

Hirromichi Egami, PhD.

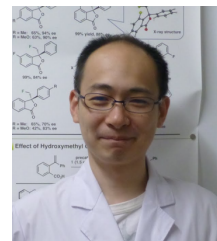
School of Pharmaceutical Sciences, University of Shizuoka

52-1 Yada, Suruga-ku, Shizuoka 422-8526, Japan

Tel: +81 54 264 5781

Fax: +81 54 264 5672

E-mail: hegami@u-shizuoka-ken.ac.jp



Professional Career

Oct. 2020 – present Associate Professor, University of Shizuoka (Professor Yoshitaka Hamashima)

Dec. 2016 – Sept. 2020 Lecturer, University of Shizuoka (Professor Yoshitaka Hamashima)

Oct. 2013 – Nov. 2016 Assistant Professor, University of Shizuoka (Professor Yoshitaka Hamashima)

Apr. 2012 – Mar. 2014 Group Leader (Live Cell Reaction Group), Sodeoka Live Cell Chemistry Project,
ERATO, Japan Science and Technology Agency (Professor Mikiko Sodeoka)

Apr. 2009 – Mar. 2012 Post-Doctoral Fellow, Sodeoka Live Cell Chemistry Project, ERATO,
Japan Science and Technology Agency (Professor Mikiko Sodeoka)

Education

Mar. 2009 Ph.D., Department of Chemistry, Faculty of Science, Graduate School, Kyushu University
(Professor Tsutomu Katsuki)

Mar. 2006 M.Sc., Department of Chemistry, Faculty of Science, Graduate School, Kyushu University
(Professor Tsutomu Katsuki)

Mar. 2004 B.Sc., Department of Chemistry, Faculty of Science, Kyushu University
(Professor Tsutomu Katsuki)

Fellowship and Award

Thieme Chemistry Journals Award (Jan. 2020)

The Pharmaceutical Society of Japan Award for Young Scientists (Mar. 2019)

TORAY Award in Synthetic Organic Chemistry, Japan (Dec. 2016)

CSJ Presentation Award 2016 (Mar. 2016)

Poster Award in the 39th Naito Conference (June 2015)

JSPS Research Fellowships for Young Scientists (Apr. 2006 – Mar. 2009)

CSJ Student Presentation Award 2008 (Mar. 2008)

Publication List

[Original papers]

1. Asymmetric Dearomatizing Fluoroamidation of Indole Derivatives with Dianion Phase-transfer Catalyst
Hiromichi Egami, Ryo Hotta, Minami Otsubo, Taiki Rouno, Tomoki Niwa, Kenji Yamashita, Yoshitaka Hamashima
Org. Lett. **2020**, *22*, 5656-5660.
2. Asymmetric Dearomative Fluorination of 2-Naphthols with Dianionic Phase-Transfer Catalyst
Hiromichi Egami, Taiki Rouno, Tomoki Niwa, Kousuke Masuda, Kenji Yamashita, Yoshitaka Hamashima
Angew. Chem. Int. Ed. **2020**, *59*, 14101-14105.
3. ¹⁸F-Labeled hydromethidine: Positron emission tomography radiotracer for detection of reactive oxygen species in brain
Hiromichi Egami, Satoshi Nakagawa, Yuki Katsura, Masakatsu Kanazawa, Shingo, Nishiyama, Toshihiro Sakai, Yasushi Arano, Hideo Tsukada, Osamu Inoue, Kenichiro Todoroki, Yoshitaka Hamashima
Org. Biomol. Chem. **2020**, *18*, 2387-2391.
4. Enantioselective 5-*exo*-Fluorocyclization of Ene-Oximes
Taiki Rouno, Tomoki Niwa, Kousuke Nishibashi, Nobuharu Yamamoto, Hiromichi Egami, Yoshitaka Hamashima
Molecules, **2019**, *24*, 3464.
5. Thiocyanation of Aromatic and Heteroaromatic Compounds with 1-Chloro-1,2-benziodoxol-3-(*1H*)-one and (Trimethylsilyl)isothiocyanate
Yuta Ito, Akihiro Touyama, Minako Uku, Hiromichi Egami, Yoshitaka Hamashima
Chem. Pharm. Bull. **2019**, *67*, 1015-1018.
6. Design of Synthetic Polymer Nanoparticles Specifically Capturing Indole, a Small Toxic Molecule
Anna Okishima, Hiroyuki Koide, Yu Hoshino, Hiromichi Egami, Yoshitaka Hamashima, Naoto Oku, Tomohiro Asai
Biomacromolecules **2019**, *20*, 1644-1654.
7. Rigorous control of vesicle-forming lipid p*K*_a by fluorine-conjugated bioisosteres for gene-silencing with siRNA
Ayaka Okamoto, Hiroyuki Koide, Naoki Morita Yusuke Hirai, Yuji Kawato, Hiromichi Egami, Yoshitaka Hamashima, Tomohiro Asai, Takehisa Dewa, Naoto Oku

- J. Controlled Release* **2019**, *295*, 87-92.
8. Sequestering and inhibiting a vascular endothelial growth factor *in vivo* by systemic administration of a synthetic polymer nanoparticle
Hiroyuki Koide, Keiichi Yoshimatsu, Yu Hoshino, Saki Ariizumi, Anna Okishima, Takafumi Ide, Hiromichi Egami, Yoshitaka Hamashima, Yuri Nishimura, Hiroaki Kanazawa, Yoshiko Miura, Tomohiro Asai, Naoto Oku, Kenneth J. Shea
J. Controlled Release **2019**, *295*, 13-20.
 9. C-alkylation of N-alkylamides with styrenes in air and scale-up using a microwave flow reactor
Joshua P. Barham, Souma Tamaoki, Hiromichi Egami, Noriyuki Ohneda, Tadashi Okamoto, Hiromichi Odajima, Yoshitaka Hamashima
Org. Biomol. Chem. **2018**, *16*, 7568-7573.
 10. Regio- and chemoselective Csp³-H arylation of benzylamines by single electron transfer/hydrogen atom transfer synergistic catalysis
Takafumi Ide, Joshua, P. Barham, Masashi Fujita, Yuji Kawato, Hiromichi Egami, Yoshitaka Hamashima
Chem. Sci. **2018**, *9*, 8453-8460.
 11. Asymmetric Fluorination of Cyclic Tetrasubstituted Alkenes with a Pendant Amide Groups under Dianionic Phase-transfer Catalysis
Tomoki Niwa, Kiyoshi Ujiiie, Hitomi Sato, Hiromichi Egami, Yoshitaka Hamashima
Chem. Pharm. Bull. **2018**, *66*, 920-922.
 12. Scalable Microwave-Assisted Johnson-Claisen Rearrangement with Continuous Flow Microwave System
Hiromichi Egami, Souma Tamaoki, Masato Abe, Noriyuki Ohneda, Takeo Yoshimura, Tadashi Okamoto, Hiromichi Odajima, Nobuyuki Mase, Kazuhiro Takeda, Yoshitaka Hamashima
Org. Proc. Res. Dev. **2018**, *22*, 1029-1033.
 13. Redox-neutral C-H cyanation of tetrahydroisoquinolines under photoredox catalysis
Takafumi Ide, Kazunori Shimizu, Hiromichi Egami, Yoshitaka Hamashima
Tetrahedron Lett. **2018**, *59*, 3258-3261.
 14. (*E*)-3-(4-(Pent-4-en-1-yloxy)phenyl)acrylic acid
Hiromichi Egami, Taira Sawairi, Souma Tamaoki, Noriyuki Ohneda, Tadashi Okamoto, Hiromichi Odajima, Yoshitaka Hamashima
Molbank **2018**, *2018*, M996.
 15. Simple Photo-induced Trifluoromethylation of Aromatic Rings
Hiromichi Egami, Yuta Ito, Takafumi Ide, Shuya Masuda, Yoshitaka Hamashima
Synthesis **2018**, *50*, 2948-2953.
 16. Enantioselective Synthesis of Nelfinavir via Asymmetric Bromocyclization of Bisallylic Amide

- Yoshihiro Nagao, Tatsuya Hisanaga, Takahiro Utsumi, [Hiromichi Egami](#), Yuji Kawato, Yoshitaka Hamashima
J. Org. Chem. **2018**, *83*, 7290-7295.
17. Photofluorination of Aliphatic C–H Bonds Promoted by the Phthalimide Group
[Hiromichi Egami](#), Shuya Masuda, Yuji Kawato, Yoshitaka Hamashima
Org. Lett. **2018**, *20*, 1367-1370.
18. Dianion Phase-transfer Catalyst for Asymmetric Fluorocyclization
[Hiromichi Egami](#), Tomoki Niwa, Hitomi Sato, Ryo Hotta, Daiki Rouno, Yuji Kawato, Yoshitaka Hamashima
J. Am. Chem. Soc. **2018**, *140*, 2785-2788.
19. Desymmetrization of Bisallylic Amides through Catalytic Enantioselective Bromocyclization with BINAP Monooxide
Yoshihiro Nagao, Tatsunari Hisanaga, [Hiromichi Egami](#), Yuji Kawato, Yoshitaka Hamashima
Chem. Eur. J. **2017**, *23*, 16758-16762.
20. Benzylic C–H Trifluoromethylation via Photoenol
Takafumi Ide, Shuya Masuda, Yuji Kawato, [Hiromichi Egami](#), Yoshitaka Hamashima
Org. Lett. **2017**, *19*, 4452-4455.
21. Enantioselective Allyl-, and Allenylboration of Aldehydes Catalyzed by Chiral Hydroxyl Carboxylic Acid
Yuya Ota, Yuji Kawato, [Hiromichi Egami](#), Yoshitaka Hamashima
Synlett **2017**, *28*, 976-980.
22. α -Functionalization of Tetrahydroisoquinolines with Activated Alkyl Bromide under Photoredox Catalysis
Takafumi Ide, Kazunori Shimizu, Yuji Kawato, [Hiromichi Egami](#), Yoshitaka Hamashima
Heterocycles **2017**, *95*, 738-747.
23. Difunctionalization of Alkenes Using 1-Chloro-1,2-benziodoxol-3-(1*H*)-one
[Hiromichi Egami](#), Takahiro Yoneda, Minako Uku, Takafumi Ide, Yuji Kawato, Yoshitaka Hamashima
J. Org. Chem. **2016**, *81*, 4020-4030.
24. Highly Enantioselective Bromocyclization of Allylic Amides with a Novel P/P=O Double-site Lewis Base Catalyst
Yuji Kawato, Hiromi Ono, Akino Kubota, Yoshihiro Nagao, Naoki Morita, [Hiromichi Egami](#), Yoshitaka Hamashima
Chem. Eur. J. **2016**, *22*, 2127-2133.
25. Benzylic C–H trifluoromethylation of phenol derivatives
[Hiromichi Egami](#), Takafumi Ide, Yuji Kawato, Yoshitaka Hamashima

- Chem. Commun.* **2015**, *51*, 16675-16678.
26. Asymmetric Fluorolactonization with a Bifunctional Hydroxyl Carboxylate Catalyst
Hiromichi Egami, Junshi Asada, Kentaro Sato, Daisuke Hashizume, Yuji Kawato, Yoshitaka Hamashima
J. Am. Chem. Soc. **2015**, *137*, 10132-10135.
27. Mechanistic study on a unique S_N2'-type reaction of allylic alcohols with organolithium reagent accelerated by a proximal trifluoromethyl group
Hiromichi Egami, Yoshihiko Usui, Shintaro Kawamura, Ryo Shimizu, Sayoko Nagashima, Mikiko Sodeoka
J. Fluorine Chem. **2015**, *179*, 121-128.
28. Product Control in Alkene Trifluoromethylation: Hydro-trifluoromethylation, Vinylic Trifluoromethylation and Iodo-trifluoromethylation Using Togni reagent
Hiromichi Egami, Yoshihiko Usui, Shintaro Kawamura, Sayoko Nagashima, Mikiko Sodeoka
Chem. Asian J. **2015**, *10*, 2190-2199.
29. Concise synthesis of binaphthol-derived chiral dicarboxylic acids
Hiromichi Egami, Kentaro Sato, Junshi Asada, Yuji Kawato, Yoshitaka Hamashima
Tetrahedron **2015**, *71*, 6384-6388.
30. Aminotrifluoromethylation via Cyclic Amine Formation of Olefins: Mechanistic Study and Application to Synthesis of Trifluoromethylated Pyrrolidines
Shintaro Kawamura, Hiromichi Egami, Mikiko Sodeoka
J. Am. Chem. Soc. **2015**, *137*, 4865-4873.
31. Enantioselective Bromocyclization of Allylic Amides Catalyzed by BINAP Derivatives
Yuji Kawato, Akino Kubota, Hiromi Ono, Hiromichi Egami, Yoshitaka Hamashima
Org. Lett. **2015**, *17*, 1244-1247.
32. Development of a highly efficient single-mode microwave applicator with a resonant cavity and its application to continuous flow syntheses
Saori Yokozawa, Noriyuki Ohneda, Ken Muramatsu, Tadashi Okamoto, Hiromichi Odajima, Takashi Ikawa, Jun-ichi Sugiyama, Masashi Fujita, Taira Sawairi, Hiromichi Egami, Yoshitaka Hamashima, Masahiro Egi, Shuji Akai
RSC Adv. **2015**, *5*, 10204-10210.
33. Dual Catalysis with Copper and Rhenium for Trifluoromethylation of Propargylic Alcohols: Efficient Synthesis of α -Trifluoromethylated Enones
Hiromichi Egami, Takafumi Ide, Masashi Fujita, Toshifumi Tojo, Yoshitaka Hamashima, Mikiko Sodeoka
Chem. Eur. J. **2014**, *20*, 12061-12065.
34. Oxy-trifluoromethylation of alkenes and its application to the synthesis of β -trifluoromethylstyrene

derivatives

Hiromichi Egami, Ryo Shimizu, Yoshihiko Usui, Mikiko Sodeoka

J. Fluorine Chem. **2014**, *167*, 172-178.

35. A “Catch-and-Release” Protocol of Alkyne-Tagged Molecules Based on a Resin-Bound Cobalt Complex for Peptide Enrichment in Aqueous Media

Ayako Miyazaki, Miwako Asanuma, Kosuke Dodo, Hiromichi Egami, Mikiko Sodeoka

Chem. Eur. J. **2014**, *20*, 8116-8128.

36. Iron-catalyzed trifluoromethylation with concomitant C–C bond formation via 1,2-migration of an aryl group

Hiromichi Egami, Ryo Shimizu, Yoshihiko Usui, Mikiko Sodeoka

Chem. Commun. **2013**, *49*, 7346-7348.

37. Trifluoromethylation Reactions for the Synthesis of β -Trifluoromethylamines

Hiromichi Egami, Shintaro Kawamura, Ayako Miyazaki, Mikiko Sodeoka

Angew. Chem. Int. Ed. **2013**, *52*, 7841-7844.

38. Concise synthesis of oxindole derivatives bearing a 3-trifluoroethyl group: Copper-catalyzed trifluoromethylation of acryloanilides

Hiromichi Egami, Ryo Shimizu, Mikiko Sodeoka

J. Fluorine Chem. **2013**, *152*, 51-55.

39. Alkene Trifluoromethylation Coupled with C–C Bond Formation: Construction of Trifluoromethylated Carbocycles and Heterocycles

Hiromichi Egami, Ryo Shimizu, Shintaro Kawamura, Mikiko Sodeoka

Angew. Chem. Int. Ed. **2013**, *52*, 4000-4003.

40. Rapid Trifluoromethylation of Indole Derivatives

Ayako Miyazaki, Ryo Shimizu, Hiromichi Egami, Mikiko Sodeoka

Heterocycles **2012**, *86*, 979-983.

41. Oxytrifluoromethylation of multiple bonds using copper catalyst under mild conditions

Hiromichi Egami, Ryo Shimizu, Mikiko Sodeoka

Tetrahedron Lett. **2012**, *53*, 5503-5506.

42. Copper-Catalyzed Trifluoromethylation of Allylsilanes

Ryo Shimizu, Hiromichi Egami, Yoshitaka Hamashima, Mikiko Sodeoka

Angew. Chem. Int. Ed. **2012**, *51*, 4577-4580.

43. What factors influence the catalytic activity of iron-salan complexes for aerobic oxidative coupling of 2-naphthols?

Kenji Matsumoto, Hiromichi Egami, Takuya Oguma, Tsutomu Katsuki

Chem. Commun. **2012**, *48*, 5823-5825.

44. Catch and release of alkyne tagged molecules in water by a polymer supported cobalt complex

- Hiromichi Egami, Shinji Kamisuki, Kosuke Dodo, Miwako Asanuma, Yoshitaka Hamashima, Mikiko Sodeoka
Org. Biomol. Chem. **2011**, *9*, 7667-7670.
45. Direct C2-trifluoromethylation of indole derivatives catalyzed by copper acetate
Ryo Shimizu, Hiromichi Egami, Tatsuya Nagi, Jungha Chae, Yoshitaka Hamashima, Mikiko Sodeoka
Tetrahedron Lett. **2010**, *51*, 5947-5949.
46. Enantioenriched Synthesis of C1-Symmetric BINOLs: Iron-Catalyzed Cross-Coupling of 2-Naphthols and Some Mechanistic Insight
Hiromichi Egami, Kenji Matsumoto, Takuya Oguma, Takashi Kunisu, Tsutomu Katsuki
J. Am. Chem. Soc. **2010**, *132*, 13633-13635.
47. Oxidation Catalysis of Nb(salan) Complexes: Asymmetric Epoxidation of Allylic Alcohols Using Aqueous Hydrogen Peroxide as Oxidant
Hiromichi Egami, Takuya Oguma, Tsutomu Katsuki
J. Am. Chem. Soc. **2010**, *132*, 5886-5895.
48. Iron-Catalyzed Asymmetric Aerobic Oxidation: Oxidative Coupling of 2-Naphthols
Hiromichi Egami, Tsutomu Katsuki
J. Am. Chem. Soc. **2009**, *131*, 6082-6083.
49. Nb(salan)-Catalyzed Asymmetric Epoxidation of Allylic Alcohols with Hydrogen Peroxide
Hiromichi Egami, Tsutomu Katsuki
Angew. Chem. Int. Ed. **2008**, *47*, 5171-5174.
50. Asymmetric Hetero Diels–Alder Reaction Catalyzed by Chromium Complexes of Heterogeneously Hybridized Salen/Salan Ligand
Satomi Eno, Hiromichi Egami, Tatsuya Uchida, Tsutomu Katsuki
Chem. Lett. **2008**, *37*, 632-633.
51. Vanadium-Catalyzed Asymmetric Transcyanation of Aliphatic Aldehydes with Acetone Cyanohydrin
Junko Takaki, Hiromichi Egami, Kazuhiro Matsumoto, Bunnai Saito, Tsutomu Katsuki
Chem. Lett. **2008**, *37*, 502-503.
52. Optimization of Asymmetric Oxidation of Sulfides with the Fe(salan) Complex in Water and Expanded Scope of Its Application
Hiromichi Egami, Tsutomu Katsuki
Synlett **2008**, 1543-1546.
53. Fe(salan)-Catalyzed Asymmetric Oxidation of Sulfides with Hydrogen Peroxide in Water
Hiromichi Egami, Tsutomu Katsuki
J. Am. Chem. Soc. **2007**, *129*, 8940-8941.

54. Aerobic oxidative kinetic resolution of racemic alcohols with bidentate ligand-binding Ru(salen) complex as catalyst
Yukie Nakamura, Hikomichi Egami, Kazuhiro Matsumoto, Tatsuya Uchida, Tsutomu Katsuki
Tetrahedron **2007**, *63*, 6383-6387.
55. Synthesis of an Optically Active Al(salalen) Complex and Its Application to Catalytic Hydrophosphonylation of Aldehydes and Aldimines
Bunnai Saito, Hikomichi Egami, Tsutomu Katsuki
J. Am. Chem. Soc. **2007**, *129*, 1978-1986.
56. Enantioselective Epoxidation of Conjugated Z-Olefins with Newly Modified Mn(salen) Complex
Hikomichi Egami, Ryo Irie, Ken Sakai, Tsutomu Katsuki
Chem. Lett. **2007**, *36*, 46-47.
57. Ruthenium(salen)-Catalyzed Aerobic Oxidative Desymmetrization of *meso*-Diols and Its Kinetics
Hideki Shimizu, Satoaki Onitsuka, Hikomichi Egami, Tsutomu Katsuki
J. Am. Chem. Soc. **2005**, *127*, 5396-5413.
58. A reasonable explanation for the mechanism of photo-promoted chemoselective aerobic oxidation of alcohols using (ON)Ru(salen) complex as catalyst
Hikomichi Egami, Satoaki Onitsuka, Tsutomu Katsuki
Tetrahedron Lett. **2005**, *46*, 6049-6052.
59. Aerobic oxidation of primary alcohols in the presence of activated secondary alcohols
Hikomichi Egami, Hideki Shimizu, Tsutomu Katsuki
Tetrahedron Lett. **2005**, *46*, 783-786.

[Reviews & Books]

1. Recent Advancements in Monofluorination Reactions
Frontiers of Organofluorine Chemistry, Iwao Ojima Ed.; **2020**, p 3-91.
Hikomichi Egami, Yoshitaka Hamashima
2. Fluorofunctionalizations of C–C Multiple Bonds and C–H Bonds
Hikomichi Egami
Chem. Pharm. Bull. **2020**, *68*, 491-511.
3. High Efficiency Microwave Flow Chemistry toward Synthesis of Functional Materials and Pharmaceutical Cores
Joshua P. Barham, Emiko Koyama, Jun-ichi Sugiyama, Yasuo Norisane, Hikomichi Egami, Yoshitaka Hamashima
Ampere **2019**, 409-417.
4. Practical and Scalable Organic Reactions with Flow Microwave Apparatus
Hikomichi Egami, Yoshitaka Hamashima

- Chem. Rec.* **2019**, *19*, 157-171.
5. Metal-catalyzed synthesis of heterocycles bearing a trifluoromethyl group
Mikiko Sodeoka, [Hiromichi Egami](#)
Pure Appl. Chem. **2014**, *86*, 1247-1256.
 6. Trifluoromethylation of Alkenes with Concomitant Introduction of Additional Functional Groups
[Hiromichi Egami](#), Mikiko Sodeoka
Angew. Chem. Int. Ed. **2014**, *53*, 8294-8308.
 7. New development of Trifluoromethylation of C=C Bond
[Hiromichi Egami](#), Mikiko Sodeoka
Farumashia **2014**, *50*, 24-28.
 8. S_N2 Reaction on Vinylic Carbon
[Hiromichi Egami](#)
J. Synth. Org. Chem. Japan **2012**, *70*, 651-652.
 9. Rapid progress in development of trifluoromethylation of aromatic compounds
Mikiko Sodeoka, [Hiromichi Egami](#)
Kagaku **2011**, *66*, 68-69.