

## Masahiro Egi, PhD

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### Personal

Birth: August 31, 1971  
Citizenship: Japanese

### Academic Appointments

2016 – present Professor, School of Food and Nutritional Sciences, University of Shizuoka  
2013 – 2016 Associate Professor, School of Pharmaceutical Sciences, University of Shizuoka  
2006 – 2013 Assistant Professor, School of Pharmaceutical Sciences, University of Shizuoka  
2003 – 2006 Research Assistant Professor, School of Pharmaceutical Sciences, University of Shizuoka

### Postdoctoral Training

2002 Department of Chemistry, Kansas State University, USA (with Prof. Duy H. Hua)  
2000 – 2001 Department of Chemistry, Emory University, USA (with Prof. Lanny S. Liebeskind)

### Education

2000 Ph.D., Graduate School of Pharmaceutical Sciences, Osaka University (with Prof. Y. Kita)  
1997 M.S., Graduate School of Pharmaceutical Sciences, Osaka University (with Prof. Y. Kita)  
1995 B.A., Department of Pharmaceutical Sciences, Osaka University (with Prof. Y. Kita)

### Awards

2011 JSPC Award, Japan Society of Process Chemistry  
2010 The Pharmaceutical Society of Japan Tokai Branch Award for Young Scientists

### Publications

- 40) Yoshida, R.; Ouchi, H.; Yoshida, A.; Asakawa, T.; Inai, M.; Egi, M.; Hamashima, Y.; Kan, T.  
Stereoselective construction of 2-vinyl 3-hydroxybenzopyran rings: total syntheses of teadenols A and B  
*Org. Biomol. Chem.* **2016**, *14*, 10783–10786.
- 39) Kariya, Y.; Asanuma, Y.; Inai, M.; Asakawa, T.; Ohashi-Ito, K.; Fukuda, H.; **Egi, M.**; Kan, T.  
Practical synthesis of spermine, thermospermine and norspermine  
*Chem. Pharm. Bull.* **2016**, *64*, 1403–1407.

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- 38) Sugiyama, K.; Oki, Y.; Kawanishi, S.; Kato, K.; Ikawa, T.; **Egi, M.**; Akai, S.  
Spatial effects of vanadium-immobilized mesoporous silica on racemization of alcohols and application in lipase-catalyzed dynamic kinetic resolution  
*Catal. Sci. Technol.* **2016**, *6*, 5023–5030.
- 37) Inai, M.; Ishikawa, R.; Yoshida, N.; Shirakawa, N.; Akao, Y.; Kawabe, Y.; Asakawa, T.; **Egi, M.**; Hamashima, Y.; Kan, T.  
Stereocontrolled Total Syntheses of Optically Active Furofuran Lignans  
*Synthesis* **2015**, *47*, 3513–3521.
- 36) **Egi, M.\***; Akai, S.  
Transition metal-catalyzed intramolecular cyclization of propargyl alcohols and their derivatives for the synthesis of highly substituted five-membered oxygen heterocycles  
*Heterocycles* **2015**, *91*, 931–958. (review)
- 35) **Egi, M.\***; Shimizu, K.; Kamiya, M.; Ota, Y.; Akai, S.  
Central–Axial–Central Chirality Transfer: Asymmetric Synthesis of Highly Substituted Indenes Bearing a Stereogenic Quaternary Carbon Center from Optically Active Propargyl Alcohols  
*Chem. Commun.* **2015**, *51*, 380–383.
- 34) Yokozawa, S.; Ohneda, N.; Muramatsu, K.; Okamoto, T.; Odajima, H.; Ikawa, T.; Sugiyama, J.; Fujita, M.; Sawairi, T.; Egami, H.; Hamashima, Y.; **Egi, M.**; Akai, S.  
Development of a Highly Efficient Single-Mode Microwave Applicator with a Resonant Cavity and its Application to Continuous Flow Syntheses  
*RSC Advances* **2015**, *5*, 10204–10210.
- 33) **Egi, M.\***; Ota, Y.; Nishimura, Y.; Shimizu, K.; Azechi, K.; Akai, S.  
Efficient Intramolecular Cyclizations of Phenoxyethynyl Diols into Multisubstituted  $\alpha,\beta$ -Unsaturated Lactones  
*Org. Lett.* **2013**, *15*, 4150–4153.
- 32) Yamazaki, Y.; Yasuda, K.; Matsuyama, T.; Ishihara, T.; Higa, R.; Sawairi, T.; Yamaguchi, M.; **Egi, M.**; Akai, S.; Miyase, T.; Ikari, A.; Miwa, M.; Sugatani, J.  
A *Penicillium* sp. F33 metabolite and its synthetic derivatives inhibit acetyl-CoA:  
1-*O*-alkyl-*sn*-glycero-3-phosphocholine acetyltransferase (a key enzyme in platelet-activating factor biosynthesis) and carrageenan-induced paw edema in mice  
*Biochem. Pharm.* **2013**, *86*, 632–644.
- 31) **Egi, M.**; Sugiyama, K.; Saneto, M.; Hanada, R.; Kato, K.; Akai, S.  
A Mesoporous-Silica-Immobilized Oxovanadium Cocatalyst for the Lipase-Catalyzed Dynamic Kinetic Resolution of Racemic Alcohols  
*Angew. Chem. Int. Ed.* **2013**, *52*, 3654–3658. (Highlighted in *SYNFACTS* **2013**, *9*, 620)

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- 30) Takagi, A.; Ikawa, T.; Kurita, Y.; Saito, K.; Azechi, K.; **Egi, M.**; Itoh, Y.; Tokiwa, H.; Kita, Y.; Akai, S. Generation of 3-borylbenzynes, their regioselective Diels–Alder reactions, and theoretical analysis *Tetrahedron* **2013**, *69*, 4338–4352.
- 29) Komaki, R.; Ikawa, T.; Saito, K.; Hattori, K.; Ishikawa, N.; Fukawa, H.; **Egi, M.**; Akai, S. Discovery of Aromatic Components with Excellent Fragrance Properties and Biological Activities:  $\beta$ -Ionols with Antimelanogenic Effects and Their Asymmetric Syntheses *Chem. Pharm. Bull.* **2013**, *61*, 310–314.
- 28) **Egi, M.**; Kawai, T.; Umemura, M.; Akai, S. Heteropolyacid-Catalyzed Direct Deoxygenation of Propargyl and Allyl Alcohols *J. Org. Chem.* **2012**, *77*, 7092–7097.
- 27) **Egi, M.**; Umemura, M.; Kawai, T.; Akai, S. Heteropoly Compound Catalyzed Synthesis of Both *Z*- and *E*- $\alpha,\beta$ -Unsaturated Carbonyl Compounds *Angew. Chem. Int. Ed.* **2011**, *50*, 12197–12200.
- 26) **Egi, M.**; Azechi, K.; Akai, S. Reusable and Durable Immobilized-Cationic Gold(I) Catalysts for Environmentally Benign Bond-Forming Reactions *Adv. Synth. Catal.* **2011**, *353*, 287–290. (Highlighted in *SYNFACTS* **2011**, 565)
- 25) **Egi, M.** Development of Environmentally Benign Transformations via 1,3-Transposition of Hydroxyl Group *Yakugaku Zasshi* **2011**, *131*, 1453–1460. (review)
- 24) Akai, S.; Hanada, R.; Fujiwara, N.; Kita, Y.; **Egi, M.** One-Pot Synthesis of Optically Active Allyl Esters via Lipase–Vanadium Combo Catalysis *Org. Lett.* **2010**, *12*, 4900–4903. (Highlighted in *SYNFACTS* **2011**, 168)
- 23) Ikawa, T.; Takagi, A.; Kurita, Y.; Saito, K.; Azechi, K.; **Egi, M.**; Kakiguchi, K.; Kita, Y.; Akai, S. Preparation and Regioselective Diels–Alder Reactions of Borylbenzynes: Synthesis of Functionalized Arylboronates *Angew. Chem. Int. Ed.* **2010**, *49*, 5563–5566.
- 22) **Egi, M.**; Azechi, K.; Saneto, M.; Shimizu, K.; Akai, S. Cationic Gold(I)-Catalyzed Intramolecular Cyclization of  $\gamma$ -Hydroxyalkynones into 3(2*H*)-Furanones *J. Org. Chem.* **2010**, *75*, 2123–2126.

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- 21) **Egi, M.**; Azechi, K.; Akai, S.  
Cationic Gold(I)-Mediated Intramolecular Cyclization of 3-Alkyne-1,2-diols and 1-Amino-3-alkyn-2-ols:  
A Practical Route to Furans and Pyrroles  
*Org. Lett.* **2009**, *11*, 5002–5005. (Highlighted in *SYNFACTS* **2010**, 35)
- 20) Akai, S.; Ikawa, T.; Takayanagi, S.; Morikawa, Y.; Mohri, S.; Tsubakiyama, M.; **Egi, M.**; Wada, Y.; Kita, Y.  
Synthesis of Biaryl Compounds through Three-Component Assembly: Ambidentate Effect of the  
*tert*-Butyldimethylsilyl Group for Regioselective Diels–Alder and Hiyama Coupling Reactions  
*Angew. Chem. Int. Ed.* **2008**, *47*, 7673–7676.
- 19) **Egi, M.**; Yamaguchi, Y.; Fujiwara, N.; Akai, S.  
Mo–Au Combo Catalysis for Rapid 1,3-Rearrangement of Propargyl Alcohols into  $\alpha,\beta$ -Unsaturated  
Carbonyl Compounds  
*Org. Lett.* **2008**, *10*, 1867–1870. (Highlighted in *SYNFACTS* **2008**, 752)
- 18) Akai, S.; Nemoto, H.; **Egi, M.**  
Enantioselective Synthesis of both Enantiomers of Etodolac via a Lipase-Catalyzed Kinetic Resolution  
*Heterocycles* **2008**, *76*, 1537–1547.
- 17) Yang, H.; Li, H.; Wittenberg, R.; **Egi, M.**; Huang, W.; Liebeskind, L. S.  
Ambient Temperature Synthesis of High Enantiopurity *N*-Protected Peptidyl Ketones by Peptidyl  
Thiol Ester–Boronic Acid Cross-Coupling  
*J. Am. Chem. Soc.* **2007**, *129*, 1132–1140.
- 16) Akai, S.; Tanimoto, K.; Kanao, Y.; **Egi, M.**; Yamamoto, T.; Kita, Y.  
A Dynamic Kinetic Resolution of Allyl Alcohols by the Combined Use of Lipases and [VO(OSiPh<sub>3</sub>)<sub>3</sub>]  
*Angew. Chem. Int. Ed.* **2006**, *45*, 2592–2595. (Highlighted in *SYNFACTS* **2006**, 588)
- 15) Wittenberg, R.; Srogl, J.; **Egi, M.**; Liebeskind, L. S.  
Ketone Synthesis under Neutral Conditions. Cu(I) Diphenylphosphinate-Mediated, Palladium-Catalyzed  
Coupling of Thiol Esters and Organostannanes  
*Org. Lett.* **2003**, *5*, 3033–3035.
- 14) **Egi, M.**; Liebeskind, L. S.  
Heteroaromatic Thioether–Organostannane Cross-Coupling  
*Org. Lett.* **2003**, *5*, 801–802.
- 13) Hua, D. H.; Tamura, M.; **Egi, M.**; Werbovets, K.; Delfin, D.; Salem, M.; Chiang, P. K.  
Antiprotozoal activities of symmetrical bishydroxamic acids  
*Bioorg. Med. Chem.* **2003**, *11*, 4357–4361.

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- 12) Tohma, H.; Harayama, Y.; Hashizume, M.; Iwata, M.; Kiyono, Y.; **Egi, M.**; Kita, Y.  
The First Total Synthesis of Discorhabdin A  
*J. Am. Chem. Soc.* **2003**, *125*, 11235–11240.
- 11) Tohma, H.; Harayama, Y.; Hashizume, M.; Iwata, M.; **Egi, M.**; Kita, Y.  
Synthetic Studies on the Sulfur-Cross-Linked Core of Antitumor Marine Alkaloid, Discorhabdins: Total Synthesis of Discorhabdin A  
*Angew. Chem. Int. Ed.* **2002**, *41*, 348–350.
- 10) Kita, Y.; **Egi, M.**; Takada, T.; Tohma, H.  
Development of Novel Reactions Using Hypervalent Iodine(III) Reagents: Total Synthesis of Sulfur-containing Pyrroloiminoquinone Marine Product, (±)-Makaluvamine F  
*Synthesis* **1999**, 885–897.
- 9) Kita, Y.; **Egi, M.**; Ohtsubo, M.; Saiki, T.; Okajima, A.; Takada, T.; Tohma, H.  
Hypervalent iodine(III)-induced intramolecular cyclization reaction of substituted phenol ethers with an alkyl azido side-chain: a novel and efficient synthesis of quinone imine derivatives  
*Chem. Pharm. Bull.* **1999**, *47*, 241–245.
- 8) Kita, Y.; **Egi, M.**; Tohma, H.  
Total synthesis of sulfur-containing pyrroloiminoquinone marine product, (±)-makaluvamine F using hypervalent iodine(III)-induced reactions  
*Chem. Commun.* **1999**, 143–144.
- 7) Tohma, H.; **Egi, M.**; Ohtsubo, M.; Watanabe, H.; Takizawa, S.; Kita, Y.  
A novel and direct  $\alpha$ -azidation of cyclic sulfides using a hypervalent iodine(III) reagent  
*Chem. Commun.* **1998**, 173–174.
- 6) Kita, Y.; Watanabe, H.; **Egi, M.**; Saiki, T.; Fukuoka, Y.; Tohma, H.  
Novel and efficient synthesis of pyrroloiminoquinones using a hypervalent iodine(III) reagent  
*J. Chem. Soc., Perkin Trans. 1* **1998**, 635–636.
- 5) Kita, Y.; Takeda, Y.; Okuno, T.; **Egi, M.**; Iio, K.; Kawaguchi, K.; Akai, S.  
An efficient *p*-thiocyanation of phenols and naphthols using a reagent combination of phenyliodine dichloride and lead(II) thiocyanate  
*Chem. Pharm. Bull.* **1997**, *45*, 1887–1890.
- 4) Kita, Y.; **Egi, M.**; Ohtsubo, M.; Saiki, T.; Takada, T.; Tohma, H.  
Novel and efficient synthesis of sulfur-containing heterocycles using a hypervalent iodine(III) reagent  
*Chem. Commun.* **1996**, 2225–2226.

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- 3) Kita, Y.; **Egi, M.**; Okajima, A.; Ohtsubo, M.; Takada, T.; Tohma, H.  
Hypervalent iodine(III) induced intramolecular cyclization of substituted phenol ethers bearing an alkyl azido sidechain-a novel synthesis of quinone imine ketals  
*Chem. Commun.* **1996**, 1491–1492.
- 2) Akai, S.; Okuno, T.; **Egi, M.**; Takada, T.; Tohma, H.; Kita, Y.  
Preparation of novel cyclic hypervalent iodine(III) compounds having azido, cyano, and nitrate ligands  
*Heterocycles* **1996**, 42, 47–51.
- 1) Kita, Y.; Okuno, T.; **Egi, M.**; Iio, K.; Takeda, Y.; Akai, S.  
An effective *p*-thiocyanation of phenols using phenyliodine dichloride-lead(II) thiocyanate  
*Synlett* **1994**, 1039–1040.