

# RSC Chemical Biology

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## IN THIS ISSUE

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### Cover

See Jesko Köhnke, Claudia Jessen-Trefzer *et al.*, pp. 21–35. Image reproduced by permission of Michal Rössler from *RSC Chem. Biol.*, 2025, 6, 21.



### Inside cover

See Andrii Monastyrskyi *et al.*, pp. 36–55. Image reproduced by permission of Andrii Monastyrskyi from *RSC Chem. Biol.*, 2025, 6, 36.

## EDITORIAL

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### Cultivating the future leaders of chemical biology

Anna Rulka, Elizabeth Adams, Akane Kawamura\* and Stephen Wallace\*

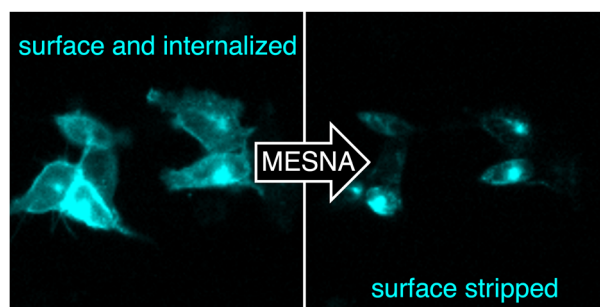


## COMMUNICATION

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### Red and far-red cleavable fluorescent dyes for self-labelling enzyme protein tagging and interrogation of GPCR co-internalization

Kilian Roßmann, Ramona Birke, Joshua Levitz, Ben Jones and Johannes Broichhagen\*



# RSC Applied Polymers

The application of polymers,  
both natural and synthetic

Interdisciplinary and open access



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Fundamental questions  
Elemental answers



## A nanoengineered tandem nitroreductase: designing a robust prodrug-activating nanoreactor

Encapsulin

Tandem NfsB

Prodrug

# Discovery and design of molecular glue enhancers of CDK12–DDB1 interactions for targeted degradation of cyclin K

The figure illustrates the design of a cyclin K degrader. On the left, the natural ubiquitin-proteasome pathway is shown. E2 (purple) is bound to RBX1 (blue), which is bound to CUL4 (grey). Ubiquitin (orange) is attached to E2. Cyclin K (light blue) is bound to CUL4. A pan CDK inhibitor (DDB1, pink) is shown blocking the formation of a ternary complex. On the right, the 'de novo design' is shown. A molecular glue (MR-1226, orange) is used to bring Cyclin K and the E2-RBX1-CUL4 complex together, forming an active degradation complex. This complex degrades Cyclin K. A pan CDK inhibitor (DDB1) is shown blocking the formation of the ternary complex.

## Development of a His-Tag-mediated pull-down and quantification assay for G-quadruplex containing DNA sequences

The diagram illustrates a PNA-based target detection assay. It starts with a target DNA sequence (blue) and a PNA probe (orange) labeled with a HisTag (green). The HisTag is bound to Ni-NTA beads. The beads are then pulled down, washed, and eluted. The eluted DNA is then subjected to a colorimetric assay using Hemin, TMB, and H2O2. The resulting color change is read out using UV-vis.

# Rational engineering of an antimalarial peptide with enhanced proteolytic stability and preserved parasite invasion inhibitory activity

**Rationally engineered heterochiral peptide inhibitor**

- **Incredibly resistant to proteolysis**
- Exhibits *P. falciparum* growth inhibitory activity with an  $IC_{50} = 52$  nM

**% of peptide intact**

— Pepsin  
 - - Chymotrypsin  
 ▲ Pronase

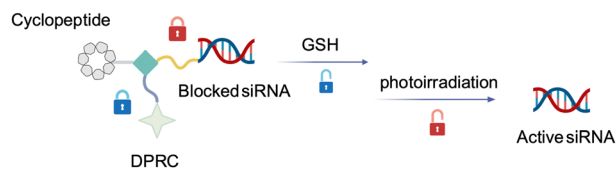
**Human plasma (20%)**

**% peptide intact**

**Time (Days)**

**Treatment time (h)**

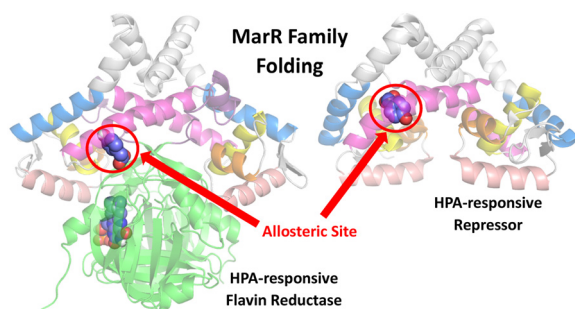
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### A dual-locked cyclopeptide–siRNA conjugate for tumor-specific gene silencing

Chen Li, Shuaishuai Sun, Hao Kong, Xiangqian Xie, Gaolin Liang,\* Yan Zhang,\* Huan Wang\* and Jinbo Li\*

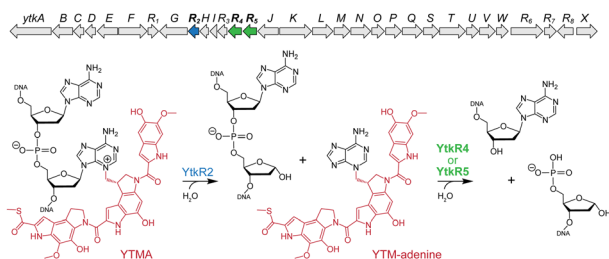
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### Mechanistic insights into allosteric regulation of the reductase component of *p*-hydroxyphenylacetate 3-hydroxylase by *p*-hydroxyphenylacetate: a model for effector-controlled activity of redox enzymes

Surawit Visitsatthawong, Piyanuch Anuwan, Narin Lawan, Pimchai Chaiken and Thanyaporn Wongnate\*

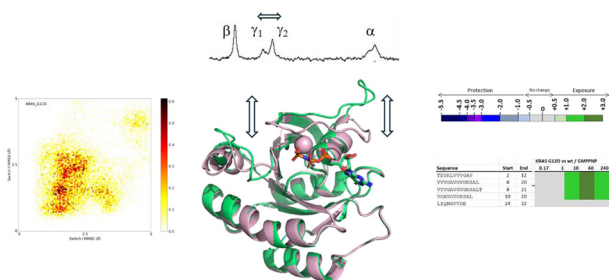
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### Yatakemycin biosynthesis requires two deoxyribonucleases for toxin self-resistance

Jonathan Dorival, Hua Yuan, Allison S. Walker, Gong-Li Tang\* and Brandt F. Eichman\*

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### Dynamic conformational equilibria in the active states of KRAS and NRAS

Enrico Rennella, Chrystèle Henry, Callum J. Dickson, Florian Georgescauld, Thomas E. Wales, Dirk Erdmann, Simona Cotesta, Michel Maira, Richard Sedrani, Saskia M. Brachmann, Nils Ostermann, John R. Engen, Lewis E. Kay, Kim S. Beyer,\* Rainer Wilcken\* and Wolfgang Jahnke\*

