

## Curriculum Vitae

### Kei Muto (武藤 慶)

Associate Professor (准教授 任期付)

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#### Date of Birth

April 22, 1988

#### Citizenship

Japanese

#### Education

- |           |   |
|-----------|---|
| 2007–2011 | B.S. in Chemistry, Nagoya University, Japan<br>(Prof. Kenichiro Itami), <i>March 2011</i>                       |
| 2011–2013 | M.S. Graduate Student in Chemistry, Nagoya University, Japan<br>(Prof. Kenichiro Itami), <i>March 2013</i>      |
| 2013–2015 | Ph.D. Graduate Student in Chemistry, Nagoya University, Japan<br>(Prof. Kenichiro Itami), <i>September 2015</i> |
| 2013–2015 | JSPS Research Fellowship for Young Scientists (DC1)   |
| 2012      | Visiting Student (May–August), Wuhan University, China (Prof. Aiwen Lei)  |

#### Academic Career

- |              |  |
|--------------|--|
| 2015–2016    | Postdoctoral Researcher, Institute of Transformative Bio-molecules, Nagoya University, Japan (Prof. Kenichiro Itami) |
| 2016–2018    | Assistant Professor (助教), Department of Applied Chemistry, Waseda University (with Prof. Junichiro Yamaguchi)        |
| 2016–2020    | Assistant Professor (講師), Department of Applied Chemistry, Waseda University (with Prof. Junichiro Yamaguchi)        |
| 2020–2022    | Assistant Professor (講師), Waseda Institute for Advanced Study, Waseda University (with Prof. Junichiro Yamaguchi)    |
| 2022–present | Associate Professor, Waseda Institute for Advanced Study, Waseda University (with Prof. Junichiro Yamaguchi)         |

#### Awards and Honor

1. 日本化学会 若い世代の特別講演証 (2022)
2. 有機合成化学協会研究企画賞 (中外製薬) (2020)
3. JXTG エネルギー優秀研究賞 (2018)
4. JXTG エネルギー優秀研究賞 (2017)
5. Inoue Research Award for Young Scientists (2017)
6. Reaxys PhD Prize Finalist (2016)
7. JSPS Ikushi Prize (日本学術振興会育志賞, 2016)
8. Nagoya University, Gakujutsu-Shorei Award (名古屋大学学術奨励賞, 2016)
9. CSJ Oral Student Presentation Award (Chemical Society of Japan 2014, The 94th Annual Meeting)
10. Annual Research Awards (Nagoya University Program for Leading Graduate Schools Annual Meeting 2013)

11. The 4th Otsu Conference Fellow (October 2013)
12. JSPS Fellowship for Young Scientist (DC1: 2013–2016)
13. Distinguished Master's Thesis Award 2012 in Department of Chemistry, Nagoya University (March 2013)
14. Nagoya University Graduate School of Science Award (March 2013)
15. Poster Award (The 59th Symposium on Organometallic Chemistry, Japan, September 2012)
16. Poster Award (The 29th Seminar on Synthetic Organic Chemistry, Japan, September 2012)
17. Poster Award (The 100th Symposium on Organic Synthesis, Japan, November 2011)

## Media

[Chem-Station Spotlight Research](#)

## Publications (Total 52. Original paper: 37; Review: 9; Book and others: 6)

- (41) TBA (Arene Difunctionalization)  
Fukuhara Y.; Kato, H.; Miyazaki, R.; Muto, K.; Yamaguchi, J.
- (40) Unified Synthesis of Multiply Arylated Alkanes by Catalytic Deoxygenative Transformation of Diarylketones  
Kurosawa, M. B.; Kato, K.; Muto, K.; Yamaguchi, J.\*  
*Chem. Sci.* **2022**, accepted.  
DOI: [10.1039/D2SC03720C](https://doi.org/10.1039/D2SC03720C)  
(See also: *ChemRxiv* **2022**, DOI: [10.26434/chemrxiv-2022-h1860](https://doi.org/10.26434/chemrxiv-2022-h1860))
- (39) Synthesis and Properties of Palladium–Triazolopyridinylidene: Catalyst for Cross-Coupling Using Chloroarenes and Nitroarenes  
Iizumi, K.; Nakayama, K. P.; Kato, K.; Muto, K.\*; Yamaguchi, J.\*  
*J. Org. Chem.* **2022**, ASAP.  
DOI:  
(See also: *ChemRxiv* **2022**, DOI [10.26434/chemrxiv-2022-qs9s9](https://doi.org/10.26434/chemrxiv-2022-qs9s9))
- (38) Identification of  $\alpha$ -Synuclein Proaggregator: Rapid Synthesis and Streamlining RT-QuIC Assays in Parkinson's Disease  
Takada, F.; Kasahara, T.; Otake, K.; Maru, T.; Miwa, M.; Muto, K.; Sasaki, M.; Hirozane, Y.; Yoshikawa, M.\*; Yamaguchi, J.\*  
*ACS Med. Chem. Lett.* **2022**, accepted  
DOI: [10.1021/acsmchemlett.2c00138](https://doi.org/10.1021/acsmchemlett.2c00138)
- (37) Pd-Catalyzed 1,4-Carboamination of Bicyclic Bromoarenes with Diazo Compounds and Amines  
Wu, Q.; Muto, K.\*; Yamaguchi, J.\*  
*Org. Lett.* **2022**, *24*, 4129–4134.  
DOI: [10.1021/acs.orglett.2c01233](https://doi.org/10.1021/acs.orglett.2c01233)  
**Most Read Article** (*Jul*, 2022)  
(See also: *ChemRxiv* **2022**, DOI: [10.26434/chemrxiv-2022-s5vdz](https://doi.org/10.26434/chemrxiv-2022-s5vdz))
- (36) Decarbonylative Reductive Coupling of Aromatic Esters by Nickel and Palladium Catalyst  
Peng, Y.; Isshiki, R.; Muto, K.; Yamaguchi, J.\*  
*Chem. Lett.* **2022**, *51*, 749–753.  
DOI: [10.1246/cl.220214](https://doi.org/10.1246/cl.220214)  
(See also: *ChemRxiv* **2022**, DOI: [10.26434/chemrxiv-2022-s0sxl](https://doi.org/10.26434/chemrxiv-2022-s0sxl))
- (35) Convergent Azaspirocyclization of Bromoarenes with *N*-Tosylhydrazones by a Palladium Catalyst  
Yanagimoto, A.; Uwabe, Y.; Wu, Q.; Muto, K.\*; Yamaguchi, J.\*  
*ACS Catal.* **2021**, *11*, 10429–10435.  
DOI: [10.1021/acscatal.1c02627](https://doi.org/10.1021/acscatal.1c02627)

***Supplementary Cover, Most Read Article (Aug, 2021)***

(See also: *ChemRxiv* **2021**, DOI: [10.26434/chemrxiv.14762478](https://doi.org/10.26434/chemrxiv.14762478))

- (34) Ni-Catalyzed Aryl Sulfide Synthesis through an Aryl Exchange Reaction  
Isshiki, R.; Kurosawa, M. B.; Muto, K.; Yamaguchi, J.\*  
*J. Am. Chem. Soc.* **2021**, *143*, 10333–10340.  
DOI: [10.1021/jacs.1c04215](https://doi.org/10.1021/jacs.1c04215)  
**Most Read Article** (July, 2021), *Press release (Japanese)*, *Highlighted in newspaper*  
(see also: *ChemRxiv* **2021**, DOI: [10.26434/chemrxiv.14462376](https://doi.org/10.26434/chemrxiv.14462376))
- (33) Decarbonylative Synthesis of Aryl Nitriles from Aromatic Esters and Organocyanides by a Nickel Catalyst  
Iizumi, K.; Kurosawa, M. B.; Isshiki, R.; Muto, K.; Yamaguchi, J.\*  
*Synlett* **2021**, *32*, 1555–1559. (invited contribution)  
DOI: [10.1055/s-0040-1705943](https://doi.org/10.1055/s-0040-1705943)
- (32) Catalytic Three-component C–C Bond Forming Dearomatization of Bromoarenes with Malonates and Diazo Compounds  
Kato, H.; Musha, I.; Komatsuda, M.; Muto, K.\*; Yamaguchi, J.\*  
*Chem. Sci.* **2020**, *11*, 8779–8784.  
DOI: [10.1039/D0SC02881A](https://doi.org/10.1039/D0SC02881A)  
(see also: *ChemRxiv* DOI: [10.26434/chemrxiv.12234740](https://doi.org/10.26434/chemrxiv.12234740))
- (31) Ester dance reaction on the aromatic ring  
Matsushita, K.; Takise, R.; Muto, K.; Yamaguchi, J.\*  
*Sci. Adv.* **2020**, *6*, eaba7614.  
DOI: [10.1126/sciadv.aba7614](https://doi.org/10.1126/sciadv.aba7614)  
(see also: *ChemRxiv* DOI: [10.26434/chemrxiv.11472264.v1](https://doi.org/10.26434/chemrxiv.11472264.v1))
- (30) Catalytic Deoxygenative Coupling of Aromatic Esters with Organophosphorus Compounds  
Kurosawa, B. M.; Isshiki, R.; Muto, K.; Yamaguchi, J.\*  
*J. Am. Chem. Soc.* **2020**, *142*, 7386–7392.  
DOI: [10.1021/jacs.0c02839](https://doi.org/10.1021/jacs.0c02839)  
(see also: *ChemRxiv* DOI: [10.26434/chemrxiv.11973585](https://doi.org/10.26434/chemrxiv.11973585))
- (29) Pd-Catalyzed C4-Dearymative Allylation of Benzyl Ammoniums with Allyltributylstannane  
Kayashima, Y.; Komatsuda, M.; Muto, K.\*; Yamaguchi, J.\*  
*Chem. Lett.* **2020**, *49*, 836–839.  
DOI: [10.1246/cl.200216](https://doi.org/10.1246/cl.200216)  
**Editor's Choice, Top Accessed Article (2020 July), Inside Back Cover (Link)**  
(see also: *ChemRxiv* DOI: [10.26434/chemrxiv.12015663](https://doi.org/10.26434/chemrxiv.12015663))
- (28) Dearomative Allylation of Naphthyl Cyanohydrins by Palladium Catalysis: Catalyst-Enhanced Site Selectivity  
Yanagimoto, A.; Komatsuda, M.; Muto, K.\*; Yamaguchi, J.\*  
*Org. Lett.* **2020**, *22*, 3423–3427.  
DOI: [10.1021/acs.orglett.0c00897](https://doi.org/10.1021/acs.orglett.0c00897)  
(see also: *ChemRxiv* DOI: [10.26434/chemrxiv.11961987](https://doi.org/10.26434/chemrxiv.11961987))
- (27) Palladium-Catalyzed Mizoroki–Heck Reaction of Nitroarenes and Styrene Derivatives  
Okita, T.; Asahara, K. K.; Muto, K.; Yamaguchi, J.\*  
*Org. Lett.* **2020**, *22*, 3205–3208. (DOI: [10.1021/acs.orglett.0c00983](https://doi.org/10.1021/acs.orglett.0c00983))  
(see also: *ChemRxiv* DOI: [10.26434/chemrxiv.11988516](https://doi.org/10.26434/chemrxiv.11988516))

- (26) Ester Transfer Reaction of Aromatic Esters with Haloarenes and Arenols by a Nickel Catalyst  
Isshiki, R.; Inayama, N.; Muto, K.; Yamaguchi, J.\*  
*ACS Catal.* **2020**, *10*, 3490–3494.  
DOI: [10.1021/acscatal.0c00291](https://doi.org/10.1021/acscatal.0c00291)  
**Most Read Article** (March, 2020), *Press release* (Japanese), *Highlighted in newspaper* (NikkeiSangyoShinbun)
- (25) Pd-Catalyzed Alkenyl Thioether Synthesis from Thioesters and N-Tosylhydrazones  
Ishitobi, K.; Muto, K.; Yamaguchi, J.\*  
*ACS Catal.* **2019**, *9*, 11685–11690  
DOI: [10.1021/acscatal.9b04212](https://doi.org/10.1021/acscatal.9b04212)
- (24) Pd-Catalyzed Dearomative Three-Component Reaction of Bromoarenes with Diazo Compounds and Allylborates  
Komatsuda, M.; Kato, H.; Muto, K.\*; Yamaguchi, J.\*  
*ACS Catal.* **2019**, *9*, 8991–8995.  
DOI: [10.1021/acscatal.9b03461](https://doi.org/10.1021/acscatal.9b03461)  
**Most Read Article** (September, 2019)  
(see also: ChemRxiv DOI: [10.26434/chemrxiv.8989130/1](https://doi.org/10.26434/chemrxiv.8989130/1))
- (23) Pd-Catalyzed Denitrative Intramolecular C–H Arylation  
Asahara, K. K.; Okita, T.; Saito, A. N. Muto, K; Nakao, Y.; Yamaguchi, J.\*  
*Org. Lett.* **2019**, *21*, 4721–4724.  
DOI: [10.1021/acs.orglett.9b01593](https://doi.org/10.1021/acs.orglett.9b01593)  
**Most Read Article** (July, 2019)
- (22) Pd-Catalyzed Dearomative Allylation of Benzyl Phosphates  
Komatsuda, M.; Muto, K.\*; Yamaguchi, J.\*  
*Org. Lett.* **2018**, *20*, 4354–4357.  
DOI: [10.1021/acs.orglett.8b01807](https://doi.org/10.1021/acs.orglett.8b01807)  
**Most Read Article** (August, 2018)
- (21) Synthesis of A Heptaaryloquinoline: Unusual Disconnection for Constructing Isoquinoline Frameworks  
Asako, T.; Suzuki, S.; Itami, K.; Muto, K.; Yamaguchi, J.\*  
*Chem. Lett.* **2018**, *47*, 968–970.  
DOI [10.1246/cl.180429](https://doi.org/10.1246/cl.180429)  
**Highlights Editor's Choice**
- (20) Dibenzofuran Synthesis: Decarbonylative Intramolecular C–H Arylation of Aromatic Esters  
Okita, T.; Komatsuda, M.; Saito, A. N.; Hisada, T.; Takahara, T. T.; Nakayama, K. P.; Isshiki, R.; Takise, R.; Muto, K.; Yamaguchi, J.\*  
*Asian J. Org. Chem.* **2018**, *7*, 1358–1361. DOI [10.1002/ajoc.201800207](https://doi.org/10.1002/ajoc.201800207)
- (19) Decarbonylative Methylation of Aromatic Esters by a Nickel Catalyst  
Okita, T.; Muto, K.; Yamaguchi, J.\*  
*Org. Lett.* **2018**, *20*, 3132–3135. DOI [10.1021/acs.orglett.8b01233](https://doi.org/10.1021/acs.orglett.8b01233)
- (18) Pd-Catalyzed Decarbonylative C–H Coupling of Azoles and Aromatic Esters  
Matsushita, K.; Takise, R.; Hisada, T.; Suzuki, S.; Isshiki, R.; Itami, K.; Muto, K.; Yamaguchi, J.\*  
*Chem Asian. J.* **2018**, *13*, 2393–2396. DOI: [10.1002/asia.201800478](https://doi.org/10.1002/asia.201800478)
- (17) Decarbonylative Aryl Thioether Synthesis by Ni Catalysis  
Ishitobi, K.; Isshiki, R.; Asahara, K. K.; Lim, C.; Muto, K.; Yamaguchi, J.\*  
*Chem. Lett.* **2018**, *47*, 756–759. DOI: [10.1246/cl.180226](https://doi.org/10.1246/cl.180226)

- (16) Decarbonylative C–P Bond Formation using Aromatic Esters and Organophosphorus Compounds  
Isshiki, R.; Muto, K.; Yamaguchi, J.\*  
*Org. Lett.* **2018**, *20*, 1150–1153. DOI: [10.1021/acs.orglett.8b00080](https://doi.org/10.1021/acs.orglett.8b00080)
- (15) Catalytic  $\alpha$ -Arylation of Ketones with Heteroaromatic Esters  
Isshiki, R.; Takise, R.; Itami, K.; Muto, K.; Yamaguchi, J.\*  
*Synlett* **2017**, *28*, 2559–2603. DOI: [10.1055/s-0036-1589120](https://doi.org/10.1055/s-0036-1589120)
- (14) Synthesis of Multiply Arylated Pyridines  
Asako, T.; Hayashi, W.; Suzuki, S.; Amaike, K.; Itami, K.; Muto, K.; Yamaguchi, J.\*  
*Tetrahedron* **2017**, *73*, 3669–3676, (Invited contribution). DOI: [10.1016/j.tet.2017.03.095](https://doi.org/10.1016/j.tet.2017.03.095)
- (13) Decarbonylative Diaryl Ether Synthesis by Pd and Ni Catalysis  
Takise, R.; Isshiki, R.; Muto, K.; Itami, K.\*; Yamaguchi, J.\*  
*J. Am. Chem. Soc.* **2017**, *139*, 3340–3343. DOI: [10.1021/jacs.7b00049](https://doi.org/10.1021/jacs.7b00049)  
**Highly cited paper (Web of Science)**
- (12) Palladium-Catalyzed Decarbonylative Alkynylation of Aromatic Esters  
Okita, T.; Kumazawa, K.; Takise, R.; Muto, K.; Itami, K.\*; Yamaguchi, J.\*  
*Chem. Lett.* **2016**, *46*, 218–220. DOI: [10.1246/cl.161001](https://doi.org/10.1246/cl.161001)
- (11) “Palladium-Catalyzed Decarbonylative Cross-Coupling of Azinecarboxylates with Arylboronic Acids”  
Muto, K.; Hatakeyama, T.; Itami, K.; Yamaguchi, J.\*  
*Org. Lett.* **2016**, *18*, 5106–5109. DOI: [10.1021/acs.orglett.6b02556](https://doi.org/10.1021/acs.orglett.6b02556)
- (10) “C–H Arylation and Alkenylation of Imidazoles by Nickel Catalysis: Solvent accelerated Imidazole C–H Activation”  
Muto, K.; Hatakeyama, T.; Yamaguchi, J.; Itami, K.\*  
*Chem. Sci.* **2015**, *6*, 6792–6798. DOI: [10.1039/C5SC02942B](https://doi.org/10.1039/C5SC02942B)
- (9) “C–H Activation Generates Period Shortening Molecules Targeting Cryptochrome in the Mammalian Circadian Clock”  
Oshima, T.; Yamanaka, I.; Kumar, A.; Yamaguchi, J.; Nishiwaki-Ohkawa, T.; Muto, K.; Kawamura, R.; Hirota, T.; Yagita, K.; Irle, S.\*; Kay, S. A.\*; Yoshimura, T.\*; Itami, K.\*  
*Angew. Chem., Int. Ed.* **2015**, *54*, 7193–7197. DOI: [10.1002/anie.201502942](https://doi.org/10.1002/anie.201502942)
- (8) “Decarbonylative Organoboron Cross-coupling of Esters by Nickel Catalysis”  
Muto, K.; Yamaguchi, J.\*; Musaev, D. G.\*; Itami, K.\*  
*Nature Commun.* **2015**, *6*, 7508. DOI: [10.1038/ncomms8508](https://doi.org/10.1038/ncomms8508)  
*Highlighted in Nature Asia.*  
**Highly cited paper (Web of Science)**
- (7) “Key Mechanistic Features of Ni-catalyzed C–H/C–O Biaryl Coupling of Azoles and Naphthalen-2-yl Pivalates”  
Xu, H.; Muto, K.; Yamaguchi, J.; Zhao, C.; Itami, K.\*; Musaev, D. G.\*  
*J. Am. Chem. Soc.* **2014**, *136*, 14834–13844. DOI: [10.1021/ja5071174](https://doi.org/10.1021/ja5071174)
- (6) “Nickel-Catalyzed  $\alpha$ -Arylation of Ketones with Phenol Derivatives”  
Takise, R.; Muto, K.; Yamaguchi, J.\*; Itami, K.\*  
*Angew. Chem., Int. Ed.* **2014**, *53*, 6791–6794. DOI: [10.1002/anie.201403823](https://doi.org/10.1002/anie.201403823)
- (5) “Isolation, Structure, and Reactivity of an Arylnickel(II) Pivalate Complex in Catalytic C–H/C–O Biaryl Coupling”

Muto, K.; Yamaguchi, J.\*; Lei, A.\*; Itami, K.\*  
*J. Am. Chem. Soc.* **2013**, *135*, 16384–16387. DOI: 10.1021/ja409803x

- (4) “C–H Alkenylation of Azoles with Enols and Esters by Nickel Catalysis”  
Meng, L.; Kamada, Y.; Muto, K.; Yamaguchi, J.\*; Itami, K.\*  
*Angew. Chem., Int. Ed.* **2013**, *52*, 10048–10051. DOI: 10.1002/anie.201304492
- (3) “Decarbonylative C–H Coupling of Azoles and Aryl Esters: Unprecedented Nickel Catalysis and Application to Synthesis of Muscoride A”  
Amaike, K.; Muto, K.; Yamaguchi, J.\*; Itami, K.\*  
*J. Am. Chem. Soc.* **2012**, *134*, 13573–13576. DOI: 10.1021/ja306062c  
**Highly cited paper (Web of Science)**
- (2) “Nickel-Catalyzed C–H/C–O coupling of Azoles with Phenol Derivatives”  
Muto, K.; Yamaguchi, J.; Itami, K.\*  
*J. Am. Chem. Soc.* **2012**, *134*, 169–172. DOI: 10.1021/ja210249h  
**Most Read Articles in JACS during December 2011**  
**Highlighted as Synstory in Synform Highlighted in Newspapers (Chunichi, Yomiuri, Yahoo! News, Mynavi News and so on...)**  
**Nagoya University Press Release**  
**Highly cited paper (Web of Science)**
- (1) “Nickel-Catalyzed C–H Arylation of Azoles with Haloarenes: Scope, Mechanism, and Application to the Synthesis of Bioactive Molecules”  
Yamamoto, T.; Muto, K.; Komiyama, M.; Canivet, J.; Yamaguchi, J.; Itami, K.\*  
*Chem. Eur. J.* **2011**, *17*, 10113–10122. DOI: 10.1002/chem.201101091

## Reviews

- (9) Development of Pd-Catalyzed Denitrative Couplings  
Asahara, K. K.; Kashihara, M.; Muto, K.; Nakao, Y.; Yamaguchi, J.\*  
*J. Synth. Org. Chem. Jpn.* **2021**, *79*, 11–21. DOI: [10.5059/yukigoseikyokaishi.79.11](https://doi.org/10.5059/yukigoseikyokaishi.79.11).
- (8) Transition-Metal-Catalyzed Denitrative Coupling of Nitroarenes  
Muto, K.; Okita, T.; Yamaguchi, J.\*  
*ACS Catal.* **2020**, *10*, 9856–9871. DOI: [10.1021/acscatal.0c02990](https://doi.org/10.1021/acscatal.0c02990)  
**Most Read Articles (2020)**
- (7) Decarbonylative Coupling Reaction of Aromatic Esters  
Isshiki, R.; Okita, T.; Muto, K.; Yamaguchi, J.\*  
*J. Synth. Org. Chem. Jpn.* **2018**, *76*, 300–314. DOI: [10.5059/yukigoseikyokaishi.76.300](https://doi.org/10.5059/yukigoseikyokaishi.76.300) (Japanese)
- (6) Synthesis of Fully Arylated (Hetero) arenes by Coupling Reaction  
Asako, T.; Muto, K.; Yamaguchi, J.\*  
*J. Synth. Org. Chem. Jpn.* **2018**, *76*, 98–110. DOI: [10.5059/yukigoseikyokaishi.76.98](https://doi.org/10.5059/yukigoseikyokaishi.76.98) (Japanese)
- (5) Cross-coupling of aromatic esters and amides”  
Takise, R.; Muto, K.; Yamaguchi, J.\*  
*Chem. Soc. Rev.* **2017**, *46*, 5864–5888. DOI: [10.1039/C7CS00182G](https://doi.org/10.1039/C7CS00182G)  
**Inside Back Cover** DOI: [10.1039/C7CS90100C](https://doi.org/10.1039/C7CS90100C) **Highly cited paper (Web of Science)**
- (4) 触媒的なアルケンのエナンチオ選択的ジハロゲン化反応 (Catalytic Enantioselective Dihalogenation Reaction of Alkene)  
武藤慶\*  
有機合成化学協会誌、**2016**, *74*, 1225–1226. DOI: [10.5059/yukigoseikyokaishi.74.1225](https://doi.org/10.5059/yukigoseikyokaishi.74.1225) (Japanese)

- (3) "Nickel-Catalyzed Aromatic C–H Functionalization"  
Yamaguchi, J.\*; Muto, K.; Itami, K.\*  
*Top. Curr. Chem*, **2016**, *374*, 55. DOI:[10.1007/s41061-016-0053-z](https://doi.org/10.1007/s41061-016-0053-z)
- (2) "Nickel-Catalyzed Direct Coupling of Heteroarenes"  
Yamaguchi, J.; Muto, K.; Amaike, K.; Yamamoto, T.; Itami, K.\*  
*J. Synth. Org. Chem. Jpn.* **2013**, *71*, 576–587. DOI: 10.5059/yukigoseikyokaishi.71.576 (Japanese)
- (1) "Recent Progress in Nickel-Catalyzed Biaryl Coupling"  
Yamaguchi, J.\*; Muto, K.; Itami, K.\*  
*Eur. J. Org. Chem.* **2013**, 19–30. DOI: 10.1002/ejoc.201200914  
**Highly cited paper (Web of Science)**

#### Books and others

- (7) Muto, K.; Yamaguchi, J.; Cross-Coupling of Aromatic Esters by Decarbonylation: Amide Bond Activation; Szostak, M., Ed.; Wiley-VCH, Weinheim. *in press*  
(Will be appeared on Nov. 2022.)
- (6) 「有機合成のための新触媒反応 101」 檜山爲次郎、野崎京子、中尾佳亮、中野幸司 編集  
東京化学同人, 分担執筆 [項目 54,55, 60, 71]
- (5) 「武漢大学での武者修行」 (Japanese)  
武藤慶, 近畿化学協会 有機金属部会 OMNews, **2021**, *2*, 38–39. ([Link](#))
- (4) Otsu Conference 2018 Reports 第9回大津会議 有機合成の夢を語る  
Ikemoto, K.; Muto, K.; Nogi, K. *J. Synth. Org. Chem. Jpn.* **2018**
- (3) "Lewis 酸でヒドリドを引き抜く 触媒的 FLPs 形成による C–H 変換反応" (Japanese)  
武藤慶, 化学 (化学同人), 2019 年 1 月号
- (2) Otsu Conference 2017 Reports 第8回大津会議 有機合成の夢を語る  
Morita, M.; Ikemoto, K.; Muto, K. *J. Synth. Org. Chem. Jpn.* **2018**
- (1) "New Cross-coupling Reactions through Nickel Catalysis"  
Yamaguchi, J.; Amaike, K.; Muto, K.; Itami, K.\*  
*Catalysts and Catalysis* **2013**, 624.

#### Presentations

##### International

- (10) "Organic Synthesis by Breaking Arenes: Development of Catalytic Dearomative Functionalization"  
Kei Muto, and coworkers  
13th AFMC International Medicinal Chemistry Symposium (AIMECS2021), Dec. 1st, 2021 (Oral, online)
- (9) "Organic Synthesis by Breaking Arenes: Development of Catalytic Dearomative Functionalization"  
(Invited)  
Kei Muto  
Reaxys PhD Prize Virtual Symposium, Oct. 1st, 2020 (Oral, online)
- (8) "Development of Catalytic Decarbonylative Coupling of Aromatic Esters"  
Kei Muto, Ryosuke Takise, Ryota Isshiki, Toshimasa Okita, Kazushi Kumazawa, Kenichiro Itami, Junichiro Yamaguchi  
The 19th OMCOS (PP2-48) · ICC Jeju, Korea 6 月 28 日
- (7) "Ni-Catalyzed C–H/C–O Couplings: Catalyst Development and Mechanistic Studies"  
[Kei Muto](#), Junichiro Yamaguchi, and Kenichiro Itami

- XXVI International Conference on Organometallic Chemistry (ICOMC 2014), Royton Sapporo, Hokkaido, Japan, July 17, 2014. (Poster)
- (6) “Ni-Catalyzed C–H/C–O Couplings: Development and Mechanistic Studies”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
 Core to Core/IRTG Meeting Programs on Elements Function for Transformative Catalysis and Materials  
 Nagoya University, Aichi, Japan, June 13, 2014. (Oral)
- (5) “Direct C–H Coupling through Nickel Catalysis”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
 4th Otsu Conference 2013  
 Otsu Prince Hotel, Shiga, Japan, October 23, 2013. (Oral)
- (4) “Ni-Catalyzed C–H/C–O Coupling of Azoles with Phenol Derivatives: Development, Mechanistic Studies, and Applications”  
Kei Muto, Junichiro Yamaguchi, Aiwen Lei, and Kenichiro Itami  
 17th IUPAC International Symposium on Organometallic Chemistry Directed Towards Organic Synthesis  
 Lincoln Center, Colorado, USA, July 29, 2013. (Poster)
- (3) “Direct C–H Arylation of Heteroarenes by Nickel Catalyst”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
 3rd International Symposium on Molecular Activation  
 Sheraton Steamboat Resort, Colorado, USA, July 27, 2013. (Oral)
- (2) “Nickel-Catalyzed C–H Arylation of Azoles with Haloarenes”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
 The 10th Joint Seminar University of Münster  
 Nagoya University, Aichi, Japan, October 4, 2011. (Poster)
- (1) “Nickel-Catalyzed C–H/C–X Arylation of Heteroarenes”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
 The 4th Global COE in Chemistry Annual Symposium  
 Nagoya University, Aichi, Japan, June 15, 2011. (Poster)

#### *Domestic*

- (22) ベンジルパラジウムを鍵とする不活性芳香族の脱芳香族的官能基化 (受賞講演)  
 武藤慶  
 日本化学会 第 102 春季年会、Online、2022 年 3 月 25 日 若い世代の特別講演 [B201-3pm-05]
- (21) 触媒的結合切断を起点とする新奇分子変換: 芳香環交換反応と脱芳香族的官能基化 (招待講演)  
 武藤慶  
 ハイブリッド触媒 若手道場 Online, 2 月 5 日, 2022 年
- (20) 「ベンジルパラジウム種を活かした触媒的脱芳香族的官能基化反応」(招待講演)  
 武藤慶  
 第 48 回オルガノメタリックセミナー「効率的分子変換のフロンティア」、早稲田大学、11 月 20 日, 2021 年
- (19) ベンジルパラジウムを経由するプロモアレーンの触媒的脱芳香族的官能基化 (口頭)  
 武藤慶・加藤弘基・柳本愛華・上部耀大・ウチクン・武者樹・小松田雅晃・山口潤一郎  
 第 67 回有機金属化学討論会 (O3-02)、オンライン、9 月 10 日
- (18) 壊すことで分子をつくる: 脱芳香族的合成法の開発  
 武藤慶  
 令和元年度 日本学術振興会育志賞研究発表会・日本学士院 3 月 4 日, 2020 年
- (17) “Catalyst Design toward Selective Dearomative Functionalizations” (Invited)  
 Kei Muto  
 The Chemical Society of Japan 2019, 99th Annual Meeting-Special Program Lecture, Konan Univ., Mar 19, 2019.
- (16) 「C–O 結合切断を起点とする新奇触媒反応の開発」(Invited)  
 武藤慶  
 第二回産総研化学研究シンポジウム・産総研 10 月 12 日, 2018 年
- (15) "Pd-catalyzed Dearomative C–C Bond Formation of Benzyl Alcohols"(ポスター)  
 武藤慶



- 第2回大津会議合同研究発表会・びわ湖大津プリンスホテル 9月11日, 2017年
- (14) 「分子触媒による新奇分子連結反応の開発」 (口頭)  
武藤慶
- 平成29年度育志賞研究発表会・大阪大学中之島センター 9月5日, 2017年
- (13) 「エステル切断を軸とする新規カップリング反応の開発」  
武藤慶  
第三回中分子戦略若手シンポジウム・京都 3月7日
- (12) “Decarbonylative Suzuki–Miyaura Coupling by Nickel Catalysis”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
The Chemical Society of Japan 2015, 95th Annual Meeting  
Nihon University, Chiba, Japan, March 27, 2015. (Oral)
- (11) “Decarbonylative Cross-Coupling of Phenyl Esters and Arylboronic Acids with Ni Catalyst”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
IGER Annual Meeting  
Nagoya University, Aichi, Japan, December 18, 2014. (Poster)
- (10) “Nickel-Catalyzed C–H/C–O Biaryl Coupling: Catalyst Developments and Mechanistic Studies”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
The Chemical Society of Japan 2014, 94th Annual Meeting  
Nagoya University, Aichi, Japan, March 27, 2014. (Oral)
- (9) “Ni-Catalyzed C–H coupling of Heteroarenes: Development, Mechanism, and Applications”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
IGER Annual Meeting  
Nagoya University, Aichi, Japan, January 8, 2014. (Oral)
- (8) “Nickel-Catalyzed C–H Arylation of Heteroarenes”  
Kei Muto, Kazuma Amaike, Junichiro Yamaguchi, and Kenichiro Itami  
The 46th Meeting for Young Scientists in Organometallic Chemistry  
Zao Royal Hotel, Miyagi, Japan, July 9, 2013. (Poster)
- (7) “Nickel-Catalyzed Direct C–H Arylation of Heteroarenes”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
The Improvement of Prominent Graduate School Meeting for Young Scientists  
Kyoto University, Kyoto, Japan, March 14, 2013. (Poster)
- (6) “Nickel-Catalyzed Direct Arylation of Heteroarenes”  
Kei Muto, Kazuma Amaike, Junichiro Yamaguchi, and Kenichiro Itami  
59th Symposium on Organometallic Chemistry  
Osaka University, Osaka, Japan, September 14, 2012. (Poster)
- (5) “Nickel-Catalyzed Direct Arylation of Heteroarenes”  
Kei Muto, Kazuma Amaike, Junichiro Yamaguchi, and Kenichiro Itami  
The 29th Seminar on Synthetic Organic Chemistry  
Convention Arts Center, Shizuoka, Japan, September 6, 2012. (Poster)
- (4) “Ni-Catalyzed C–H/C–O Coupling of Azoles and Phenol Derivatives”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
The Chemical Society of Japan 2012, 92th Annual Meeting  
Keio University, Kanagawa, Japan, March 28, 2012. (Oral)
- (3) “Ni-Catalyzed Direct C–H Arylation of Heteroarenes”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
The 100th Symposium on Organic Synthesis  
Waseda University, Tokyo, Japan, November 11, 2011. (Oral)
- (2) “Ni-Catalyzed Direct C–H Arylation of Heteroarenes”  
Kei Muto, Junichiro Yamaguchi, and Kenichiro Itami  
The 100th Symposium on Organic Synthesis  
Waseda University, Tokyo, Japan, November 11, 2011. (Poster)
- (1) “Ni-Catalyzed C–H/C–X Coupling of Heteroarenes”  
Kei Muto, Takuya Yamamoto, Masato Komiyama, Junichiro Yamaguchi, and Kenichiro Itami

**Lecture in charge 担当講義**

2022 (@Waseda Univ)

1. 上級有機化学 A (春)
2. 応用化学基礎演習 A(有機化学) (春)
3. Introduction to Industrial Chemistry (国際コース) (春)

2021 (@Waseda Univ)

1. 上級有機化学 A (春)
2. 応用化学基礎演習 A(有機化学) (春)
3. Introduction to Industrial Chemistry (国際コース) (春)

2020 (@Waseda Univ)

1. 上級有機化学 A (春)
2. 応用化学基礎演習 A(有機化学) (春)
3. Introduction to Industrial Chemistry (国際コース) (春)

2019 (@Waseda Univ)

1. 理工基礎実験 1A (春) (ナイロン合成)
2. 理工基礎実験 1B (秋) (原子スペクトル測定)
3. 有機化学実験 (秋) (Wittig 反応)
4. 応用化学基礎演習 A(有機化学) (春)
5. 応用化学基礎演習 D(物理化学) (秋)
6. 上級有機化学 A (春)
7. 機器分析演習 (秋)
8. 応用化学総論 (春)
9. Introduction to Industrial Chemistry (国際コース) (春)
10. Introduction to Applied Chemistry (国際コース) (秋)
11. ナノスケール科学ジョイントセミナー (春)
12. マテリアルデザイン科学ジョイントセミナー (春)

2018 (@Waseda Univ)

1. 理工基礎実験 1A (春) (水の分析)
2. 理工基礎実験 2B (秋) (酸化チタン合成と評価)
3. 有機化学実験 (秋) (Wittig 反応)
4. 応用化学基礎演習 A(有機化学) (春)
5. 応用化学基礎演習 D(物理化学) (春)
6. 上級有機化学 A (春)
7. 機器分析演習 (秋)
8. 応用化学総論 (春)
9. Introduction to Industrial Chemistry (国際コース) (春)
10. Introduction to Applied Chemistry (国際コース) (秋)
11. ナノスケール科学ジョイントセミナー (春)
12. マテリアルデザイン科学ジョイントセミナー (春)

2017 (@Waseda Univ)

1. 理工基礎実験 1A (春) (ナイロン合成)
2. 理工基礎実験 2B (秋) (酸化チタン合成と評価)
3. 有機化学実験 (秋) (Wittig 反応)
4. 応用化学基礎演習 C(有機化学) (春)
5. 応用化学基礎演習 D(物理化学) (春)
6. 上級有機化学 A (春)

7. 機器分析演習 (秋)
8. 応用化学総論 (春)
9. Introduction to Industrial Chemistry (国際コース) (春)
10. Introduction to Applied Chemistry (国際コース) (秋)
11. ナノスケール科学ジョイントセミナー (春)
12. マテリアルデザイン科学ジョイントセミナー (春)

2016 (@Waseda Univ)

1. 理工基礎実験 1A (春) (ナイロン合成)
2. 理工基礎実験 2B (秋) (酸化チタン合成と評価)
3. 有機化学実験 (秋) (Wittig 反応)
4. 応用化学基礎演習 C(有機化学) (春)
5. 応用化学基礎演習 D(物理化学) (春)
6. 上級有機化学 A (春)
7. 機器分析演習 (秋)
8. 応用化学総論 (春)
9. Introduction to Industrial Chemistry (春)
10. Introduction to Applied Chemistry (秋)