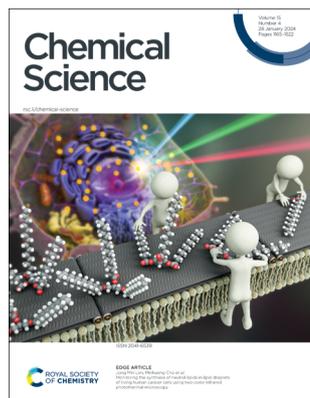
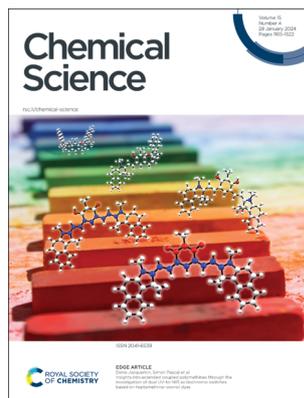


IN THIS ISSUE

ISSN 2041-6539 CODEN CSHCBM 15(4) 1165–1522 (2024)



Cover
See Jong Min Lim, Minhaeng Cho *et al.*, pp. 1237–1247.
Image reproduced by permission of Minhaeng Cho from *Chem. Sci.*, 2024, 15, 1237.



Inside cover
See Denis Jacquemin, Simon Pascal *et al.*, pp. 1248–1259.
Image reproduced by permission of Simon Pascal and Cinhya Liang from *Chem. Sci.*, 2024, 15, 1248.

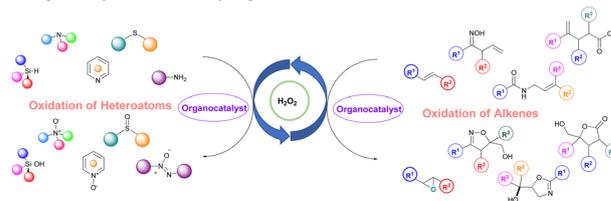
PERSPECTIVE

1177

Organocatalytic activation of hydrogen peroxide: towards green and sustainable oxidations

Efthymios T. Poursaitidis, Petros L. Gkizis, Ierasia Triandafillidi and Christoforos G. Kokotos*

Organocatalytic Activation of Hydrogen Peroxide: Towards Green and Sustainable Oxidations

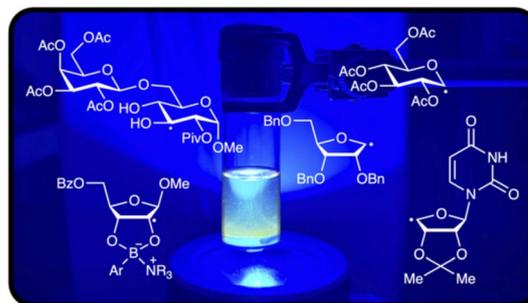


REVIEW

1204

Transformations of carbohydrate derivatives enabled by photocatalysis and visible light photochemistry

Daniel J. Gorelik, Shrey P. Desai, Sofia Jdanova, Julia A. Turner and Mark S. Taylor*



RSC Applied Interfaces

GOLD
OPEN
ACCESS

Interfacial and surface research
with an applied focus

Interdisciplinary and open access

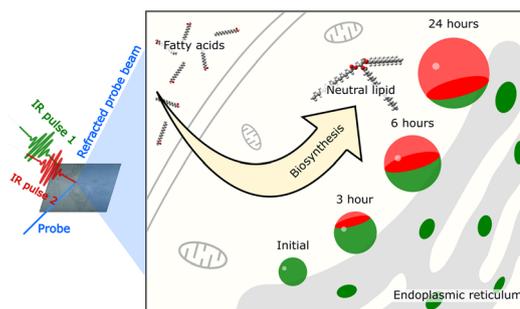
rsc.li/RSCApplInter

Fundamental questions
Elemental answers

1237

Monitoring the synthesis of neutral lipids in lipid droplets of living human cancer cells using two-color infrared photothermal microscopy

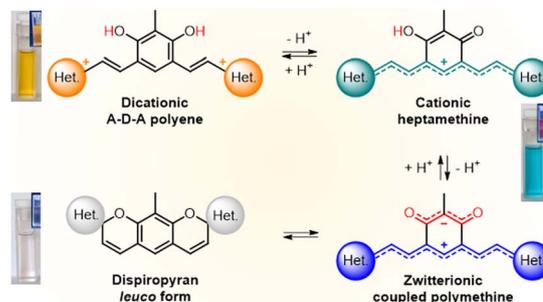
Chanjong Park, Jong Min Lim,* Seok-Cheol Hong and Minhaeng Cho*



1248

Insights into extended coupled polymethines through the investigation of dual UV-to-NIR acidochromic switches based on heptamethine-oxonol dyes

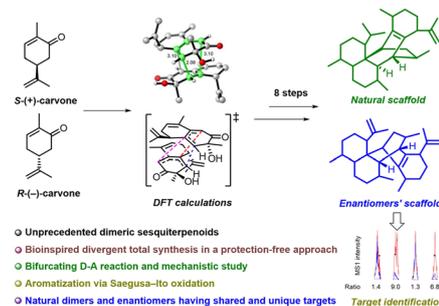
Benjamin Mourot, Valérie Mazan, Mourad Elhabiri, Rudraditya Sarkar, Denis Jacquemin,* Olivier Siri and Simon Pascal*



1260

Discovery and bioinspired total syntheses of unprecedented sesquiterpenoid dimers unveiled bifurcating [4 + 2] cycloaddition and target differentiation of enantiomers

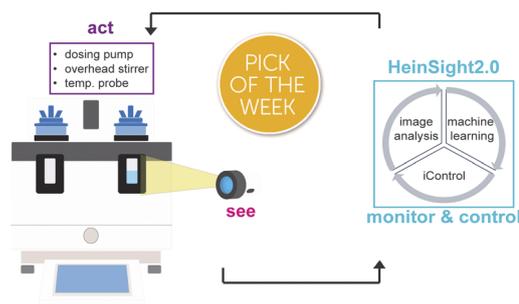
Tao-Bin He, Bing-Chao Yan, Yuan-Fei Zhou, Yue-Qian Sang, Xiao-Nian Li, Han-Dong Sun, Chu Wang, Xiao-Song Xue* and Pema-Tenzin Puno*



1271

Keeping an "eye" on the experiment: computer vision for real-time monitoring and control

Rama El-khawaldeh, Mason Guy, Finn Bork, Nina Taherimakhsousi, Kris N. Jones, Joel M. Hawkins, Lu Han, Robert P. Pritchard, Blaine A. Cole, Sebastien Monfette* and Jason E. Hein*



1283

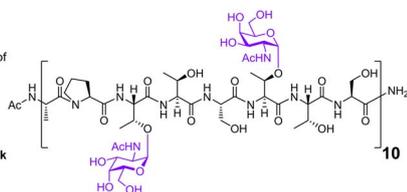


Enhancing NIR-to-visible upconversion in a rigidly coupled tetracene dimer: approaching statistical limits for triplet–triplet annihilation using intramolecular multiexciton states

Alexander T. Gilligan, Raythe Owens, Ethan G. Miller, Nicholas F. Pompetti and Niels H. Damrauer*

1297

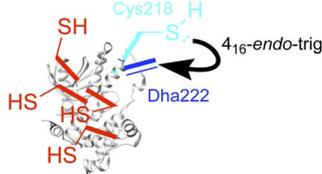
- azidophenylselenylation instead of azidonitration
- fast coupling in 2-MeTHF with 1.5 eq. Fmoc-Thr/Ser(OAc₂GalNAc)
- room temp. instead of microwave
- 80-mer with 20 GalNAc in one week



Rapid building block-economic synthesis of long, multi-O-GalNAcylated MUC5AC tandem repeat peptides

Arseniy Galashov, Ekaterina Kazakova, Christian E. Stieger, Christian P. R. Hackenberger and Oliver Seitz*

1306

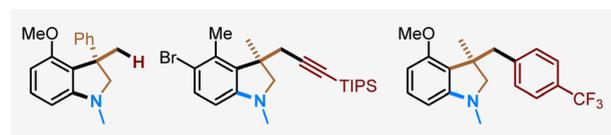
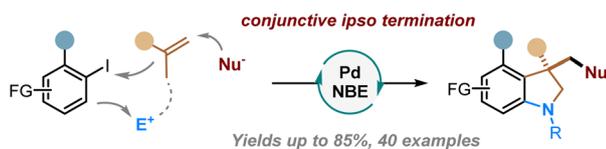


- canonical AAs
- no additional bridge or linker
- no enzyme
- bond-forming cyclization reports on stereoelectronics & 2° structure

The Minimum Protein Staple? – Towards 'bio'-Baldwin's rules *via* inter-phosphosite linking in the MEK1 activation loop

Sébastien R. G. Galan, Ritu Raj, Dimitrios Mamalis, Lyn H. Jones, Shabaz Mohammed and Benjamin G. Davis*

1318



A four-component reaction to access 3,3-disubstituted indolines *via* the palladium–norbornene-catalyzed *ortho* amination/*ipsso* conjunctive coupling

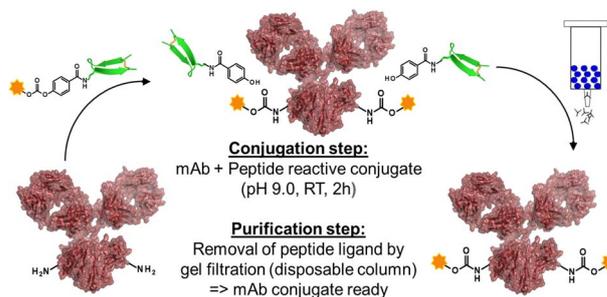
Alexander J. Rago, Rong Ye, Xin Liu* and Guangbin Dong*



1324

Site-selective template-directed synthesis of antibody Fc conjugates with concomitant ligand release

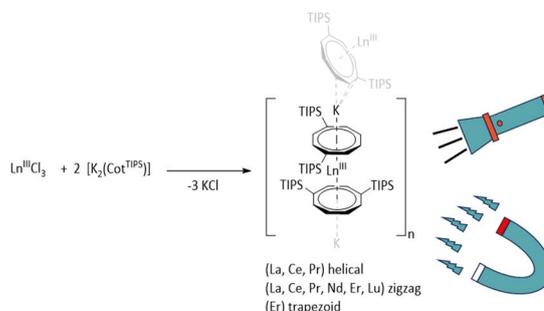
Viktoriia Postupalenko, Léo Marx, Mathilde Pantin, David Viertl, Nadège Gsponer, Gaëlle Giudice, Natalia Gasilova, Margret Schottelius, Frédéric Lévy, Patrick Garrouste, Jean-Manuel Segura and Origène Nyanguile*



1338

It's not just the size that matters: crystal engineering of lanthanide-based coordination polymers

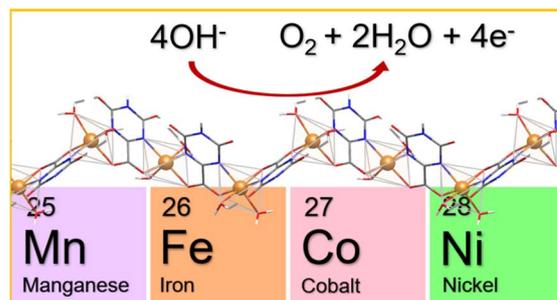
Adrian Hauser, Luca Münzfeld, Cedric Uhlmann, Sergei Lebedkin, Sören Schlittenhardt, Ting-Ting Ruan, Manfred M. Kappes, Mario Ruben and Peter W. Roesky*



1348

Harnessing the electronic structure of active metals to lower the overpotential of the electrocatalytic oxygen evolution reaction

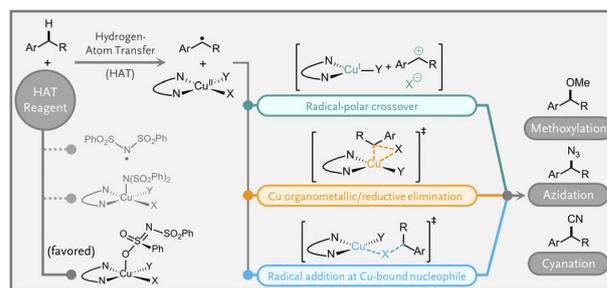
Lorenzo Baldinelli, Gabriel Menendez Rodriguez,* Iolanda D'Ambrosio, Amalia Malina Grigoras, Riccardo Vivani, Loredana Latterini, Alceo Macchioni, Filippo De Angelis and Giovanni Bistoni*



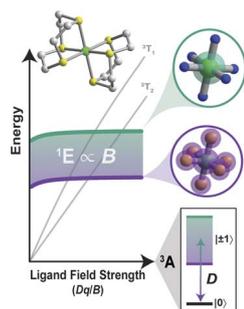
1364

Mechanistic insights into radical formation and functionalization in copper/N-fluorobenzenesulfonimide radical-relay reactions

Mukunda Mandal,* Joshua A. Buss, Si-Jie Chen, Christopher J. Cramer and Shannon S. Stahl*



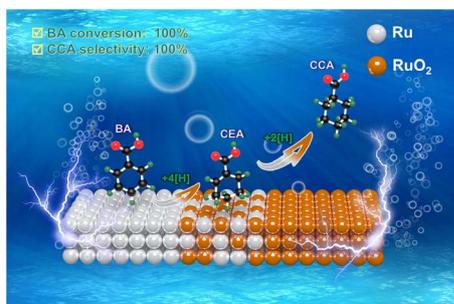
1374



Ligand field design enables quantum manipulation of spins in Ni²⁺ complexes

Michael K. Wojnar, Krishnendu Kundu, Arailym Kairalapova, Xiaoling Wang, Andrew Ozarowski, Timothy C. Berkelbach, Stephen Hill and Danna E. Freedman*

1384

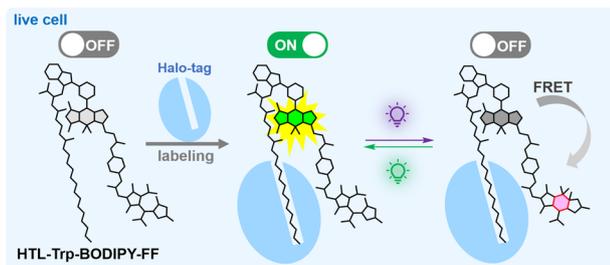


A Ru/RuO₂ heterostructure boosting electrochemistry-assisted selective benzoic acid hydrogenation

Zifan Cao, Chenhui Wang, Yifan Sun, Menghui Liu, Wei Li, Jinli Zhang* and Yan Fu*

1393

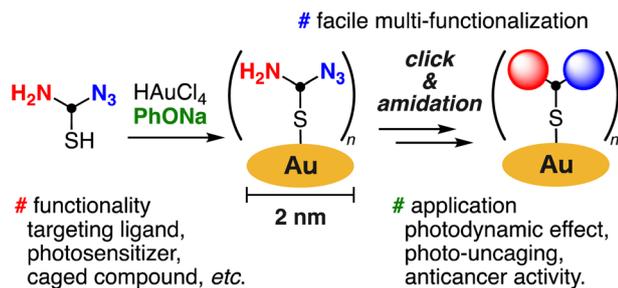
✓ No-wash fluorogenic labeling ✓ Reversible photoswitching



No-wash fluorogenic labeling of proteins for reversible photoswitching in live cells

Kenji Torii, Sam Benson, Yuichiro Hori,* Marc Vendrell* and Kazuya Kikuchi*

1402



Clickable bisreactive small gold nanoclusters for preparing multifunctionalized nanomaterials: application to photouncaging of an anticancer molecule

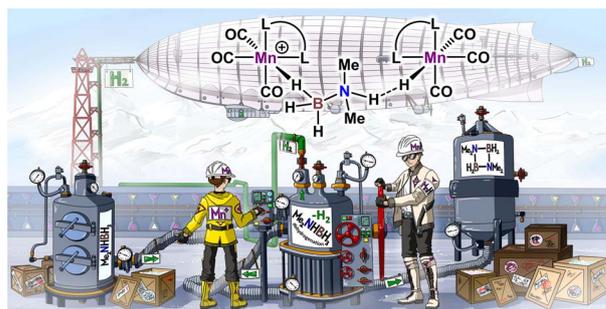
Kenji Watanabe,* Qiyue Mao, Zhouen Zhang, Machi Hata, Masahito Kodera, Hiroaki Kitagishi, Takashi Niwa and Takamitsu Hosoya*



1409

Two active species from a single metal halide precursor: a case study of highly productive Mn-catalyzed dehydrogenation of amine-boranes via intermolecular bimetallic cooperation

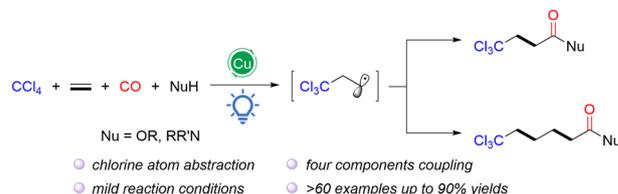
Ekaterina S. Gulyaeva, Elena S. Osipova, Sergey A. Kovalenko, Oleg A. Filippov,* Natalia V. Belkova, Laure Vendier, Yves Canac,* Elena S. Shubina* and Dmitry A. Valyaev*



1418

Copper-catalyzed trichloromethylative carbonylation of ethylene

Youcan Zhang, Bing-Hong Teng and Xiao-Feng Wu*



1424

Photochemical H₂ activation by an Zn–Fe heterometallic: a mechanistic investigation

Marina Perez-Jimenez and Mark R. Crimmin*



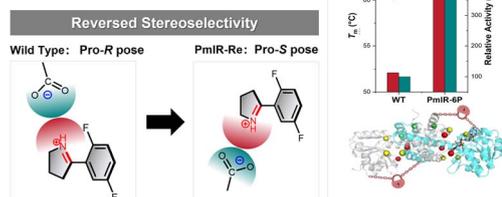
Inhibition experiments | double-label cross-overs | radical trapping
EPR spectroscopy | DFT calculations

1431

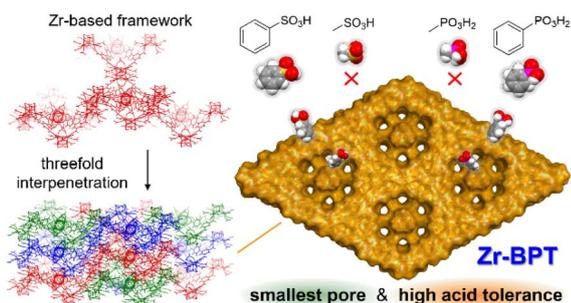
Computational design of an imine reductase: mechanism-guided stereoselectivity reversion and interface stabilization

Kai Wu, Jinrong Yan, Qinde Liu, Xiaojing Wang, Piaoru Wu, Yiyang Cao, Xiuhong Lu, Yixin Xu, Junhai Huang* and Lei Shao*

- ✓ A Putative Stereo-control Mechanism
- ✓ Reversion of Stereoselectivity with >99% ee
- ✓ Robust Variant with 12 °C Improvement in T_m
- ✓ High substrate loading



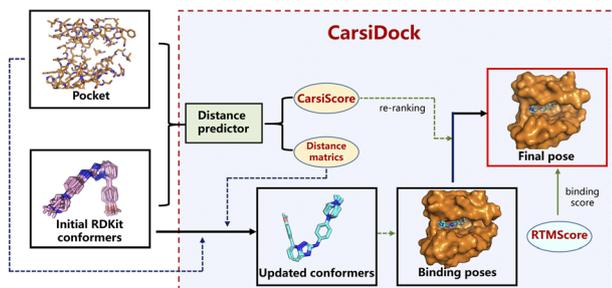
1441



A novel threefold interpenetrated zirconium metal-organic framework exhibiting separation ability for strong acids

Kyoko Shiraishi, Kazuya Otsubo, Kenichi Kato and Masaaki Sadakiyo*

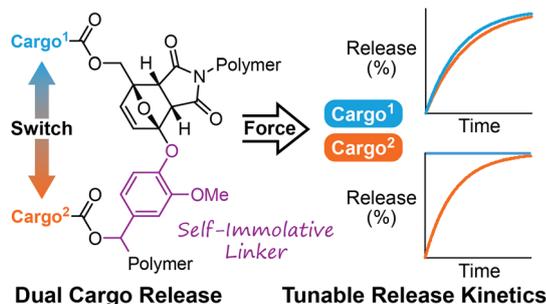
1449



CarsiDock: a deep learning paradigm for accurate protein-ligand docking and screening based on large-scale pre-training

Heng Cai, Chao Shen, Tianye Jian, Xujun Zhang, Tong Chen, Xiaoqi Han, Zhuo Yang, Wei Dang, Chang-Yu Hsieh, Yu Kang, Peichen Pan, Xiangyang Ji, Jianfei Song,* Tingjun Hou* and Yafeng Deng*

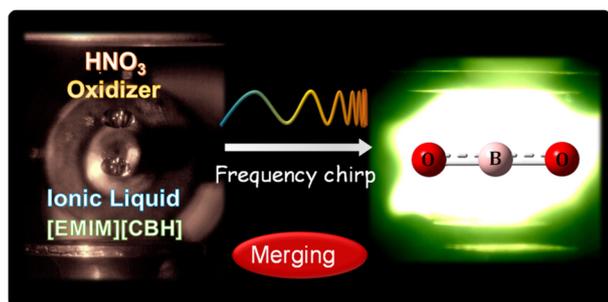
1472



Incorporation of a self-immolative spacer enables mechanically triggered dual payload release

Yu-Ling Tseng, Tian Zeng and Maxwell J. Robb*

1480



Hypergolic ionic liquids: to be or not to be?

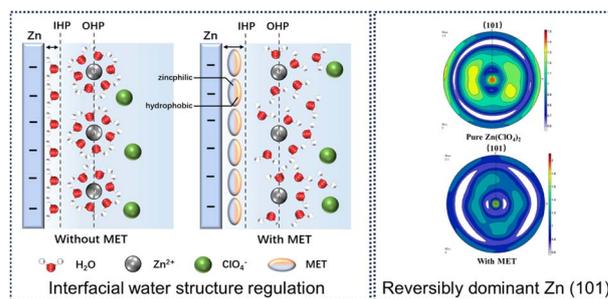
Souvick Biswas, Kazuomi Fujioka, Ivan Antonov, Grace L. Rizzo, Steven D. Chambreau, Stefan Schneider, Rui Sun* and Ralf I. Kaiser*



1488

Janus interface enables reversible Zn-ion battery by regulating interfacial water structure and crystal-orientation

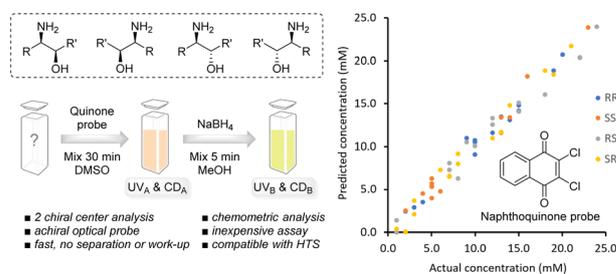
Yuxuan Liang, Meijia Qiu, Peng Sun* and Wenjie Mai*



1498

Chemometric sensing of stereoisomeric compound mixtures with a redox-responsive optical probe

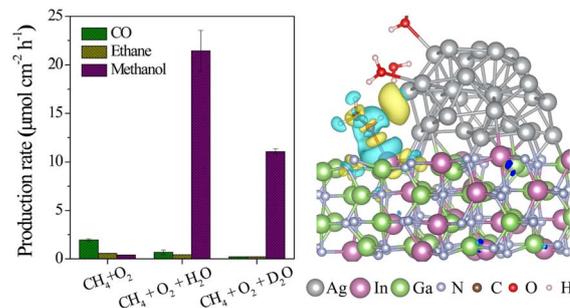
Jeffrey S. S. K. Formen, Diandra S. Hassan and Christian Wolf*



1505

Water-promoted selective photocatalytic methane oxidation for methanol production

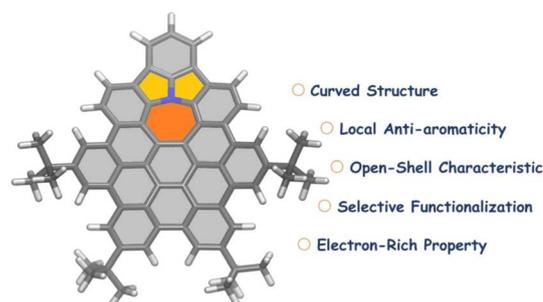
Peng Zhou, Songtao Tang, Zhengwei Ye, Ishtiaque Ahmed Navid, Yixin Xiao, Kai Sun and Zetian Mi*



1511

Cycl[2,2,4]azine-embedded non-alternant nanographenes containing fused antiaromatic azepine ring

Lan Ruan, Wanhua Luo, Haifan Zhang, Peng Liu, Yong Shi and Peng An*



CORRECTION

1520

Correction: A high affinity pan-PI3K binding module supports selective targeted protein degradation of PI3K α

Werner Theodor Jauslin, Matthias Schild, Thorsten Schaefer, Chiara Borsari, Clara Orbegozo, Lukas Bissegger, Saule Zhanybekova, Danilo Ritz, Alexander Schmidt, Matthias Wymann* and Dennis Gillingham*

