

経歴書

2022年4月

木下 雄介

特任助教

北海道大学 化学反応創成研究拠点 (WPI-ICReDD)

〒001-0021 北海道札幌市北区北 21 条西 6 丁目

北海道大学 創成科学研究棟 4F 04-118

電話 +81-11-706-9679

E-mail: y_kinoshtia@icredd.hokudai.ac.jp



学歴

- 2010年3月 立命館大学工学部化学生物工学科 卒業
- 2012年3月 立命館大学大学院理工学研究科創造理工学専攻博士課程前期課程 修了
- 2014年9月 立命館大学大学院生命科学研究科生命科学専攻博士課程後期課程 修了、博士（理学）取得

職歴

- 2014年10月 – 2017年3月 立命館大学総合科学技術研究機構 専門研究員
- 2017年4月 – 2022年3月 立命館大学生命科学部応用化学科 助教
- 2019年9月 – 2020年3月 英国ケンブリッジ大学化学科 客員研究員 (Jonathan R. Nitschke 教授)
- 2022年4月 北海道大学化学反応創成研究拠点 (WPI-ICReDD) 特任助教

論文リスト

38. R. Sato, H. Okajima, S. Sugiura, Y. Haketa, **Y. Kinoshita**, H. Tamiaki, A. Sakamoto, H. Maeda, Y. Kobayashi, "Excited-state dynamics of dipyrrolyldiketone difluoroboron complexes," *Phys. Chem. Chem. Phys.*, **24**, 1685–1691 (2022).
DOI: 10.1039/D1CP04804J
37. H. Ishikawa, A. Demise, Y. Kitagawa, Y. Shinozaki, **Y. Kinoshita**, H. Tamiaki "Difluoroboron complexes of peripheral β -diketonates in cyclophosphorides: Their syntheses and optical properties", *Tetrahedron*, **104**, (2021) 132596.

DOI: 10.1016/j.tet.2021.132596

36. **Y. Kinoshita**, A. Demise, H. Ishikawa, H. Tamiaki "Synthesis of 13²,17³-cyclophosphoribides and their optical properties," *J. Photochem. Photobiol. A: Chem.*, **420**, 113490 (2021).

DOI: 10.1016/j.jphotochem.2021.113490

35. K. Sakaguchi, M. Kishi, **Y. Kinoshita**, H. Tamiaki "Self-aggregation of synthetic zinc 3-hydroxymethyl-chlorophyll-*a* derivatives possessing electron-withdrawing groups at the 20-position in aqueous micelle solution," *J. Porphyrins Phthalocyanines*, **25**, 1104–1110 (2021).

DOI: 10.1142/S1088424621501017

34. J. Harada, T. Mizoguchi, **Y. Kinoshita**, K. Yamamoto, H. Tamiaki, "Over-expression of C8²-methyltransferase BchQ in the green sulfur bacterium *Chlorobaculum limnaeum* mutant strains of synthesis of C8-hyper-alkylated chlorosomal pigments," *J. Photochem. Photobiol. A: Chem.*, **404**, 112882 (2021).

DOI: 10.1016/j.jphotochem.2020.112882

33. S. Sasaki, Y. Hashimoto, **Y. Kinoshita**, H. Tamiaki, S. Duan, X-F. Wang, M. Yamashita, Y. Saga, H. Yamamoto, T. Ikeuchi, N. Shishioh, "Synthesis of C3/C13-substituted semi-synthetic bacteriochlorophyll-*a* derivatives and their properties as functional dyes," *ChemPhotoChem*, **4**, 5399–5407 (2020).

DOI: 10.1002/cptc.202000169

32. T. Takeda, A. Katayama, **Y. Kinoshita**, H. Tamiaki, "Synthesis of zinc oxime-functionalized chlorophyll-*a* derivatives and their (13¹E/Z)-dependent self-aggregation," *Tetrahedron*, **76**, 131300 (2020).

DOI: 10.1016/j.tet.2020.131300

31. Y. Kawamoto, **Y. Kinoshita**, H. Tamiaki, "Synthesis of tin(IV) complexes of chlorophyll-*a* derivatives with two halides as axial ligands and their optical properties in solution," *Tetrahedron*, **76**, 130948 (2020).

[Front cover of issue 8]

DOI: 10.1016/j.tet.2020.130948

30. K. Ohashi, **Y. Kinoshita**, H. Tamiaki, "Synthesis of chalcone-type chlorophyll derivatives possessing a bacteriochlorin, chlorin or porphyrin π -system and their optical properties," *Photochem. Photobiol.*, **95**, 755–761 (2019).

DOI: 10.1111/php.13044

29. Y. Kashiya, A. Yokoyama, T. Shiratori, S. Hess, F. Not, C. Bachy, A. Gutierrez-Rodriguez, J. Kawahara, T. Suzaki, M. Nakazawa, T. Ishikawa, M. Maruyama, M. Wang, M. Chen, Y. Gong, K. Seto, M. Kagami, Y. Hamamoto, D. Honda, T. Umetani, A. Shihongi, M. Kayama, T. Matsuda, J. Taira, A. Yabuki, M. Tsuchiya, Y. Hirakawa, A. Kawaguchi, M. Nomura, A. Nakamura, N. Namba, M. Matsumoto, T. Tanaka, T. Yoshino, R. Higuchi, A. Yamamoto, T. Maruyama, A.

- Yamaguchi, A. Uzuka, S. Miyagishima, G. Tanifuji, M. Kawachi, **Y. Kinoshita**, H. Tamiaki, "Taming chlorophylls by early eukaryotes underpinned algal interactions and the diversification of the eukaryotes on the oxygenated Earth," *ISME J.*, **13**, 1899–1910 (2019).
DOI: 10.1038/s41396-019-0377-0
28. **Y. Kinoshita**, J. Harada, T. Mizoguchi, H. Tamiaki, "Isolation and optical properties of epimerically pure bacteriochlorophyll-*f* homologs," *Dyes Pigm.*, **164**, 267–271 (2019).
DOI: 10.1016/j.dyepig.2019.01.041
27. C. Ota, K. Sugihara, **Y. Kinoshita**, Y. Kashiya, Y. Nagasawa, H. Tamiaki, "Ultrafast excited state dynamics of nonfluorescent cyclophorbide-*a* enol, catabolite of chlorophyll-*a* detoxified in algae-feeding aquatic microbes," *Photochem. Photobiol. Sci.*, **18**, 64–70 (2019).
DOI: 10.1039/C8PP00173A
26. H. Tamiaki, N. Hagio, S. Tsuzukia, Y. Cuia, T. Zoutaa, X. Wangb, **Y. Kinoshita**, "Synthesis of carboxylated chlorophyll derivatives and their activities in dye-sensitized solar cells," *Tetrahedron*, **74**, 4078–4085 (2018).
DOI: 10.1016/j.tet.2018.06.017
25. K. Miyata, S. Yasuda, T. Masuya, S. Ito, **Y. Kinoshita**, H. Tamiaki, T. Oba, "Facile iodination of the vinyl groups in protoporphyrin IX dimethyl ester and subsequent transformation of the iodinated moieties," *Tetrahedron*, **74**, 3707–3711 (2018).
DOI: 10.1016/j.tet.2018.05.040
24. K. Ohashi, **Y. Kinoshita**, H. Tamiaki, "Synthesis of chlorophyll-*a* derivatives possessing the 3-(2-acylethenyl) group by cross-aldol condensation and their optical properties," *Tetrahedron*, **74**, 2703–2715 (2018).
DOI: 10.1016/j.tet.2018.04.018
23. **Y. Kinoshita**, M. Kayama, Y. Kashiya, H. Tamiaki, "*In vivo* and *in vitro* preparation of divinyl-13²,17³-cyclophorbide-*a* enol," *Bioorg. Med. Chem. Lett.*, **28**, 1090–1092 (2018).
DOI: 10.1016/j.bmcl.2018.02.015
22. J. Harada, Y. Shibata, M. Teramura, T. Mizoguchi, **Y. Kinoshita**, K. Yamamoto, H. Tamiaki, "*In vivo* excited energy transfer of bacteriochlorophyll *c*, *d*, *e*, or *f* to bacteriochlorophyll *a* in the wild-type and mutant cells of the green sulfur bacterium *Chlorobaculum limnaeum*," *ChemPhotoChem*, **2**, 190–195 (2018).
DOI: 10.1002/cptc.201700164
21. T. Mizoguchi, **Y. Kinoshita**, J. Harada, S. Ogasawara, H. Tamiaki, "Light-dependent accumulation of new bacteriochlorophyll-*e* bearing a vinyl group at the 8-position in the green sulfur bacterium *Chlorobaculum limnaeum*," *J. Photochem. Photobiol. A: Chem.*, **358**, 356–361 (2018).
DOI: 10.1016/j.jphotochem.2017.08.071

20. K. Kim, K. Tsuji, **Y. Kinoshita**, T. Miyatake, H. Tamiaki, "Synthesis of monovinyl- and divinyl-chlorophyll analogs and their physical properties," *Tetrahedron*, **73**, 313–321 (2017).
DOI: 10.1016/j.tet.2016.12.003
19. T. Mizoguchi, **Y. Kinoshita**, J. Harada, H. Tamiaki, "Supramolecular organogelation of bacteriochlorophyll-*c* possessing an isobutyl substituent at the 8-position in carbon tetrachloride," *ChemPlusChem*, **82**, 595–597 (2017).
DOI: 10.1002/cplu.201600494
18. **Y. Kinoshita**, Y. Kitagawa, H. Tamiaki, "Enhancement of light absorption ability of synthetic chlorophyll derivatives by conjugation with difluoroboron diketonate group," *Chem. Eur. J.*, **22**, 9996–10001 (2016).
[Inside cover of issue number 29]
DOI: 10.1002/chem.201601882
17. M. Xu, **Y. Kinoshita**, S. Matsubara, H. Tamiaki, "Synthesis of chlorophyll-*c* derivatives by modifying natural chlorophyll-*a*," *Photosynth. Res.*, **127**, 335–345 (2016).
DOI: 10.1007/s11120-015-0190-1
16. **Y. Kinoshita**, H. Tamiaki, "Synthesis and self-aggregation of chlorophyll derivatives possessing a pyrazole ring at the C3 position," *J. Photochem. Photobiol. A: Chem.*, **313**, 27–35 (2015).
DOI: 10.1016/j.jphotochem.2015.04.018
15. M. Xu, **Y. Kinoshita**, H. Tamiaki, "Synthesis of chlorophyll-*f* analogs possessing the 2-formyl group by modifying chlorophyll-*a*," *Bioorg. Med. Chem. Lett.*, **24**, 3997–4000 (2014).
DOI: 10.1016/j.bmcl.2014.06.022
14. **Y. Kinoshita**, H. Tamiaki, "Regioselective addition of amines to the trifluoromethyl- β -diketonate moiety of a chlorophyll derivative." *J. Porphyrins Phthalocyanines*, **18**, 471–474 (2014).
DOI: 10.1142/S1088424614500217
13. H. Tamiaki, S. Matsunaga, Y. Taira, A. Wada, **Y. Kinoshita**, M. Kunieda, "Synthesis of zinc 20-substituted bacteriochlorophyll-*d* analogs and their self-aggregation," *Tetrahedron Lett.*, **55**, 3351–3354 (2014).
DOI: 10.1016/j.tetlet.2014.04.057
12. H. Tamiaki, M. Ohata, **Y. Kinoshita**, S. Machida, "Synthesis of 3²-nitro-chlorophyll-*a* derivatives and their electronic absorption/emission data," *Tetrahedron*, **70**, 1629–1634 (2014).
DOI: 10.1016/j.tet.2014.01.020
11. H. Tamiaki, S. Koizumi, K. Tsuji, **Y. Kinoshita**, T. Miyatake, "Synthesis of chlorophyll-*a* derivatives possessing (un)substituted 13¹-exo-methylene moiety and their optical properties," *Tetrahedron Lett.*, **55**, 1093–1096 (2014).
DOI: 10.1016/j.tetlet.2013.12.099
10. **Y. Kinoshita**, Y. Yamamoto, H. Tamiaki, "Synthesis, structure, and optical and redox properties

of chlorophyll derivatives directly coordinating ruthenium bispyridine at the peripheral β -diketonate moiety," *Inorg. Chem.*, **52**, 9275–9283 (2013).

DOI: 10.1021/ic400509q

9. H. Tamiaki, N. Ariki, H. Sugiyama, Y. Taira, **Y. Kinoshita**, T. Miyatake, "Synthesis of 3,20-disubstituted chlorophyll-*a* derivatives and reactivity of the substituents," *Tetrahedron*, **69**, 8412–8421 (2013).
DOI: 10.1016/j.tet.2013.07.060
8. Y. Kashiwama, A. Yokoyama, T. Shiratori, I. Inouye, **Y. Kinoshita**, T. Mizoguchi, H. Tamiaki, "¹³C,¹⁷O-Cyclophosphoribide *b* enol as a catabolite of chlorophyll *b* in phycophagy by protists," *FEBS Lett.*, **587**, 2578–2583 (2013).
DOI: 10.1016/j.febslet.2013.06.036
7. H. Tamiaki, R. Monobe, S. Koizumi, T. Miyatake, **Y. Kinoshita**, "Stereoselective reduction, methylation, and phenylation of the 13-carbonyl group in chlorophyll derivatives," *Tetrahedron: Asymmetry*, **24**, 677–682/967–972 (2013).
DOI: 10.1016/j.tetasy.2013.04.018/10.1016/j.tetasy.2013.06.009
6. H. Tamiaki, K. Azuma, **Y. Kinoshita**, R. Monobe, T. Miyatake, S. Sasaki, "Chemosensitive chlorophyll derivatives: Optical detection of various amines by synthetic 3-trifluoroacetyl-13¹-deoxy-pyropheophorbides in solution," *Tetrahedron*, **69**, 1987–1993 (2013).
DOI: 10.1016/j.tet.2012.12.072
5. **Y. Kinoshita**, M. Kunieda, Y. Mikata, H. Tamiaki, "Synthesis, crystal structure and electronic absorption of chlorophyll derivatives possessing a β -diketonate moiety at the C3 position," *Tetrahedron Lett.*, **54**, 1243–1246 (2013).
DOI: 10.1016/j.tetlet.2012.12.100
4. H. Tamiaki, M. Xu, **Y. Kinoshita**, "Synthesis of oxo-, thioxo- and methylene-substituted bacteriochlorins by modifying chlorophyll-*a* and their electronic absorption in visible and near-infrared regions," *J. Photochem. Photobiol. A: Chem.*, **252**, 60–68 (2013).
DOI: 10.1016/j.jphotochem.2012.10.022
3. H. Tamiaki, N. Kosaka, **Y. Kinoshita**, "Metallation of a cyclic chlorophyll hetero-dyad and optical properties of synthetic metallo-dyads," *Res. Chem. Int.*, **39**, 221–232 (2013).
DOI: 10.1007/s11164-012-0644-4
2. Y. Kashiwama, A. Yokoyama, **Y. Kinoshita**, S. Shoji, H. Miyashita, T. Shiratori, H. Suga, K. Ishikawa, A. Ishikawa, I. Inouye, K. Ishida, D. Fujinuma, K. Aoki, M. Kobayashi, S. Nomoto, T. Mizoguchi, H. Tamiaki, "Ubiquity and quantitative significance of chlorophyll detoxification catabolism associated with protistan herbivory in aqueous ecosystems," *Proc. Natl. Acad. Sci., USA*, **109**, 17328–17335 (2012).

[Selected as Feature Article, Front cover]

DOI: 10.1073/pnas.1207347109

1. A. Jesorka, A. R. Holzwarth, A. Eichhöfer, C. M. Reddy, **Y. Kinoshita**, H. Tamiaki, M. Katterle, J.-V. Naubron, T. S. Balaban, "Water coordinated zinc dioxo-chlorin and porphyrin self-assemblies as chlorosomal mimics: variability of the supramolecular interactions," *Photochem. Photobiol. Sci.*, **11**, 1069–1080 (2012).

DOI: 10.1039/C2PP25016K

受賞歴

1. 2022年3月 立命館大学生命科学部長表彰 若手教員奨励賞