

## ***Curriculum Vitae***

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### **Masato Ikeda, Ph D**

Nationality: Japan

*Professor*

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### **Research experience and education**

#### **Educations**

1994.4–1998.3 B. S. Kyushu University

1998.4–2000.3 M. S. Kyushu University

2000.4–2002.12 Ph. D. Supervisor: Prof. Seiji Shinkai, Department of Chemistry and Biochemistry,  
Graduate School of Engineering, Kyushu University

#### **Research experience**

2003.4–2004.3 *PostDoc (JSPS)*, Institut de Science et d'Ingénierie Supramoléculaires, Strasbourg  
University, France  
(Prof. Jean-Marie Lehn Lab).

2004.4–2006.3 *Researcher* at JST ERATO project (Prof. Eiji Yashima Lab)

2006.4–2007.2 *Assistant Professor*, Department of Chemistry and Biochemistry, Graduate School  
of Engineering, Kyushu University  
(Prof. Seiji Shinkai Lab)

2007.3–2012.3 *Assistant Professor*, Department of Synthetic Chemistry & Biological Chemistry,  
Graduate School of Engineering, Kyoto University  
(Prof. Itaru Hamachi Lab)

2012.4–2017.3 *Associate Professor*, Department of Biomolecular Science (from 2013.4–  
Department of Chemistry and Biomolecular Science), Faculty of Engineering,  
Gifu University (Prof. Yukio Kitade Lab)

2017.4–Present *Professor*, Department of Chemistry and Biomolecular Science, Faculty of  
Engineering, Gifu University

2012.9–Present *Professor* (Concurrent post), United Graduate School of Drug Discovery and Medical Information Sciences, Gifu University

2016.10–Present *Professor* (Concurrent post), Center for Highly Advanced Integration of Nano and Life Sciences, Gifu University (G-CHAIN)

### Honors and awards

- Chemical Society of Japan Award for Young Chemists (2011)
- Award for Researches on Chemical and Biological Materials from Japan Bioindustry Association (2014)
- the Young Scientists' Prize of the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology, Japan (2015)

### Research Interests

Supramolecular materials and molecular hybrids for bio-applications.

### Publications

1. Ring rotation controversy in cerium(IV) bis(tetraarylporphyrinate) double deckers: HPLC evidence for question to rotate or not to rotate, Masayuki Takeuchi, Tomoyuki Imada, Masato Ikeda, Seiji Shinkai, *Tetrahedron Lett.*, 39 (43), 7898–7900 (1998).
2. Efficient chirality transcription utilizing a cerium(IV) double decker porphyrin: a prototype for development of a molecular memory system, Atsushi Sugasaki, Masato Ikeda, Masayuki Takeuchi, Seiji Shinkai, *J. Chem. Soc., Perkin Trans.*, 1, 1999 (22), 3259–3264 (1999).
3. Meso-meso-linked porphyrin dimer as a novel scaffold for the selective binding of oligosaccharides, Masato Ikeda, Atsuhiko Osuka, Seiji Shinkai, *Chem. Commun.*, 2000 (12), 1047–1048 (2000).
4. Allosteric silver(I) ion binding with peripheral  $\pi$  clefts of a Ce(IV) double decker porphyrin, Masato Ikeda, Tomoyuki Tanida, Masayuki Takeuchi, Seiji Shinkai, *Organic Lett.*, 2 (13), 1803–1805 (2000).
5. The first example of positive allostereism in an aqueous saccharide-binding system designed on a Ce(IV) bis(porphyrinate) double decker scaffold, Atsushi Sugasaki, Masato Ikeda, Masayuki Takeuchi, Kazuya Koumoto, Seiji Shinkai, *Tetrahedron*, 56 (27), 4717–4723 (2000).
6. Novel oligosaccharide binding to Cerium(IV) bis(porphyrinate) double decker: effective amplification of a binding signal through positive homotropic allostereism, Atsushi Sugasaki, Masato Ikeda, Masayuki Takeuchi, Seiji Shinkai, *Angew. Chem. Int. Ed. Engl.*, 39 (21), 3839–3842 (2000).
7. An attempt to predict the gelation ability of hydrogen-bond-based gelators utilizing a glycoside library, Roman Luboradzki, Oliver Gronwald, Masato Ikeda, Seiji Shinkai, David N. Reinhoudt, *Tetrahedron*, 56 (49), 9595–9599 (2000).
8. Strong positive allostereism which appears in molecular recognition with cerium(IV) double decker porphyrins: correlation between the number of binding sites and hill coefficients, Masato Ikeda, Masayuki Takeuchi, Atsushi Sugasaki, Andrew Robertson, Tomoyuki Imada, Seiji Shinkai, *Supramolecular Chem.*, 12 (3), 321–345 (2000).
9. Synthesis of new diaryl-substituted triple-decker and tetraaryl-substituted double-decker lanthanum(III) porphyrins and their porphyrin ring rotational speed as compared with that of double-decker cerium(IV) porphyrins, Masato Ikeda, Masayuki Takeuchi, Seiji Shinkai, Fumito Tani, Yoshinori Naruta, *Bull. Chem. Soc. Jpn.*, 74 (4), 739–746 (2001).

10. Allosteric binding of K<sup>+</sup> to crown ether macrocycles appended to a lanthanum double decker system, Andrew Robertson, Masato Ikeda, Masayuki Takeuchi, Seiji Shinkai, *Bull. Chem. Soc. Jpn.*, 74 (5), 883–888 (2001).
11. Efficient anion binding to cerium(IV) bis(porphyrinate) double decker utilizing positive homotropic allostereism, Masashi Yamamoto, Atsushi Sugasaki, Masato Ikeda, Masayuki Takeuchi, Karine Frimat, Tony D. James, Seiji Shinkai, *Chem. Lett.*, 12, 520–521 (2001).
12. [60]Fullerene can reinforce the organogel structure of porphyrin-appended cholesterol derivatives: novel odd-even effect of the (CH<sub>2</sub>)<sub>n</sub> spacer on the organogel stability, Tsutomu Ishi-I, Ritsuko Iguchi, Erwin Snip, Masato Ikeda, Seiji Shinkai, *Langmuir*, 17 (19), 5825–5833 (2001).
13. A porphyrin tetramer for a positive homotropic allosteric recognition system: efficient binding information transduction through butadiynyl axis rotation, Yohei Kubo, Masato Ikeda, Atsushi Sugasaki, Masayuki Takeuchi, Seiji Shinkai, *Tetrahedron Lett.*, 42 (42), 7435–7438 (2001)
14. First successful molecular design of an artificial Lewis oligosaccharide binding system utilizing positive homotropic allostereism, Atsushi Sugasaki, Kazunori Sugiyasu, Masato Ikeda, Masayuki Takeuchi, Seiji Shinkai, *J. Am. Chem. Soc.*, 123 (42), 10239–10244 (2001).
15. Porphyrin polygons: a new synthetic strategy for cyclic porphyrin oligomers utilizing a porphyrin double decker structure, Masato Ikeda, Atsushi Sugasaki, Yohei Kubo, Kazunori Sugiyasu, Masayuki Takeuchi, Seiji Shinkai, *Chem. Lett.*, 12, 1266–1267 (2001).
16. Positive allosteric systems designed on dynamic supramolecular scaffolds: toward switching and amplification of guest affinity and selectivity, Seiji Shinkai, Masato Ikeda, Atsushi Sugasaki, Masayuki Takeuchi, *Acc. Chem. Res.*, 34 (6), 494–503 (2001).
17. Molecular design of artificial molecular and ion recognition systems with allosteric guest responses, Masayuki Takeuchi, Masato Ikeda, Atsushi Sugasaki, Seiji Shinkai, *Acc. Chem. Res.*, 34 (11), 865–873 (2001).
18. Cooperative C<sub>60</sub> binding to a porphyrin tetramer arranged around a *p*-terphenyl axis in 1:2 host-guest stoichiometry, Yohei Kubo, Atsushi Sugasaki, Masato Ikeda, Kazunori Sugiyasu, Kenshi Sonoda, Atsushi Ikeda, Masayuki Takeuchi, Seiji Shinkai, *Organic Lett.*, 4 (6), 925–928 (2002).
19. A porphyrin-based gelator assembly which is reinforced by peripheral urea groups and chirally twisted by chiral urea additives, Shun-ichi Tamaru, Shin-ya Uchino, Masayuki Takeuchi, Masato Ikeda, Tsukasa Hatano, Seiji Shinkai, *Tetrahedron Lett.*, 43 (20), 3751–3755 (2002).
20. Construction of nonlinear response systems utilizing molecular machines, Masato Ikeda, Masayuki Takeuchi, Seiji Shinkai, *J. Synth. Org. Chem. Jpn.*, 60 (12), 1201–1209 (2002).
21. Allosteric binding of an Ag<sup>+</sup> ion to cerium(IV) bis-porphyrinates enhances the rotational activity of porphyrin ligands, Masato Ikeda, Masayuki Takeuchi, Seiji Shinkai, Fumito Tani, Yoshinori Naruta, Shigeru Sakamoto, Kentaro Yamaguchi, *Chem. –Eur. J.*, 8 (24), 5541–5550 (2002).
22. Allosteric saccharide sensing by a phenylboronic-acids-appended 5,15-bis(triarylethynyl)porphyrin, Osamu Hirata, Masashi Yamamoto, Kazunori Sugiyasu, Yohei Kubo, Masato Ikeda, Masayuki Takeuchi, Seiji Shinkai, *J. Supramole. Chem.*, 2 (1-3), 133–143 (2002).
23. Electropolymerization of bithienyl-appended cerium(III) triple decker porphyrin complex, Kousei Yamashita, Masato Ikeda, Masayuki Takeuchi, Seiji Shinkai, *Chem. Lett.*, 32 (3), 264–265 (2003).
24. A colorimetric and ratiometric fluorescent chemosensor with three emission changes: fluoride ion sensing by a triarylborane-porphyrin conjugate, Yohei Kubo, Masashi Yamamoto, Masato Ikeda, Masayuki Takeuchi, Seiji Shinkai, Shigehiro Yamaguchi, Kohei Tamao, *Angew. Chem. Int. Ed.*, 42 (18), 2036–2040 (2003).
25. Unusual emission properties of a triphenylene-based organogel system, Masato Ikeda, Masayuki Takeuchi, Seiji Shinkai, *Chem. Commun.*, 2003 (12), 1354–1355 (2003).
26. Rod-like architecture and helicity of the poly(C)/schizophyllan complex observed by AFM and SEM, Ah-Hyun Bae, Seung-Woo Lee, Masato Ikeda, Masahito Sano, Seiji Shinkai, Kazuo Sakurai, *Carbohydr. Res.*, 339 (2), 251–258 (2004).
27. Metal ion induced allosteric transition in the catalytic activity of an artificial phosphodiesterase, Shinji Takebayashi, Masato Ikeda, Masayuki Takeuchi, Seiji Shinkai, *Chem. Commun.*, 2004 (4), 420–421 (2004).
28. TICT induced fluorescence color change actualized in an organogel system, Yuya Iwashita, Kazunori Sugiyasu, Masato Ikeda, Norifumi Fujita, Seiji Shinkai, *Chem. Lett.*, 33 (9), 1124–1125 (2004).

29. Hierarchical self-assembly of a bow-shaped molecule bearing self-complementary hydrogen bonding sites into extended supramolecular assemblies, Masato Ikeda, Tadahito Nobori, Marc Schmutz, Jean-Marie Lehn, *Chem. –Eur. J.*, 11 (2), 662–668 (2005).
30. Construction of double-stranded metallosupramolecular polymers with a controlled helicity by combination of salt bridges and metal coordination, Masato Ikeda, Yoshie Tanaka, Takashi Hasegawa, Yoshio Furusho, Eiji Yashima, *J. Am. Chem. Soc.*, 128 (21), 6806–6807 (2006).
31. A luminescent poly(phenylenevinylene)–amylose composite with supramolecular liquid crystallinity, Masato Ikeda, Yoshio Furusho, Kento Okoshi, Sayaka Tanahara, Katsuhiko Maeda, Shunsuke Nishino, Tatsuo Mori, Eiji Yashima, *Angew. Chem. Int. Ed.*, 45 (39), 6491–6495 (2006).
32.  $\alpha$ -1,3-glucan (schizophyllan) can act as a one-dimensional host for creating chirally twisted poly(*p*-phenylene ethynylene), Munenori Numata, Tomohisa Fujisawa, Chun Li, Shunichi Haraguchi, Masato Ikeda, Kazuo Sakurai, Seiji Shinkai, *Supramol. Chem.*, 19 (1-2), 107–113 (2007).
33. Dynamic rotational oscillation of cerium(IV) bis(porphyrinate) and its control by diamine guest binding with positive homotropic allostereism, Masato Ikeda, Yohei Kubo, Kousei Yamashita, Tomohiro Ikeda, Masayuki Takeuchi, Seiji Shinkai, *Eur. J. Org. Chem.*, 2007 (12), 1883–1886 (2007).
34. Instantaneous inclusion of a polynucleotide and hydrophobic guest molecules into a helical core of cationic  $\alpha$ -1,3-glucan polysaccharide, Masato Ikeda, Teruaki Hasegawa, Munenori Numata, Kouta Sugikawa, Kazuo Sakurai, Michiya Fujiki, Seiji Shinkai, *J. Am. Chem. Soc.*, 129 (13), 3979–3988 (2007).
35. Complex formation between cationic  $\alpha$ -1,3-glucan and hetero-sequence oligodeoxynucleotide and its delivery into macrophage-like cell to induce cytokine secretion, Masato Ikeda, Jusaku Minari, Naohiko Shimada, Munenori Numata, Kazuo Sakurai, Seiji Shinkai, *Org. Biol. Chem.*, 5 (14), 2219–2224 (2007).
36. Photoresponsive double-stranded helices composed of complementary strands, Yoshio Furusho, Yoshie Tanaka, Takeshi Maeda, Masato Ikeda, Eiji Yashima, *Chem. Commun.*, 2007 (30), 3174–3176 (2007).
37. Controlled stability of the triple-stranded helical structure of a  $\alpha$ -1,3-glucan with a chromophoric aromatic moiety at peripheral position, Masato Ikeda, Shuichi Haraguchi, Munenori Numata, Seiji Shinkai, *Chem. –Asian J.*, 2 (10), 1290–1298, (2007).
38. Application of soluble poly(phenylenevinylene) wrapped in amylose to organic light-emitting diodes, Shunsuke Nishino, Tatsuo Mori, Sayaka Tanahara, Katsuhiko Maeda, Masato Ikeda, Yoshio Furusho, Eiji Yashima, *Mol. Cryst. Liq. Cryst.*, 471, 29–38, (2007).
39. Metal ion induced allosteric transition in the catalytic activity of an artificial phosphodiesterase, Shinji Takebayashi, Seiji Shinkai, Masato Ikeda, Masayuki Takeuchi, *Org. Biol. Chem.*, 6 (3), 493–499 (2008).
40. Photo gel-sol/sol-gel transition and its patterning of a supramolecular hydrogel as stimuli-responsive biomaterials, Shinji Matsumoto, Satoshi Yamaguchi, Shiori Ueno, Harunobu Komatsu, Masato Ikeda, Koji Ishizuka, Yuko Iko, Kazuhito V. Tabata, Hiroyuki Aoki, Shinzaburo Ito, Hiroyuki Noji, Itaru Hamachi, *Chem. –Eur. J.*, 14 (34), 3977–3986 (2008).
41. Photo-responsive gel droplet as a nano- or pico-litre container comprising a supramolecular hydrogel, Shinji Matsumoto, Satoshi Yamaguchi, Atsuhiko Wada, Toshihiro Matsui, Masato Ikeda, Itaru Hamachi, *Chem. Commun.*, 2008 (13), 1545–1547 (2008).
42. Mechanical reinforcement of a supramolecular hydrogel comprising an artificial glyco-lipid through supramolecular copolymerization, Masato Ikeda, Yusuke Shimizu, Shinji Matsumoto, Harunobu Komatsu, Shun-ichi Tamaru, Toshikazu Takigawa, Itaru Hamachi, *Macromol. Biosci.*, 8 (11), 1019–1025 (2008).
43. Three-dimensional encapsulation of live cells by using a hybrid matrix of nanoparticles in a supramolecular hydrogel, Masato Ikeda, Shiori Ueno, Shinji Matsumoto, Yusuke Shimizu, Harunobu Komatsu, Ken-ichi Kusumoto, and Itaru Hamachi, *Chem. –Eur. J.*, 14 (13), 10808–10815 (2008).
44. MCM-enzyme-supramolecular hydrogel hybrid as a fluorescence sensing material for polyanions of biological significance, Atsuhiko Wada, Shun-ichi Tamaru, Masato Ikeda, Itaru Hamachi, *J. Am. Chem. Soc.*, 131 (14), 5321–5330 (2009).
45. Supramolecular hydrogel exhibiting four basic logic gate functions to fine-tune substance release, Harunobu Komatsu, Shinji Matsumoto, Shun-ichi Tamaru, Kenji Kaneko, Masato Ikeda, Itaru Hamachi, *J. Am. Chem. Soc.*, 131 (15), 5580–5585 (2009).

46. Fluidic supramolecular nano- and microfibrils as molecular rails for regulated movement of nanosubstances, Shun-ichi Tamaru, [Masato Ikeda](#), Yusuke Shimidzu, Shinji Matsumoto, Shoji Takeuchi, Itaru Hamachi, *Nat. Commun.*, 1, 20 doi: 10.1038 / ncomms1018, (2010).
47. Supramolecular hydrogel capsule showing prostate specific antigen-responsive function for sensing and targeting prostate cancer cells, [Masato Ikeda](#), Rika Ochi, Atsuhiko Wada and Itaru Hamachi, *Chem. Sci.*, 1 (4), 491–498 (2010)
48. Supramolecular hydrogel-based protein and chemosensor array, [Masato Ikeda](#), Rika Ochi, Itaru Hamachi, *Lab Chip*, 10 (24), 3325–3334 (2010).
49. Montmorillonite–supramolecular hydrogel hybrid for fluorocolorimetric sensing of polyamines, [Masato Ikeda](#), Tatsuyuki Yoshii, Toshihiro Matsui, Tatsuya Tanida, Harunobu Komatsu, Itaru Hamachi, *J. Am. Chem. Soc.*, 133 (6), 1670–1673 (2011).
50. Mechanical reinforcement of supramolecular hydrogel through incorporation of multiple noncovalent interactions, Harunobu Komatsu, [Masato Ikeda](#), Itaru Hamachi, *Chem. Lett.*, 40 (2), 198–200 (2011).
51. Synthesis of complementary double-stranded helical oligomers through chiral and achiral amidinium-carboxylate salt bridges and chiral amplification in their double-helix formation. Hiroshi Ito, [Masato Ikeda](#), Takashi Hasegawa, Yoshio Furusho, Eiji Yashima, *J. Am. Chem. Soc.*, 133 (10), 3419–3432 (2011).
52. Rational molecular design of stimulus-responsive supramolecular hydrogel based on dipeptides, [Masato Ikeda](#), Tatsuya Tanida, Tatsuyuki Yoshii, Itaru Hamachi, *Adv. Mater.*, 23 (25), 2819–2822 (2011).
53. Stiff, multistimuli-responsive supramolecular hydrogels as unique molds for 2D/3D microarchitectures of live cells, Harunobu Komatsu, Shinya Tsukiji, [Masato Ikeda](#), Itaru Hamachi, *Chem. –Asian J.*, 6 (9), 2368–2375 (2011).
54. Meter-long and robust supramolecular strands encapsulated in hydrogel jackets, Daisuke Kiriya, [Masato Ikeda](#), Hiroaki Onoe, Masahiro Takinoue, Harunobu Komatsu, Yuto Shimoyama, Itaru Hamachi, and Shoji Takeuchi, *Angew. Chem. Int. Ed.*, 51 (7), 1553–1557 (2012).
55. A supramolecular hydrogel containing boronic acid-appended receptor for fluorocolorimetric sensing of polyols with a paper platform, [Masato Ikeda](#), Keisuke Fukuda, Tatsuya Tanida, Tatsuyuki Yoshii and Itaru Hamachi, *Chem. Commun.*, 48 (21), 2716–2718 (2012).
56. Heat-induced morphological transformation of supramolecular nanostructures by retro-diels-alder reaction, [Masato Ikeda](#), Rika Ochi, Yu-shi Kurita, Darrin J. Pochan, Itaru Hamachi, *Chem. –Eur. J.*, 18 (41), 13091–13096 (2012).
57. Bioinspired supramolecular materials, [Masato Ikeda](#), *Bull. Chem. Soc. Jpn.*, 86 (1), 10–24 (2013).
58. Supramolecular hydrogels based on bola-amphiphilic glycolipids showing color change in response to glycosidases, Rika Ochi, Kazuya Kurotani, [Masato Ikeda](#), Shigeki Kiyonaka, Itaru Hamachi, *Chem. Commun.*, 49 (21), 2115–2117 (2013)
59. Design of peptide-based bolaamphiphile exhibiting heat-set hydrogelation *via* retro-Diels-Alder reaction, Rika Ochi, Takashi Nishida, Masato Ikeda, Itaru Hamachi, *J. Mater. Chem. B*, 2 (11), 1464–1469 (2014).
60. Synthesis of ethynylbenzene-substituted glycol as a versatile probe for labeling oligonucleotides, Qin Ren, Kana Tsunaba, Yoshiaki Kitamura, Remi Nakashima, Aya Shibada, [Masato Ikeda](#), Yukio Kitade, *Bioorg. Med. Chem. Lett.*, 24 (6), 1464–1469 (2014).
61. Installing Logic-Gate Response to a Variety of Biological Substances in Supramolecular Hydrogel-Enzyme Hybrids, [Masato Ikeda](#), Tatsuya Tanida, Tatsuyuki Yoshii, Kazuya Kurotani, Shoji Onogi, Kenji Urayama, Itaru Hamachi, *Nat. Chem.*, 6 (6), 511–518 (2014).
62. Two-photon responsive supramolecular hydrogel for controlling materials motion in micrometer space, Tatsuyuki Yoshii, [Masato Ikeda](#), Itaru Hamachi, *Angew. Chem., Int. Ed.*, 53 (28), 7264–7267 (2014).
63. Pro-apoptotic Peptide Amphiphile Self-Assembled with the Assistance of Polycations, [Masato Ikeda](#), Maika Kawakami, Yukio Kitade, *Chem. Lett.*, 44 (8), 1137–1139 (2015)
64. New Solid Phase Submonomer Synthesis of Arylopeptoid Oligomers Using Reductive Amination, [Masato Ikeda](#), Keito Horio, Tomoya Tsuzuki, Ryo Torii, Aya Shibata, Yoshiaki Kitamura, Hiroshi Katagiri, Yukio Kitade, *Tetrahedron Lett.*, 56 (48), 6762–6729 (2015).

65. Practical and reliable synthesis of 1,2-dideoxy-D- ribofuranose and its application in RNAi studies, Yuki Nagaya, Yoshiaki Kitamura, Remi Nakashima, Aya Shibata, Masato Ikeda, Yukio Kitade, *Nucleos. Nucleot. Nucl.*, 35 (2), 64–75 (2016).
66. In situ real-time imaging of self-sorted supramolecular nanofibers, Shoji Onogi, Hajime Shigemitsu, Tatsuyuki Yoshii, Tatsuya Tanida, Masato Ikeda, Ryou Kubota, Itaru Hamachi, *Nat. Chem.*, 8 (8), 743–752 (2016).
67. Reduction-responsive guanine incorporated into G-quadruplex-forming DNA, Masato Ikeda, Masahiro Kamimura, Yukiko Hayakawa, Aya Shibata, Yukio Kitade, *ChemBioChem*, 17 (14), 1304–1307 (2016).
68. Preparation of supramolecular hydrogel-enzyme hybrids exhibiting biomolecule-responsive gel degradation, Hajime Shigemitsu, Takahiro Fujisaku, Shoji Onogi, Tatsuyuki Yoshii, Masato Ikeda, Itaru Hamachi, *Nat. Protoc.*, 11 (9) 1744–1756 (2016).
69. Synthesis of self-assembling arylopeptoid bearing hydrophilic polymer on the basis of soluble polymer-supported liquid-phase synthesis, Tomoya Tsuzuki, Hiroshi Katagiri, Yoshiaki Kitamura, Yukio Kitade, Masato Ikeda, *Tetrahedron*, 72 (43) 6886–6891 (2016).
70. Chemically caged nucleic acids, Masato Ikeda, Marina Kabumoto, *Chem. Lett.*, 46 (5) 634–640 (2017).
71. Nucleobase azide–ethynylribose click chemistry contributes to stabilizing oli- gonucleotide duplexes and stem-loop structures, Yoshiaki Kitamura, Ryo Asakura, Koki Terazawa, Aya Shibata, Masato Ikeda, Yukio Kitade, *Bioorg. Med. Chem. Lett.*, 27, 2655–2658 (2017).
72. Effect of carbohydrate structures on the hydrogelation ability and morphology of self- assembled structures of peptide–carbohydrate conjugates in water, Tomoya Tsuzuki, Marina Kabumoto, Hanae Arakawa, Masato Ikeda, *Org. Biomol. Chem.*, 15, 4595–4600 (2017).