Accounts of Chemical Research	**MOOK**	Quang Luu-Nguyen
ACS Central Science	**MOOK**	Colin McKinlay
ACS Chemical Biology	**MOOK**	Clayton Hardman
ACS Nano	113	Nancy Benner
Advanced Drug Delivery Reviews	N/A	N/A
Angewandte Chemie International Edition	N/A	N/A
Bioconjugate Chemistry	N/A	N/A
Biomacromolecules	113	Nancy Benner
Bioorganic and Medicinal Chemistry	N/A	N/A
Bioorganic and Medicinal Chemistry Letters	114	Katie Near
Chemical Communications	114	Katie Near
Chemical & Engineering News	**MOOK**	Colin McKinlay
Chemical Reviews	**MOOK**	Jefferson Tyler
Chemical Science	114	Jack Sloane
Chemistry, A European Journal	**MOOK**	Clayton Hardman
European Journal of Organic Chemistry	115	Jack Sloane
Journal of the American Chemical Society	116	Melanie Huttner (odd)
		Akira Shimizu (even)
JAMA	**MOOK**	Stephen Ho
Journal of Medicinal Chemistry	N/A	N/A
Journal of Organic Chemistry	N/A	N/A
Molecular Pharmaceutics	118	Xiaoyu Zang (Janice)
Natural Product Reports	119	Nancy Benner
Nature	**MOOK**	Stephen Ho
Nature Chemistry	**MOOK**	Stephen Ho
Nature Chemical Biology	119	Xiaoyu Zang (Janice)
New England Journal of Medicine	**MOOK**	Stephen Ho
The New York Times	N/A	N/A
The Onion	N/A	N/A
Organic Letters	**MOOK**	Quang Luu-Nguyen
Organometallics	N/A	N/A
PNAS	**MOOK**	Colin McKinlay
Science	119	Xiaoyu Zang (Janice)
Science Translational Medicine	**MOOK**	Jefferson Tyler
Synlett	N/A	N/A
Synthesis	N/A	N/A
Tetrahedron	N/A	N/A
Tetrahedron Letters	N/A	N/A

Next Due Date: Monday, October 16, 2017

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.

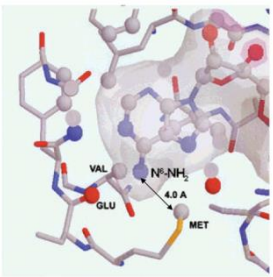
Include a brief textual summary of the article; an example of a completed abstract is shown below. The list of topics and subgroups on the right is useful to highlight which subgroups should pay attention to your abstract and roughly what kind of chemistry the article contains.

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-32PI-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

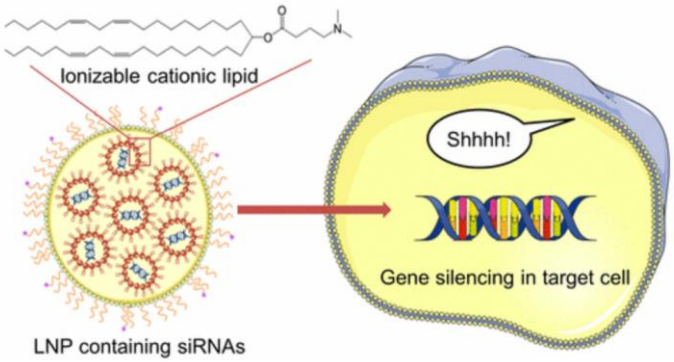
DON'T BE A MOOK!

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: Rietwyk, S. et al. *ACS Nano,* **2017**, *11,* 7572-7586

Next-Generation Lipids in RNA Interference Therapeutics



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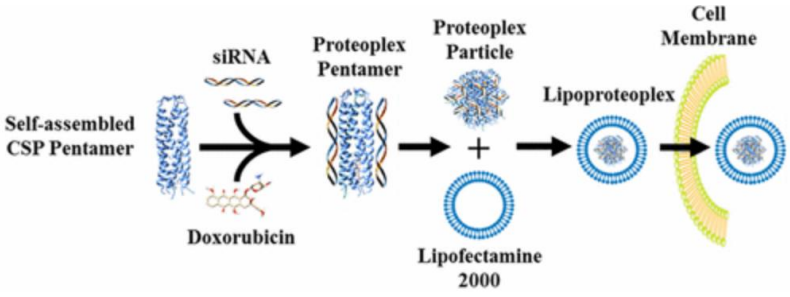
Prostratin

Citation: Liu, C. et al. *Biomacromolecules,* **2017**, *18 (8)* 2688-2698

Efficient Dual siRNA and Drug Delivery Using Engineered Lipoproteoplexes



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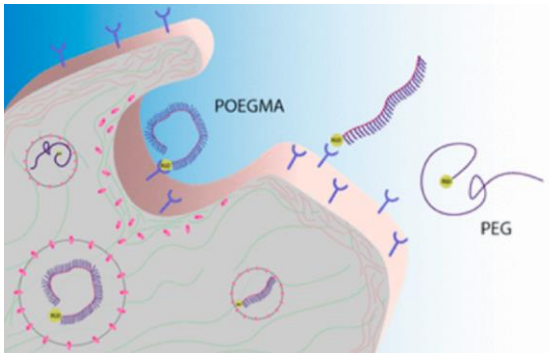
Citation: Ozer, I. et al. *Biomacromolecules,* **2017**, *18 (8)* 2699-2710

Effect of Molecular Architecture on Cell Interactions and Stealth Properties of PEG



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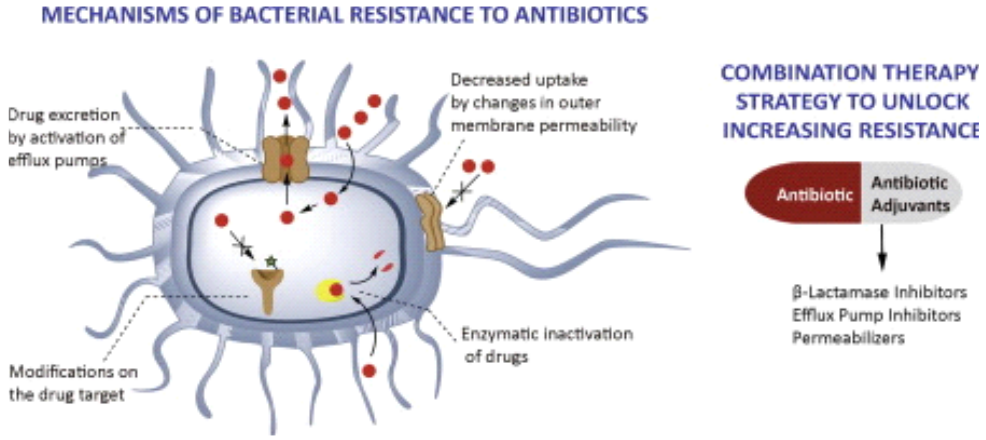
Citation: Gonzalez-Bello, C. *Bioorg. Med. Chem. Lett.* **2017**, *27*, 4221.

Antibiotic adjuvants – A strategy to unlock bacterial resistance to antibiotics



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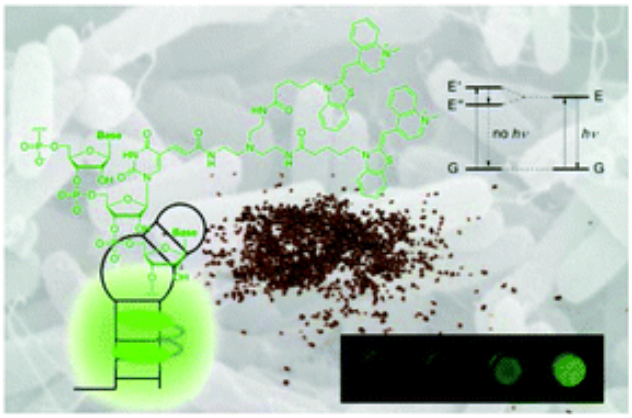
Citation: Guo, L.; Okamoto, A. *Chem Commun.* **2017**, *53,* 9406.

Fluorescence-switching RNA for detection of bacterial ribosomes



The fluorescence emission specific to bacterial ribosomes from a turn-on-type fluorescent RNA enabled quantification of bacterial population.

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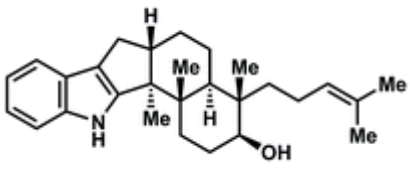
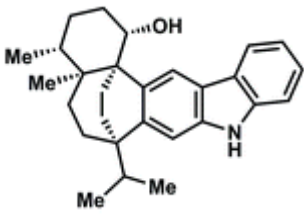
Citation: Corsello, M. A.; et al. *Chem. Sci.* **2017**, 8, 5836

Indole diterpenoid natural products as the inspiration for new synthetic methods and strategies



Emindole SB
Ketone Alkenylation & HAT Cyclization



Tubingensin B
Carbazolyne Cyclization & Radical Cyclization

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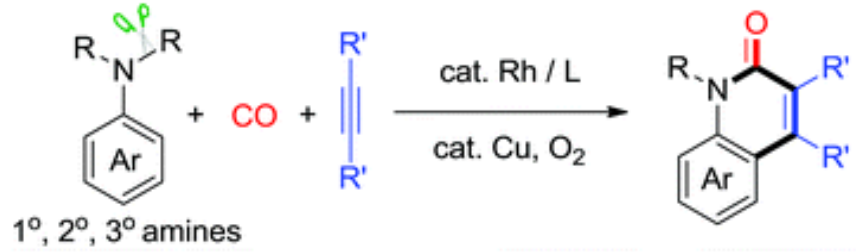
Citation: Li, X.; et al. *Chem. Sci.* **2017**, 8, 6266

Rh-catalyzed aerobic oxidative cyclization of anilines, alkynes, and CO



- broad scope with various anilines
- three component annulation
- green O_2 oxidant
- high selectivity

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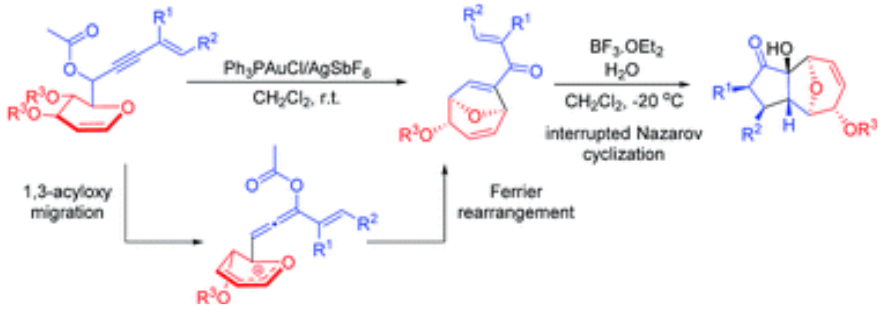
Citation: Liao, H.; et al. *Chem. Sci.* **2017**, 8, 6656

Asymmetric syntheses of 8-oxabicyclo[3,2,1]octane and 11-oxatricyclo[5.3.1.0]undecane from glycals



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Citation: Liu, H. et al. *Eur. J. Org. Chem.* **2017**, 32, 4852

Facile Coupling of Aldehydes with Alcohols: An EvolvedTishchenko Process for the Preparation of Unsymmetrical Esters

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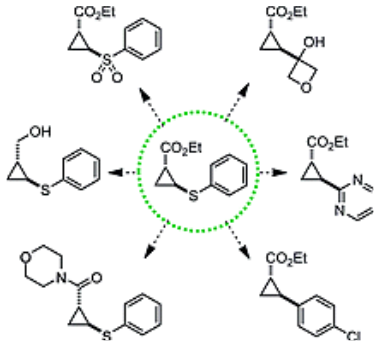
Citation: Chawner, S. J.; et al. *Eur. J. Org. Chem.* **2017**, 34, 5014

Divergent Synthesis of Cyclopropane-Containing Lead-LikeCompounds, Fragments and Building Blocks through a Cobalt Catalyzed Cyclopropanation of Phenyl Vinyl Sulfide



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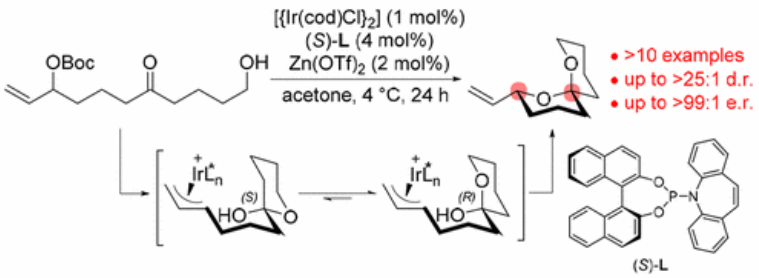
Citation: James Y. Hamilton, Simon L. Rössler, and Erick M. Carreira
Journal of the American Chemical Society 2017 139 (24), 8082-8085

Enantio- and Diastereoselective Spiroketalization Catalyzed by Chiral Iridium Complex



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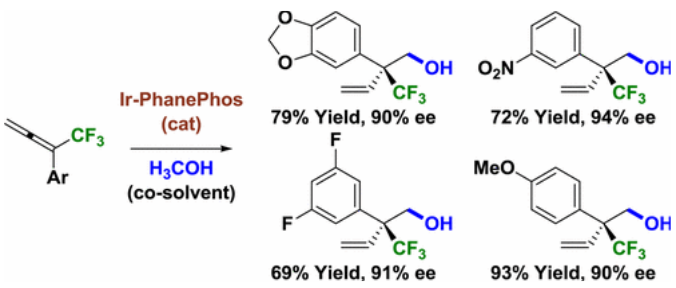
Citation: Michael Holmes, Khoa D. Nguyen, Leyah A. Schwartz, Tom Luong, and Michael J. Krische
Journal of the American Chemical Society 2017 139 (24), 8114-8117

Enantioselective Formation of CF3-Bearing All-Carbon Quaternary Stereocenters via C–H Functionalization of Methanol: Iridium Catalyzed Allene Hydrohydroxymethylation



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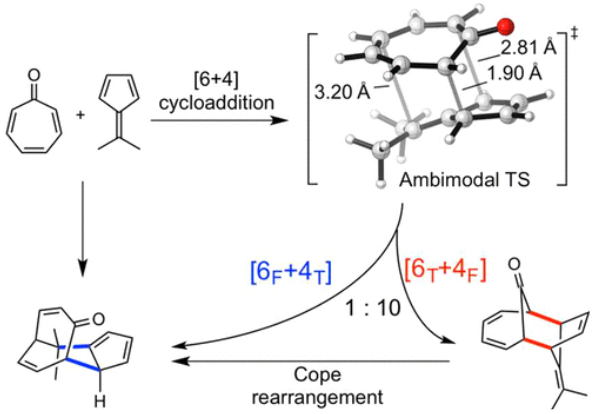
Citation: Peiyuan Yu, Tiffany Q. Chen, Zhongyue Yang, Cyndi Qixin He, Ashay Patel, Yu-hong Lam, Ching-Yang Liu, and K. N. Houk *JACS* 2017 139 (24), 8251-8258

Mechanisms and Origins of Periselectivity of the Ambimodal [6 + 4] Cycloadditions of Tropone to Dimethylfulvene



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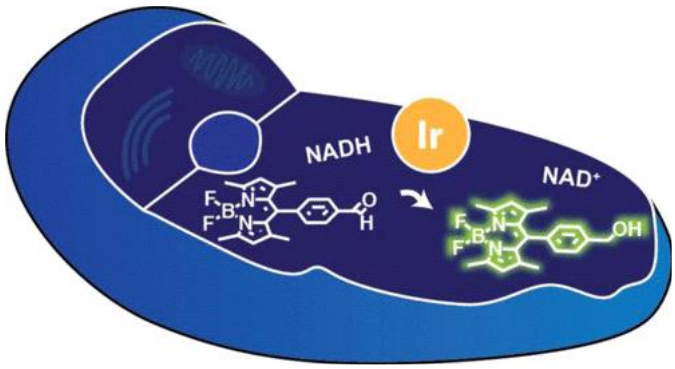
Citation: Sohini Bose, Anh H. Ngo, and Loi H. Do
Journal of the American Chemical Society 2017 139 (26), 8792-8795

Intracellular Transfer Hydrogenation Mediated by Unprotected Organoiridium Catalysts



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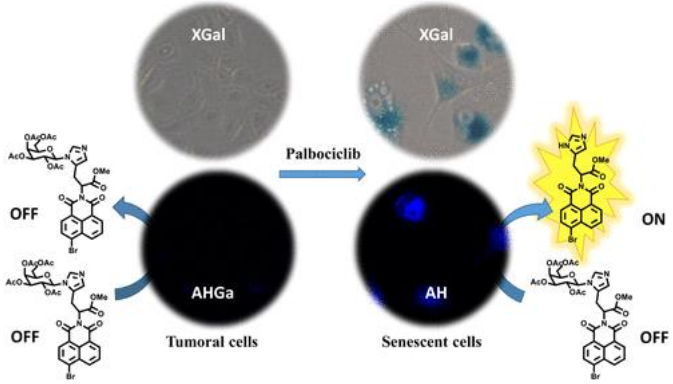
Citation: Beatriz Lozano-Torres, Irene Galiana, Félix Sancenón et al. Journal of the American Chemical Society 2017 139 (26), 8808-8811

An OFF–ON Two-Photon Fluorescent Probe for Tracking Cell Senescence in Vivo



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Citation: Chen, et *al.* *Mor. Pharm.* **2017,** *14,* 3087-3097.

Apoferritin Nanocage for Brain Targeted Doxorubicin Deliver

An ideal brain-targeted nanocarrier must be sufficiently potent to penetrate the blood-brain barrier (BBB) and sufficiently competent to target the cells of interest with adequate optimized physiochemical features and biocompatibility. Herein, we demonstrate a straightforward strategy for brain targeting by encapsulating doxorubicin (DOX) into a naturally available and unmodified apoferritin nanocage (DOX-loaded APO). APO can specifically bind to cells expressing transferrin receptor 1 (TfR1). Because of the high expression of TfR1 in both brain endothelial and glioma cells, DOX-loaded APO can cross the BBB and deliver drugs to the glioma with TfR1. Subsequent research demonstrated that the DOX-loaded APO had good physicochemical properties (particle size of 12.03 nm, drug encapsulation efficiency of 81.8 %) and significant penetrating and targeting effects in the coculture model of bEnd.3 and C6 cells in vitro. In vivo imaging revealed that DOX-loaded APO accumulated specifically in brain tumor tissues. Additionally, in vivo tumor therapy experiments (at a dosage of 1 mg/kg DOX) demonstrated that a longer survival period was observed in mice that had been treated with DOX-loaded APO (30 days) compared with mice receiving free DOX solution (19 days).

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Citation: Ohta, et *al.* *Mor. Pharm.* **2017**, *14*, 3105-3113

Intraperitoneal Delivery of Cisplatin via a Hyaluronan-Based Nanogel/in Situ Cross-Linkable Hydrogel Hybrid System for Peritoneal Dissemination of Gastric Cancer

In this study, for intraperitoneal delivery of cisplatin (CDDP), we developed a hyaluronan (HA)-based hybrid system in which CDDP-loaded HA nanogels were either physically encapsulated in or chemically conjugated to injectable HA hydrogels. Physical encapsulation enabled sustained release of HA nanogels from the HA hydrogel matrix for over a week. This was a longer release period than that of encapsulated free CDDP, which released 80% of the drug in 2 days. The longer release was attributed to delayed diffusion of HA nanogels from the hydrogel matrix network. The release profile could be tuned by modifying the chemical conjugation of HA nanogels to the HA hydrogel matrix, as well as the type of chelating ligands used to load CDDP to the nanogel. Furthermore, intraperitoneally administered hybrid had significant antitumor activity in a mouse model of peritoneally disseminated gastric cancer, especially for nodules smaller than 1.0 mm.

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Citation: Zhang, et *al.* *Mor. Pharm.* **2017**, *14*, 3188-3200

Skin Delivery of Hydrophilic Biomacromolecules Using Marine Sponge Spicule

Authors report the development of sponge Haliclona sp. spicules, referred to as SHS, and its topical application in skin delivery of hydrophilic biomacromolecules, a series of fluorescein isothiocyanate-dextrans (FDs). SHS are silicious oxeas which are sharp-edged and rod-shaped (120 um in length and 7 um in diameter). SHS can physically disrupt skin in a dose-dependent manner and retain within the skin over at least 72 h, which allows sustained skin penetration of hydrophilic biomacromolecules.Specifically, SHS topical application enhanced FD-10 (MW: 10 kDa) penetration into porcine skin in vitro by 33.09-fold compared to control group ($p < 0.01$). SHS dramatically increased the accumulation of FD-10 into and across the dermis by 62.32-fold compared to the control group ($p < 0.01$). In vivo experiments performed using BALB/c mice also confirmed the effectiveness of SHS topical application; the skin absorption of FD-10 with SHS topical application was 72.14-fold ($p < 0.05$) and 15.39-fold ($p < 0.05$) higher than those from the PBS and Dermaroller microneedling, respectively. SHS can offer a safe, effective, and sustained skin delivery of hydrophilic biomacromolecules and presents a promising platform technology for a wide range of cosmetic and medical applications.

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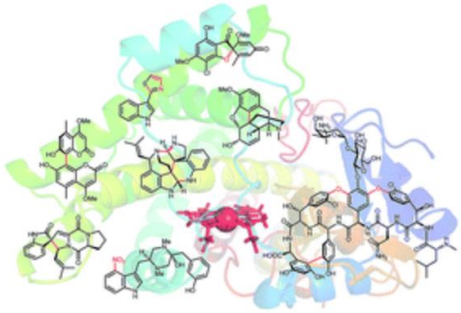
Citation: Zhang, X. et al. *Nat. Prod. Rep.*, **2017**, 34, 1061-1089

Expansion of chemical space for natural products by uncommon P450 reactions



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Citation: Wellington, et *al.* *Nat. Chem. Biol.* **2017,** *13*, 943-950

A small-molecule allosteric inhibitor of Mycobacterium tuberculosis tryptophan synthase

An allosteric inhibitor of Mycobacterium tuberculosis tryptophan synthase¡ªan enzyme that is nonessential for in vitro growth¡ªhas potent antimicrobial activity, revealing a potentially expanded target list for antimicrobials and greater chemical space for new inhibitors. Wellington et al. now describe the discovery of an allosteric inhibitor of a key metabolic enzyme from M. tuberculosis¡ªtryptophan synthase (TrpAB)4. By demonstrating that an enzyme nonessential for in vitro growth is indispensable during in vivo infection, the work expands the arena of valuable drug targets to genes of central metabolism that may have been previously dismissed due to in vitro nonessentiality.

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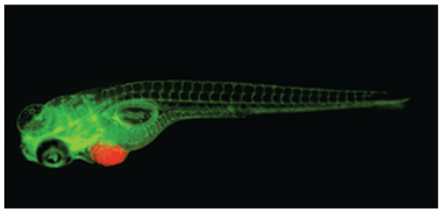
Citation: Leslie, M. *Science.* **2017,** *357, 745*

Zebrafish larvae could help to personalize cancer treatments

Doctors often use trial and error to determine which cancer treatment works best for a particular patient. A new study describes a technique that may make the choice more rational, which involves growing implanted human tumor cells in zebrafish larvae. Each fish became a minuscule model of a patient¡¯s cancer¡ªand a test bed for treatments. Similar cancer ¡°avatars¡± have been created with mice, but the piscine approach may be faster and cheaper, making it accessible for more patients. The study shows that the fish can discriminate between effective and ineffective treatments, and that they could predict which patients with colorectal cancer would have relapses.

The reports is in PNAS



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Citation: Wright, A. *Science.* **2017,** 357, 758

Maryam Mirzakhani (1977-2017)

On 14 July, Maryam Mirzakhani, a luminary in pure mathematics, died of cancer at the age of 40. Her achievements had been most recently honored in 2014 by the Fields Medal, the most prestigious award in mathematics.

Born in Tehran, Mirzakhani set a record as the first Iranian to earn two gold medals in the International Mathematical Olympiad before studying mathematics at the Sharif University of Technology. Her early success earned her a spot in Harvard University's Ph.D. program, where she wrote a thesis so exceptional that it yielded publication in three of mathematics' most prestigious journals. She joined Stanford University's faculty of mathematics in 2009 after working as a Clay Research Fellow and professor at Princeton University.

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Citation: Frankel, J. *Science.* **2017,** 357, 855

Anti-inflammatory prevents heart attacks

A clinical trial of more than 10,000 heart attack patients has confirmed cardiologists' long-standing suspicion that inflammation helps trigger heart attacks. By giving patients an antibody targeting a key molecule in the inflammatory pathway, investigators reduced heart disease and stroke by 15%, they reported last week. The finding won't immediately lead to new treatments, because the effect was modest, and the drug is pricy and can cause serious side effects. But the result is a proof of principle, and likely to spur development of inflammation-targeting therapies. The trial also recorded fewer cases of lung cancer in those on the treatment, consistent with basic research findings hinting that the same inflammatory pathway may initiate or spur tumor growth.

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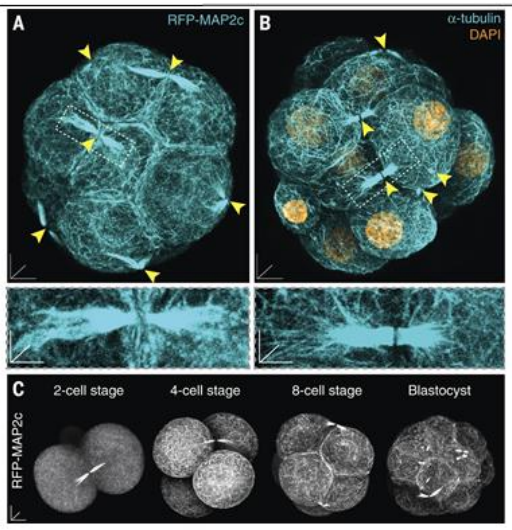
Citation: Zenker, et al. *Science.* **2017,** ***357***, 925-928

A microtubule-organizing center directing intracellular transport in the early mouse embryo

Cell functions ranging from cell division to morphogenesis rely on microtubules, with microtubule-organizing centers serving as anchoring sites for their outgrowth. Although the centrosome organizes the microtubule cytoskeleton in most animal cells, this organelle is absent in early development. Using live-cell imaging, Zenker et al. found that the cells of the early mouse embryo are connected by stable microtubule bridges to direct the growth of microtubules within them. Microtubules emanating from the bridges help to guide transport of key proteins, including E-cadherin, to the cell membrane to control cell polarization during early development.



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Citation: Marcus, A. *Science.* **2017,** *357*, 1085-1086.

Pay up or retract? Drug survey spurs conflict

Over the past decade, public health specialist Donald Morisky of the University of California, Los Angeles, has moved aggressively to enforce his copyright on a questionnaire he developed that examines how likely it is that a patient will adhere to a recommended drug regimen. Together with a colleague, he has demanded payments of as much as tens of thousands of dollars each from hundreds of researchers who have used Morisky's scale, and threatened to force the retraction of papers if the alleged infringers don't pay. Morisky is well within his legal rights to seek the payments. But observers say Morisky's vigorous enforcement and the size of his demands stand out. At least two teams have withdrawn papers rather than pay. Other authors have resisted, questioning the ethics and legality of the requests, which one researcher has called "absurd and predatory." But Morisky says he is just trying to make sure the tool is used properly, and notes that he has allowed researchers to administer the survey more than 1 million times for free.

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Citation: Gibbons, A *Science.* **2017,** *357*, 1086

Papua New Guinea's genetic diversity withstood farming

The people on the island of New Guinea speak more than 850 languages, and now, researchers have found in a new study on p. 1160 that this remarkable genetic diversity is reflected by real genetic differences. More unexpected, the team concludes that this genetic variation dates back just 10,000 years, to a time when people began farming in the highlands, rather than to 50,000 years ago or so when humans first arrived on the island. The timing suggests that the invention of agriculture, which occurred independently in the New Guinea highlands from other parts of the world, did not permanently wipe out local genetic differences, as it did in Europe or parts of Asia.They concluded that the people of New Guinea were isolated from Asians for most of prehistory, and that highland and lowland dwellers separated from each other 10,000 to 20,000 years ago. In the highlands, people split into three very distinct clusters of social groups within the past 10,000 years, soon after they began cultivating plants. In the lowlands, two main clusters arose in the north and south.

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Citation: Wright, A. *Science.* **2017,** *357*, 1113-1118

Structures of the CRISPR genome integration complex

The study addresses one of the last unsolved steps in the CRISPR memorization process. The authors designed two DNA molecules that mimic intermediates of the integration reaction. One DNA molecule mimics the product formed after the first nucleophilic attack, which occurs when a spacer is joined to one side of the repeat sequence in the CRISPR array. The other DNA molecule mimics the product formed after the second nucleophilic attack, which joins the other end of the spacer with the other side of the CRISPR array repeat. The second DNA molecule is elegantly designed as a spacer joined to either side of the CRISPR array repeat but cleaved in the middle, to allow crystallization. The nucleophilic attacks are catalyzed by the memorization complex, which is composed of four Cas1 and two Cas2 subunits. Surprisingly, Wright et al. found that in the structures of these DNA intermediates with the memorization complex, the repeat sequence in the CRISPR array does not form sequence-specific bonds with the memorization complex, and that the recognition of the repeat in the CRISPR array by the memorization complex likely involves another mechanism.

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Citation: Natalio, *et al*. *Science.* **2017,** *357*, 1118-1122.

Biological fabrication of cellulose fibers with tailored properties

Responsive or functional fabrics include coatings or secondary materials with properties such as changing color with temperature or generating electricity with movement. The challenge is that anything added to a fabric can get washed or worn away. Hence, Natalio et al. opted to build the functionality directly into cotton grown in vitro, through the addition of glucose modified at the C2 position to the culture medium. By this process, fibers can be made that naturally fluoresce or have magnetic properties, for instance.

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