

# Chemical Science

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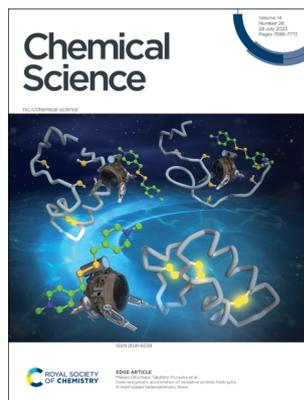
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## IN THIS ISSUE

ISSN 2041-6539 CODEN CSHCBM 14(28) 7599–7772 (2023)



**Cover**  
See Takao Yamaguchi, Satoshi Obika *et al.*, pp. 7620–7629.  
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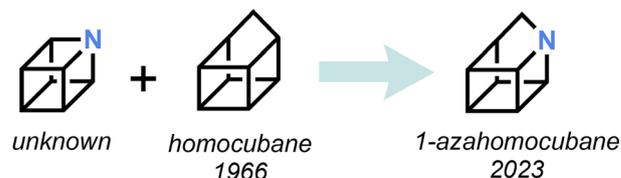
**Inside cover**  
See Masaki Okumura, Takahiro Muraoka *et al.*, pp. 7630–7636.  
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## COMMENTARY

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### A focus on 1-azahomocubane: the new kid on the block

Cecile Elgindy and Mark D. Levin\*

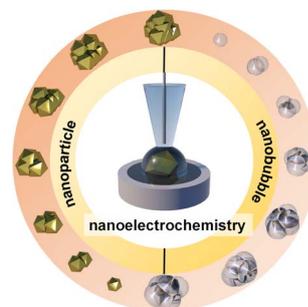


## PERSPECTIVE

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### Nanoelectrochemistry in electrochemical phase transition reactions

Eliás Mondaca-Medina, Roberto García-Carrillo, Hyein Lee, Yufei Wang, He Zhang and Hang Ren\*



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Chemical Science (electronic: ISSN 2041-6539) is published 48 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK.

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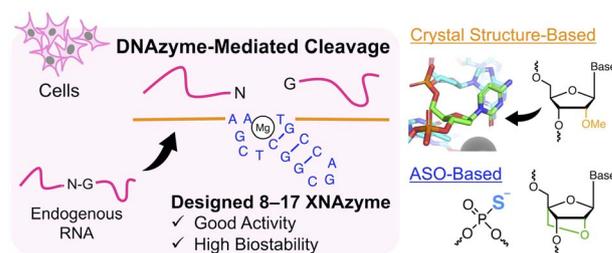
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## Development of 8–17 XNAzymes that are functional in cells

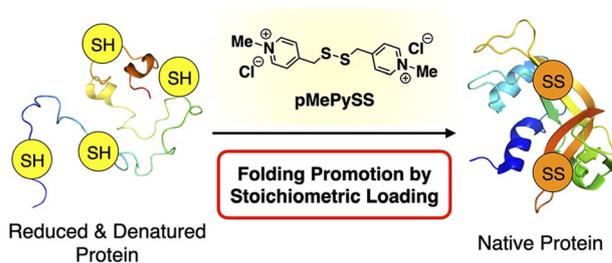
Kosuke Chiba, Takao Yamaguchi\* and Satoshi Obika\*



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## Semi-enzymatic acceleration of oxidative protein folding by *N*-methylated heteroaromatic thiols

Shunsuke Okada, Yosuke Matsumoto, Rikana Takahashi, Kenta Arai, Shingo Kanemura, Masaki Okumura\* and Takahiro Muraoka\*



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## Site-selective carbonylation of arenes via C(sp<sup>2</sup>)–H thianthrenation: direct access to 1,2-diarylethanones

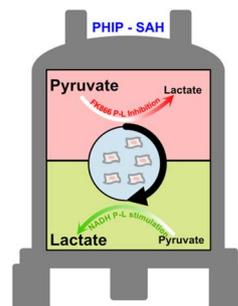
Jiajun Zhang, Le-Cheng Wang, Zhi-Peng Bao and Xiao-Feng Wu\*



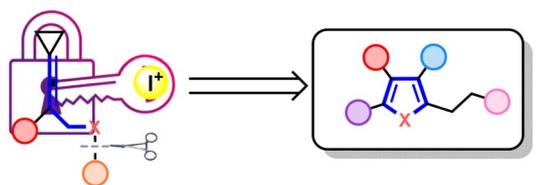
7642

## Real-time cell metabolism assessed repeatedly on the same cells via para-hydrogen induced polarization

Yonghong Ding, Gabriele Stevanato, Frederike von Bonin, Dieter Kube and Stefan Glögger\*



7648



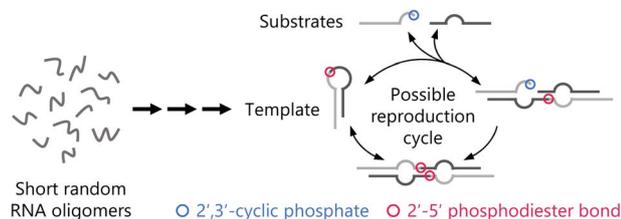
X = N, O    SO<sub>2</sub>R    ● short time    ● wide substrate range  
 X = S    H    ● mild conditions    ● metal free

54 examples, up to 95% yield

### Construction of pyrroles, furans and thiophenes via intramolecular cascade desulfonylative/dehydrogenative cyclization of vinylidenecyclopropanes induced by NXS (X = I or Br)

Zhe Meng, Jun Yan, Chao Ning, Min Shi\* and Yin Wei\*

7656



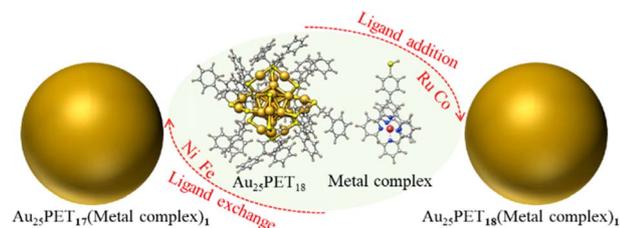
Short random RNA oligomers

○ 2',3'-cyclic phosphate    ○ 2'-5' phosphodiester bond

### Minimal RNA self-reproduction discovered from a random pool of oligomers

Ryo Mizuuchi\* and Norikazu Ichihashi

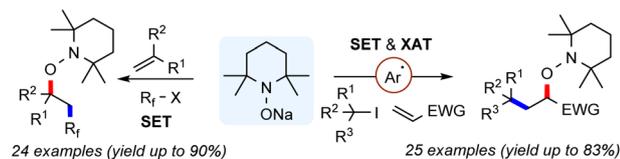
7665

Au<sub>25</sub>PET<sub>17</sub>(Metal complex)<sub>1</sub>Au<sub>25</sub>PET<sub>18</sub>(Metal complex)<sub>1</sub>

### Engineering ligand chemistry on Au<sub>25</sub> nanoclusters: from unique ligand addition to precisely controllable ligand exchange

Jiangtao Zhao, Abolfazl Ziarati,\* Arnulf Rosspeintner, Yanan Wang and Thomas Bürgi\*

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24 examples (yield up to 90%)

25 examples (yield up to 83%)

### 1,2-Aminoxyalkylation of alkenes with alkyl iodides and TEMPONa through SET- and XAT-processes

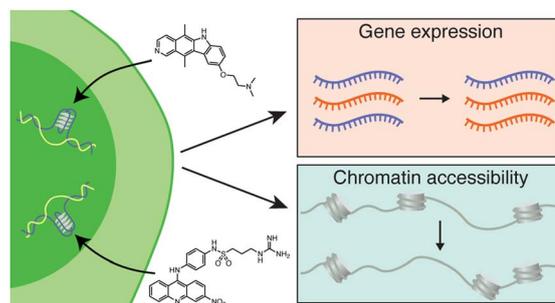
Anirban Maity and Armido Studer\*



7681

### G4-DNA formation and chromatin remodelling are interdependent in human cells

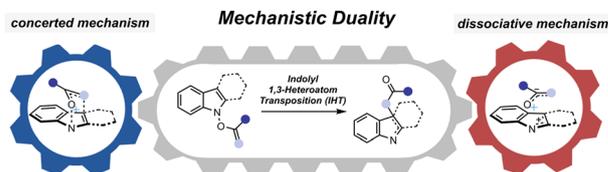
Nicholas B. Lawler, Arnold Ou, Jessica J. King, Cameron W. Evans,\* K. Swaminathan Iyer\* and Nicole M. Smith\*



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### Mechanistic duality of indolyl 1,3-heteroatom transposition

Yujin Lee, Yun Seung Nam, Soo Young Kim, Jeong Eun Ki and Hong Geun Lee\*

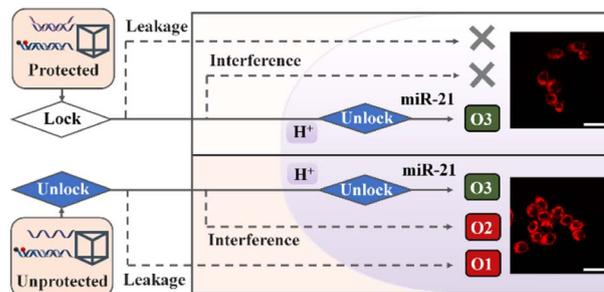


- Identification of the mechanistic duality of IHT
- Access to various forms of the C3-hetero-functionalized indole derivatives
- Mechanism-driven strategy for facilitated IHT
- Metal-free, mild conditions with easy set-up

7699

### Intracellular activated logic nanomachines based on framework nucleic acids for low background detection of microRNAs in living cells

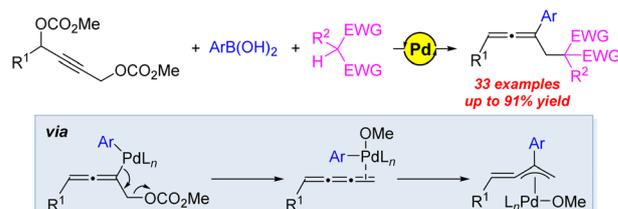
Xiao-Qiong Li, Yi-Lei Jia, Yu-Wen Zhang, Hong-Yuan Chen and Jing-Juan Xu\*



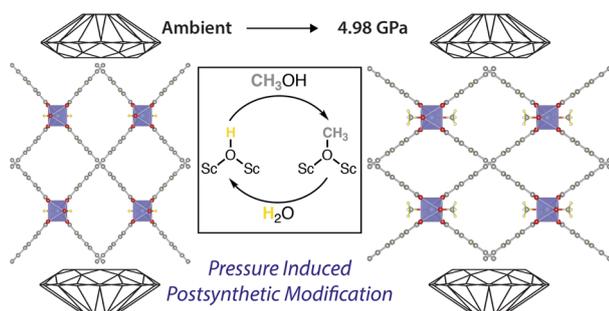
7709

### A Pd-catalyzed highly selective three-component protocol for trisubstituted allenes

Can Li, Zhengnan Zhou and Shengming Ma\*



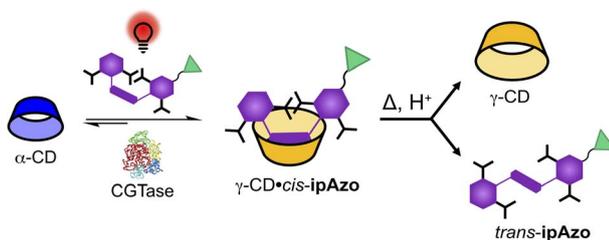
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### Pressure-induced postsynthetic cluster anion substitution in a MIL-53 topology scandium metal-organic framework

Alexander J. R. Thom, Gemma F. Turner, Zachary H. Davis, Martin R. Ward, Ignas Pakamorè, Claire L. Hobday, David R. Allan, Mark R. Warren, Wai L. W. Leung, Iain D. H. Oswald, Russell E. Morris, Stephen A. Moggach,\* Sharon E. Ashbrook\* and Ross S. Forgan\*

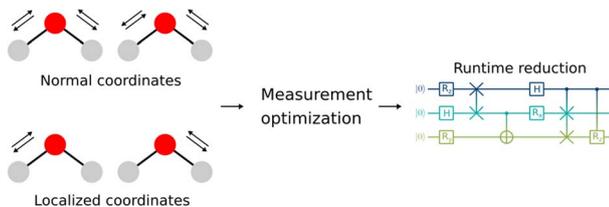
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### Light-controlled enzymatic synthesis of $\gamma$ -CD using a recyclable azobenzene template

Juliane Sørensen, Emilie Ljungberg Hansen, Dennis Larsen, Mathias Albert Elmquist, Andreas Buchleithner, Luca Florean and Sophie R. Beeren\*

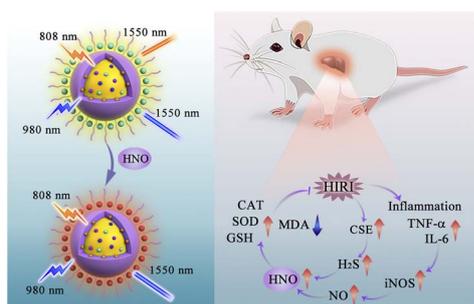
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### Optimizing the number of measurements for vibrational structure on quantum computers: coordinates and measurement schemes

Marco Majland,\* Rasmus Berg Jensen, Mads Greisen Højlund, Nikolaj Thomas Zinner and Ove Christiansen\*

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### Revealing the role of nitroxyl during hepatic ischemia-reperfusion injury with a NIR-II luminescent nanoprobe

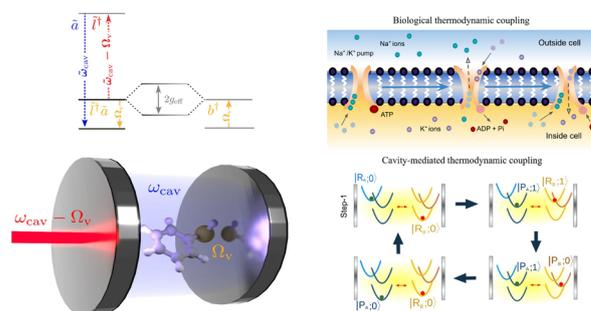
Chenchen Li, Wenqiang Bi, Tao Liang, Zhen Li\* and Zhihong Liu\*



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## A path towards single molecule vibrational strong coupling in a Fabry–Pérot microcavity

Arghadip Koner, Matthew Du, Sindhana Pannir-Sivajothi, Randall H. Goldsmith and Joel Yuen-Zhou\*



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## Metal–organic framework (MOF) hybridized gold nanoparticles as a bifunctional nanozyme for glucose sensing

Pei-Hong Tong, Jing-Jing Wang, Xi-Le Hu, Tony D. James\* and Xiao-Peng He\*

