

## Original Papers

### A03 Group (2011)

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**Eiji Hosono (Co-Investigator; Renkei-Kenkyusha)**

**Yuya Oaki (Co-Investigator; Renkei-Kenkyusha)**

1. Takao Kokubu, Yuya Oaki, Eiji Hosono, \*Haoshen Zhou, and \*Hiroaki Imai, “Biomimetic Solid-Solution Precursors of Metal Carbonate for Nanostructured Metal Oxides: MnO/Co and MnO-CoO Nanostructures and Their Electrochemical Properties”, *Advanced Functional Materials*, **21**, 3673-3680 (2011).
2. \*Yuya Oaki, Misako Kijima, and \*Hiroaki Imai, “Synthesis and Morphogenesis of Organic Polymer Materials with Hierarchical Structures in Biominerals”, *Journal of the American Chemical Society*, **133**, 8594-8599 (2011).
3. \*Hiroaki Imai, Natsuki Tochimoto, Yuichi Nishino, Yoko Takezawa, and Yuya Oaki, “Oriented Nanocrystal Mosaic in Monodispersed CaCO<sub>3</sub> Microspheres with Functional Organic Molecules”, *Crystal Growth & Design*, **12**, 876-882 (2012).
4. †\*Tatsuya Nishimura, Hiroataka Imai, Yuya Oaki, Takeshi Sakamoto, and ††\*Takashi Kato, “Preparation of Thin-film Hydroxyapatite/Polymer Hybrids”, *Chemistry Letters*, **40**, 458–460 (2011).  
†A01 Group, Collaborative research.
5. Masahiro Takeji, Yuya Oaki, and \*Hiroaki Imai, “Electrically Guided Microweb Formation with Ag Nanofibers under UV Irradiation and Its Application to Electrochemical and Plasmonic Devices”, *Journal of Physical Chemistry C*, **116**, 6103-6107 (2012).
6. \*Yuya Oaki, Naoki Yagita, and \*Hiroaki Imai, “One-Pot Aqueous Solution Syntheses of Iron Oxide Nanostructures with Controlled Crystal Phases through a Microbial-Mineralization-Inspired Approach”, *Chemistry—A European Journal*, **18**, 110-116 (2012). [Selected as Cover Picture]
7. Yuka Aoyama, Yuya Oaki, Ryuta Ise, and \*Hiroaki Imai, “Mesocrystal Nanosheet of Rutile TiO<sub>2</sub> and Its Reaction Selectivity as a Photocatalyst”, *CrystEngComm*, **14**, 1405-1411 (2012).
8. \*Yuya Oaki, Keisuke Nakamura, and \*Hiroaki Imai, “Homogeneous and Disordered Assembly of Densely Packed Titanium Oxide Nanocrystals: An Approach to Coupled Synthesis and Assembly in Aqueous Solution”, *Chemistry—A European Journal*, **18**, 2825-2831 (2012). [Selected as Cover Picture]
9. Toru Kobayashi, Shohei Ono, Shou Hirakura, Yuya Oaki, and \*Hiroaki Imai,

- “Morphological Variation of Hydroxyapatite Grown in Aqueous Solution Based on Simulated Body Fluid”, *CrystEngComm*, **14**, 1143-1149 (2012).
10. Koichi Ukigaya, Yuya Oaki, and \*Hiroaki Imai, “Versatile Modification for Highly Dispersive and Functionalized Mesoporous Silica Nanoparticles”, *Chemistry Letters*, **41**, 507-509 (2012).
  11. Yuya Oaki, Ryota Adachi, and \*Hiroaki Imai, “Self-Organization of Hollow-Coned Carbonate Crystals through Molecular Control by Using an Acid Organic Polymer”, *Polymer Journal*, **44**, 612-619 (2012) [Published as an Invited Original Article]

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1. Kazuhiro Yamamoto, Satoshi Matsushima, \*Koji Tomita Yasuyuki Miura, and †Masato Kakihana, “Synthesis of Titanium-based Ceramics by a new Synthetic Route of Water-soluble Titanium Complexes”, *J. Ceram. Soc. Jpn*, **119**, 486-489 (2011). †A01 Group, Collaborative research.
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Other articles in Japanese: 1

**Takayoshi Nakamura (Principal Investigator),**

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1. Toru Endo, \*Tomoyuki Akutagawa, Shin-ichiro Noro and \*Takayoshi Nakamura, “Supramolecular Cations of the m-fluoroanilinium(dibenzo[18]crown-6) in Ferromagnetic Salt”, *Dalton Trans.*, **40**, 1491-1496 (2011).
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- Kogerler and \*Leroy Cronin, “Exploring the Thermochromism of Sulfite-embedded Polyoxometalate Capsules” *Phys. Chem. Chem. Phys.*, **13**, 7295-7297 (2011).
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  - \*Tomoyuki Akutagawa, Fumito Kudo, Ryo Tsunashima, Shin-ichiro Noro, Leroy Cronin and \*Takayoshi Nakamura, “Hydrogen-Bonded Assemblies of Two-Electron Reduced Mixed-Valence [XMo<sub>12</sub>O<sub>40</sub>] (X = P and Si) with *p*-Phenylenediamines”, *Inorg. Chem.*, **50**, 6711-6718 (2011).
  - Qiong Ye, \*Tomoyuki Akutagawa, Norihisa Hoshino, Takemitsu Kikuchi, Shin-ichiro Noro, Ren Gen Xiong and \*Takayoshi Nakamura, “Polymorphs and Structural Phase Transition of [Ni(dmit)<sub>2</sub>] Crystals Induced by Flexible (trans-Cyclohexane-1,4-diammonium)(Benzo[18]crown-6)<sub>2</sub> Supramolecule”, *Crystal Growth and Design*, **11**, 4175-4182 (2011).
  - Hong-Ling Cai, Wen Zhang, Jia-Zhen Ge, Yi Zhang, Kunio Awaga, Takayoshi Nakamura and \*Ren Gen Xiong, “4-(cyanomethyl)anilinium Perchlorate: A New Displacive-Type Molecular Ferroelectric”, *Phys. Rev. Lett.*, **107**, 147601 (2011).
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  - Qiong Ye, Kiyonori Takahashi, Norihisa Hoshino, Takemitsu Kikuchi, \*Tomoyuki Akutagawa, Shin-ichiro Noro, Sadamu Takeda and \*Takayoshi Nakamura, “Huge Dielectric Response and Molecular Motions in Paddle-Wheel [Cu<sup>II</sup><sub>2</sub>(Adamantylcarboxylate)<sub>4</sub>(DMF)<sub>2</sub>] · (DMF)<sub>2</sub>”, *Chem. Eur. J.*, **17**, 14442-14449 (2011).

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Article in Japanese: 1

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1. \*Hideki Sakai, Shingo Taki, Koji Tsuchiya, Atsutoshi Matsumura, Kenichi Sakai, and Masahiko Abe, “Photochemical Control of Viscosity Using Sodium Cinnamate as a Photoswitchable Molecule”, *Chemistry Letters*, **41**, 247-248 (2012). [Editor’s Choice]
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3. \*Hideki Sakai, Keiji Kamogawa, Toshio Sakai, Taeko Umeda, Atsutoshi Matsumura, Kenichi Sakai, Masahiko Abe, “Stable Surfactant-Free Toluene-Polyethylene-in-Water Emulsion Prepared by Ultrasonication at High Temperature”, **61**, 57-63 (2012).
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5. Atsutoshi Matsumura, Koji Tsuchiya, Kanjiro Torigoe, Kenichi Sakai, \*Hideki Sakai, Masahiko Abe, “Photochemical Control of Molecular Assembly Formation in A Catanionic Surfactant System”, *Langmuir*, **27**, 1610-1617 (2011).
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8. Takeshi Misono, Hideki Sakai, Kenichi Sakai, Masahiko Abe, \*Toru Inoue, “Surface Adsorption and Aggregate Formation of Nonionic Surfactants in A Room Temperature Ionic Liquid, 1-Butyl-3-methylimidazolium Hexafluorophosphate (bmimPF<sub>6</sub>)”, *Journal of Colloid and Interface Science*, **358**, 527-533 (2011).
9. \*Hirobumi Shibata, Taku Ogura, Keishi Nishio, Hideki Sakai, Masahiko Abe, Kazuaki Hashimoto, Mutsuyoshi Matsumoto, “Fabrication and Pore Size Control of Large-Pore Mesoporous Silica Particles through a Solvent Evaporation Process” *Silicon*, **3**, 139-143, (2011).
10. \*Hirobumi Shibata, Shin-ichi Ohshika, Taku Ogura, Satoshi Watanabe, Keishi Nishio, Hideki Sakai, Masahiko Abe, Kazuaki Hashimoto, Mutsuyoshi Matsumoto, “Preparation and Photocatalytic Activity under Visible Light Irradiation of Mesoporous Titania Particles Modified with Phthalocyanine in the Pores”, *Journal of Photochemistry and Photobiology A: Chemistry*, **217**, 136-140 (2011).

Other articles in Japanese: 1

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1. Yoshihiro Sasaki, Yuji Tsuchido, Shin-ichi Sawada, \*Kazunari Akiyoshi, “Construction of Protein-crosslinked Nanogels with Vitamin B<sub>6</sub> bearing Polysaccharide”, *Polym. Chem.*, **2**, 1267-1270 (2011).
2. Yoshihiro Sasaki, Mukai Masaru, Akihiro Kawasaki, Kazuma Yasuhara, \*Jun-ichi Kikuchi, “Switching of the Enzymatic Activity Synchronized with Signal Recognition by an Artificial DNA Receptor on a Liposomal Membrane”, *Org. Biomol. Chem.*, **9**, 2397-2402 (2011).
3. Kazuma Yasuhara, Zhong-Hua Wang, Takahiro Ishikawa, \*Jun-Ichi Kikuchi, Yoshihiro Sasaki, Satoshi Hiyama, Yuki Moritani Tatsuya Suda, “Specific Delivery of Transport Vesicles Mediated by Complementary Recognition of DNA Signals with Membrane-bound Oligonucleotide Lipids”, *Supramol. Chem.*, **23**, 218-225 (2011).
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6. Shin-ichi Sawada, Yoshihiro Sasaki, Yuta Nomura, \*Kazunari Akiyoshi, “Cyclodextrin-responsive Nanogel as an Artificial Chaperone for Horseradish Peroxidase”, *Colloid Polym. Sci.*, 289, 685-691 (2011).
7. Kozo Watanabe, Yumiko Tsuchiya, Yoshinori Kawaguchi, Shin-ichi Sawada, Hirohito Ayame, Kazunari Akiyoshi, \*Takeshi Tsubata, “The Use of Cationic Nanogels to Deliver Proteins to Myeloma Cells and Primary T Lymphocytes that Poorly Express Heparan Sulfate”, *Biomaterials*, **32**, 5900-5905 (2011).
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- Kudo, Kenji Sano, Shin-ichi Sawada, Kazuyoshi Yano, Yasuhiko Iwasaki, Kazunari Akiyoshi, Manabu Mochizuki, \*Kohji Mitsubayashi, “Biomedical Soft Contact-lens Sensor for In Situ Ocular Biomonitoring of Tear Contents”, *Biomed. Microdevices*, **13**, 603-611 (2011).
10. Asako Shimoda, Shin-ichi Sawada, Arihiro Kano, Atsushi Maruyama, Alexandre Moquin, Françoise M. Winnik, \*Kazunari Akiyoshi, “Dual Crosslinked Hydrogel Nanoparticles by Nanogel Bottom-up Method for Sustained-release Delivery”, *Colloids Surf. B: Biointerfaces*, in press (2011)
  11. Koki Kamiya, Kanta Tsumoto, Tetsuro Yoshimura, \*Kazunari Akiyoshi, “Cadherin-integrated Liposomes with Potential Application in a Drug Delivery System”, *Biomaterials*, **32**, 9899-9907 (2011).
  12. Sayaka Toita, Shin-ichi Sawada, \*Kazunari Akiyoshi, “Polysaccharide Nanogel Gene Delivery System with Endosome-escaping Function: Co-delivery of Plasmid DNA and Phospholipase A2”, *J. Control. Release*, **155**, 54-59 (2011).
  13. Takuma Ohtsuka, Satoshi Neki, Tamotsu Kanai, \*Kazunari Akiyoshi, Shin-ichiro M. Nomura, \*Takashi Ohtsuki, “Synthesis and In Situ Insertion of a Site-specific Fluorescently Labeled Membrane Protein into Cell-sized Liposomes”, *Anal. Biochem.*, **418**, 97-101 (2011).
  14. Kenichi Nagano, Neil Alles, Anower Hussain Mian, Asako Shimoda, Nobuyuki Morimoto, Yukihiko Tamura, Hitoyata Shimokawa, Kazunari Akiyoshi, Keiichi Ohya, \*Kazuhiro Aoki, “The Tumor Necrosis Factor Type 2 Receptor Plays a Protective Role in Tumor Necrosis Factor- $\alpha$ -induced Bone Resorption Lacunae on Mouse Calvariae”, *J. Bone Miner.*, **29**, 671-81 (2011).
  15. \*Takayuki Miyahara, Myat Nyan, Asako Shimoda, Yuka Yamamoto, Shinji Kuroda, Makoto Shiota, Kazunari Akiyoshi, Shohei Kasugai, “Exploitation of a Novel Polysaccharide Nanogel Cross-linking Membrane for Guided Bone Regeneration (GBR)”, *J. Tissue Eng. Regen. Med.*, doi: 10.1002/term.475, (2011)
  16. Yoshihiro Sasaki, Daisuke Iida, Haruko Takahashi, Shin-ichi Sawada, \*Kazunari Akiyoshi, “Artificial Chaperone Polysaccharide Nanogels for Protein Delivery: A Thermodynamic Study of Protein-Nanogel Interactions using Fluorescence Correlation Spectroscopy”, *Curr. Drug Discovery Technol.*, **8**, 308-13 (2011)
  17. Takashi Nakai, Tai Hirakura, Yuji Sakurai, \*Tsuyoshi Shimoboji, Masaki Ishigai, \*Kazunari Akiyoshi, “Injectable Hydrogel for Sustained Protein Release by Salt-Induced Association of Hyaluronic Acid Nanogel”, *Macromol. Biosci.*, DOI: 10.1002/mabi.201100352 (2012).
  18. Yurina Sekine, Keita Abe, Akitaka Shimizu, \*Yoshihiro Sasaki, Shin-ichi Sawada, \*Kazunari Akiyoshi, “Shear Flow-induced Nanotubulation of Surface-immobilized Liposomes”, *RSC advances*, DOI: 10.1039/C2RA00629D (2012).

- Masaru Mukai, Kohei Maruo, Yoshihiro Sasaki, \*Jun-ichi Kikuchi, “Intermolecular Communication on a Liposomal Membrane: Enzymatic Amplification of a Photonic Signal with a Gemini Peptide Lipid as a Membrane-Bound Artificial Receptor”, *Chem. Eur. J.*, DOI: 10.1002/chem.201103552 (2012). [Selected as Inside cover, also of interest]

**Teruyuki Nakato (Principal Investigator)**

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- \*Teruyuki Nakato and Toshihiro Kasai, “Preparation of Au-loaded Niobate Nanosheets and Their Plasmon-driven Photochemical Reaction”, *Mater. Lett.*, **65**, 3402–3404 (2011).
- Teruyuki Nakato, Shoko Watanabe, Yasuhiro Kamijo, and Yoshihiro Nono, “Photoinduced Electron Transfer between Ruthenium-bipyridyl Complex and Methylviologen in Suspensions of Smectite Clays”, *Journal of Physical Chemistry C*, **116**, 8562-8570 (2012)..

**Miki Hasegawa (Principal Investigator)**

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- Kana Tanabe, Yuko Suzui, Miki Hasegawa and \*Takashi Kato, “Full-color tunable photoluminescent ionic liquid crystals based on tripodal pyridinium, pyrimidinium, and quinolinium salts”, *J. Am. Chem. Soc.*, in press.
- \*Chihiro Kachi-Terajima, Katsuya Yanagi, Toru Kaziki, Takafumi Kitazawa and Miki Hasegawa, “Luminescence tuning of imidazole-based lanthanide(III) complexes [Ln = Sm, Eu, Gd, Tb, Dy]”, *Dalton Trans.*, **40**, 2249 (2011).

**Masanori Ozaki (Principal Investigator)**

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- Yasuhiro. Ogawa, Masayoshi. Ojima, Kouji. Murata, Yasumasa. Fujiwara, Hitoshi. Kubo, Hiroyuki. Yoshida, Akihiko. Fujii and \*Masanori. Ozaki, “Electric Field Tuning of Surface Plasmon Resonance using Vertical Alignment Liquid Crystals on a Silver Grating Structure” *Molecular Crystal and Liquid Crystal*, **545**, 85-90 (2011).

2. Shuhei Yabu, Yuma Tanaka, Kenji Tagashira, Hiroyuki Yoshida, Akihiko Fujii, †Hirotsugu Kikuchi and \*Masanori Ozaki, “Polarization-independent refractive index tuning using gold nanoparticle-stabilized blue phase liquid crystals”, *Optics Express*, **36**, 3578-3580 (2011).  
†A02 Group, Collaborative research.
3. Yo Inoue, Hiroyuki Yoshida, Kenta Inoue, Yusuke Shiozaki, Hitoshi Kubo, Akihiko Fujii, and \*Masanori Ozaki, "Tunable lasing from a cholesteric liquid crystal film embedded with a liquid crystal nano-pore network", *Adv. Mater.*, **23**, (2011).
4. Shuhei Yabu, Hiroyuki Yoshida, Gihwan Lim, Kosuke Kaneko, Yasushi Okumura, Noboru Uehara, †Hirotsugu Kikuchi, and \*Masanori Ozaki, “Dual frequency operation of a blue phase liquid crystal”, *Optical Materials Express*, **1**, 1577-1584 (2011).  
†A02 Group, Collaborative research.

### **Tetsuya Tsuda (Principal Investigator)**

#### **Assistant Professor, Department of Applied Chemistry, Osaka University**

1. \*Tetsuya Tsuda, Eiko Mochizuki, Shoko Kishida, Hiroki Sakagami, Shigeaki Tachibana, Masaharu Ebisawa, Noriko Nemoto, Yoshitomo Nishimura, and \*Susumu Kuwabata, “Observation of Electrochemical Reaction and Biological Specimen by Novel Analytical Technique Combined with Room-Temperature Ionic Liquid and Scanning Electron Microscope”, *Electrochemistry*, **80**, 308-311 (2012).
2. \*Tetsuya Tsuda, Taiki Sakamoto, Yoshitomo Nishimura, Satoshi Seino, Akihito Imanishi, and \*Susumu Kuwabata, “Various Metal Nanoparticles Produced by Accelerated Electron Beam Irradiation of Room-Temperature Ionic Liquid”, *Chem. Commun.*, **48**, 1925-1927 (2012).
3. \*Tetsuya Tsuda, Koshiro Kondo, \*Takashi Tomioka, Yusuke Takahashi, Hajime Matsumoto, Susumu Kuwabata, and Charles L. Hussey, “Design, Synthesis, and Electrochemistry of Functionalized Room-Temperature Ionic Liquids with Propylene Carbonate”, *Angew. Chem. Int. Ed.*, **50**, 1310-1313 (2011). [This article was selected as a Hot Article.]
4. \*Akihito Imanishi, Shinobu Gonsui, Tetsuya Tsuda, Susumu Kuwabata, and Ken-ichi Fukui, “Size and Shape of Au Nanoparticles Formed in Ionic Liquids by Electron Beam Irradiation”, *Phys. Chem. Chem. Phys.*, **13**, 14823-14830 (2011).
5. \*Tetsuya Tsuda, Masahiro Baba, Yuichi Sato, Rentaro Sakao, Kazuhiko Matsumoto, Rika Hagiwara, and \*Susumu Kuwabata, “Nonvolatile RTIL-Based Artificial Muscle: Actuation Mechanism Identified by in situ EDX Analysis”, *Chem. Eur. J.*,



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6. \*Tetsuya Tsuda, Noriko Nemoto, Koshi Kawakami, Eiko Mochizuki, Shoko Kishida, Takako Tajiri, Toshihiro Kushibiki, and \*Susumu Kuwabata, “SEM Observation of Wet Biological Specimens Pretreated with Room-Temperature Ionic Liquid”, *ChemBioChem*, **12**, 2547-2550 (2011).

**Takashi Miyata (Principal Investigator)**

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1. \*Takashi Miyata, Takeshi Hayashi, Yoshiaki Kuriu, and Tadashi Uragami, “Responsive Behavior of Tumor-Marker-Imprinted Hydrogels Using Macromolecular Cross-linkers”, *Journal of Molecular Recognition*, **25**, 336-343 (2012).
2. \*Takashi Miyata, Akifumi Kawamura, Terumi Meotoiwa, Moritoshi Matsumoto, and Tadashi Uragami, “Synthesis of Novel Nucleobase-Terminated Organosilane and Its Self-Assembly on a Substrate”, *Polymer Journal*, **44**, 625-631 (2012).
3. Akifumi Kawamura, Yuta Hata, \*Takashi Miyata, and Tadashi Uragami, “Synthesis of Glucose-Responsive Bioconjugated Gel Particles Using Surfactant-Free Emulsion Polymerization”, *Colloids Surf. B: Biointerfaces*, in press.

**Takeshi Nagasaki (Principal Investigator)**

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1. T Takeshi Kawazu, Hiroyuki Kanzaki, Atsushi Uno, Hideki Azuma, and \*Takeshi Nagasaki, “HVJ-E/importin- $\beta$  hybrid vector for overcoming cytoplasmic and nuclear membranes as double barrier for non-viral gene delivery”, *Biomed. Biopharmacother.*, in press.
2. Tomoko Hashimoto, Takeshi Kawazu, \*Takeshi Nagasaki, Akira, Murakami, and Tetsuji Yamaoka, “Quantitative comparison between poly(L-arginine) and poly(L-lysine) at each step of polyplex-based gene transfection using a microinjection technique”, *Sci. Technol. Adv. Mater.*, in press.
3. Yoshinobu Yamaguchi, Nobuo Kato, Hideki Azuma, \*Takeshi Nagasaki and Junko Ohkanda, “Protein Recognition of Hetero-/Homoleptic Ruthenium(II) Tris(bipyridine)s for  $\alpha$ -Chymotrypsin and Cytochrome c”, *Bioorg. Med. Chem. Lett.*, **22**, 2354-2358 (2011).
4. Tsutomu Hamada, Yuko Kishimoto, \*Takeshi Nagasaki and Masahiro Takagi

- “Lateral phase separation in tense membranes”, *Soft Mater.*, **7**, 9061-9068 (2011).
5. Hideki Azuma, Yui Aizawa, Nao Higashitani, Takashi Tsumori, Akiko Kojima-Yuasa, Isao Matsui-Yuasa, and \*Takeshi Nagasaki, “Biological activity of water-soluble inclusion complexes of 1'-acetoxychavicol acetate with cyclodextrins”, *Bioorg. Med. Chem.*, **19**, 3855-3863 (2011).
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**Yutaka Takaguchi (Principal Investigator)**

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**University**

1. Tomoyuki Tajima, Akira Tsutsui, Tatsuo Fujii, Jun Takada, \*Yutaka Takaguchi, “Fabrication of Novel Core-Shell Microspheres Consisting of Single-Walled Carbon Nanotubes and CaCO<sub>3</sub> through Biomimetic Mineralization”, *Polymer J.*, **44**, 620-624 (2012).
2. Takeshi Kimura, Nobuhiro Takahashi, Tomoyuki Tajima, \*Yutaka Takaguchi, “Preparation and Optical and Electrochemical Properties of Unsymmetrical Phthalocyanines with One or Two TTF Units”, *Heterocycles*, **84**, 333-337 (2012).
3. Tomoyuki Tajima, Wakako Sakata, Takaaki Wada, Akira Tsutsui, Shunsuke Nishimoto, Michihiro Miyake, \*Yutaka Takaguchi, “Photosensitized Hydrogen Evolution from Water Using a Single-Walled Carbon Nanotube/Fullerodendron/SiO<sub>2</sub> Coaxial Nanohybrid”, *Adv. Mater.*, **23**, 5750-5754 (2011).
4. Takeshi Kimura, Toshiharu Namauo, Kaori Amano, Nobuhiro Takahashi, \*Yutaka Takaguchi, Tomonori Hoshi, Nagao Kobayashi, “Preparation and Electrochemical and Optical Properties of  $\alpha$ -Octaalkylphthalocyanines with Four Fused TTF Units”, *J. Porphyrins and Phthalocyanines*, **15**, 547-554 (2011).
5. Tomoyuki Tajima, Yukie Yamaguchi, Yo-hei Shiimoto, \*Yutaka Takaguchi, “Synthesis of Poly(amidoamine) Dendrimer with a Diphenyl Diselenide Core”, *Phosphorus, Sulfur and Silicon*, **186**, 2-11 (2011).

## Reviews and Account Articles

A03 Group (2011)

**Hrioaki Imai (Principal Investigator)**

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**Yutaka Takaguchi (Principal Investigator)**

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**Hrioaki Imai (Principal Investigator)**

**Eiji Hosono (Co-Investigator; Renkei-Kenkyusha)**

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**Tetsuya Tsuda (Principal Investigator)**

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