Accounts of Chemical Research	241	Quang Luu-Nguyen
ACS Central Science	241	Colin McKinlay
ACS Chemical Biology	242	Clayton Hardman
ACS Nano	243	Nancy Benner
Advanced Drug Delivery Reviews	**MOOK**	Gabriella Fernandes Cunha
Angewandte Chemie International Edition	243	Samanta Capolicchio
Bioconjugate Chemistry	**MOOK**	Gabriella Fernandes Cunha
Biomacromolecules	244	Nancy Benner
Bioorganic and Medicinal Chemistry	245	Samanta Capolicchio
Bioorganic and Medicinal Chemistry Letters	**MOOK**	Jessica Vargas
Chemical Communications	245	Katie Near
Chemical & Engineering News	N/A	Colin McKinlay
Chemical Reviews	**MOOK**	Gabriella Fernandes Cunha
Chemical Science	245	Jack Sloane
Chemistry, A European Journal	246	Clayton Hardman
European Journal of Organic Chemistry	247	Jack Sloane
Journal of the American Chemical Society	248	Melanie Huttner (odd)
		Akira Shimizu (even)
JAMA	249	Stephen Ho
Journal of Medicinal Chemistry	250	Matt Stevens
Journal of Organic Chemistry	**MOOK**	Matt Jeffreys
Molecular Pharmaceutics	251	Xiaoyu Zang (Janice)
Natural Product Reports	253	Nancy Benner
Nature	253	Stephen Ho
Nature Chemistry	254	Stephen Ho
Nature Chemical Biology	255	Xiaoyu Zang (Janice)
New England Journal of Medicine	255	Stephen Ho
The New York Times	N/A	N/A
The Onion	N/A	N/A
Organic Letters	256	Quang Luu-Nguyen
Organometallics	256	Ryan Quiroz
PNAS	256	Colin McKinlay
Science	258	Xiaoyu Zang (Janice)
Science Translational Medicine	**MOOK**	Jessica Vargas
Synlett	N/A	N/A
Synthesis	N/A	N/A
Tetrahedron	259	Ryan Quiroz
Tetrahedron Letters	260	Matt Stevens

Next Due Date: Tuesday, November 15, 2016

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.

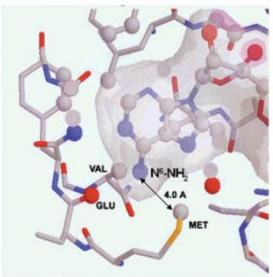
Include a brief textual summary of the article; an example of a completed abstract is shown below. The list of topics and subgroups on the right is useful to highlight which subgroups should pay attention to your abstract and roughly what kind of chemistry the article contains.

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

Citation: Abeyweera, T.P.; Rotenberg, S.A. *Biochemistry* **2007**, *46*, 2364-2370

Design and Characterization of a Traceable Protein Kinase C-alpha

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 (Iε-32Pl-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.



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Citation: Dictionary.com (search term = "mook")

For those of you who always wanted to know what it meant....
mook **Pronunciation Key** (mk) *n. Slang*
An insignificant or contemptible person.

methods
synthesis

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: Liotta, D. C.; & Painter, G. R. *Account. Chem. Res.* **2016**, Article *ASAP*

Discovery and Development of Anti-Human Immunodeficiency Virus Drug, Emtricitabine (Emtriva, FTC)

Product	Licensee
Epivir®	GlaxoSmithKline/Shire
Combivir®	GlaxoSmithKline/Shire
Trizivir®	GlaxoSmithKline/Shire
Epzicom®	GlaxoSmithKline/Shire
Epivir-HBV®	GlaxoSmithKline/Shire
Emtriva®	Gilead Sciences, Inc.
Truvada®	Gilead Sciences, Inc.
Atripla®	Gilead Sciences, Inc.
Complera®	Gilead Sciences, Inc.
Stribild®	Gilead Sciences, Inc.
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Over 90% of HIV infected persons on therapy in the United States take a drug containing either emtricitabine or lamivudine

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Citation: ACS Cent. Sci. 2016, 2 (9), 588–597.

Organic Polymer Chemistry in the Context of Novel Processes

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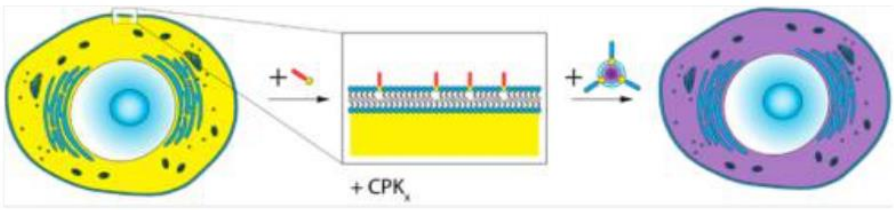
Citation: ACS Cent. Sci. 2016, 2 (9), 621–630.

Drug Delivery via Cell Membrane Fusion Using Lipopeptide Modified Liposomes



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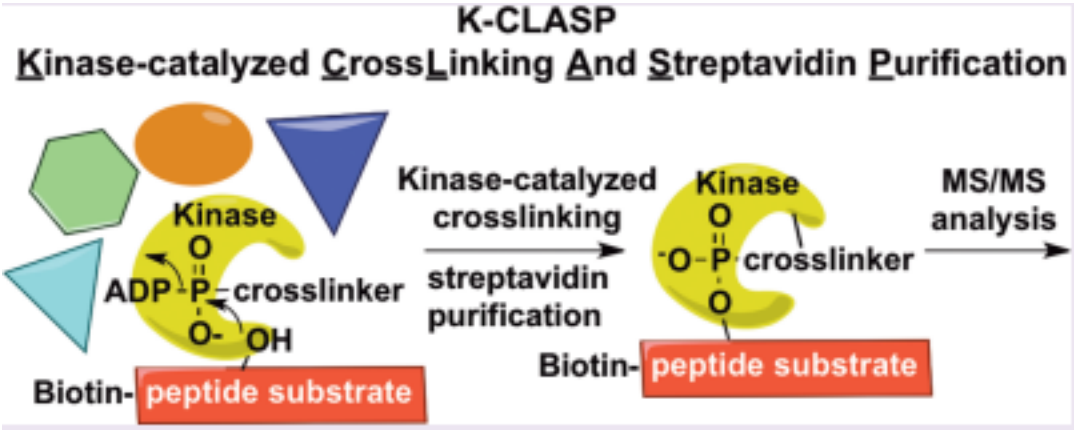
Citation: Dedigama-Arachchige, P.Pflum, M. *ACS Chemical Biology.* **2016**.

K-CLASP: A Tool To Identify Phosphosite Specific Kinases And Interacting Proteins.



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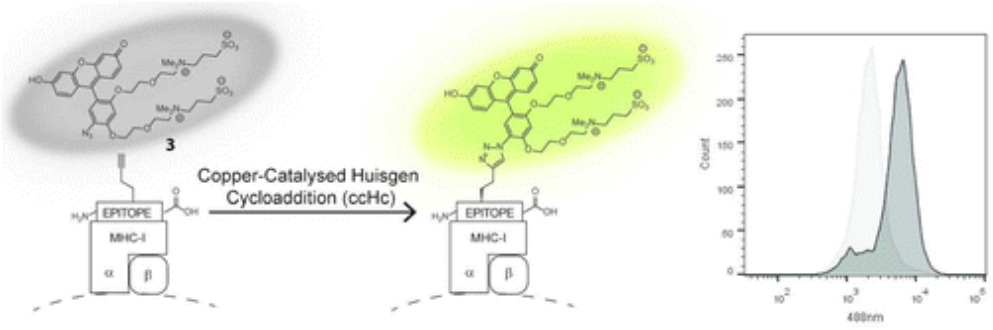
Citation: Pawlak, J.; Hos, B.; van de Graaff, M.; Megantari, O.; Meeuwenoord, N.; Overkleeft, H.; Filippov, D.; Ossendorp, F.; van Kasteren, S. *ACS Chemical Biology* **2016**.

The Optimization Of Bioorthogonal Epitope Ligation Within MHC-I Complexes.



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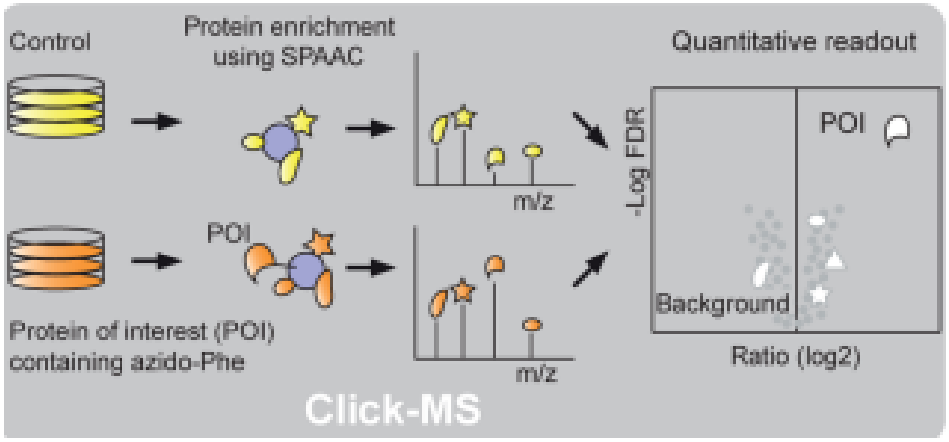
Citation: Smits, A.; Borrmann, A.; Roosjen, M.; van Hest, J.; Vermeulen, M. *ACS Chemical Biology.* **2016**.

Click-MS: Tagless Protein Enrichment Using Bioorthogonal Chemistry For Quantitative Proteomics.



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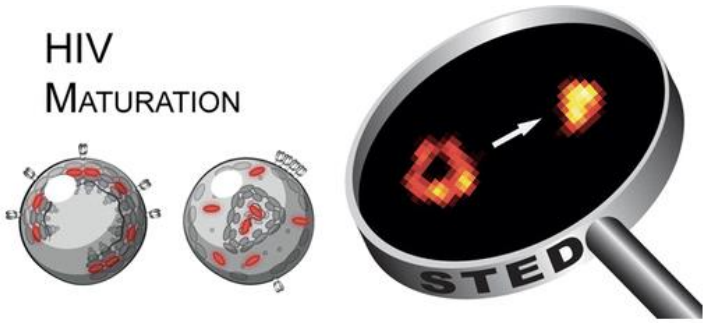
Citation: Hanne, J. et. al, *ACS Nano,* **2016**, 10 (9) 8215-8222

Stimulated Emission Depletion Nanoscopy Reveals Time-Course of Human Immunodeficiency Virus Proteolytic Maturation



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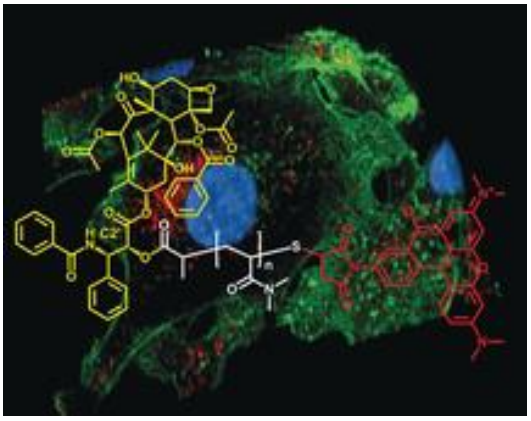
Citation: Louage, B. et al. *Angew. Chem Int. Ed.* **2016**, *55*, 11791-11796.

Well-Defined Polymer–Paclitaxel Prodrugs by a Grafting-from-Drug Approach



Visible effects: Well-defined paclitaxel–polymer conjugates with high drug loading, water solubility, and stability were obtained by a grafting-from approach. They are readily taken up into endosomes where native paclitaxel is efficiently released. The versatility of this approach was further demonstrated by post-functionalization with a fluorescent tracer.

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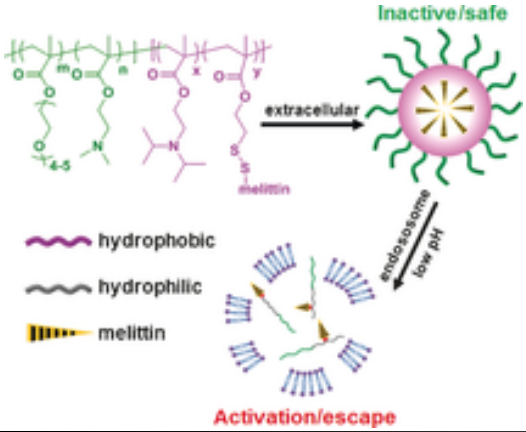
Citation: Cheng, Y. et al. *Angew. Chem Int. Ed.* **2016**, *55*, 12013-12017.

Virus-Inspired Polymer for Efficient In Vitro and In Vivo Gene Delivery



A virus-inspired polymer is reported as an effective gene transfer vehicle. The polymer, called VIPER (virus-inspired polymer for endosomal release), is composed of a polycation block for nucleic acids condensation and a pH-sensitive block for acid-triggered display of a lytic peptide to promote trafficking to the cell cytosol both in vitro and in vivo.

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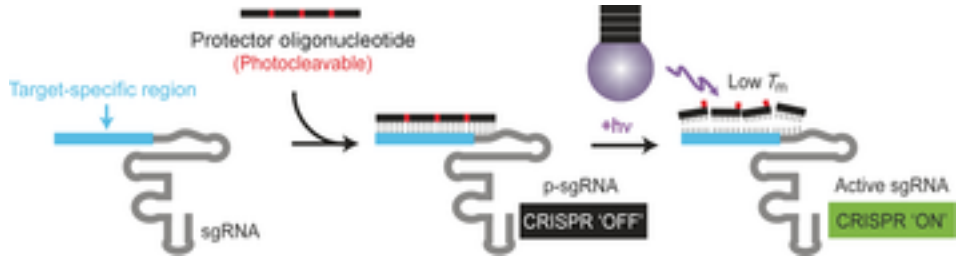
Citation: Jain, P. K. et al. *Angew. Chem Int. Ed.* **2016**, *55*, 12440-12444.

Development of Light-Activated CRISPR Using Guide RNAs with Photocleavable Protectors



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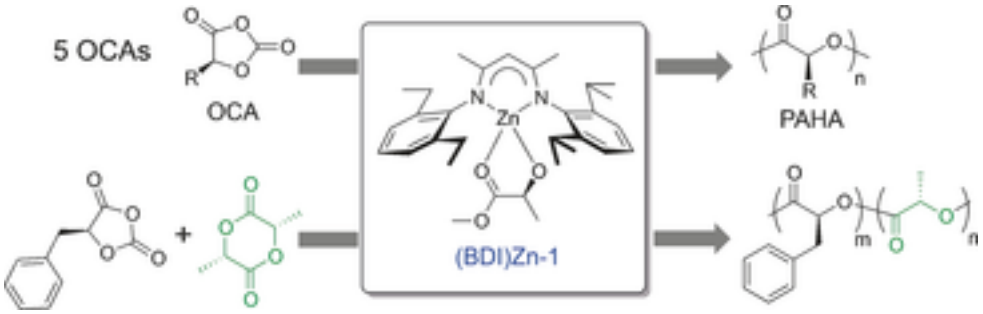
Citation: Wang, R. et al. *Angew. Chem. Int. Ed.* **2016**, *55*, 13010–13014.

Controlled Ring-Opening Polymerization of *O*-Carboxyanhydrides Using a β-Diiminate Zinc Catalyst



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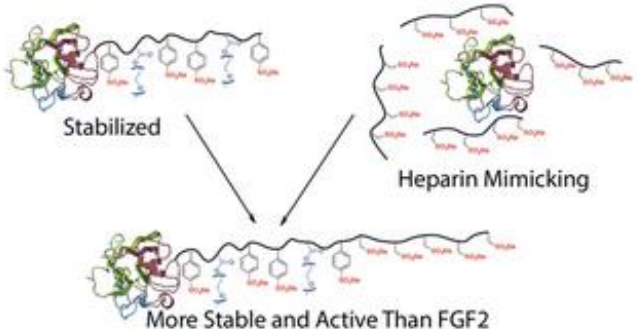
Citation: Paluck, S. et. al, *Biomacromolecules,* **2016**, 17 (10) 3386-3395

A Heparin-Mimicking Block Copolymer Both Stabilizes and Increases the Activity of Fibroblast Growth Factor 2 (FGF2)



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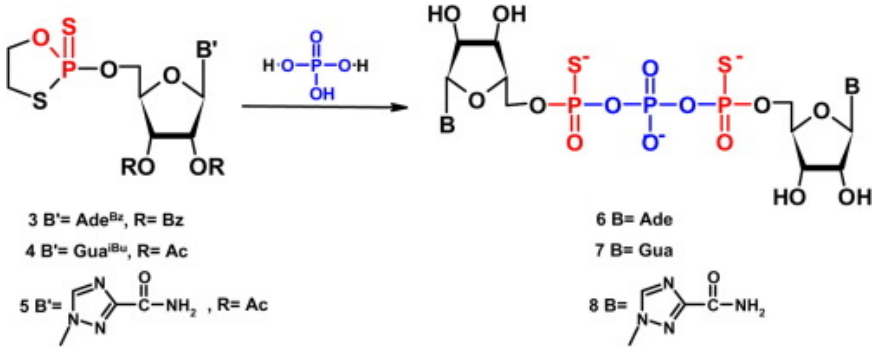
Citation: Kaczmarek, R. et al. *Bioorg. Med. Chem.* **2016**, *24*, 5068-5075.

Phosphorothioate analogs of P1,P3-di(nucleosid-5'-yl) triphosphates: Synthesis, assignment of the absolute configuration at P-atoms and P-stereodependent recognition by Fhit hydrolase



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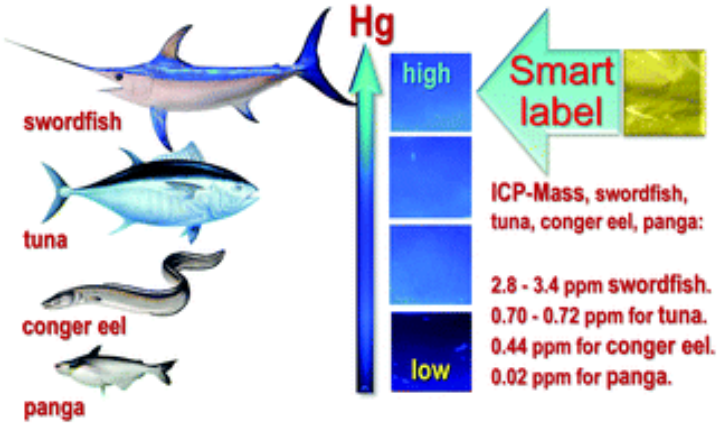
Citation: Garvia-Calvo, J. *et al. Chem. Commun.* **2016**, *52,* 11915.

A smart material for the in situ detection of mercury in fish



The authors developed a new fluorogenic polymer capable of detecting the presence of mercury contamination in fish samples. The modified polymer emits blue light when irradiated with UV light proportional to the quantity of mercury, as MeHg+ or Hg2+, present in fish.

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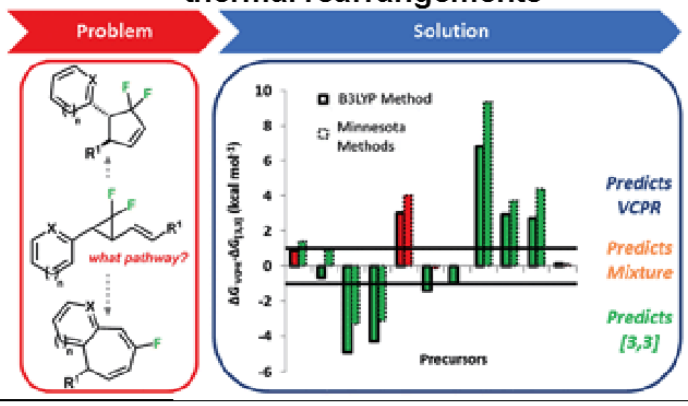
Citation: Zhang, J.; et al. *Chem. Sci.* **2016**, 7, 5995

A computational triage approach to the synthesis of novel difluorocyclopentenes and fluorinated cycloheptadienes using thermal rearrangements



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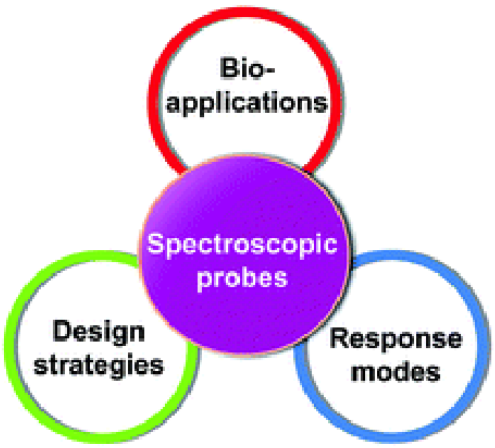
Citation: Zhou, J.; et al. *Chem. Sci.* **2016**, 7, 6309

Design principles of spectroscopic probes for biological applications



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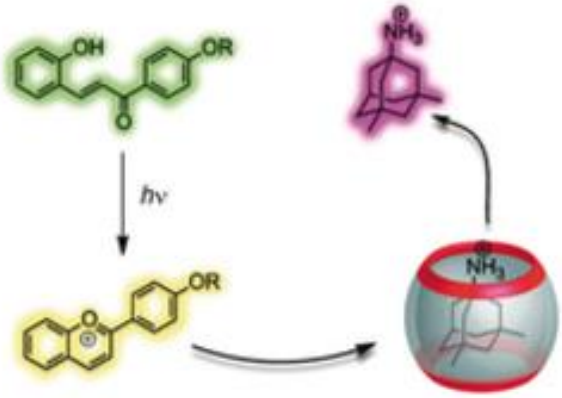
Citation: Basílio, N.Pischel, U. *Chem. Eur. J.* **2016**, *22*, 15543-15543.

Drug Delivery By Controlling A Supramolecular Host-Guest Assembly With A Reversible Photoswitch



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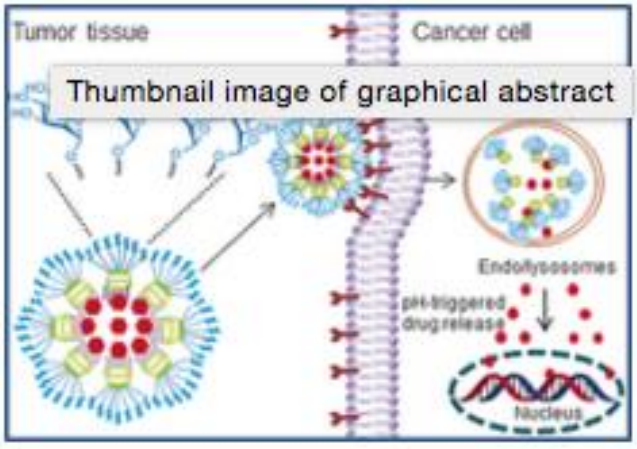
Citation: Ye Z., et al. *Chem. Eur. J.* **2016**, *22,* 15216-15221.

Tumor-Targeted Drug Delivery with Mannose-Functionalized Nanoparticles Self-Assembled from Amphiphilic Cyclodextrins



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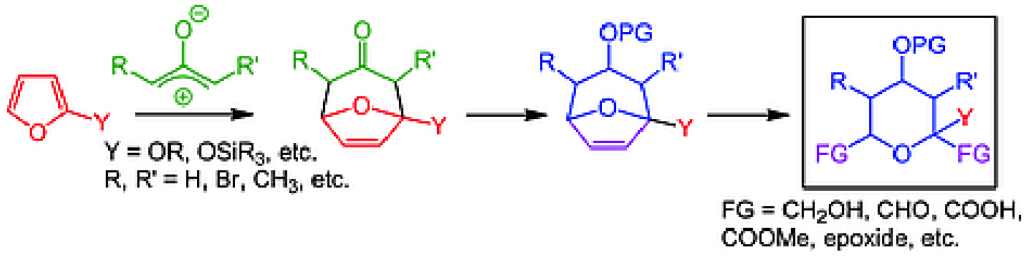
Drug Deliv.
Prostratin

Citation: Montaña, A. M.; et al. *Eur. J. Org. Chem.* **2016**, 27, 4674-4695

Regio- and Stereoselective Synthesis of Acetallic Tetrahydropyrans as Building Blocks for Natural Products Preparation, via a Tandem [4+3]-Cycloaddition/Ozonolysis Process



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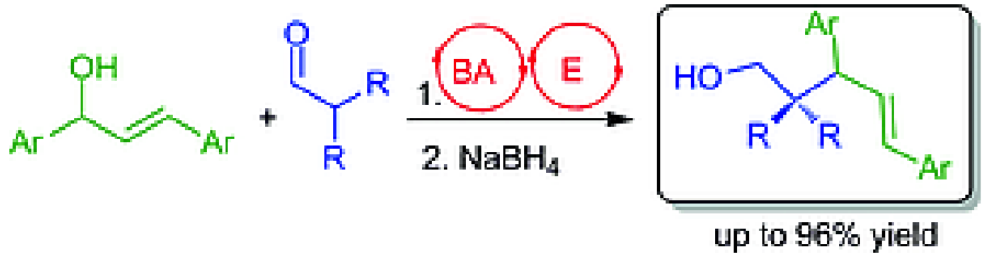
Citation: Stanek, F. et al. *Eur. J. Org. Chem.* **2016**, 28, 4768-4772

Organocatalytic α-Allylation of α-Branched Aldehydes by Synergistic Catalysis of Bronsted Acids and Amines



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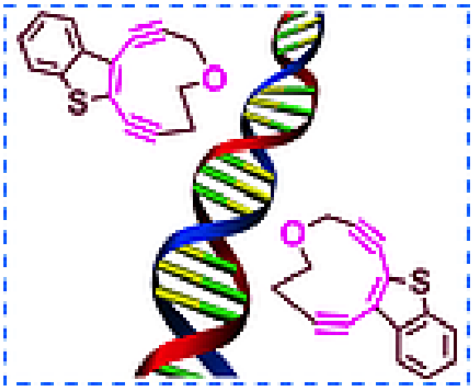
Citation: Lyapunova, A. G. et al. *Eur. J. Org. Chem.* **2016**, 28, 4842-4851

Oxaenediynes through the Nicholas-Type Macrocyclization Approach



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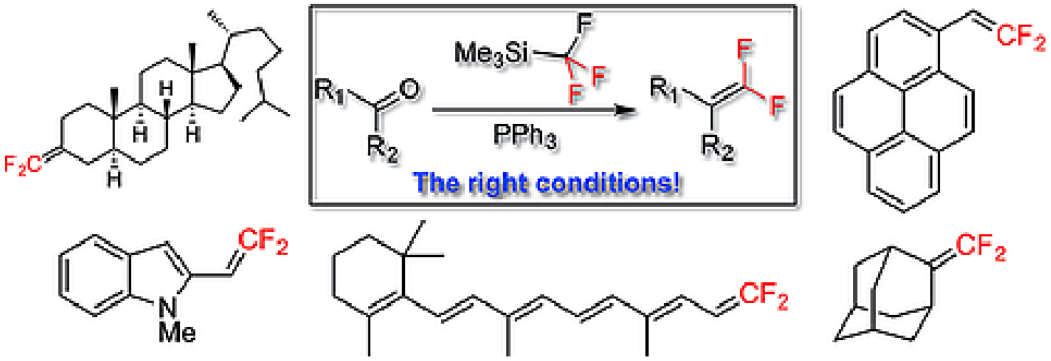
Citation: Krishnamoorthy, S. et al. *Eur. J. Org. Chem.* **2016**, 29, 4965-4969

Direct Difluoromethylenation of Carbonyl Compounds by Using $TMSCF_3$: The Right Conditions



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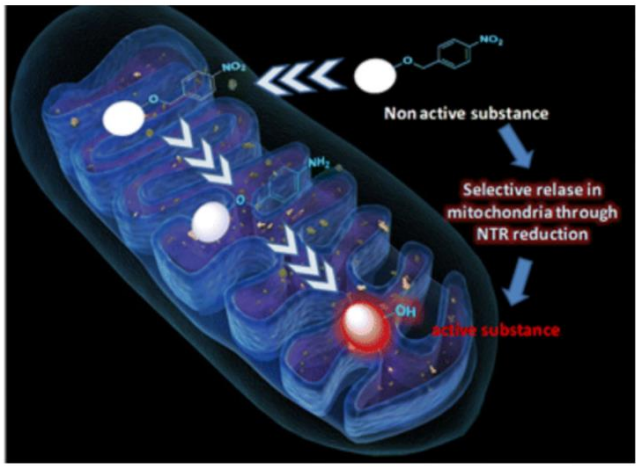
Citation: *JACS*, **2016,** *138*, 12009-12012

Mitochondrial Nitroreductase Activity Enables Selective Imaging and Therapeutic Targeting

The authors characterized the nitroreductase activity in mitochondria using a profluorescent NIR dye. The localized enzymatic activity can be exploited for mitochondria imaging and targeting.



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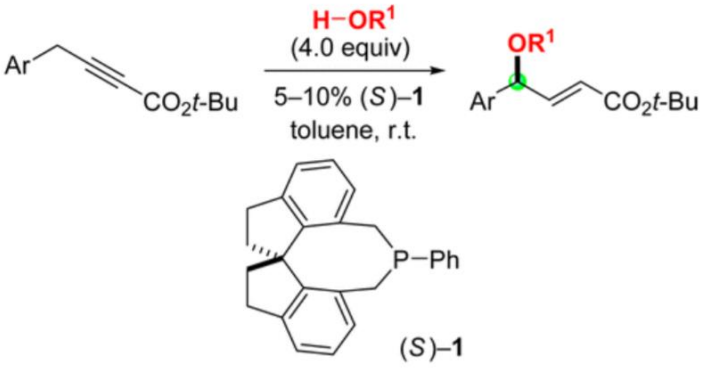
Citation: *JACS*, **2016,** *138*, 12069-12072.

Catalytic Enantioselective Carbon-Oxygen Bond Formation: Phosphine-Catalyzed Synthesis of Benzylic Ethers via the Oxidation of Benzylic C-H Bonds

A Greg Fu paper.



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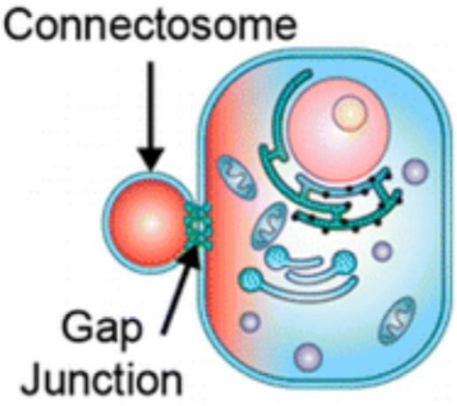
Citation: *JACS,* **2016,** *138,* 12833-12840.

Connectosomes for Direct Molecular Delivery to the Cellular Cytoplasm

Gap junctions provide a direct route to the cytoplasm that bypasses the plasma membrane and permit transport of a diverse range of molecules. The authors have developed Connectosomes, cell-derived lipid vesicles that contain functional gap juntion channels and encapsulate molecular cargos.



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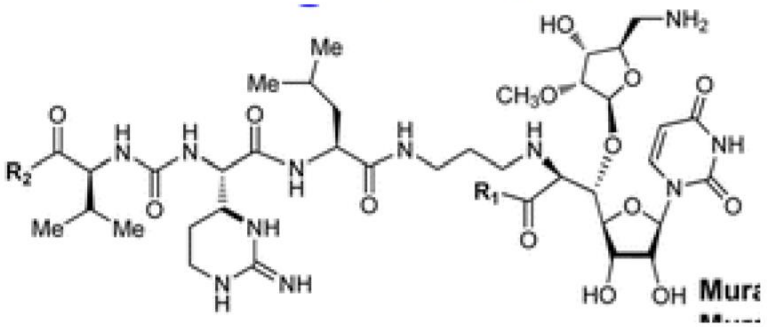
Citation: *JACS,* **2016,** *138,* 12975-12980.

Stereocontrolled Total Synthesis of Muraymycin D1 Having a Dual Mode of Action against *Mycobacterium tuberculosis*

The synthetic route consists of (1) selevtice beta-ribosylation, (2) selective Strecker reaction, and (3) ring-opening reaction of a diastereomeric mixture of diaminolactone. Muraymycin D1 and two derivatives inhibited growth of *Mycobacterium tuberculosis*.



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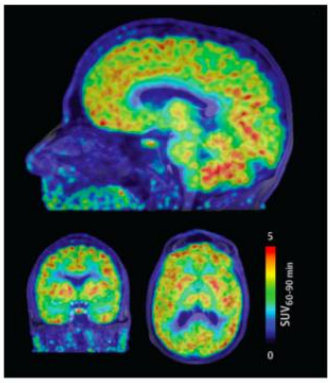
Citation: **JAMA. 2016;316(13):1349. doi:10.1001/jama.2016.13667**

Imaging Epigenetics in the Human Brain



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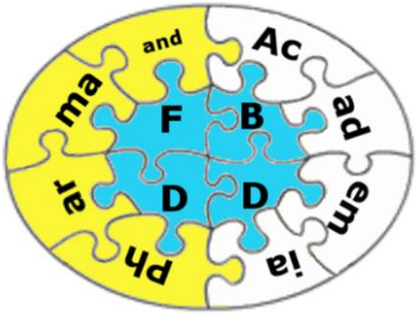
Citation: Keseru, G. M. *J. Med. Chem.* **2016**, 59 (18), 8189-8206

Design Principles for Fragment Libraries: Maximizing the Value of Learnings from Pharma Fragment-Based Drug Discovery (FBDD) Programs for Use in Academia



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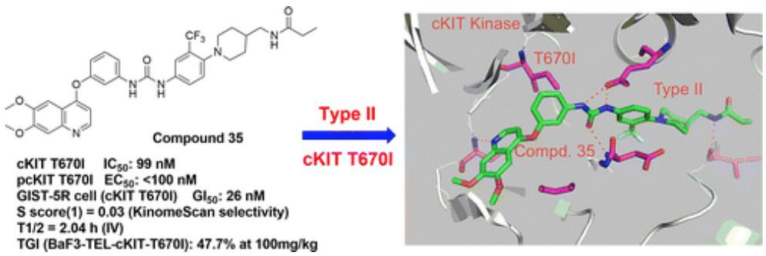
Citation: Li, B.; *et al. J. Med. Chem.* **2016**, 59 (18), 8456-8472

Discovery of *N*-((1-(4-(3-(3-((6,7-Dimethoxyquinolin-3-yl)oxy)phenyl)ureido)-2-(trifluoromethyl)phenyl)piperidin-4-yl)methyl)propionamide (CHMFL-KIT-8140) as a Highly Potent Type II Inhibitor Capable of Inhibiting the T670I Gatekeeper Mutant of cKIT Kinase



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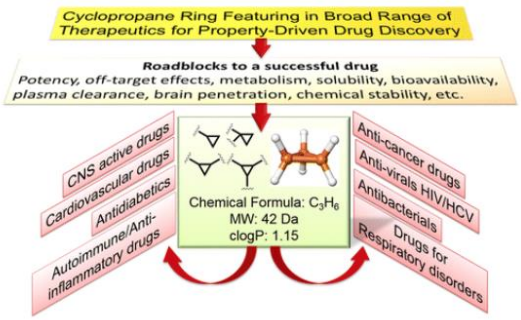
Citation: Talele, T. T.; *J. Med. Chem.* **2016**, 59 (18), 8712-8756

The Cyclopropyl Fragment is a Versatile Player that Frequently Appears in Preclinical/Clinical Drug Molecules



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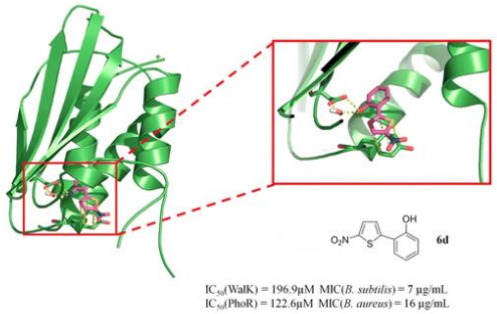
Citation: Boibessot, T.; *et al. J. Med. Chem.* **2016**, 59 (18), 8830-8847

The Rational Design, Synthesis, and Antimicrobial Properties of Thiophene Derivatives That Inhibit Bacterial Histidine Kinases



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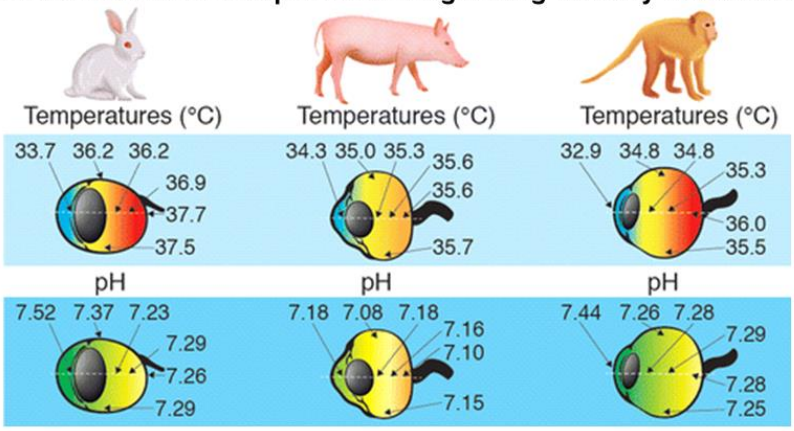
Citation: Lorget, et *al. Mor. Pharm.* **2016,** *13*, 2891-2896.

Characterization of the pH and Temperature in the Rabbit, Pig, and Monkey Eye: Key Parameters for the Development of Long-Acting Delivery Ocular Strategies



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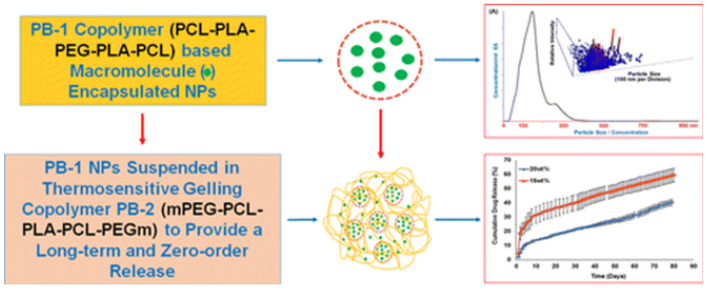
Citation: Agrahari, et *al. Mor. Pharm.* **2016,** *13*, 2812-2922

Composite Nanoformulation Therapeutics for Long-Term Ocular Delivery of Macromolecules



The purpose of this investigation is to design and synthesize novel pentablock (PB) copolymer based nanoformulations suspended in a thermosensitive gelling copolymer termed as composite nanoformulation. The composite nanoformulation was prepared to provide a sustained delivery of macromolecules over a longer duration with negligible burst release effect. The delivery system was designed to be utilized for the treatment of posterior segment ocular diseases such as age-related (wet) macular degeneration, diabetic retinopathy, and diabetic macular edema.

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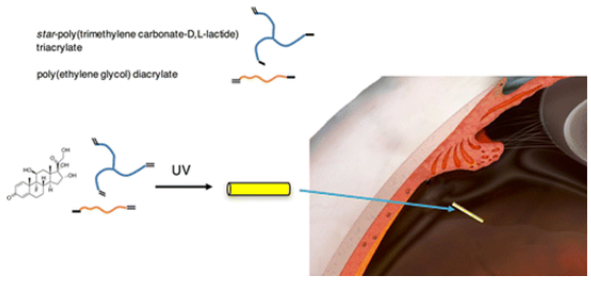
Citation: Marecak, et *al.* *Mor. Pharm.* **2016,** *13*, 3004-3012.

Long-Term Sustained Release from a Biodegradable Photo-Cross-Linked Network for Intraocular Corticosteroid Delivery



Intravitreal sustained delivery of corticosteroids such as dexamethasone is an effective means of treating a number of ocular diseases, including diabetic retinopathy, uveitis, and age-related or diabetic macular edema. There are currently marketed devices for this purpose, yet only one, Ozurdex, is degradable.In vitro release of dexamethasone from the Ozurdex device is limited to approximately 30 days, however. It was the objective of this study to examine the potential for prolonged and sustained release of a corticosteroid in vitro from a degradable polymer prepared from terminally acrylated star co- and ter-prepolymers composed of d,l-lactide,epsilon-caprolactone, and trimethylene carbonate co-photo-cross-linked with poly(ethylene glycol) diacrylate.

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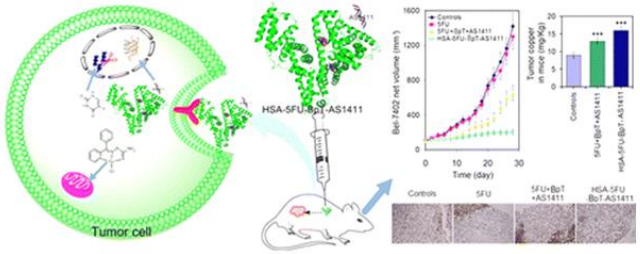
Citation: Qi, et *al.* *Mor. Pharm.* **2016,** *13*, 3098-3105.

Multidrug Delivery Systems Based on Human Serum Albumin for Combination Therapy with Three Anticancer Agents



When administering several anticancer drugs within a single carrier, it is important to regulate their spatial distribution so as to avoid possible mutual interference and to thus enhance the drugs¡¯ selectivity and efficiency. To achieve this, we proposed to develop human serum albumin (HSA)-based multidrug delivery systems for combination anticancer therapy. We used three anticancer agents (an organic drug [5-fluorouracil, or 5FU], a metallic agent [2-benzoylpyridine thiosemicarbazide copper II, or BpT], and a gene agent [AS1411]) to treat liver cancer and confirm our hypothesis.

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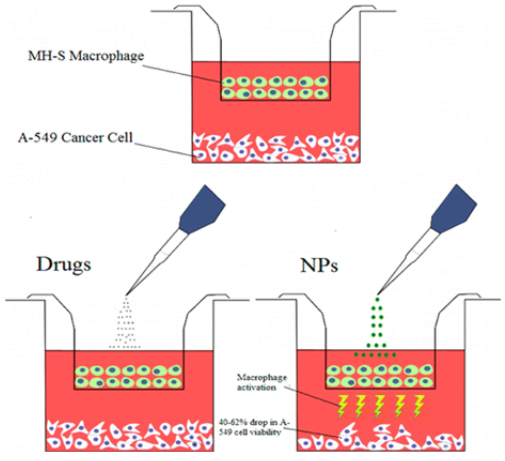
Citation: Fu, et *al.* *Mor. Pharm.* **2016,** *13*, 3270-3278

Inflammation Caused by Nanosized Delivery Systems: Is There a Benefit?

Secondary macrophage cytotoxicity induced by nanoparticles was described before. The study aim was to investigate the role of secondary cytotoxic effect in a macrophage-lung cancer coculture model after nanoparticle treatment in the presence and absence of anti-inflammatory drugs. The data suggest that anti-inflammatory treatments can decrease the carrier-induced macrophage cytotoxicity and its antitumor effectiveness with chemotherapy.



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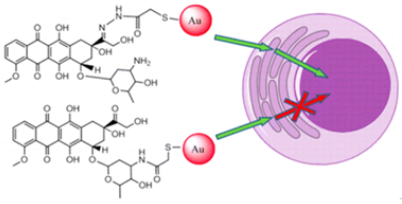
Citation: Fu, et *al.* *Mor. Pharm.* **2016,** *13*, 3308-3317.

The work in this paper used a hydrazone bond or an amide bond to attach an anticancer drug, doxorubicin (Dox), to gold nanoparticles (GNPs) and compared the effects of the chemical bond on the anticancer activities of the resulting Dox-GNPs. The drug release efficiency, cytotoxicity, subcellular distribution, and cell apoptosis of hydrazone-linked HDox-GNPs and amide-linked SDox-GNPs were evaluated in several cancer cells. HDox-GNPs exhibited greater potency for drug delivery via triggered release comediated by acidic pH and glutathione (GSH) than SDox-GNPs triggered by GSH alone. Dox released from HDox-GNPs was released in lysosomes and exerted its drug activity by entering the nuclei. Dox from SDox-GNPs was mainly localized in lysosomes, significantly reducing its efficacy against cancer cells. In addition, in vivo studies in tumor-bearing mice demonstrated that HDox-GNPs and SDox-GNPs both accumulate in tumor tissue

Comparison of Two Approaches for the Attachment of a Drug to Gold Nanoparticles and Their Anticancer Activities



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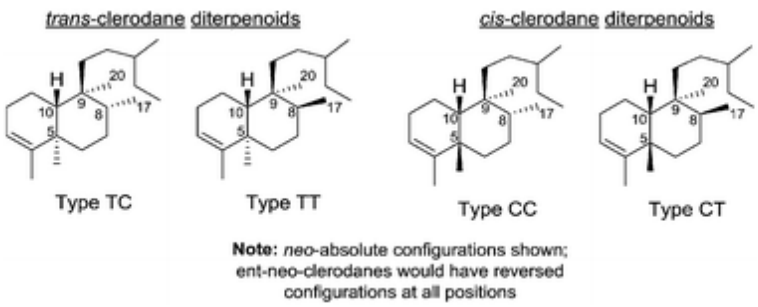
Citation: Rongtao, L. et al. *Nat. Prod. Rep.*, **2016**, 33, 116-1226

Clerodane diterpenes: sources, structures, and biological activities



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Citation: **Nature 537, 460–461 (22 September 2016) doi:10.1038/537460a**

Titanic clash over CRISPR patents turns ugly

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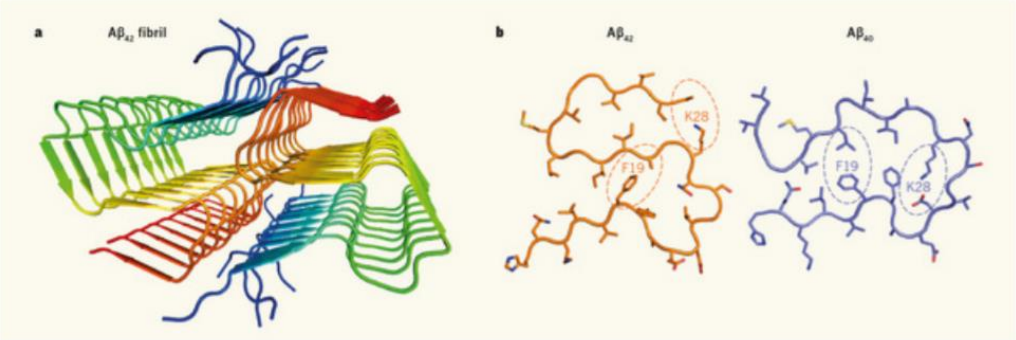
Citation: **Nature 537, 492–493 (22 September 2016) doi:10.1038/nature19470**

Alzheimer's disease: Structure of aggregates revealed



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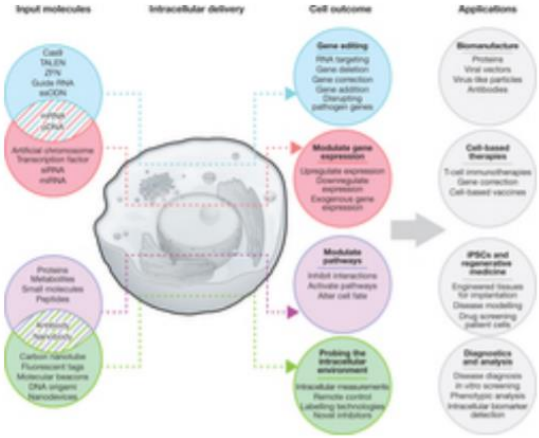
Citation: **Nature 538, 183–192 (13 October 2016) doi:10.1038/nature19764**

In vitro and ex vivo strategies for intracellular delivery



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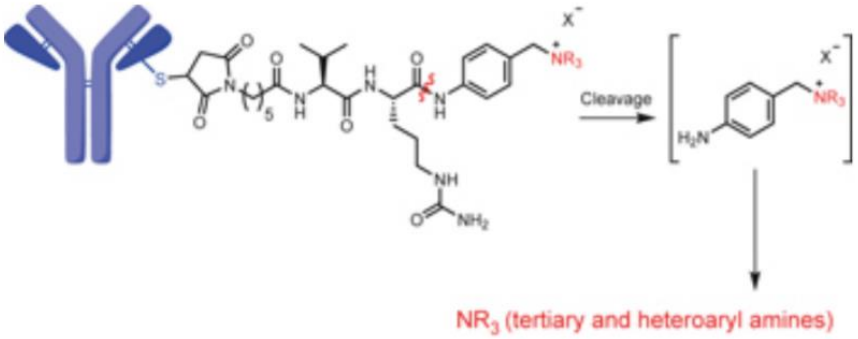
Citation: **Nature Chemistry (2016) doi:10.1038/nchem.2635**

Targeted drug delivery through the traceless release of tertiary and heteroaryl amines from antibody–drug conjugates

Thomas H. Pillow et. al.



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Citation: Frank, J.A., *et al. Nat. Chem. Bio.* **2016,** *12,*755-762.

Increased levels of the second messenger lipid diacylglycerol (DAG) induce downstream signaling events including thetranslocation of C1-domain-containing proteins toward the plasma membrane. Here, we introduce three light-sensitive DAGs, termed PhoDAGs, which feature a photoswitchable acyl chain. The PhoDAGs are inactive in the dark and promote the translocation of proteins that feature C1 domains toward the plasma membrane upon a flash of UV-A light. This effect is quickly reversed after the termination of photostimulation or by irradiation with blue light, permitting the generationof oscillation patterns

Photoswitchable diacylglycerols enable optical control of protein kinase C

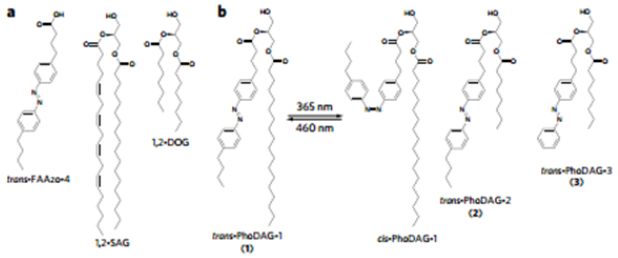

Figure 1 | Design and synthesis of PhoDAGs. (**a**) Chemical structures of the photoswitchable fatty acid FAAzo-4, 1,2-SAG and 1,2-DOG. (**b**) The chemical structures of photoswitchable diacylglycerols PhoDAG-1 (**1**), PhoDAG-2 (**2**) and PhoDAG-3 (**3**).

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Citation: **N Engl J Med 2016; 375:1289-1294 September 29, 2016DOI: 10.1056/NEJMsb1607705**

Limits to Personalized Cancer Medicine

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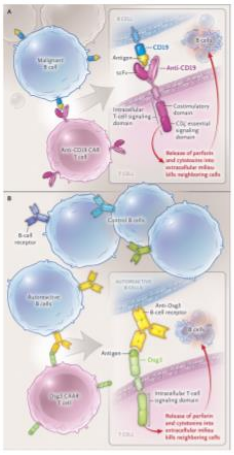
Citation: **N Engl J Med 2016; 375:1487-1489October 13, 2016DOI: 10.1056/NEJMcibr1608900**

Modulating Immunity to Treat Autoimmune Disease



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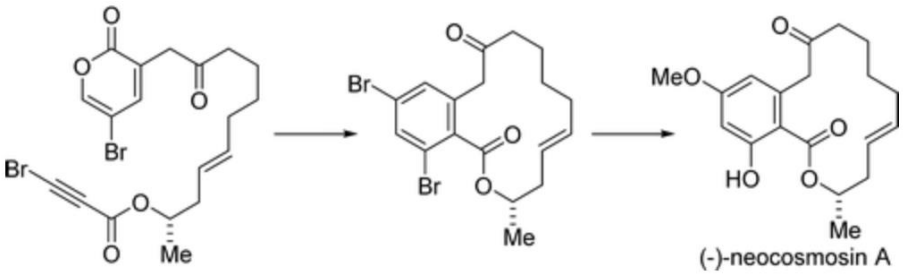
Citation: Lee, J. H.; & Cho, C. G. *Org. Lett.* **2016**, *18*(19), 5126–5129

Total Synthesis of (-)-Neocosmosin A via Intramolecular Diels-Alder Reaction of 2-Pyrone



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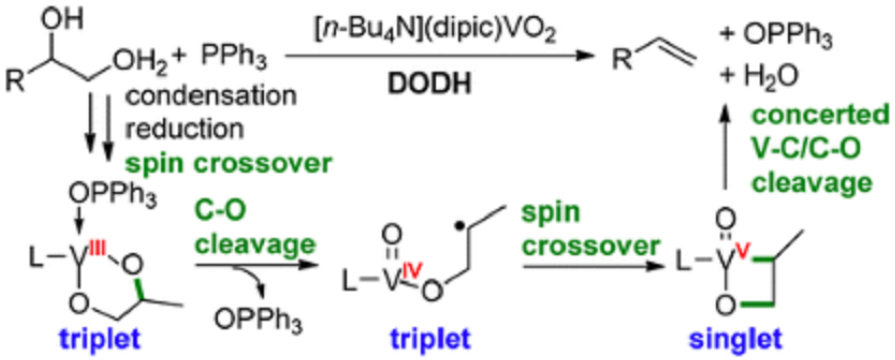
Citation: Jiang, Y. -Y.; Jiang, J. -L.; Fu, Y. *Organomet.* **2016**, *35*, 3388-3396.

Mechanism of Vanadium-Catalyzed Deoxydehydration of Vicinal Diols: Spin-Crossover-Induced Processes



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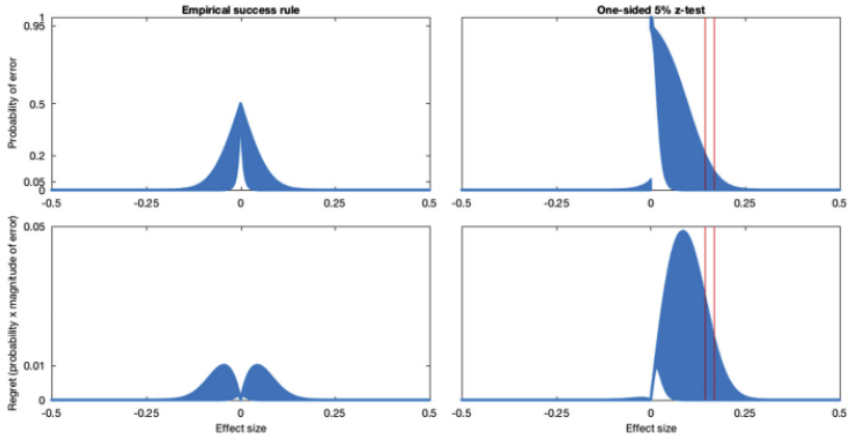
Citation: PNAS 2016, 113 (38), 10518–10523.

Sufficient trial size to inform clinical practice



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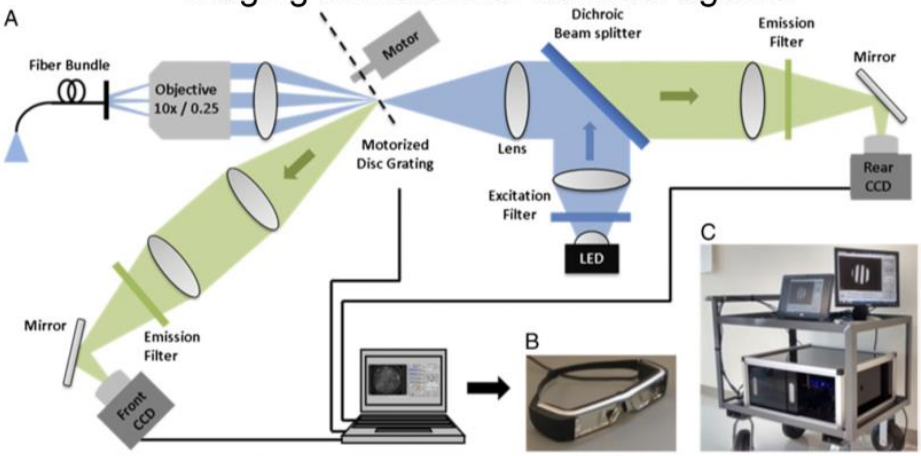
Citation: PNAS 2016, 113 (39), 10769–10773.

Differential structured illumination microendoscopy for in vivo imaging of molecular contrast agents



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Citation: PNAS 2016, 113 (39), 10962–10967.

Systemic peptide-mediated oligonucleotide therapy improves long-term survival in spinal muscular atrophy

Significance

Splice-switching oligonucleotide (SSO) treatment in spinal muscular atrophy (SMA) has quickly become a clinical reality, but without an effective delivery system, the practicalities of delivering SSO therapy efficiently might preclude its wide- spread use. Our peptide-conjugated SSOs are being designed for clinical trials for the treatment of Duchenne muscular dys- trophy. Here, we report advanced phosphorodiamidate oligo- mer (PMO) internalizing peptide (Pip) peptides that effectively deliver SSOs bodywide and at doses an order-of-magnitude lower than required by naked SSOs in a mouse model of SMA. Furthermore, our peptide-SSO is able to deliver to the CNS of adult mice. This study thus presents an oligonucleotide show- ing activity in the CNS following a systemic route with peptide delivery.

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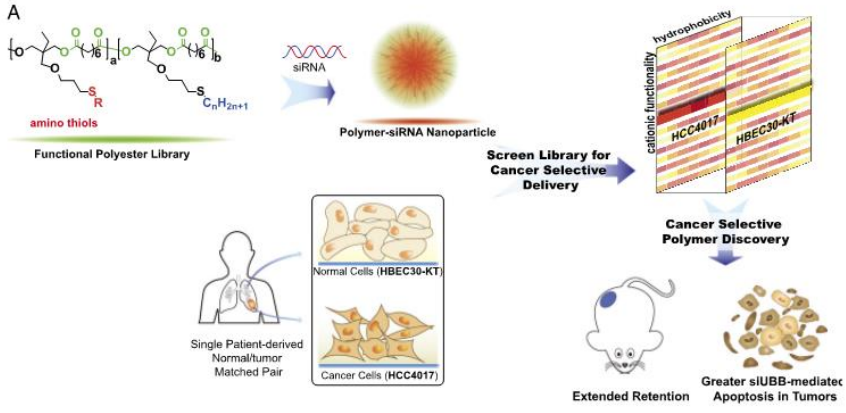
Citation: PNAS 2016, 113 (39), E5702–E5710.

Functional polyesters enable selective siRNA delivery to lung cancer over matched normal cells



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Citation: Kaier, *et al.* *Science.* **2016,** *353,* 527-528.

Antiaging trial using young blood stirs concerns

The first-ever clinical trial in the United States to test the antiaging benefits of an unusual therapy¡ªplasma from young donors¡ªin relatively healthy people is getting underway this month. The trial was inspired in part by a 2014 study finding that injecting old mice with the plasma portion of blood from young mice seemed to improve the elderly rodents' memory and ability to learn. But there's a big caveat: The company, Ambrosia, plans to charge participants $8000 for lab tests and a one-time treatment. To some ethicists and researchers, the trial raises red flags, both for its cost to participants and for a design that they say is unlikely to deliver much science.

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Citation: Shrager, *et al.* *Science.* **2016,** *353,* 1216-1217.

Precision medicine: Fantasy meets reality

In their Policy Forum ¡°Countering imprecision in precision medicine¡± (29 July, p. 448), S. P. Hey and A. S. Kesselheim discuss the many combinations of biomarkers and treatments that drive precision medicine research. They propose that ¡°Funding agencies could award responsibility for specific regions of the [biomarker x treatment] parameter space through their grants.¡± However, this is an extremely inefficient way to search such a large number of combinations. Researchers should be able to rapidly and adaptively refocus their research efforts as results become available. Bureaucratic funding agencies cannot react quickly enough to facilitate this dynamic process. Electronically connected networks of collaborating scientists can.

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Citation: Cohen *et al.* *Science.* **2016,** *354,* 157-158

Surprising treatment 'cures' monkey HIV infection

Antibody keeps SIV suppressed, but it's unclear how. a team led by immunologist Aftab Ansari of Emory University School of Medicine in Atlanta describes infecting eight monkeys with SIV, the simian version of HIV, treating them with ARVs, and then infusing them with an antibody similar to an approved drug for Crohn's disease and ulcerative colitis that targets a receptor on immune cell surfaces known as ¦Á4¦Â7. More than 9 months after the ARVs and antibody treatments were stopped, all eight animals had low or undetectable levels of SIV in their blood. In seven SIV-infected control animals that received what amounts to a placebo antibody, the virus rebounded to high levels within 2 weeks of stopping ARVs.

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Citation: Service, R.F. *Science.* **2016,** *354,* 158-159

Chemistry Nobel heralds age of molecular machines

The automated textile loom, patented in 1785, helped launch the Industrial Revolution. But early specimens were finicky and fussy handmade contraptions. Gears, rollers, and yarn shuttles regularly broke down, and inventor Edmund Cartwright never made any money. Yet 40 years later, fully automated, steam-powered looms were the norm, and the world never looked back

Molecular machines haven't exploded into a new industrial revolution just yet. Tour says the revolution will come in time, and could be even more far-reaching than that of the 19th century. 'In 100 to 200 years, I think we will fabricate everything from the bottom up' using molecular machines, he says.

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Citation: Annas, G.J. *Science.* **2016,** *354,* 189.

The mythology of CRISPR

It is too soon to write a history of CRISPR. Kozubek nonetheless gives the general reader a solid introduction to the current state of affairs, as seen by its creators and those who are using it in research and commerce. His reporting confirms that there is no existing democratic global governance mechanism capable of regulating gene editing and that commerce-driven self-regulation is likely to treat potential benefits as certainties and potential harms as speculative. The lack of any meaningful species-level oversight is problematic and potentially dangerous.

E. Lander, Cell 164, 18 (2016).

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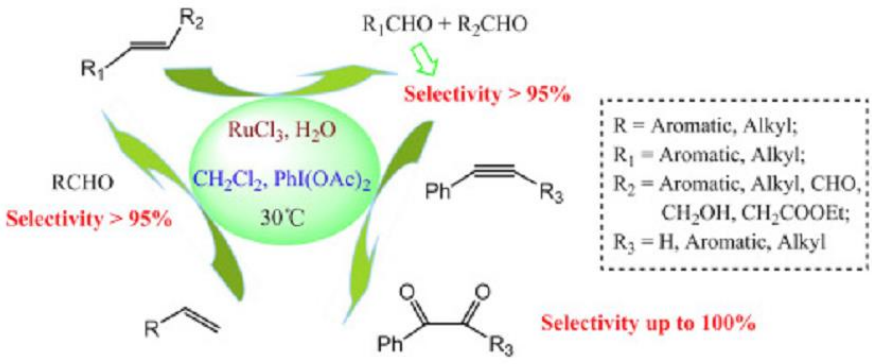
Citation: Mi, C. et al. *Tetrahedron*. **2016**, *72*, 6705-6710.

Highly selective oxidation of unsaturated hydrocarbons to carbonyl compounds by two-phase catalysis



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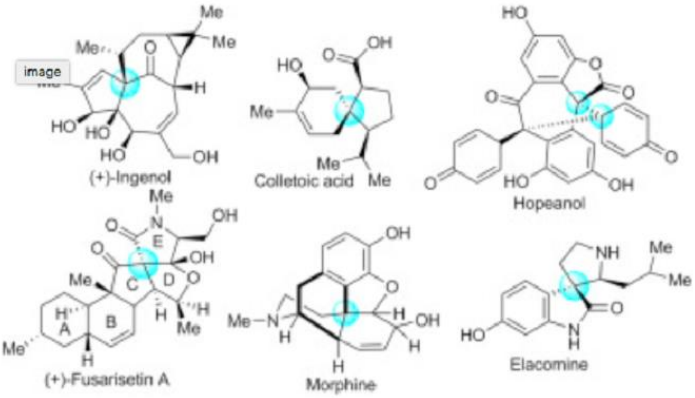
Citation: Ling, T.; Rivas, F. *Tetrahedron*. **2016**, *72*, 6729-6777.

All-carbon quaternary centers in natural products and medicinal chemistry: recent advances



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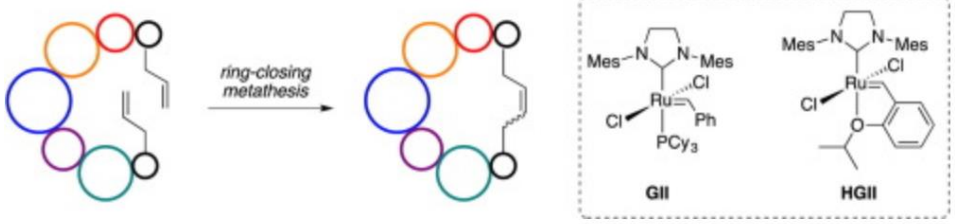
Citation: Gleeson, E. C. *et al. Tetrahedron Lett.* **2016**, 57 (39), 4325-4333

Ring-closing metathesis in peptides



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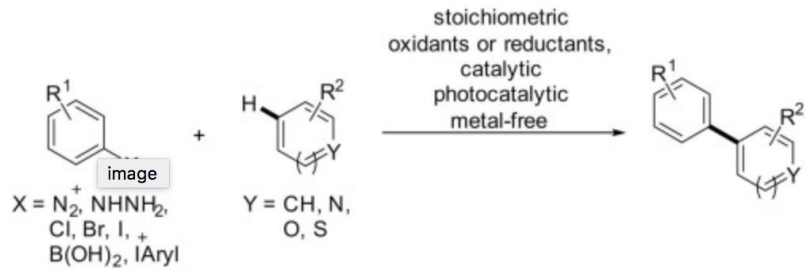
Citation: Hofmann, J. *et al. Tetrahedron Lett.* **2016**, 57 (39), 4334-4340

Recent developments in intermolecular radical arylations of arenes and heteroarenes



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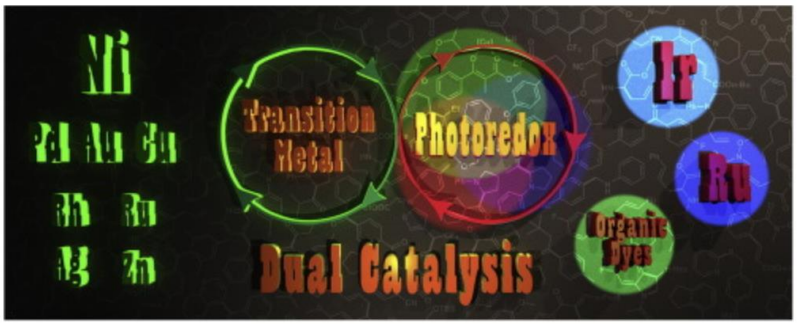
Citation: Toth, B. L. *et al. Tetrahedron Lett.* **2016**, 57 (41), 4505-4513

Recent advances in dual transition metal-visible light photoredox catalysis



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