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**Next Due Date:** Tuesday July 15th, 2014

## Instructions for Authors (Volume 39)

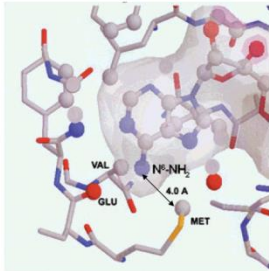
Identify articles to abstract in the journals you have been assigned. Try to pick things that the group (or specific subgroups) would like to read or should be aware of. This does not need to be limited to chemistry! If you encounter interesting pieces of media elsewhere (The Economist being a recent example) don't hesitate to let the group know. If you are splitting a journal with another group member, talk with him/her to be sure you are not reviewing redundantly. If you are not able to cover your journal for some reason, get someone to cover it for you—as if it were your group job.

### Create an Abstract

Abstract submissions are usually prepared using ChemDraw. The editors of the *Lit Review* strongly encourage the copying of graphical material from PDF files and wish to point out the following. Graphics stored in PDF files are typically of postscript or >300 dpi quality. When an image is copied into a ChemDraw document, a screen snapshot is taken, and the image is captured at the present screen resolution. If the PDF file is being viewed zoomed-in, this typically results in the transfer of a high quality image. If the PDF is being viewed zoomed-out, a low quality image typically results. Text can be copied from a PDF file and pasted as text using the text select or column select tool. Once pasted, this text behaves as if it were input from the keyboard.

Include a brief textual summary of the article; an example of a completed abstract is shown below. The list of topics and subgroups on the right is useful to highlight which subgroups should pay attention to your abstract and roughly what kind of chemistry the article contains.

Please email the files to sryckbos@stanford.edu. Late abstracts will be included in the Lit Review for the following month. **PCs please send .pdf and macs please send .cdx files.**

Citation: Abeyweera, T.P.; Rotenberg, S.A. <i>Biochemistry</i> <b>2007</b> , <i>46</i> , 2364-2370	
<p style="text-align: center;"><b>Design and Characterization of a Traceable Protein Kinase C-alpha</b></p> <p>Protein kinase CR (PKCR) is a critical component of pathways that govern cancer-related phenotypes such as invasion and proliferation. Proteins that serve as immediate substrates for PKCR offer potential targets for anticancer drug design. To identify specific substrates, a mutant of PKCR (M417A) was constructed at the ATP binding site such that it could bind a sterically large ATP analogue derivatized through the N6 amino group of adenosine (1ε-32P1-N6-phenyl-ATP). Because this analogue could be utilized by the mutant kinase but not by wild-type PKCR (or presumably other protein kinase) to phosphorylate peptide or protein substrates, 32P-labeled products were the direct result of the mutant PKCR.</p>	 <p><b>bioorganic</b> asymmetric methods synthesis mechanism review other</p> <p>OM Bryo Apop Hybrid Gnid/ Kirk Laulimalide Drug Deliv.</p>

Citation: Dictionary.com (search term = "mook")	
<p>For those of you who always wanted to know what it meant....</p> <p><b>mook</b> <b>Pronunciation Key</b> (mk) <i>n. Slang</i> An insignificant or contemptible person.</p>	<p><i>methods</i> synthesis</p>

### **DON'T BE A MOOK!**

Lit Review MOOKS include those who:

- fail to submit their abstracts in a timely fashion (or at all), or
- claim there was nothing to abstract in *JACS*, *JOC*, *Org. Lett.*, etc.

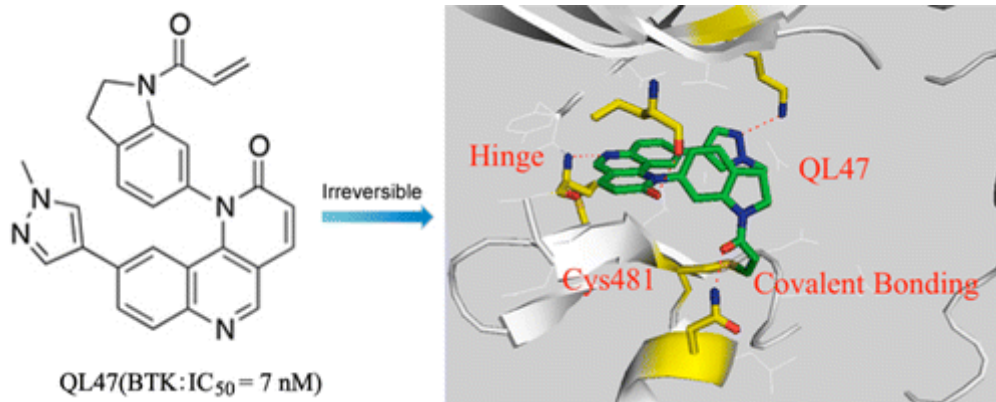
Penalties for being a Lit Review MOOK:

- You will get last choice when it's time to pick new journals.



Citation: Wu, H.; *et al. ACS Chem. Biol.* **2014**, *9*, 1086.

### Discovery of Potent, Covalent BTK Inhibitor for B-Cell Lymphoma



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Citation: Blass, B. *ACS. Med. Chem. Lett.* **2014**, *5*, 619-620

### Imidazo[2,1]thiazol-3-one Derivatives Useful as Diagnostic Agents for Alzheimer's Disease

Entry	Ar	R	R <sup>1</sup>	Tau IC <sub>50</sub> (nM)	A-β IC <sub>50</sub> (nM)
1	4-Py	CH <sub>3</sub>	OCH <sub>3</sub>	5	93
2	4-Cl-Phenyl	CH <sub>3</sub>	OCH <sub>3</sub>	2	7
6	4-Cl-Phenyl	CH <sub>3</sub>	Cl	2	32
7	4-Cl-Phenyl	CH <sub>3</sub>	Br	2	18
8	4-Cl-Phenyl	CH <sub>3</sub>	OH	5	18
12	3-CH <sub>3</sub> -4-Py	CH <sub>3</sub>	H	79	>10,000
16	3-CH <sub>3</sub> -4-Py	CH <sub>3</sub>	OCH <sub>3</sub>	8	32
21	3-Cl-Phenyl	CH <sub>3</sub>	OCH <sub>3</sub>	1	6
24	3-CF <sub>3</sub> -Phenyl	CH <sub>3</sub>	Cl	3	123
35	3-OCF <sub>3</sub> -Phenyl	CH <sub>3</sub>	F	13	>10,000

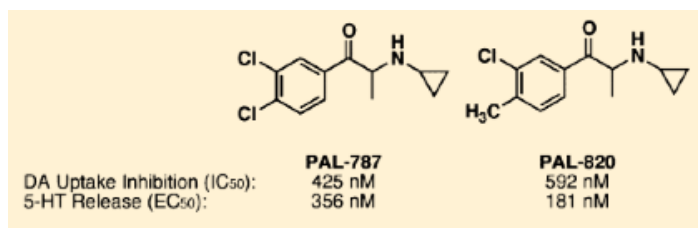
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other

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Drug Deliv.  
Prostratin

Citation: Blough, B. *et al. ACS. Med. Chem. Lett.* **2014**, *5*, 623-627.

### Hybrid Dopamine Uptake Blocker–Serotonin Releaser Ligands: A New Twist on Transporter-Focused Therapeutics

Hybrid compounds are interesting since they increase the design potential of transporter related compounds and hence represent a novel and unexplored strategy for therapeutic drug discovery. A series of N-alkylpropiophenones was synthesized and assessed for uptake inhibition and release activity using rat brain synaptosomes. Substitution on the aromatic ring yielded compounds that maintained hybrid activity, with the two disubstituted analogues (PAL-787 and PAL-820) having the most potent hybrid activity.



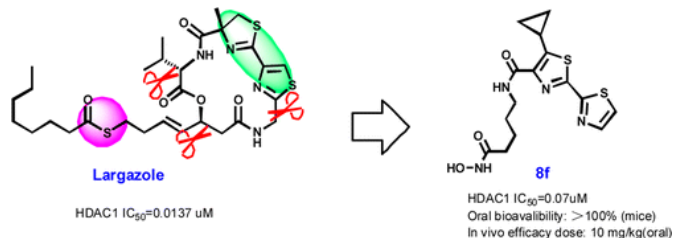
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Prostratin

Citation: Chen, F., *et. al. ACS Med. Chem. Lett.*, **2014**, 5, 628–633

### Potent and Orally Efficacious Bisthiazole-Based Histone Deacetylase Inhibitors

Inspired by the thiazole–thiazoline cap group in natural product largazole, a series of structurally simplified bisthiazole-based histone deacetylase inhibitors were prepared and evaluated. Compound 8f was evaluated in vivo in an experimental autoimmune encephalomyelitis (EAE) model and found to be orally efficacious in ameliorating clinical symptoms of EAE mice.

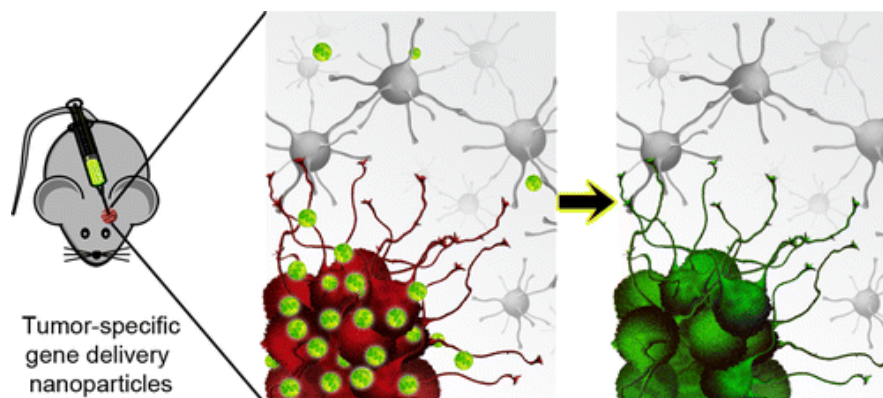


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Citation: Guerrero-Cazares, H., *et. al. ACS Nano*, 2014, 8 (5), pp 5141–5153

### Biodegradable Polymeric Nanoparticles Show High Efficacy and Specificity at DNA Delivery to Human Glioblastoma in Vitro and in Vivo

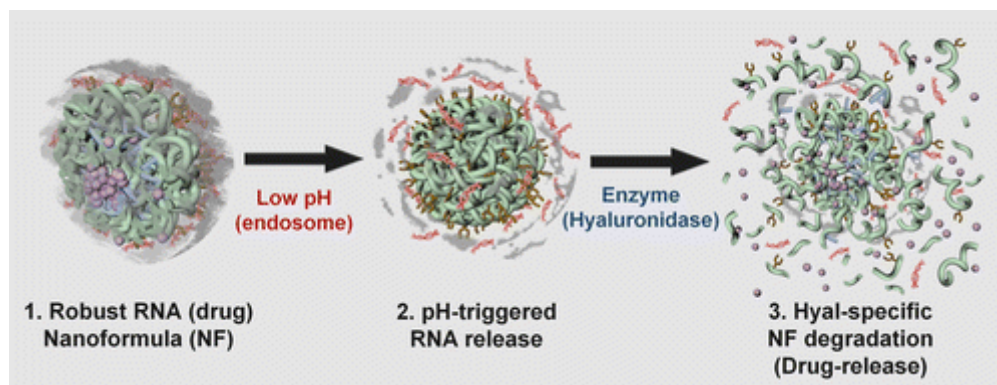


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Citation: Choi, K.Y., *et. al. ACS Nano*, 2014, 8 (5), pp 4559–4570

### Versatile RNA Interference Nanoplatform for Systemic Delivery of RNAs

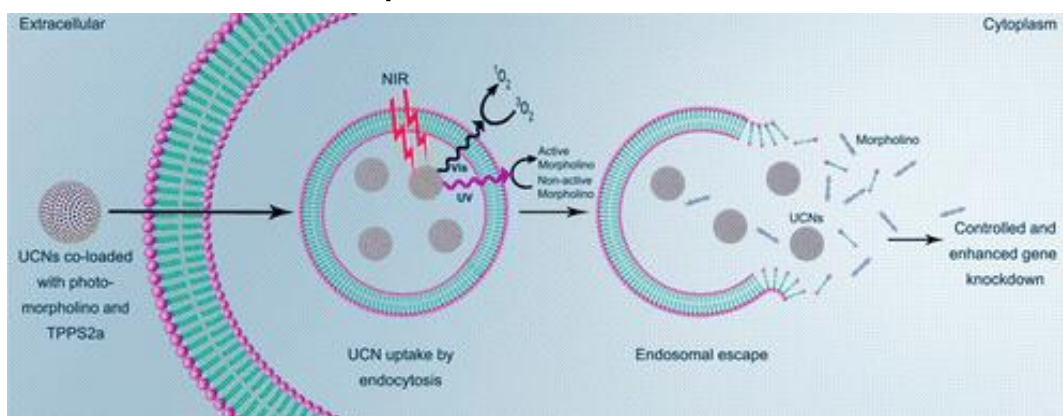


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Citation: Jayakumar, M.K.G., et. al. ACS Nano, 2014, 8 (5), pp 4848–4858

### Near-Infrared-Light-Based Nano-Platform Boosts Endosomal Escape and Controls Gene Knockdown in Vivo

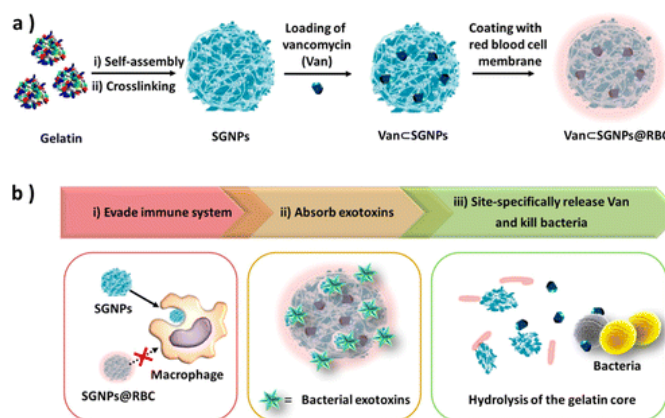


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Citation: Li, L.L., et. al. ACS Nano, 2014, 8 (5), pp 4975–4983

### Core-Shell Supramolecular Gelatin Nanoparticles for Adaptive and “On-Demand” Antibiotic Delivery

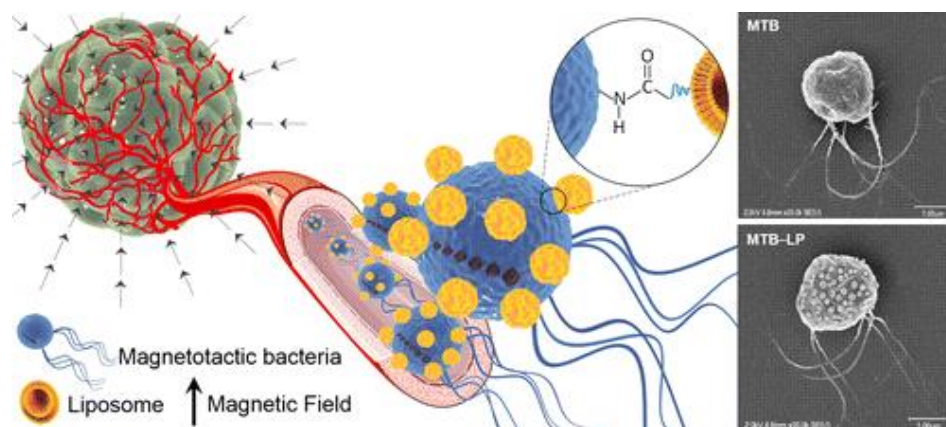


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Citation: Taherkhani, S., et. al. ACS Nano, 2014, 8 (5), pp 5049–5060

### Covalent Binding of Nanoliposomes to the Surface of Magnetotactic Bacteria for the Synthesis of Self-Propelled Therapeutic Agents

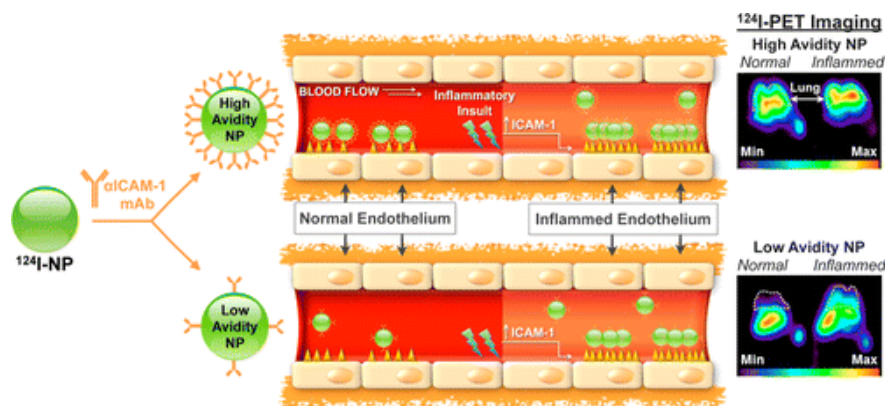


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Citation: Howard, M., et. al. ACS Nano, 2014, 8 (5), pp 4100–4132

### Vascular Targeting of Nanocarriers: Perplexing Aspects of the Seemingly Straightforward Paradigm

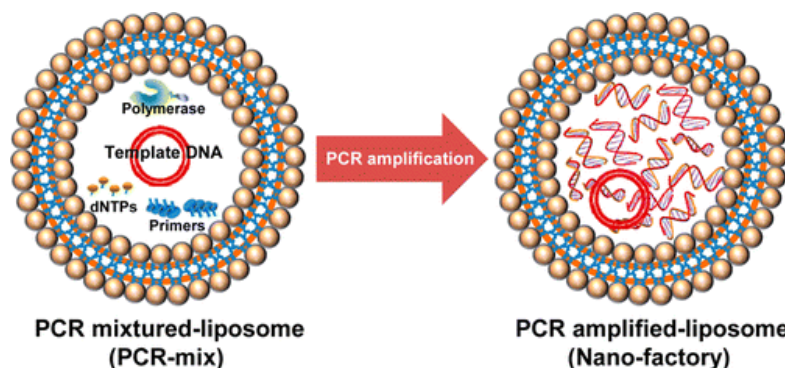


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Citation: Lee, S., et. al. ACS Nano, 2014, 8 (5), pp 4257–4267

### DNA Amplification in Neutral Liposomes for Safe and Efficient Gene Delivery



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Citation: Merkel, O.M.; Rybinstein, I.; Kissel, T. *Adv. Drug Del. Revs.* **2014**, *in press*.

### siRNA Delivery to the Lung: What's New?

RNAi has been thought of as the general answer to many unmet medical needs. After the first success stories, it soon became obvious that siRNA is not suitable for systemic administration due to its poor pharmacokinetics. Therefore local administration routes have been adopted for more successful *in vivo* RNAi. This paper reviews nucleic acid modifications, nanocarrier chemistry, animal models used in successful pulmonary siRNA delivery, as well as clinical translation approaches. This article summarizes what has been published recently and concludes with the potential problems that may still hamper the efficient clinical application of RNAi in the lung.

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Citation: Chen, Y.; Gao, D.-Y.; Huang, L. *Adv. Drug Del. Revs.* **2014**, *in press*.

### **In vivo delivery of miRNAs for cancer therapy: Challenges and strategies**

miRNAs, small non-coding RNAs, can regulate post-transcriptional gene expressions and silence a broad set of target genes. miRNAs, aberrantly expressed in cancer cells, play an important role in modulating gene expressions, thereby regulating downstream signaling pathways and affecting cancer formation and progression. Oncogenes or tumor suppressor genes regulated by miRNAs mediate cell cycle progression, metabolism, cell death, angiogenesis, metastasis and immunosuppression in cancer. Recently, miRNAs have emerged as therapeutic targets or tools and biomarkers for diagnosis and therapy monitoring in cancer. However, one of the major challenges of miRNA-based cancer therapy is to achieve specific, efficient and safe systemic delivery of therapeutic miRNAs *in vivo*. This review discusses the key challenges to the development of the carriers for miRNA-based therapy and explores current strategies to systemically deliver miRNAs to cancer without induction of toxicity.

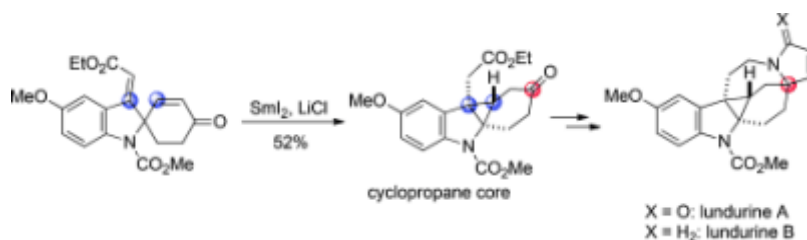
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Citation: Arai, S.; et al. *Angew. Chem. Int. Ed.* **2014**, *53* (22), 5569-5572.

### **A Concise and Versatile Synthesis of Alkaloids from *Kopsia tenuis*: Total Synthesis of (±)-Lundurine A and B**

The total synthesis of (±)-lundurines A and B is described. One of the key reactions is a SmI<sub>2</sub>-mediated cyclopropanation, which delivered the core structure with perfect stereocontrol of the quaternary carbon centers. Palladium- and ruthenium-catalyzed cyclizations were also effective for constructing seven- and five-membered heterocycles, respectively, to complete the total syntheses.



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Citation: Cooper, J.; et al. *Angew. Chem. Int. Ed.* **2014**, *53* (22), 5587-5590.

### **Rare-Cell Enrichment by a Rapid, Label-Free, Ultrasonic Isopycnic Technique for Medical Diagnostics**

Subtle differences in the physical properties of specific cell types are exploited in a new low-cost ultrasonic system to enrich specific cell populations (see picture; SAW=surface acoustic wave). To demonstrate the efficiency and simplicity of this method, the causative agents of malaria and sleeping sickness in blood were enriched. In this way the infection can be detected at low levels not suitable for conventional diagnostic methods.



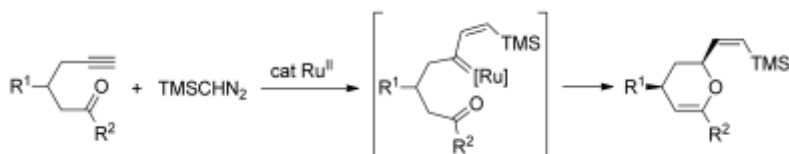
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Citation: Saa, C.; et al. *Angew. Chem. Int. Ed.* **2014**, 53 (23), 5959-5963.

### Vinyl Dihydropyrans and Dihydrooxazines: Cyclizations of Catalytic Ruthenium Carbenes Derived from Alkynals and Alkynones

A novel synthesis of 2-vinyldihydropyrans and dihydro-1,4-oxazines (morpholine derivatives) from alkynals and alkynones has been developed. The cyclizations require a mild generation of catalytic ruthenium carbenes from terminal alkynes and (trimethylsilyl)diazomethane followed by trapping with carbonyl nucleophiles.



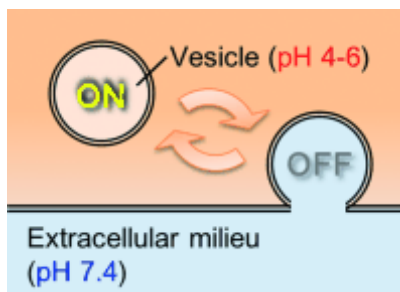
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Gnid/ Kirk  
Laulimalide

Citation: Hirose, K.; et al. *Angew. Chem. Int. Ed.* **2014**, 53 (24), 6085-6089.

### Acidic-pH-Activatable Fluorescence Probes for Visualizing Exocytosis Dynamics

Live imaging of the dynamics of exocytosis is crucial for a precise spatiotemporal understanding of secretion phenomena. Small-molecular fluorescent probes designed to be activated under acidic intravesicular conditions enabled the sensitive and reliable visualization of vesicular dynamics with high spatiotemporal precision (see picture).



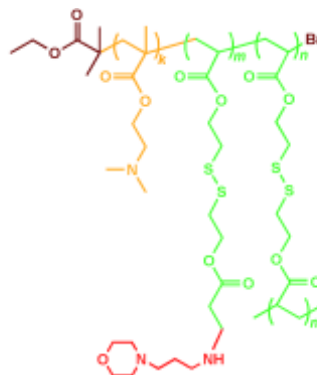
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Gnid/ Kirk  
Laulimalide  
Pharma

Citation: Wang, W.; et al. *Angew. Chem. Int. Ed.* **2014**, 53 (24), 6095-6100.

### Significance of Branching for Transfection: Synthesis of Highly Branched Degradable Functional Poly(dimethylaminoethyl methacrylate) by Vinyl Oligomer Combination

Highly branched poly(dimethylaminoethyl methacrylate) (PDMAEMA) copolymers (see structure) with a controlled degree of branching and the ability to undergo efficient degradation were investigated as gene-delivery vectors. Their transfection profile in terms of both transfection capability and the preservation of cell viability was superior to that of linear PDMAEMA.



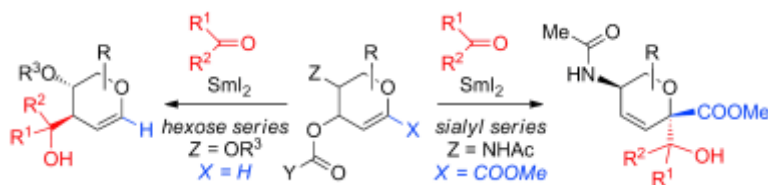
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Laulimalide  
**Drug Deliv.**

Citation: Beau, J.; et al. *Angew. Chem. Int. Ed.* **2014**, 53 (24), 6184-6187.

### Direct Umpolung of Glycals and Related 2,3-Unsaturated N-Acetylneuraminic Acid Derivatives Using Samarium Diiodide

Without the help of transition metals, samarium(II) iodide induces a chemoselective reductive coupling of carbonyl compounds with glycals. The high regioselectivity and stereoselectivity of the transformation are controlled by the structure of the substrates.



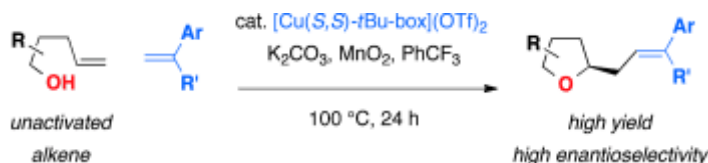
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Drug Deliv.

Citation: Chemler, S.; et al. *Angew. Chem. Int. Ed.* **2014**, 53 (25), 6383-6387.

### Enantioselective Copper-Catalyzed Carboetherification of Unactivated Alkenes

A highly enantioselective copper-catalyzed carboetherification of 4-pentenols has been developed. Both intramolecular (formal C-H functionalization) and intermolecular (net alkyl Heck-type coupling; see scheme) C-C bond formation can occur, thus forming a range of chiral functionalized tetrahydrofurans. DFT transition-state calculations provide a rationale for the observed asymmetric induction.



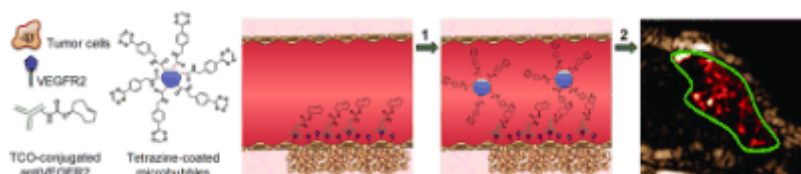
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Hybrid  
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PKC

Citation: Valliant, J.; et al. *Angew. Chem. Int. Ed.* **2014**, 53 (25), 6459-6463.

### Catching Bubbles: Targeting Ultrasound Microbubbles Using Bioorthogonal Inverse-Electron-Demand Diels–Alder Reactions

Tetrazine-functionalized microbubbles were prepared for use as ultrasound contrast agents, and shown to selectively localize on cells labeled with a TCO-derivatized antibody against VEGFR2. This capture approach based on labeling and bioorthogonal chemistry was validated in a flow-chamber assay and in vivo through ultrasound imaging of VEGFR2-positive and VEGFR2-negative murine tumor models. TCO=trans-cyclooctene.



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Citation: Dai, M.; et al. *Angew. Chem. Int. Ed.* **2014**, *53* (25), 6519-6522.

### Synthesis of Tetrahydropyran/Tetrahydrofuran-Containing Macrolides by Palladium-Catalyzed Alkoxy-carbonylative Macrolactonizations

An efficient Pd-catalyzed cascade alkoxy-carbonylative macrolactonization to synthesize various THP/THF-containing macrolactones in one step from relatively simple alkendiols is possible. Challenging macrolactones involving tertiary alcohols were synthesized smoothly as well. The method was applied to the synthesis of the potent anticancer compound 9-demethylneopeltolide.



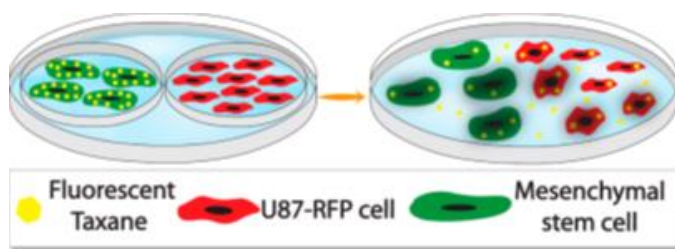
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Citation: Varchi, G., et al. *Bioconjugate Chem.*, **2014**, *25*, 649-655.

### Thiophene-Based Compounds as Fluorescent Tags to Study Mesenchymal Stem Cell Uptake and Release of Taxanes

The synthesis of two novel thiophene-based fluorophore-paclitaxel conjugates as tools for in vitro drug tracking is described. The ability of these novel derivatives to be efficiently internalized by Human mesenchymal stem cells was studied as well as the release of these compounds in the medium and their uptake by tumor cells.



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Citation: Tamvakopoulos, C., et al. *Bioconjugate Chem.*, **2014**, *25*, 813-823.

### GnRH-Gemcitabine Conjugates for the Treatment of Androgen-Independent Prostate Cancer: Pharmacokinetic Enhancements Combined with Targeted Drug Delivery

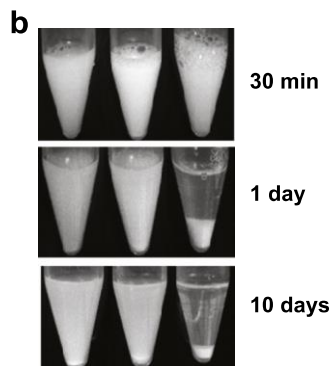
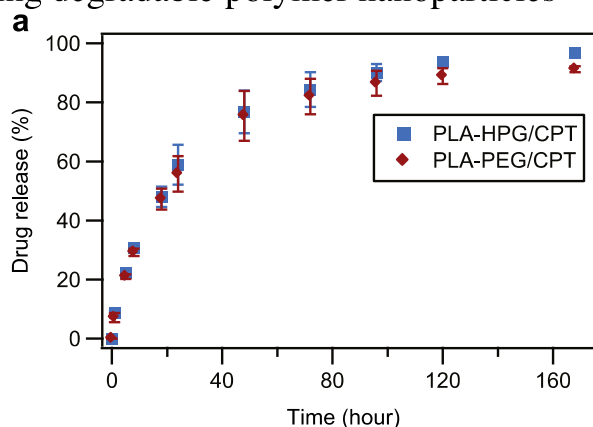
**Gemcitabine**, active against a number of solid tumors, has therapeutic limitations due to its rapid metabolic inactivation. The aim of this study was the development of an innovative strategy to produce a metabolically stable analogue of gemcitabine that could also be selectively delivered to prostate cancer (CaP) cells based on cell surface expression of the Gonadotropin Releasing Hormone-Receptor (GnRH-R). The synthesis and evaluation of conjugated molecules, consisting of gemcitabine linked to a GnRH agonist, is presented. Selected conjugates were efficacious in the in vitro assays displaying high antiproliferative activity in CaP cell lines along with significant metabolic and pharmacokinetic advantages in comparison to gemcitabine. Finally, treatment of GnRH-R positive xenografted mice with GSG showed a significant advantage in tumor growth inhibition when compared to gemcitabine.

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Citation: Deng, Y.; Saucier-Sawyer, J. K.; Hoimes, C. J.; Zhang, J.; Seo, Y.-E.; Andrejcsk, J. W.; Saltzman, W. M. *Biomaterials* 2014, 35, 6595–6602.

### The effect of hyperbranched polyglycerol coatings on drug delivery using degradable polymer nanoparticles

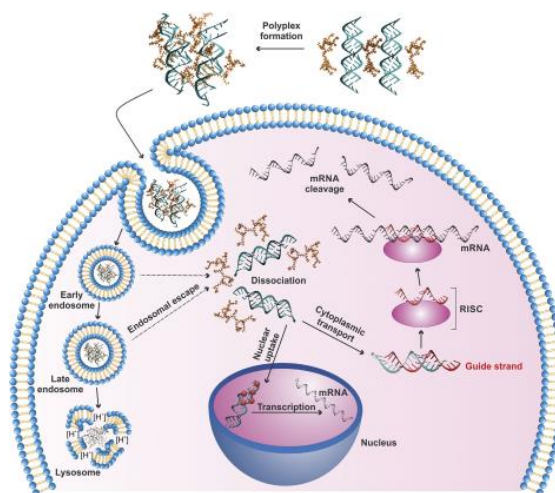


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DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Meneksedag-Erol, D.; Tang, T.; Uludaftü, H. *Biomaterials* 2014, 35, 7068–7076

### Molecular modeling of polynucleotide complexes

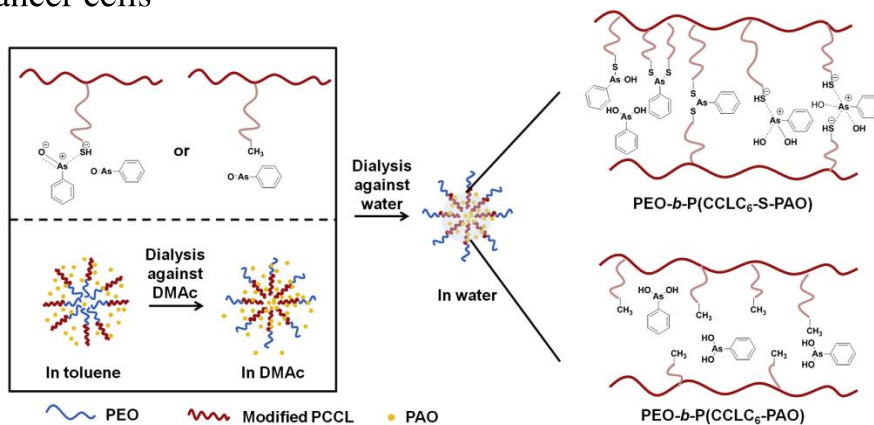


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Citation: Zhang, Q.; Vakili, M. R.; Li, X.-F.; Lavasanifar, A.; Le, X. C. *Biomaterials* 2014, 35, 7088–7100.

### Polymeric micelles for GSH-triggered delivery of arsenic species to cancer cells

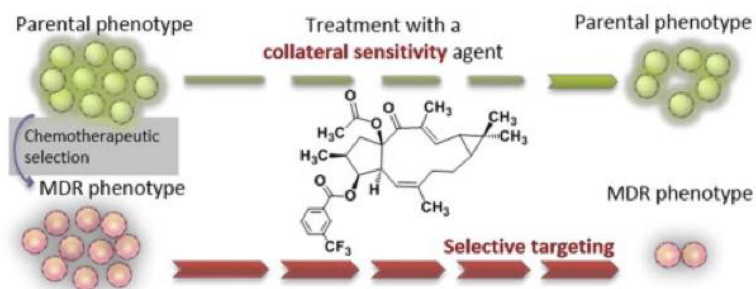


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Drug Deliv.  
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Citation: Reis, M. A.; et al. *Bioorg. Med. Chem.*, 22, (2014) 3696-3702

### Macrocyclic diterpenes resensitizing multidrug resistant phenotypes

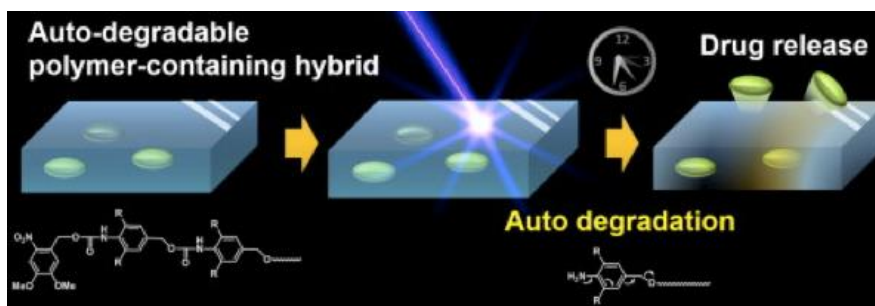


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Hybrid  
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Citation: Okada, H.; et al. *Bioorg. Med. Chem.*, 22, (2014) 3435-3400

### Photo-triggered molecular release based on auto-degradable polymer-containing organic-inorganic hybrids

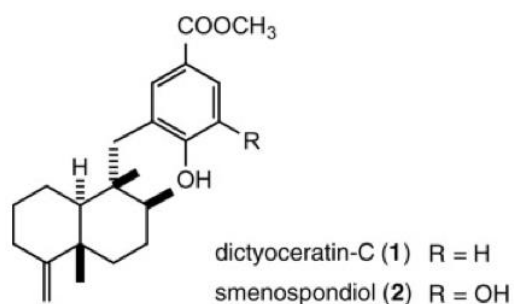


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Hybrid  
Drug Deliv.  
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Citation: Arai, M.; et al. *Bioorg. Med. Chem. Lett.*, 24, (2014) 3155-3157

### Marine spongian sesquiterpene phenols, dictyoceratin-C and smenospondiol, display hypoxia-selective growth inhibition against cancer cells

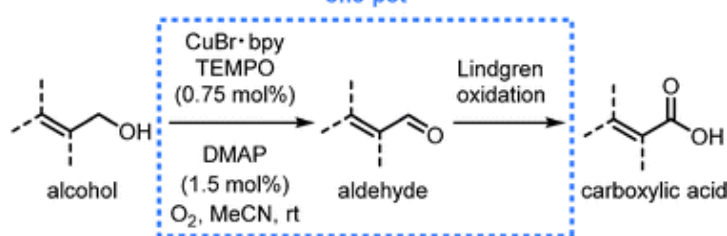


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Citation: Konning, D.; *et al. Chem. Commun.* **2014**, 50, 5014.

### Oxidation of allylic and benzylic alcohols to aldehydes and carboxylic acids



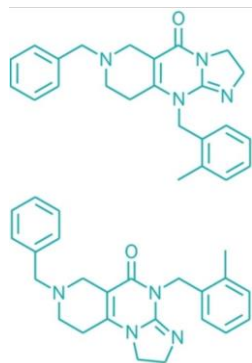
An oxidation of allylic and benzylic alcohols to the corresponding carboxylic acids is effected by merging a Cu-catalyzed oxidation using O<sub>2</sub> as a terminal oxidant with a subsequent chlorite oxidation (Lindgren oxidation). The protocol was optimized to obtain pure products without chromatography or crystallization. Interception at the aldehyde stage allowed for Z/E-isomerization, thus rendering the oxidation stereoconvergent with respect to the configuration of the starting material.

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Citation: Borman, S. *C&EN.* **2014**, 92(21), 7.

### Tug-of-War Over Promising Cancer Drug Candidate



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Drug Discovery: Structure error threatens existing patent and clinical trials

Citation: Widener, A. *C&EN.* **2014**, 92(21), 38-39.

### The Reproducibility Problem

**Researchers had high hopes** for a new treatment for the devastating disease amyotrophic lateral sclerosis (ALS) when the **National Institute of Neurological Disorders & Stroke** (NINDS) funded a new clinical trial in 2003. But the drug, minocycline, actually made patients worse.

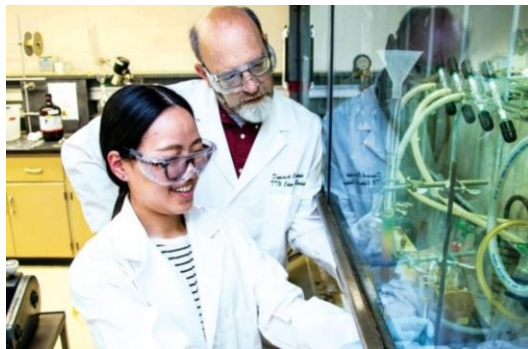
Looking back, faulty underlying research may have been to blame, says Story C. Landis, director of the institute, which is part of the National Institutes of Health. Mouse studies that showed the drug was effective used only 10 animals, and that research wasn't randomized or blinded. If NINDS had taken a hard look at those initial experiments, it might not have funded the larger trial in the first place, she says.

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Citation: Kemsley, J. *C&EN*. 2014, 92(23), 30-31.

## Chemistry Professors Promote Lab Safety



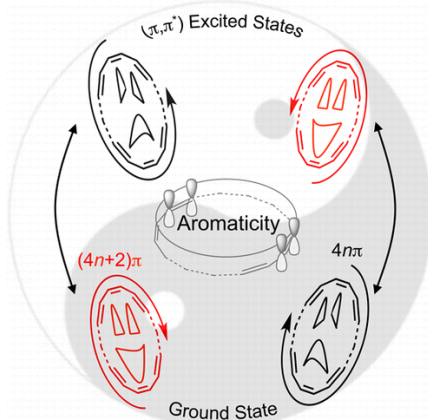
Faculty mentor lab members in multiple ways to ensure safe work environments

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Prostratin

Citation: Rosenberg, M.; Dahlstrand, C.; Kilså, K.\*; Ottosson, H.\* *Chem. Rev.*, 2014, 114 (10), pp 5379–5425

## Excited State Aromaticity and Antiaromaticity: Opportunities for Photophysical and Photochemical Rationalizations

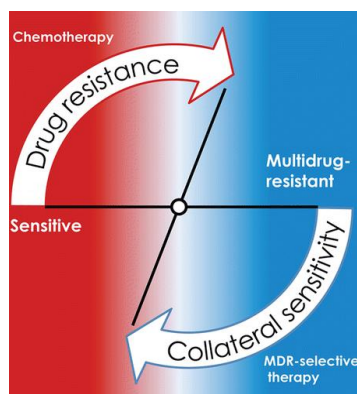


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Citation: Szakács, G.\*; et al *Chem. Rev.*, 2014, 114 (11), pp 5753–5774

## Targeting the Achilles Heel of Multidrug-Resistant Cancer by Exploiting the Fitness Cost of Resistance

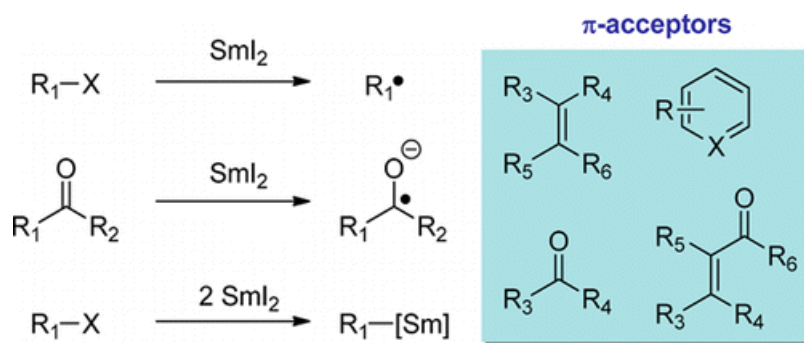


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Drug Deliv.  
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Citation: Szostak\*, M.; Fazakerley, N.J.; Parmar, D.; Procter, D.J.\* Chem. Rev., 2014, 114 (11), pp 5959–6039

### Cross-Coupling Reactions Using Samarium(II) Iodide.



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Drug Deliv.  
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Citation: Shi, Z.-J., et al., *Chemical Science*, 2014,5,2146-2159

### Transition metal-catalyzed direct nucleophilic addition of C–H bonds to carbon–heteroatom double bonds

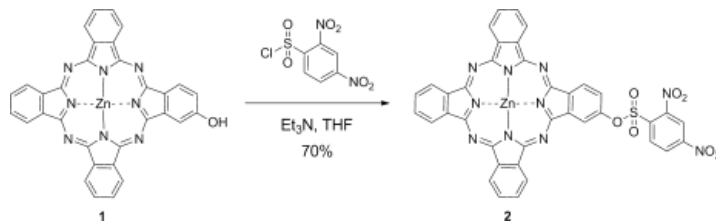


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Citation: He, et al. *Chem. Eur. J.* **2014**, 20, 6241-6245.

### A Glutathione-Activated Phthalocyanine-Based Photosensitizer for Photodynamic Therapy



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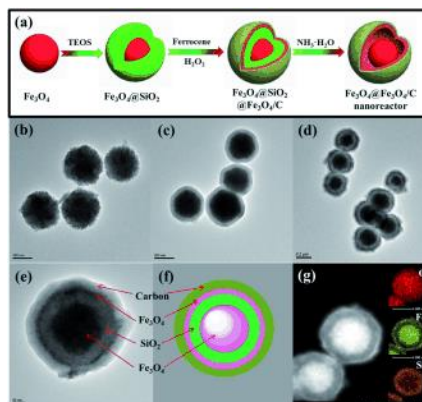
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A zinc(II) phthalocyanine substituted with a 2,4-dinitrobenzenesulfonate group has been prepared. Its fluorescence emission and reactive oxygen species generation can be greatly enhanced by glutathione in phosphate-buffered saline and inside MCF-7 cells. This compound thus functions as a highly efficient molecular-based activatable photosensitizer.

Citation: Zeng, *et al. Chem. Eur. J.* **2014**, *20*, 6474-6471.

### Assembly of a Nanoreactor System with Confined Magnetite Core and Shell for Enhanced Fenton-Like Catalysis

Conventional solid catalysts for heterogeneous Fenton-like reactions in bulk solution usually suffer from aggregation and vulnerability, which greatly lower the catalytic efficiency and hamper their practical application. Herein, we demonstrate a promising yolk-shell nanostructure with both the core and the shell composed of magnetite (designated as yolk-like Fe<sub>3</sub>O<sub>4</sub>@Fe<sub>3</sub>O<sub>4</sub>/C) as a nanoreactor capable of accommodating the Fenton-like reaction into its void space. Benefiting from the mesoporous shell and perfect interior cavity of this composite, reactants can access and be abundantly confined within the microenvironment where Fe<sub>3</sub>O<sub>4</sub> sites are dispersed on the entire cavity surfaces, thus leading to a higher catalytic efficiency compared with the conventional solid catalysts in bulk solution.



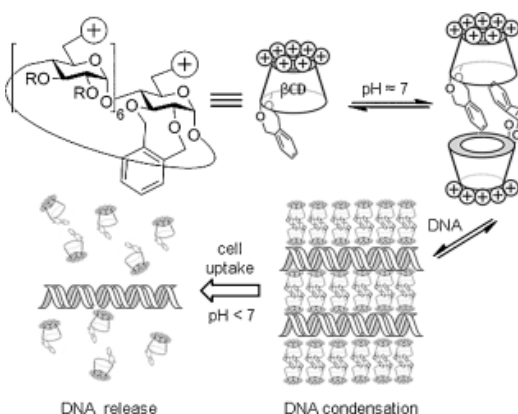
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Citation: Gallego-Yerga, *et al. Chem. Eur. J.* **2014**, *20*, 6622-6627.

### Dynamic Self-Assembly of Polycationic Clusters Based on Cyclodextrins for pH-Sensitive DNA Nanocondensation and Delivery by Component Design

The ability of cyclodextrin-based polycationic cluster to undergo reversible DNA condensation and release in a physiologically useful pH window has been finely tuned by the installation of a capping xylylene moiety at the secondary face of the cyclooligosaccharide. This strategy can be exploited advantageously in the design of self-assembling nonviral gene-delivery systems from molecular entities.



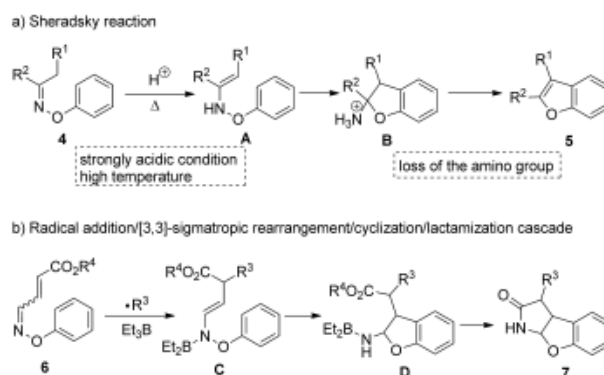
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Citation: Ueda, *et al. Chem. Eur. J.* **2014**, *20*, 6763-6770.

### Direct Synthesis of Benzofuro[2,3-b]pyrroles through a Radical Addition/[3,3]-Sigmatropic Rearrangement/Cyclization/Lactamization Cascade

The domino reaction of O-phenyl-conjugated oxime ether with an alkyl radical allows the construction of two heterocycles with three stereogenic centers as a result of the formation of two C[BOND]C bonds, a C[BOND]O bond, and a C[BOND]N bond in a single operation, leading to pyrrolidine-fused dihydrobenzofurans, which are not easily accessible by existing synthetic methods.



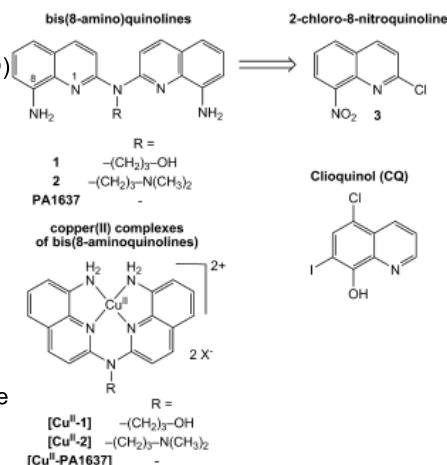
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Citation: Nguyen, *et al. Chem. Eur. J.* **2014**, *20*, 6771-6785.

Characterization of New Specific Copper Chelators as Potential Drugs for the Treatment of Alzheimer's Disease

The non-controlled redox-active metal ions, especially copper, in the brain of patients with Alzheimer disease (AD) should be considered at the origin of the intense oxidative damage in the AD brain. Several bis(8-aminoquinoline) ligands, such as 1 and PA1637, are able to chelate Cu<sup>2+</sup> with high affinity, and are specific chelators of copper with respect to iron and zinc. They are able to efficiently extract Cu<sup>2+</sup> from a metal-loaded amyloid. In addition, these tetradentate ligands are specific for the chelation of Cu<sup>2+</sup> compared with Cu<sup>+</sup>. In the present work, they report the synthesis of two PA1637 analogues, compounds 1 and 2, and we describe their physicochemical properties, in particular their ability to specifically chelate copper(II) ions but not iron or zinc ions. These specific chelators should be considered as copper homeostasis regulators for neurodegenerative diseases.



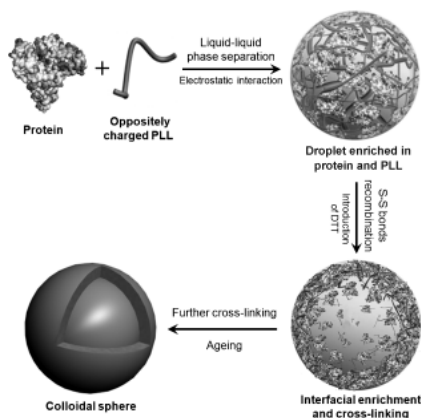
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Citation: Yan, *et al. Chem. Eur. J.* **2014**, *20*, 6880-6887.

Nanoengineering of Stimuli-Responsive Protein-Based Biomimetic Protocells as Versatile Drug Delivery Tools

The authors present a general strategy to nanoengineer protein-based colloidal spheres (biomimetic protocells) as versatile delivery carriers with stimuli responsiveness by the electrostatic assembly of binary components (proteins and polypeptides) in association with intermolecular disulfide cross-linking. The size of the colloidal spheres, ranging from nanoscale to microscale, is readily tuned through parameters like protein and polypeptide concentration, the ratio between both, pH, and so on. Moreover, such colloidal spheres show versatile encapsulation of various guest molecules including small organic molecules and biomacromolecules. The pH and redox dual-responsiveness facilitates the rapid release of the payload in an acidic and reductant-enriched ambient such as in lysosomes



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Citation: Vleeschouwer, *et al. Chem. Eur. J.* **2014**, *20*, 7766-7775.

Rapid Total Synthesis of Cyclic Lipodepsipeptides as a Premise to Investigate their Self-Assembly and Biological Activity

This member of the *Pseudomonas viscosin* group is active against Gram-positive bacteria and features self-assembling properties. A conserved serine residue within the lactone macrocycle is exploited for initial immobilization on 2-chlorotrityl chloride resin through ether formation with the side-chain alcohol. Subsequent elongation proceeds through Fmoc solid-phase peptide synthesis, including automated incorporation of the enantioselectively synthesized (R)-3-hydroxydecanoic acid lipid tail. Following esterification to generate the incipient lactone bond, the macrocycle is formed by on-resin head-to-tail macrolactamization and cleaved from the resin to give the desired compound in good purity. The short and efficient synthesis route allows rapid generation of analogues by facile variation of both the peptide and lipid moieties with good control of epimerization while maximizing automation. Synthesis of the pseudodesmin A enantiomer yields identical self-assembly and biological activity to that observed for the natural compound, showing that activity is not mediated by chiral interactions.

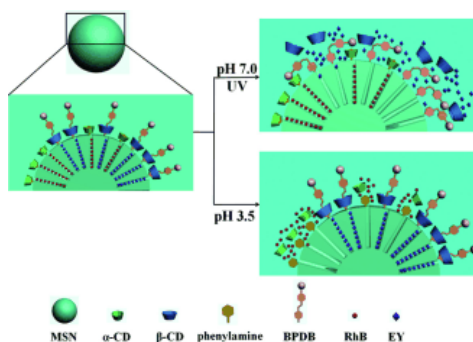
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Citation: Sonntag, M. ,*et al. Chem. Eur. J.* **2014**, 20,6019-6026.

### A Selective Release System Based on Dual-Drug-Loaded Mesoporous Silica for Nanoparticle-Assisted Combination Therapy

A selective release system was demonstrated with a dual-cargo loaded MSNs. When stimulated by different signals (UV or H<sup>+</sup>), this system could selectively release different kinds of cargoes individually. Furthermore, this system has been used to provide a combination of chemotherapy and biotherapy for cancer treatment. This controlled release system could be an important step in the development of more effective and sophisticated nanomedicine and nanodevices, due to the possibility of selective release of a complex multi-drug.



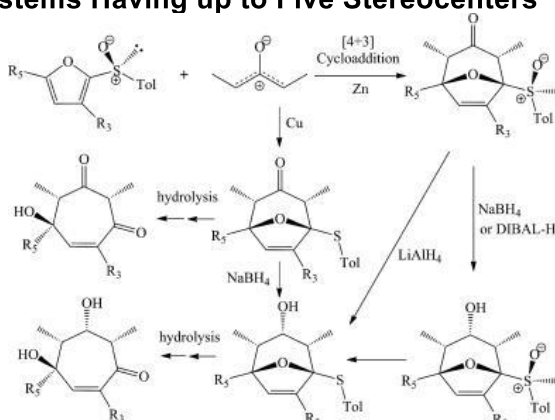
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Citation: Montana, A. M. et. al. *Eur. J. Org. Chem.* **2014**, 2726-2746.

### Use of the p-Tolylsulfinyl Group as a Chiral Inductor in Stereoselective [4+3] Cycloaddition Reactions: Preparation of Enantiopure Polysubstituted 8-Oxabicyclo[3.2.1]oct-6-en-3-one Systems Having up to Five Stereocenters

Stereoselective [4+3] cycloaddition reactions has made possible the preparation of enantiopure polysubstituted 8-oxabicyclo[3.2.1]oct-6-en-3-one systems having up to five stereocenters.



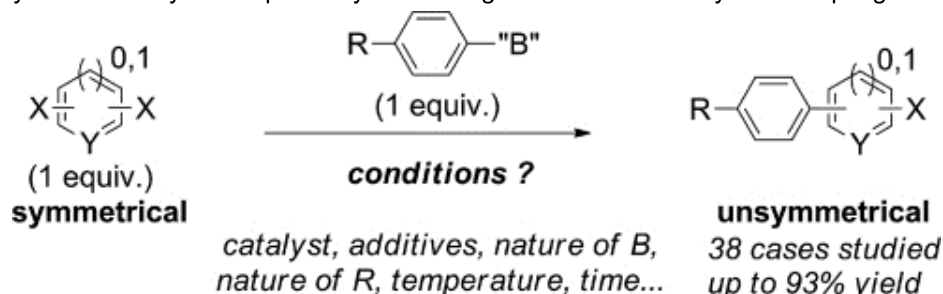
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Citation: Dodd, R. D. et. al. *Eur. J. Org. Chem.* **2014**, 2942–2955.

### Selective Suzuki–Miyaura Monocouplings with Symmetrical Dibromoarenes and Aryl Ditriflates for the One-Pot Synthesis of Unsymmetrical Triaryls

By studying several key parameters, the factors that allow selective Suzuki–Miyaura monocoupling of symmetrical dihaloarenes have been outlined. This study serves as the basis for the efficient synthesis of unsymmetrical triaryls from symmetrical dibromoarenes and aryl ditriflates by a one-pot desymmetrizing double Suzuki–Miyaura coupling.



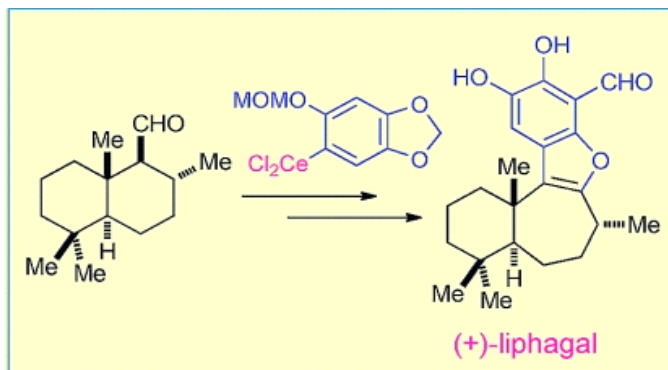
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Citation: Katoh, T. et. al. *Eur. J. Org. Chem.* **2014**, 3443–3450.

### Biogenetically Inspired Total Synthesis of (+)-Liphagal: A Potent and Selective Phosphoinositide 3-Kinase ? (PI3K?) Inhibitor from the Marine Sponge *Akaralliphaga*

(+)-Liphagal, a biologically attractive and structurally unique marine natural product, was synthesized in 29% overall yield in a longest linear sequence of 13 steps from commercially available (+)-sclareolide. A characteristic tetracyclic core structure was established by a method based on the proposed biosynthetic pathway.



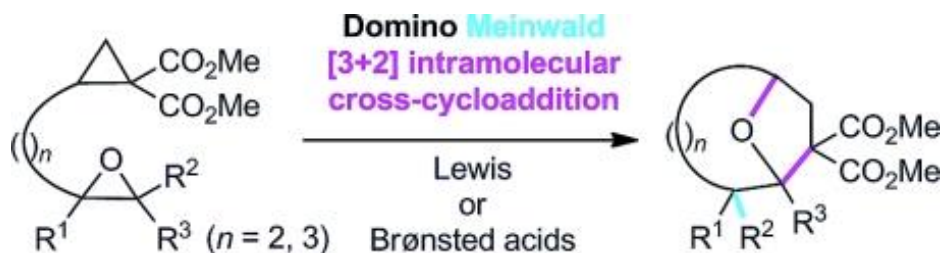
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Citation: Wang, Z. et. al. *Eur. J. Org. Chem.* **2014**, 3561–3564.

### Acid-Catalyzed Domino Meinwald Rearrangement of Epoxides/Intramolecular [3+2] Cross-Cycloaddition of Cyclopropane-1,1-dicarboxylates

An acid-catalyzed domino Meinwald rearrangement of epoxides/intramolecular [3+2] cross-cycloaddition of cyclopropane 1,1-diester was developed. This supplied a method for the construction of bridged oxa-[n.2.1] (n = 3, 4) skeletons.



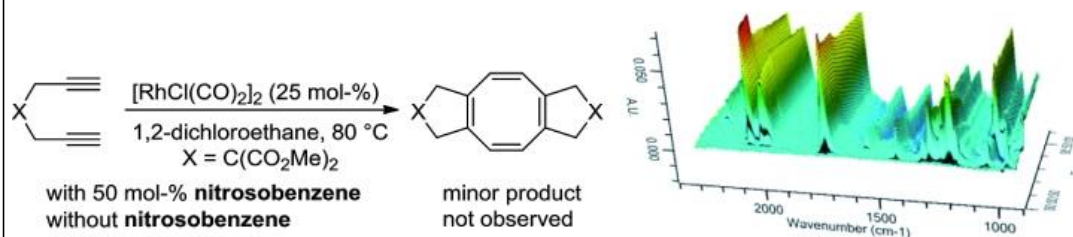
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Citation: Croatt, M. P. et. al. *Eur. J. Org. Chem.* **2014**, 3767–3772

### Rhodium(I)-Catalyzed [2+2+2+2] Cycloaddition of Diynes To Form Cyclooctatetraenes

The first rhodium(I)-catalyzed [2+2+2+2] cycloaddition of alkynes is reported. The typical cyclotrimerization of alkynes to form benzene rings is still observed, but it was found to be significantly impacted by additives. A series of additives and mechanistic studies, performed using a ReactIR, were used to determine that DMSO is an efficient ligand for the RhI catalyst to impact the reaction mechanism.

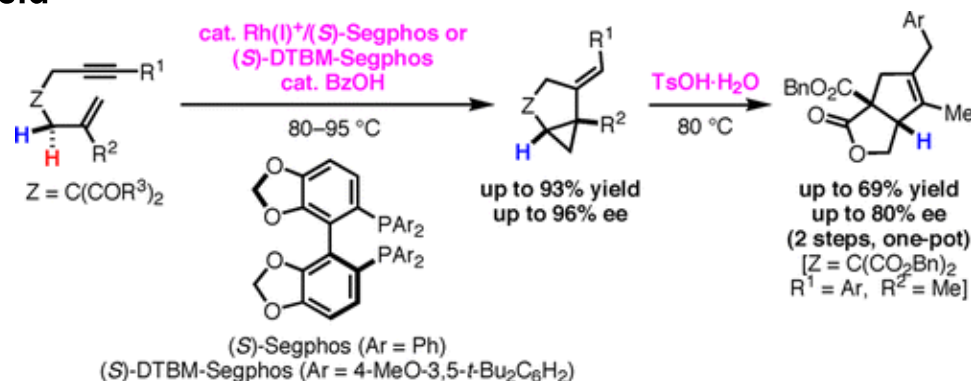


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Hybrid  
Drug Deliv.  
Prostratin

Citation: Masutomi, K.; Noguchi, K.; Tanaka, K. *J. Am. Chem. Soc.*, **2014**, *136* (18), 7627-7630.

## Enantioselective Cycloisomerization of 1,6-Enynes to Bicyclo[3.1.0]hexanes Catalyzed by Rhodium and Benzoic Acid

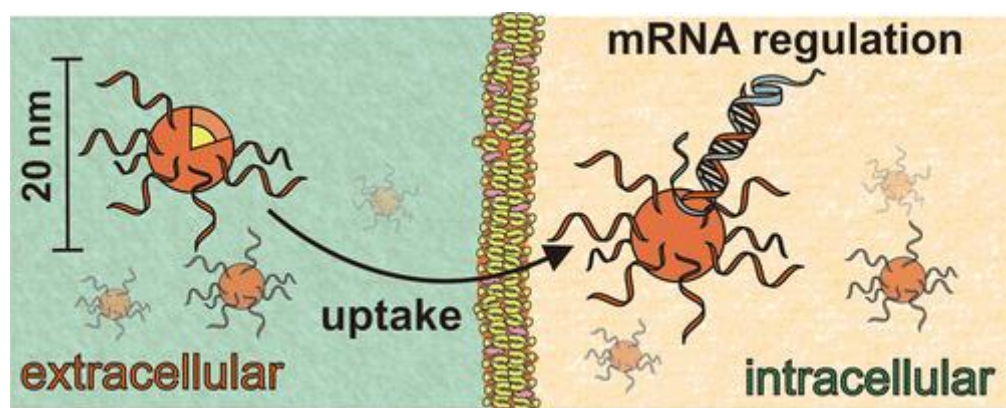


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Citation: Rush, A.M.; Nelles, D.A.; Blum, A.P.; Barnhill, S.A.; Tatro, E.T.; Yeo, G.W.; Gianneschi, N.C. *J. Am. Chem. Soc.*, **2014**, *136* (197), 7615-7618.

## Intracellular mRNA Regulation with Self-Assembled Locked Nucleic Acid Polymer Nanoparticles

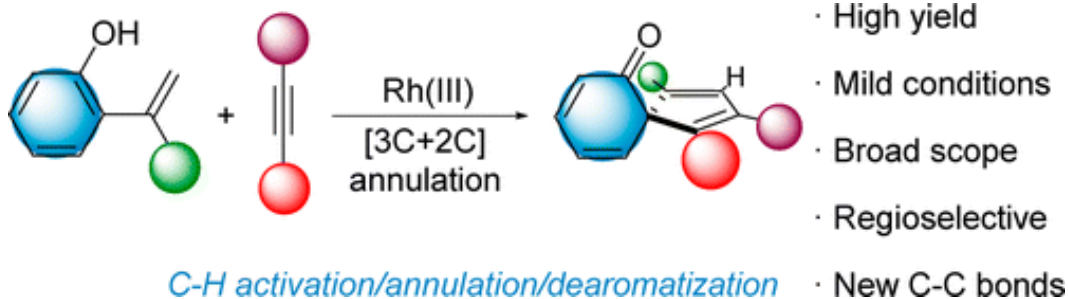


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Citation: Seoane, A.; Casanova, N.; Quiñones, N.; Mascareñas, J.L.; Gulílas, M. *J. Am. Chem. Soc.*, **2014**, *136* (19), 7607-7610.

## Rhodium(III)-Catalyzed Dearomatizing (3 + 2) Annulation of 2-Alkenylphenols and Alkynes

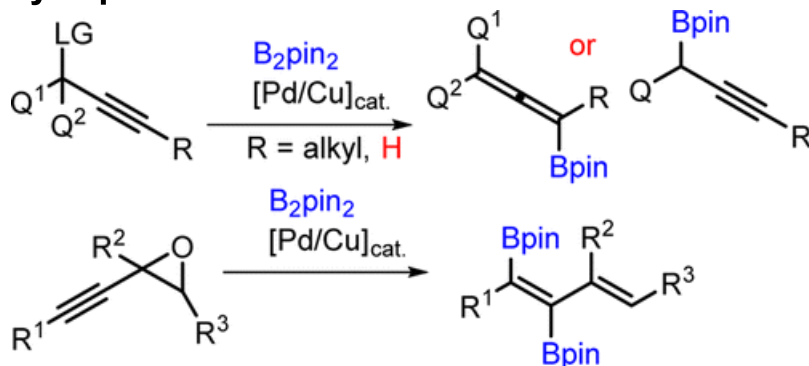


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Drug Deliv.  
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Citation: Zhao, T.S.N.; Yang, Y.; Lessing, T.; Szabó, K.J. *J. Am. Chem. Soc.*, **2014**, *136* (21), 7563-7566.

### Borylation of Propargylic Substrates by Bimetallic Catalysis. Synthesis of Allenyl, Propargylic, and Butadienyl Bpin Derivatives

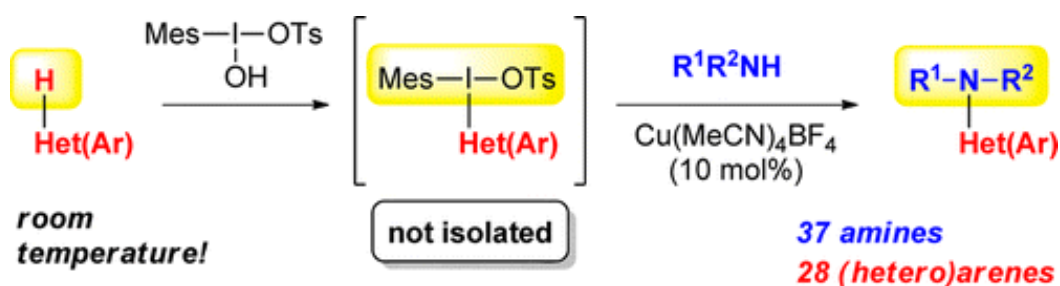


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Drug Deliv.  
Prostratin

Citation: Sokolovs, I.; Lubriks, D.; Suna, E. *J. Am. Chem. Soc.*, **2014**, *136* (19), 6920-6928.

### Copper-Catalyzed Intermolecular C-H amination of (Hetero)arenes via Transient Unsymmetrical $\lambda^3$ -Iodanes

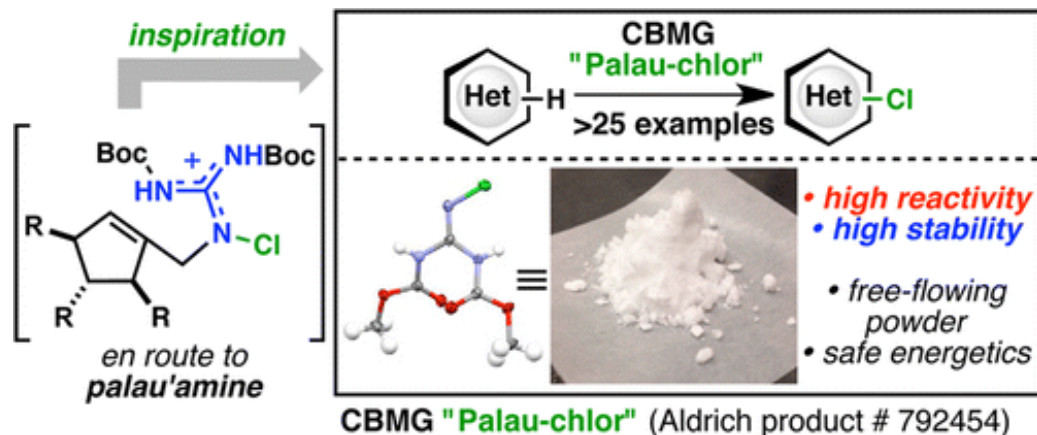


bioorganic  
methods  
**synthesis**  
mechanism  
review  
other

OM  
Bryo  
DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Rodriguez, R.A.; Pan, C.-M.; Yabe, Y.; Kawamata, Y.; Eastgate, M.D.; Baran, P.S. *J. Am. Chem. Soc.*, **2014**, *136* (19), 6908-6911.

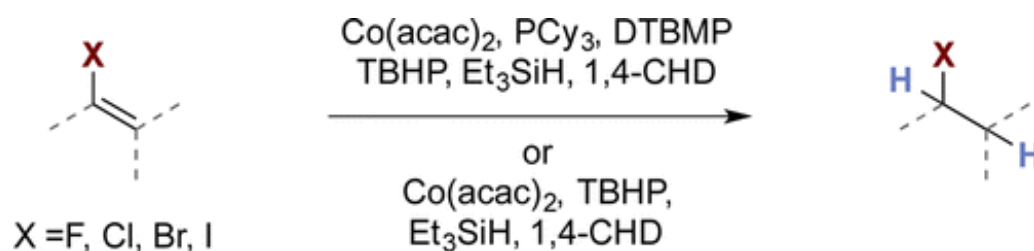
### Palau'chlor: A Practical and Reactive Chlorinating Reagent



bioorganic  
methods  
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other

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DDO  
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Drug Deliv.  
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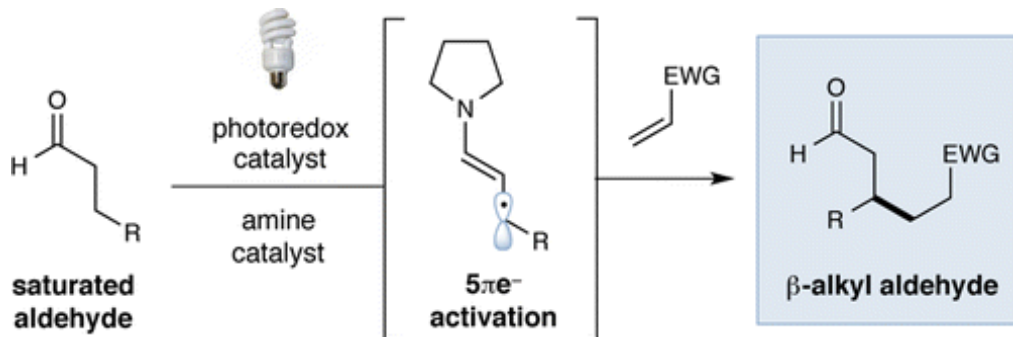
## A Method for the Selective Hydrogenation of Alkenyl Halides to Alkyl Halides



bioorganic  
**methods**  
**synthesis**  
 mechanism  
 review  
 other

**OM**  
 Bryo  
 DDO  
 Hybrid  
 Drug Deliv.  
 Prostratin

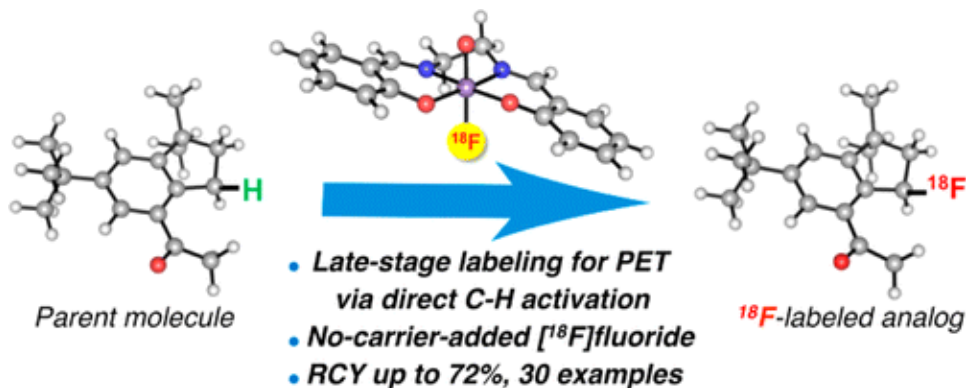
## Direct $\beta$ -Alkylation of Aldehydes via Photoredox Organocatalysis



bioorganic  
 methods  
 synthesis  
**mechanism**  
 review  
 other

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 Bryo  
 DDO  
 Hybrid  
 Drug Deliv.  
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## Late Stage Benzylic C-H Fluorination with [<sup>18</sup>F]Fluoride for PET Imaging

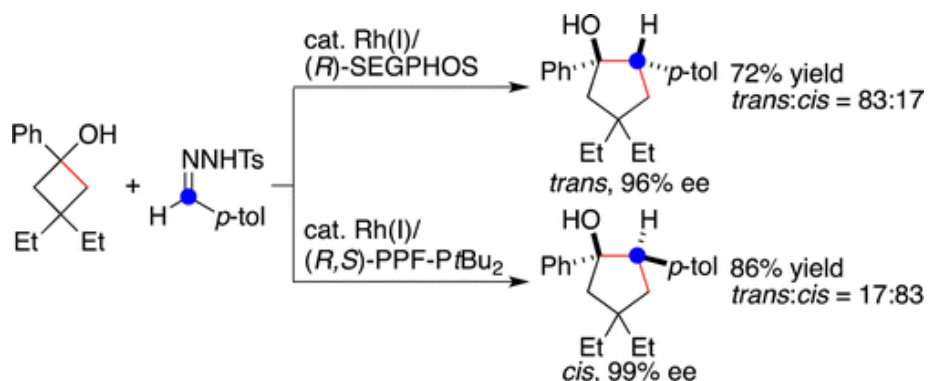


bioorganic  
**methods**  
**synthesis**  
 mechanism  
 review  
 other

**OM**  
 Bryo  
 DDO  
 Hybrid  
 Drug Deliv.  
 Prostratin

Citation: Yada, A. et al. J. Am. Chem. Soc., 2014, 136 (20), pp 7217–7220

### Enantioselective Insertion of a Carbenoid Carbon into a C–C Bond To Expand Cyclobutanols to Cyclopentanols

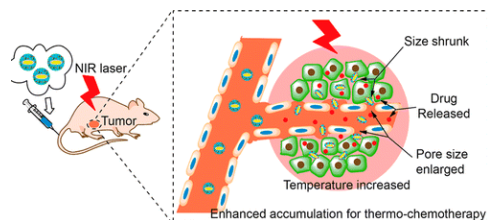


bioorganic  
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synthesis  
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review  
other

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DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Zhang, Z. et al. J. Am. Chem. Soc., 2014, 136 (20), pp 7317–7326

### Near Infrared Laser-Induced Targeted Cancer Therapy Using Thermo-responsive Polymer Encapsulated Gold Nanorods



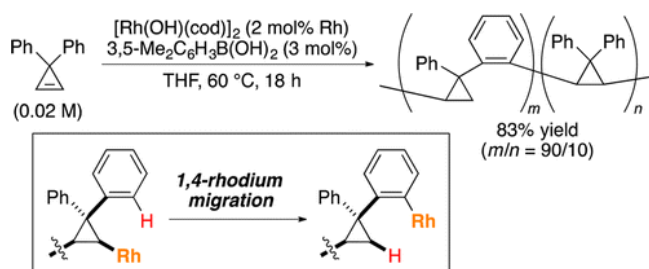
Polymer encapsulated gold nanorods were fabricated to couple the photothermal properties of gold nanorods and the thermo- and pH-responsive properties of polymers in a single nanocomposite. The activation mechanism was thus transformed from heat to near-infrared (NIR) laser, which can be more easily controlled. Doxorubicin, a clinical anticancer drug, can be loaded into the nanocomposite through electrostatic interactions with high loading content up to 24%. The nanocomposite's accumulation in tumor post systematic administration can be significantly enhanced by NIR laser irradiation, providing a prerequisite for their therapeutic application which almost completely inhibited tumor growth and lung metastasis

bioorganic  
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synthesis  
mechanism  
review  
other

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Bryo  
DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Shintani, R. et al. J. Am. Chem. Soc., 2014, 136 (22), pp 7849–7852

### Rhodium-Catalyzed Polymerization of 3,3-Diarylcyclopropenes Involving a 1,4-Rhodium Migration



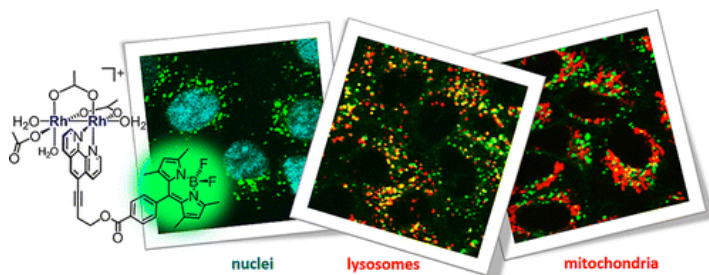
A new mode of metal-catalyzed polymerization reaction has been developed by exploiting the ability of 1,4-rhodium migration of an organorhodium(I) species. Specifically, it has been demonstrated that 3,3-diarylcyclopropenes undergo polymerization through an insertion–1,4-rhodium migration sequence by using an arylrhodium(I) initiator/catalyst to give poly(cyclopropylene-o-phenylene)s, which are difficult to synthesize by conventional polymerization methods.

bioorganic  
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synthesis  
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Bryo  
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Hybrid  
Drug Deliv.  
Prostratin

Citation: Pena, B. et. al. *J. Am. Chem. Soc.*, 2014, 136 (22), pp 7861–7864

### Confocal Fluorescence Microscopy Studies of a Fluorophore-Labeled Dirhodium Compound: Visualizing Metal–Metal Bonded Molecules in Lung Cancer (A549) Cells



A new dirhodium compound (1) which incorporates a bodipy fluorescent tag, was prepared and studied by confocal fluorescence microscopy in human lung adenocarcinoma (A549) cells. It was determined that 1 localizes mainly in lysosomes and mitochondria with no apparent nuclear localization in the 1–100 $\mu$ M range. These results support the conclusion that cellular organelles rather than the nucleus can be targeted by modification of the ligands bound to the Rh<sub>2</sub><sup>+</sup> core.

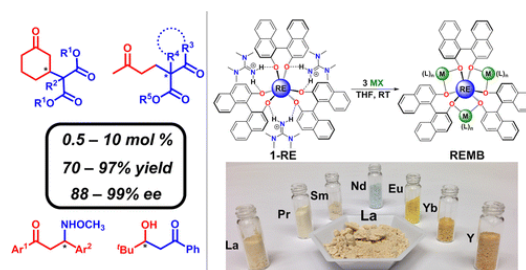
bioorganic  
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synthesis  
mechanism  
review  
other

OM  
Bryo  
DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Robinson, J. R. et al. *J. Am. Chem. Soc.*, 2014, 136 (22), pp 8034–8041

### Air- and Water-Tolerant Rare Earth Guanidinium BINOLate Complexes as Practical Precatalysts in Multifunctional Asymmetric Catalysis

The self-assembly of novel hydrogen-bonded rare earth metal BINOLate complexes that serve as bench-stable precatalysts for Shibasaki's REMB catalysts were prepared. Incorporation of hydrogen-bonded guanidinium cations in the secondary coordination sphere leads to unique properties, most notably, improved stability toward moisture in solution and in the solid state. These compounds can be used as precatalysts for Shibasaki's REMB frameworks, where we have demonstrated that our system performs with comparable or improved levels of stereoselectivity in several mechanistically diverse reactions including Michael additions, aza-Michael additions, and direct Aldol reactions.

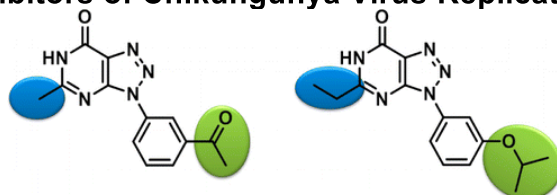


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mechanism  
review  
other

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Bryo  
DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Gigante, A.; et al. *J. Med. Chem.* 2014, 57 (10), 4000.

### Identification of [1,2,3]Triazolo[4,5-d]pyrimidin-7(6H)-ones as Novel Inhibitors of Chikungunya Virus Replication



EC<sub>50</sub> (CHIKV) = 19 ± 2  $\mu$ M  
CC<sub>50</sub> >743  $\mu$ M

EC<sub>50</sub> (CHIKV) = 3 ± 1  $\mu$ M  
CC<sub>50</sub> >668  $\mu$ M

The authors report on a new family of compounds that inhibit CHIKV replication in the low micromolar range with no toxicity to the host (Vero) cells. The most potent compound in this series has an EC<sub>50</sub> value below 1  $\mu$ M with no cytotoxicity detected up to 668  $\mu$ M, therefore affording a selectivity index greater than 600. Interestingly, the compounds have little or no antiviral activity on the replication of other members of the Togaviridae family.

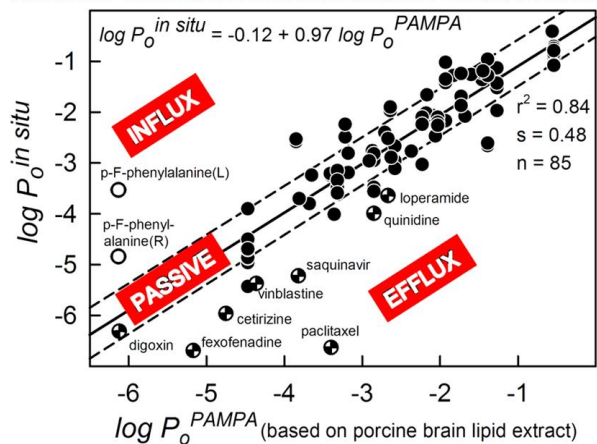
bioorganic  
methods  
synthesis  
mechanism  
review  
other

OM  
Bryo  
Gnid/Kirk  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Smith, D.; Mol. Pharmaceutics 2014, 11, 1727–1738.

Passive Lipoidal Diffusion and Carrier-Mediated Cell Uptake Are Both Important Mechanisms of Membrane Permeation in Drug Disposition

**RODENT LUMINAL BBB INTRINSIC PERMEABILITY**

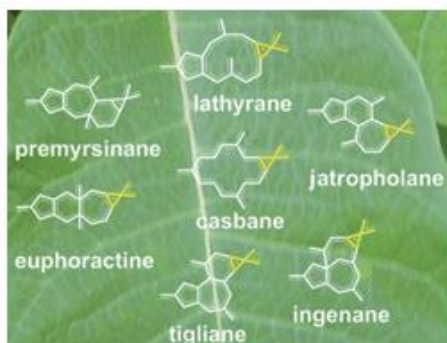


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synthesis  
mechanism  
review  
other

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DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Duran-Pena, M. J. et. al, *Nat. Prod. Rep.* 31 (2014) 940-952

**Biologically active diterpenes containing a gem-dimethylcyclopropane subunit: an intriguing source of PKC modulators**

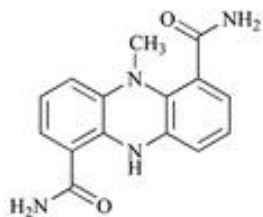


bioorganic  
methods  
synthesis  
mechanism  
**review**  
other

OM  
Bryo  
DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Skropeta, D; et al. *Nat. Prod. Rep.*, 2014, Advance Article

**Recent advances in deep-sea natural products**



Dermacozine A (10,898 m depth) from *Dermacoccus abyssi* sp.



bioorganic  
methods  
synthesis  
mechanism  
**review**  
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OM  
**Bryo**  
DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Kim, M. -S. et al. *Nature*. **2014**, 509, 575.

### A draft map of the human proteome

A draft map of the human proteome is presented here, accounting for over 80% of the annotated protein-coding genes in humans; some novel protein-coding regions, including translated pseudogenes, non-coding RNAs and upstream open reading frames, are identified.

bioorganic  
methods  
synthesis  
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Bryo  
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Hybrid  
Drug Deliv.  
Prostratin

Citation: McNally, A.; Haffemayer, B.; Collins, B. S. L.; Gaunt, M. *Nature*. **2014**, 510, 129.

### Palladium-catalysed C–H activation of aliphatic amines to give strained nitrogen heterocycles

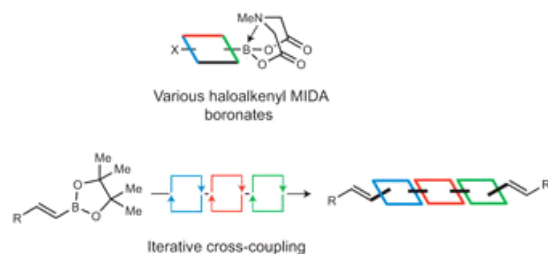


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synthesis  
mechanism  
review  
other

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Bryo  
DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Woerly, E.M.; Roy, J.; Burke, M.D. *Nature Chemistry* 6, 484–491 (2014)

### Synthesis of most polyene natural product motifs using just 12 building blocks and one coupling reaction



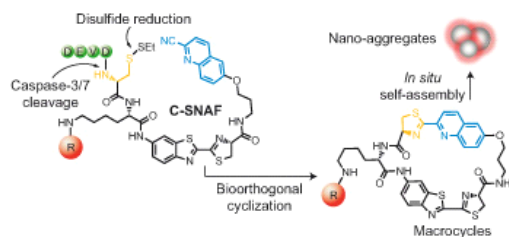
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Hybrid  
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Prostratin

Polyene motifs are found in a large number of natural products. Now, by applying a general retrosynthetic algorithm, it has been shown that the polyene motifs found in >75% of these compounds can be synthesized using just 12 bifunctional haloalkenyl MIDA boronate building blocks and one coupling reaction.

Citation: Felsher, D., et al. Nature Chemistry 6, 519–526 (2014)

### Bioorthogonal cyclization-mediated in situ self-assembly of small-molecule probes for imaging caspase activity in vivo



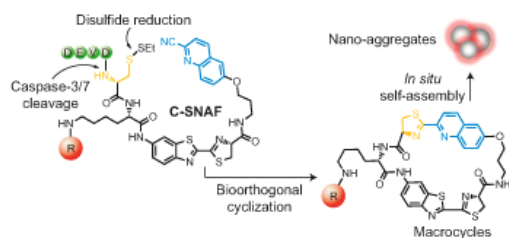
Controlling the self-assembly of small molecules within living animals is complicated because of the complex and dynamic nature of the physiological environment. Here, a strategy for directing in situ self-assembly of small molecules into fluorescent nano-aggregates in living mice is demonstrated. The nano-aggregates can be used for imaging caspase-3/7 activity in human tumour xenograft mouse models.

bioorganic  
methods  
synthesis  
mechanism  
review  
other

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Bryo  
Gnid/Kirk  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Felsher, D., et al. Nature Chemistry 6, 519–526 (2014)

### Bioorthogonal cyclization-mediated in situ self-assembly of small-molecule probes for imaging caspase activity in vivo



Controlling the self-assembly of small molecules within living animals is complicated because of the complex and dynamic nature of the physiological environment. Here, a strategy for directing in situ self-assembly of small molecules into fluorescent nano-aggregates in living mice is demonstrated. The nano-aggregates can be used for imaging caspase-3/7 activity in human tumour xenograft mouse models.

bioorganic  
methods  
synthesis  
mechanism  
review  
other

OM  
Bryo  
Gnid/Kirk  
Hybrid  
Drug Deliv.  
Prostratin

Citation: <http://well.blogs.nytimes.com/2014/06/04/colon-cancer-screening-saves-lives/>

### Colon Cancer Screening Saves Lives

Screening for colorectal cancer has prevented an estimated half-million cases of colon cancer since the mid-1970s. These findings underscore the importance of screening in saving lives.

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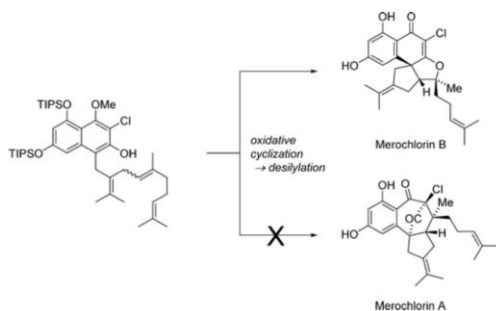
Citation: <a href="http://www.nytimes.com/2014/05/16/health/aids-groups-back-anti-hiv-pill-amid-concerns-doctors-and-patients-will-resist.html">http://www.nytimes.com/2014/05/16/health/aids-groups-back-anti-hiv-pill-amid-concerns-doctors-and-patients-will-resist.html</a>	
<b>AIDS Groups Back Anti-H.I.V. Pill Amid Concerns Doctors and Patients Will Resist</b>	bioorganic methods synthesis mechanism review other
Leading AIDS organizations are supporting the regimen, known as PrEP, for pre-exposure prophylaxis. However, surveys have shown that doctors and patients are not yet fully aware of this regimen.	OM Bryo DDO Hybrid Drug Deliv. Prostratin

Citation: <i>The Onion</i> , <a href="http://goo.gl/TGvfI5">http://goo.gl/TGvfI5</a>	
<b>Scientific Community Baffled By Man Whose Waist 32 With Some Pants, 33 With Others</b>	bioorganic <b>methods</b> <b>synthesis</b> mechanism review other
PHILADELPHIA—An international team of scientists reported this week that they remain completely mystified by Lancaster, PA resident Brandon Holland, a man who inexplicably wears a size 32 in some pants and a size 33 in others.  Dr. Alan Nolan, a biophysicist at Drexel University who has led research efforts into the puzzling phenomenon, told reporters that systematic observation and data analysis have failed to adequately explain how the subject could possibly fit into size 32 jeans mere moments after comfortably wearing a pair of size 33 khakis. According to Nolan, a broad array of hypotheses, ranging from Holland wearing a belt with the size 33s to Holland ingesting a large quantity of food or drink between putting on the size 32 and 33 pants, have all been ruled out, leaving the research team at a complete loss.  “It defies physical law,” added Nolan. “This is completely shifting our fundamental understanding of pants.”	OM Bryo DDO Hybrid Drug Deliv. Prostratin

Citation: <i>The Onion</i> , <a href="http://goo.gl/fK2I5W">http://goo.gl/fK2I5W</a>	
<b>Man Honestly Thinks He’s Going To Get To Bed Early</b>	bioorganic <b>methods</b> <b>synthesis</b> mechanism review other
DANBURY, CT—Entertaining outlandish delusions of actually getting in a solid eight hours of sleep, 29-year-old Josh Briner is honestly under the impression that he will be going to bed early, sources confirmed Thursday. “I made sure I had no plans tonight so that I can just turn in at 10 and get some serious rest,” said the poor, naive fool who despite having a laptop next to his bed, four different shows he needs to catch up on, and a proclivity for wasting hours at a time on social media sites is genuinely convinced that he will be asleep at a reasonable hour. “It’ll be nice to wake up feeling refreshed for once.” At press time, Briner reportedly said “fuck it,” resumed watching Sherlock on Netflix, and vowed that tomorrow he’d definitely be in bed by 9.	OM Bryo DDO Hybrid Drug Deliv. Prostratin

Citation: Meier, R; *et al. Org. Lett.* **2014**, 16 (10), 2634-2637

### Biomimetic Synthesis of (±)-Merochlorin B



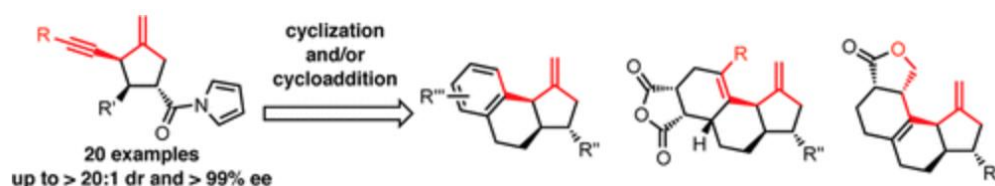
A short total synthesis, guided by biosynthetic considerations, of racemic merochlorin B is presented. The formation of its isomer, merochlorin A, was not observed under the conditions. Key steps include a directed *ortho*-metalation (DoM), a selective demethylation, an *ortho*-allylation, and an oxidative [3 + 2]-cycloaddition mediated by an iodine(III) reagent.

bioorganic  
methods  
**synthesis**  
mechanism  
review  
other

OM  
Bryo  
DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Trost, B. M.; Ehmke, V. *Org. Lett.* **2014**, 16 (10), 2708-2711.

### An Approach for Rapid Increase in Molecular Complexity: Atom Economic Routes to Fused Polycyclic Ring Systems



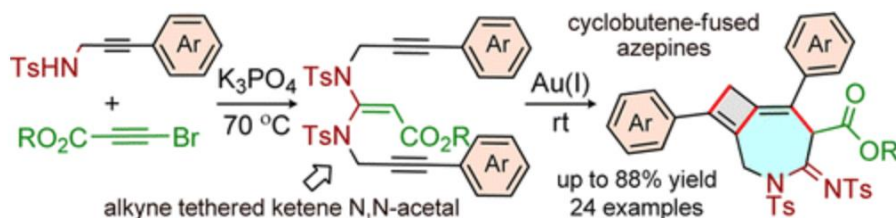
A protocol for the asymmetric trimethylenemethane (TMM) [3 + 2] cycloaddition reaction of alkyne-substituted TMM donors and unsaturated *N*-acyl pyrroles employing a chiral bisdiazidophosphite ligand has been developed. This process generates alkyne-substituted cyclopentanes in high yields and diastereo- and enantioselectivities. These chiral precursors are employed for the atom economic assembly of fused polycyclic hydrocarbons with hydroindene, hydroazulene, and hydrocyclopentanaphthalene scaffolds by consecutive cycloaddition reactions.

bioorganic  
**methods**  
**synthesis**  
mechanism  
review  
other

OM  
Bryo  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Nayak, S.; *et al. Org. Lett.* **2014**, 16 (11), 2996-2999

### Access to Cyclobutene-Fused Azepines through Au-Catalyzed Cycloisomerization of Stable Alkyne Tethered Ketene *N,N*-Acetals

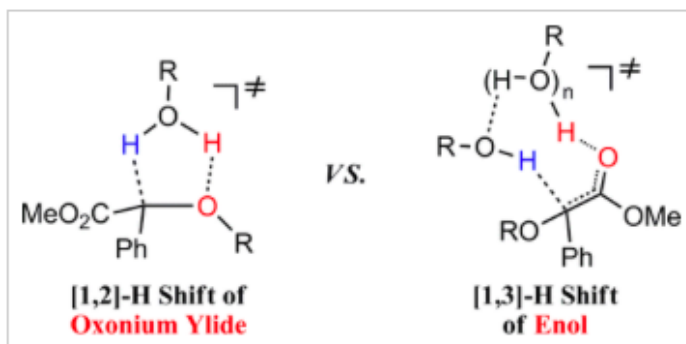


A base promoted reaction between *N*-protected propargyl amines and 3-bromopropiolate readily provides an array of novel stable alkyne-tethered ketene *N,N*-acetals in good yields. A wide range of structurally complex cyclobutene-fused azepine heterocycles are synthesized through the gold-catalyzed intramolecular cycloisomerization of ketene *N,N*-acetals for the first time. A plausible reaction pathway is deduced on the basis of the <sup>1</sup>H NMR studies.

bioorganic  
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**synthesis**  
mechanism  
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Hybrid  
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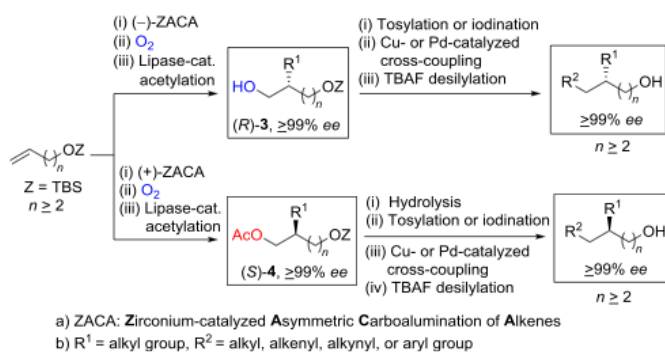
### Mechanistic Insight into the Rhodium-Catalyzed O–H Insertion Reaction: A DFT Study



bioorganic  
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synthesis  
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Bryo  
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Hybrid  
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### Highly enantioselective synthesis of $\gamma$ -, $\delta$ -, $\epsilon$ -chiral 1-alkanols via Zr-catalyzed asymmetric carboalumination of alkenes (ZACA)–Cu- or Pd-catalyzed cross-coupling



**Scheme 2.** Strategy for the synthesis of  $\gamma$ - and more-remotely chiral 1-alkanols.

bioorganic  
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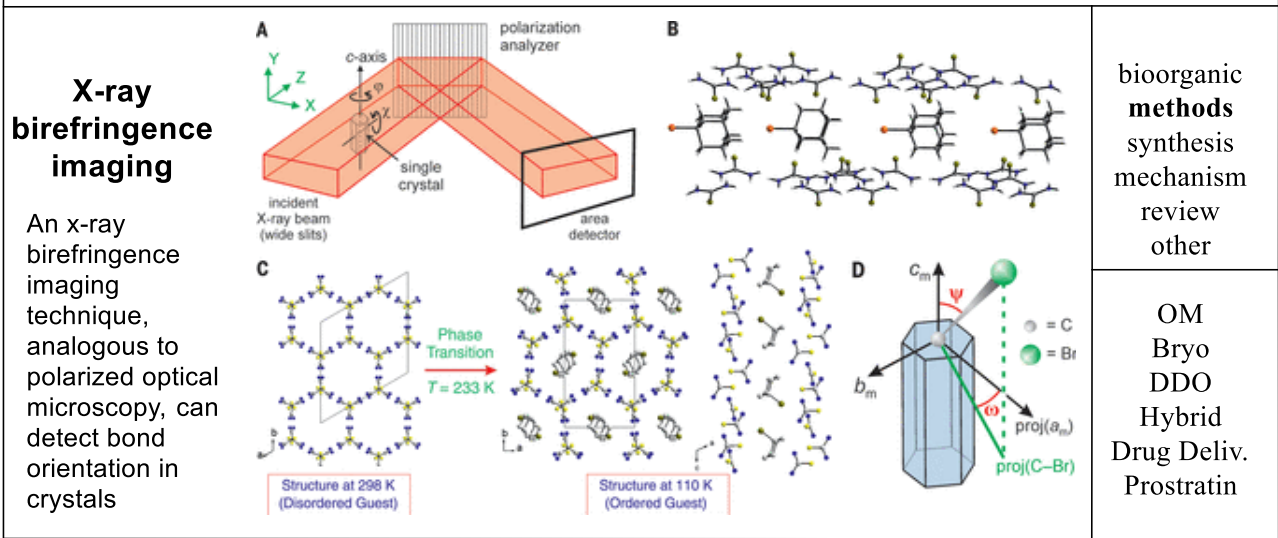
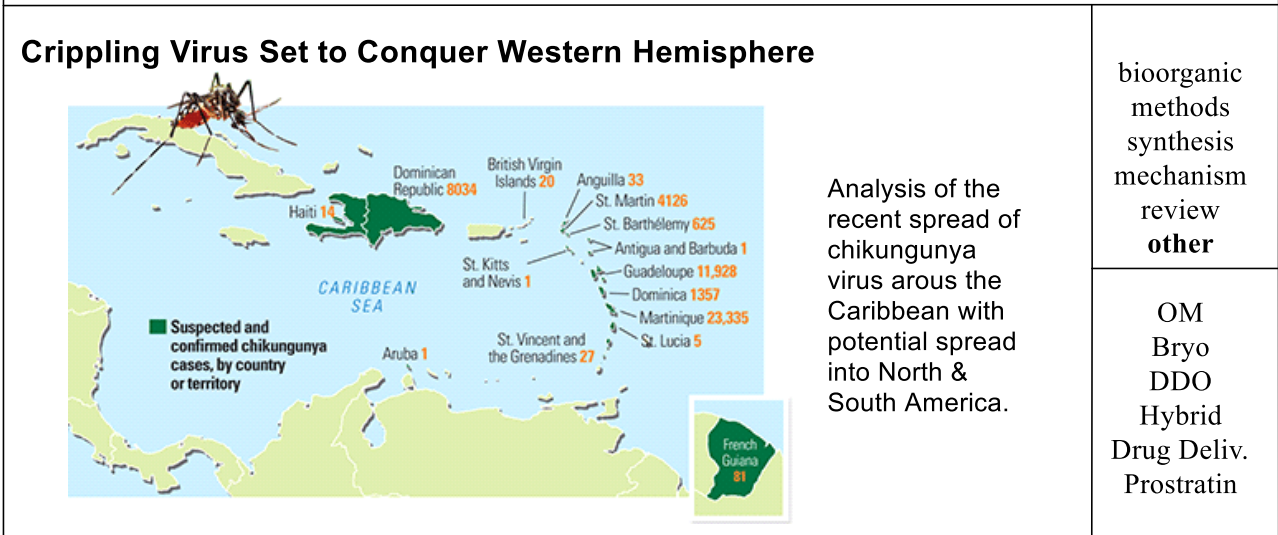
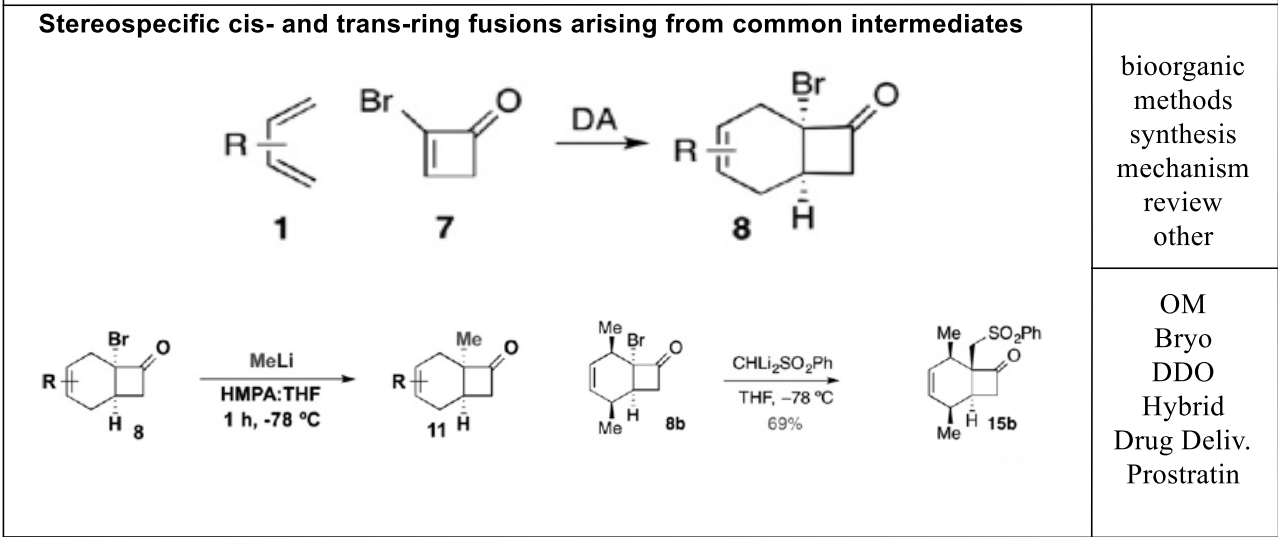
### Explaining Asian Americans' academic advantage over whites

The authors determined that well-documented Asian-American educational advantage over whites is attributable mainly to Asian students exerting greater academic effort and not to advantages in tested cognitive abilities or socio-demographics.

You reap what you sow.

bioorganic  
methods  
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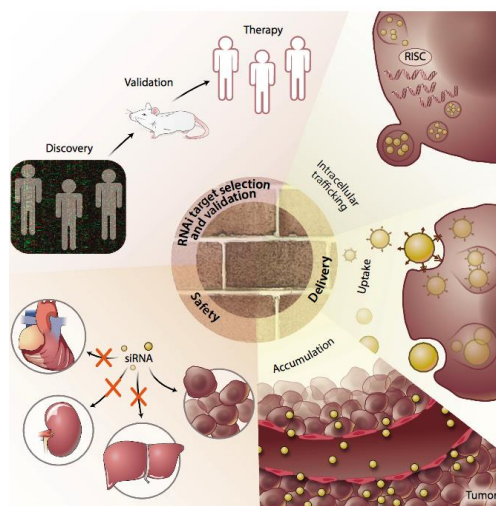
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Hybrid  
Drug Deliv.  
Prostratin



Citation: Sci Transl Med 11 June 2014: Vol. 6, Issue 240, p. 240ps7

### RNAi Therapies: Drugging the Undruggable

Review written on the promises and progress in the field of siRNA delivery for cancer. Good read.

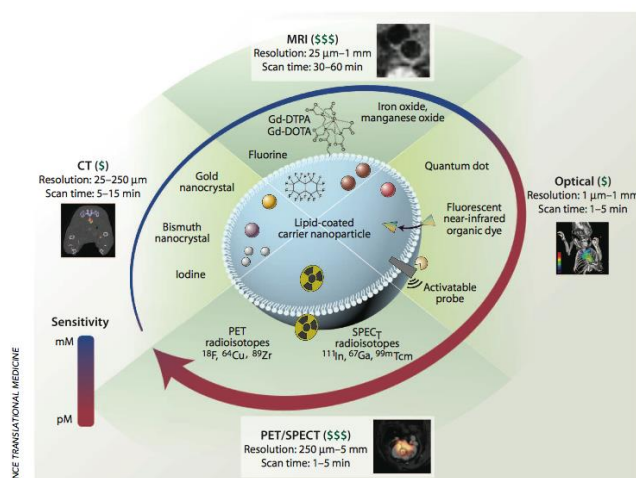


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other

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DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Sci Transl Med 4 June 2014: Vol. 6, Issue 239, p. 239sr1

### Imaging and Nanomedicine in Inflammatory Atherosclerosis

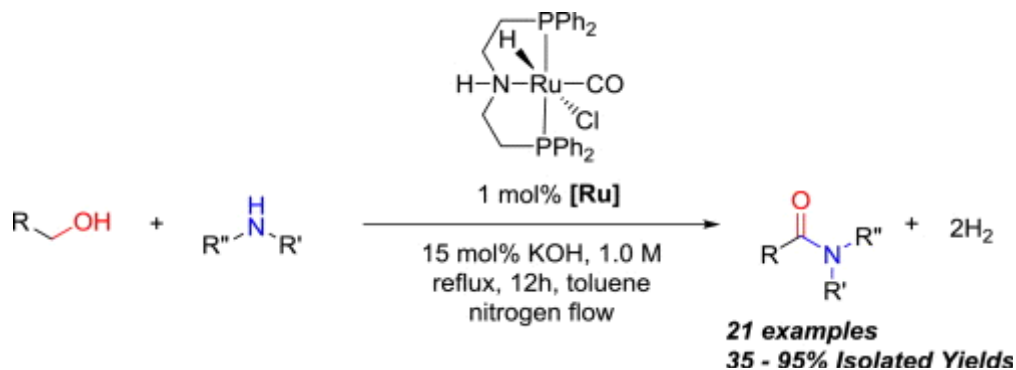


bioorganic  
methods  
synthesis  
mechanism  
review  
other

OM  
Bryo  
DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Oldenhuis, Nathan J. Dong, Vy M. Guan, Zhibin. *Tetrahedron* 70 (2014) 4213–4218

### Catalytic acceptorless dehydrogenations: Ru-Macho catalyzed construction of amides and imines

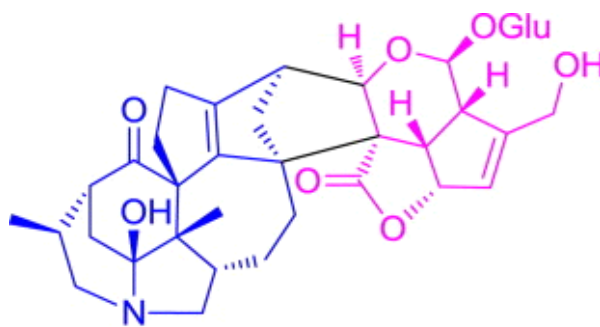


bioorganic  
methods  
synthesis  
mechanism  
review  
other

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Bryo  
DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Hao, Xiao-Jiang; Wu, Yun-Dong; et al. *Tetrahedron*. 70 (2014) 4017–4021

## Solvent-free Diels–Alder reactions catalyzed by FeCl<sub>3</sub> on Aerosil® silica



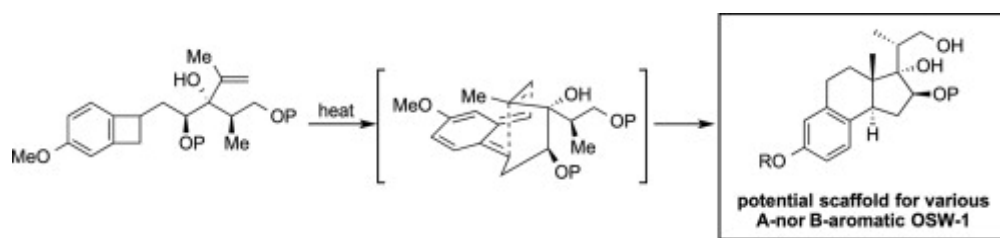
**Longphyllineside A**

bioorganic  
**methods**  
synthesis  
mechanism  
review  
other

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DDO  
Hybrid  
Drug Deliv.  
Prostratin

Citation: Matsuya, Yuji; et al. *Tetrahedron* 2014, 70, 3981–3987

## Stereoselective approach to potential scaffold of A-nor B-aromatic OSW-1 analogues via [4+2] cycloaddition of o-quinodimethane

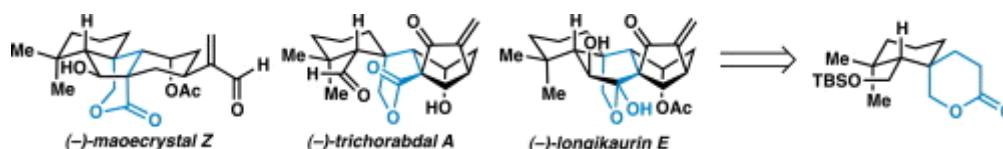


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DDO  
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Citation: Reisman, Sarah E.; et al. *Tetrahedron* 2014 70, 4070–4088

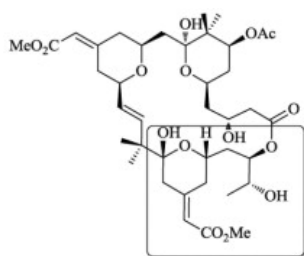
## A unified strategy for the synthesis of (-)-maocrystal Z, (-)-trichorabdal A, and (-)-longikaurin E



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### Stereoselective synthesis of C19-C27 fragment of bryostatin 11



Bryostatin 11

A convergent synthesis of C19-C27 fragment (2) of bryostatin-11 is described. The key steps involved in this approach are kinetic resolution, Grignard reaction and Sharpless dihydroxylation. AIBN catalyzed radical cyclization strategy has been used for the first time to construct the six-membered pyran system.

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