

Yuichiro AIBA, Ph. D. (Associate Professor)

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Place of Birth Toyama, Japan



EDUCATION:

Mar. 2005	B.S.	Department of Chemistry and Biotechnology, Faculty of Engineering, The University of Tokyo, Tokyo, Japan
Mar. 2007	M.S. in Chemistry	Department of Chemistry and Biotechnology, School of Engineering, The University of Tokyo, Tokyo, Japan
Mar. 2010	Ph.D. in Chemistry	Department of Chemistry and Biotechnology, School of Engineering, The University of Tokyo, Tokyo, Japan (Prof. Makoto Komiyama)

ACADEMIC APPOINTMENTS:

Apr. 2010 – Mar. 2011	<u>Project Assistant Professor</u>	Research Center for Advanced Science and Technology, The University of Tokyo, Japan (Prof. Makoto Komiyama)
Apr. 2011 – Mar. 2012	<u>Project Assistant Professor</u>	Department of Chemistry and Biotechnology, School of Engineering, The University of Tokyo, Japan
Jul. 2015 – Jun. 2020	<u>Assistant Professor</u>	Department of Chemistry, Graduate School of Science, Nagoya University, Japan (Prof. Yoshihito Watanabe & Prof. Osami Shoji)
Jul. 2020 – Mar. 2021	<u>Associate Professor / Lecturer</u>	Department of Chemistry, Graduate School of Science, Nagoya University, Japan (Prof. Osami Shoji)
Apr. 2021 – present	<u>Associate Professor</u>	Department of Chemistry, Graduate School of Science, Nagoya University, Japan (Prof. Osami Shoji)

PROFESSIONAL AND RESEARCH APPOINTMENTS:

- Apr. 2007 – Mar. 2010 Research Fellow (DC1) of JSPS
the Japan Society for the Promotion of Science, Japan
- Sep. 2008 – Nov. 2008 Visiting Researcher,
Department of Chemistry, University of Turku, Finland
(Prof. Harri Lönnberg)
- Apr. 2012 – Sep. 2012 Researcher
Life Science Center of TARA, University of Tsukuba, Japan
(Prof. Makoto Komiyama)
- Sep. 2012 – Sep. 2014 JSPS Postdoctoral Fellow for Research Abroad
the Japan Society for the Promotion of Science, Japan
- Sep. 2012 – Jun. 2015 Postdoctoral Research Fellow II
Department of Pharmacology, University of Texas Southwestern Medical
Center, USA (Prof. David R. Corey)
- Nov. 2015 – present Visiting researcher
SPRING-8 Center, RIKEN, Japan

AWARDS:

- Feb. 2012 Inoue Research Award for Young Scientists,
Inoue Foundation for Science
- Jun. 2012 Presentation Award for Young Scientists of 22nd symposium on Polymers
and Biosciences,
Research Group on Polymers and Biosciences, The Society of Polymer
Science, Japan

RESEARCH INTERESTS:

Nucleic Acid Chemistry:

Development of a novel artificial nucleic acid based on PNA and its application to genetic engineering, Nucleic acid diagnostic tools and nucleic acid medicines utilizing PNA invasion

Biological Chemistry:

Peptide & protein engineering, Functionalization of hemoproteins by chemical modification

KEYWORDS:

PNA, peptide nucleic acid, invasion, DNA, RNA, peptide, protein, biopolymer, heme

SELECTED PUBLICATIONS:

1. H. Nanaura, H. Kawamukai, A. Fujiwara, T. Uehara, Y. Aiba, M. Nakanishi, T. Shiota, M. Hibino, P. Wiriyasermkul, S. Kikuchi, R. Nagata, M. Matsubayashi, Y. Shinkai, T. Niwa, T. Mannen, N. Morikawa, N. Iguchi, T. Kiriyaama, K. Morishima, R. Inoue, M. Sugiyama, T. Oda, N. Kodera, S. Toma-Fukai, M. Sato, H. Taguchi, S. Nagamori, O. Shoji, K. Ishimori, H. Matsumura, K. Sugie, T. Saio*, T. Yoshizawa*, and E. Mori*
"C9orf72-derived arginine-rich poly-dipeptides impede phase modifiers" *Nat. Commun.*, **12**, 5301 (2021)
2. M. Hibino, Y. Aiba*, and O. Shoji*
"Cationic guanine: positively charged nucleobase with improved DNA affinity inhibits self-duplex formation." *Chem. Commun.*, **56**, 2546-2549 (2020)
✳Selected as an inside back cover
3. O. Shoji*, Y. Aiba, and Y. Watanabe* "
"Hoodwinking Cytochrome P450BM3 into Hydroxylating Non-Native Substrates by Exploiting Its Substrate Misrecognition." *Acc. Chem. Res.*, **52**, 925-934 (2019)
4. S. Ariyasu, Y. Kodama, C. Kasai, Z. Q. Cong, J. K. Stanfield, Y. Aiba, Y. Watanabe, and O. Shoji*
"Development of a High-Pressure Reactor Based on Liquid-Flow Pressurisation to Facilitate Enzymatic Hydroxylation of Gaseous Alkanes." *ChemCatChem*, **11**, 4709-4714 (2019)
✳Selected as a cover picture and a cover profile
5. M. Hibino, Y. Aiba*, Y. Watanabe, and O. Shoji*
"Peptide Nucleic Acid Conjugated with Ru-complex Stabilizing Double-Duplex Invasion Complex Even under Physiological Conditions." *ChemBioChem*, **19**, 1601-1604 (2018)
✳Selected as a cover
6. K. Omura, Y. Aiba, H. Onoda, J. K. Stanfield, S. Ariyasu, H. Sugimoto, Y. Shiro, O. Shoji*, and Y. Watanabe*
"Reconstitution of full-length P450BM3 with an artificial metal complex by utilising the transpeptidase Sortase A." *Chem. Commun.*, **54**, 7892-7895, (2018)
✳Selected as a cover
7. Y. Aiba, J. Hu, J. Liu, Q. Xiang, C. Martinez, and D. R. Corey*
"Allele-Selective Inhibition of Expression of Huntingtin and Ataxin-3 by RNA Duplexes Containing Unlocked Nucleic Acid Substitutions." *Biochemistry*, **52**, 9329-9338 (2013)
✳Highlighted on the journal's home page, Highlighted in Chemical & Engineering News
8. Y. Aiba, J. Sumaoka, and M. Komiyama*
"Artificial DNA Cutters for DNA Manipulation and Genome Engineering." *Chem. Soc. Rev.*, **40**, 5657-5668 (2011)
✳Selected as an inside cover

9. M. Komiyama*, Y. Aiba, Y. Yamamoto, and J. Sumaoka
"Artificial restriction DNA cutter for site-selective scission of double-stranded DNA with tunable scission-site and specificity." *Nat. Protoc.* **3**, 655–662 (2008)
10. M. Komiyama*, Y. Aiba, T. Ishizuka, and J. Sumaoka
"Solid-phase synthesis of pseudo-complementary peptide nucleic acids." *Nat. Protoc.* **3**, 646–654 (2008)