Enantioselective Allylic Trifluoromethylation Based on Silicon-Assisted C–F Bond Cleavage": T. Nishimine, K. Fukushi, N. Shibata, H. Taira, E. Tokunaga, A. Yamano, M. Shiro, N. Shibata, *Angew. Chem. Int. Ed.* **2014**, *53*, 517 – 520; *Angew. Chem.* **2014**, *126*, 527 – 530.
   Three important issues in fluorine chemistry, i.e., C–F bond activation, asymmetric trifluoromethylation, and kinetic resolution of monofluorinated compounds, in a single reaction.

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The work of N. Shibata has been featured on the cover of Angewandte Chemie: "Stereoselective Synthesis of Vinyl Triflones and Heteroaryl Triflones through Anionic O→C_{vinyl} and N→C_{vinyl} Trifluoromethanesulfonyl Migration Reactions": X.-H. Xu, M. Taniguchi, X. Wang, E. Tokunaga, T. Ozawa, H. Masuda, N. Shibata, *Angew. Chem. Int. Ed.* **2013**, *52*, 12628 – 12631; *Angew. Chem.* **2013**, *125*, 12860 – 12863.