

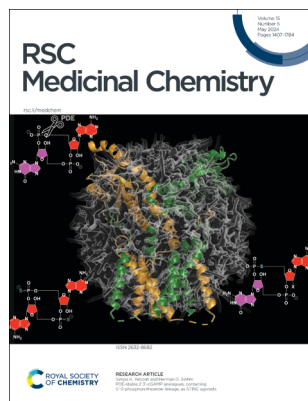
# RSC Medicinal Chemistry

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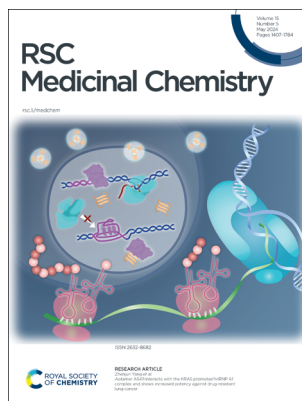
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ISSN 2632-8682 CODEN RMCSCX 15(5) 1407-1784 (2024)



### Cover

See Simpa K. Yeboah and Herman O. Sintim, pp. 1508–1514.  
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### Inside cover

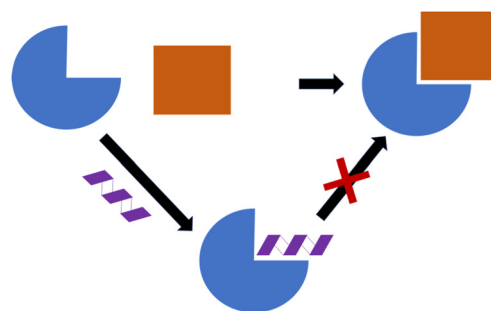
See Zhenjun Yang *et al.*, pp. 1515–1526.  
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## REVIEWS

1418

### Helical sulfonyle- $\gamma$ -AApeptides for the inhibition of HIV-1 fusion and HIF-1 $\alpha$ signaling

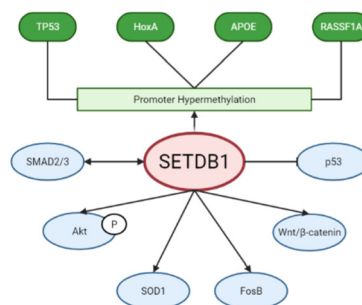
Xue Zhao, Heng Liu, Justin C. Zhang and Jianfeng Cai\*



1424

### SETDB1 as a cancer target: challenges and perspectives in drug design

Haifa Hassanie, André Berndt Penteadó, Larissa Costa de Almeida, Raissa Ludmila Calil, Flávio da Silva Emery, Leticia Veras Costa-Lotufo and Gustavo Henrique Goulart Trossini\*



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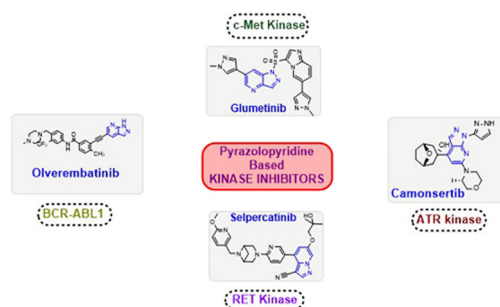


## REVIEWS

1452

**Pyrazolopyridine-based kinase inhibitors for anti-cancer targeted therapy**

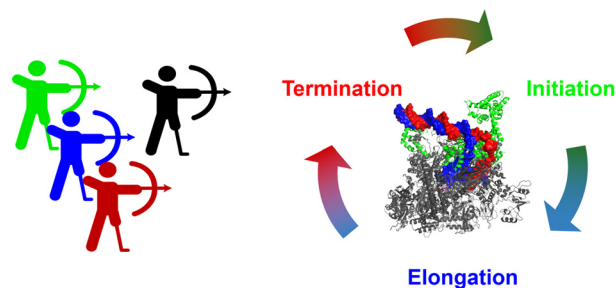
Pallabi Halder, Anubhav Rai, Vishal Talukdar, Parthasarathi Das\* and Naga Rajiv Lakkaniga\*



1471

**Inhibition of bacterial RNA polymerase function and protein-protein interactions: a promising approach for next-generation antibacterial therapeutics**

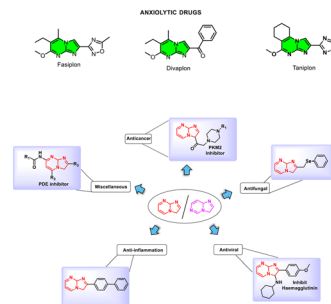
Jiqing Ye, Cheuk Hei Kan, Xiao Yang\* and Cong Ma\*



1488

**Imidazopyrimidine: from a relatively exotic scaffold to an evolving structural motif in drug discovery**

Moumita Ghosh Chowdhury, Vaishnavi Kalmegh, Saumya Kapoor, Vaishnavi Kamble and Amit Shard\*

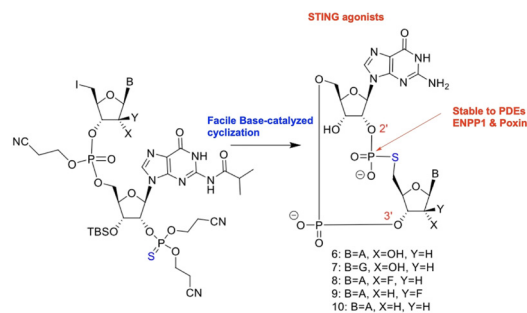


## RESEARCH ARTICLES

1508

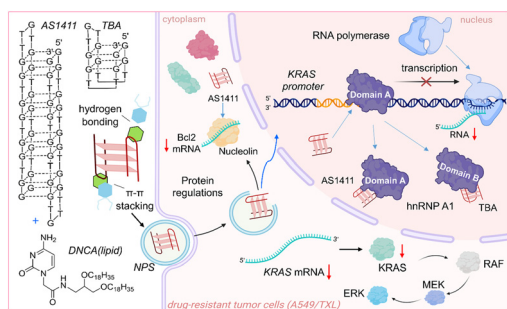
**PDE-stable 2'3'-cGAMP analogues, containing 5'-S-phosphorothioester linkage, as STING agonists**

Simpa K. Yeboah and Herman O. Sintim\*



## RESEARCH ARTICLES

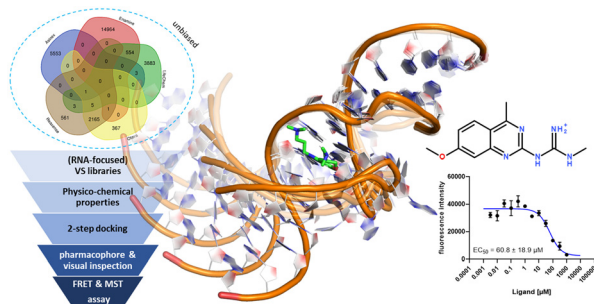
1515



### Aptamer AS411 interacts with the KRAS promoter/hnRNP A1 complex and shows increased potency against drug-resistant lung cancer

Yuejie Zhu, Xiang Li, Qi Zhang, Xiantao Yang, Xudong Sun, Yi Pan, Xia Yuan, Yuan Ma, Bo Xu and Zhenjun Yang\*

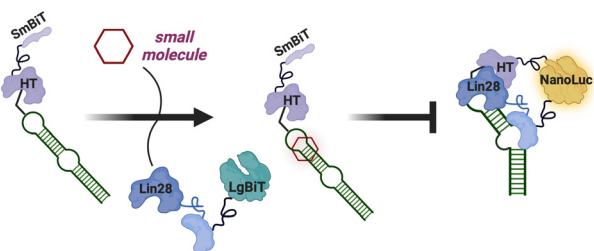
1527



### Structure-based virtual screening of unbiased and RNA-focused libraries to identify new ligands for the HCV IRES model system

Elisabeth Kallert, Laura Almena Rodriguez, Jan-Åke Husmann, Kathrin Blatt and Christian Kersten\*

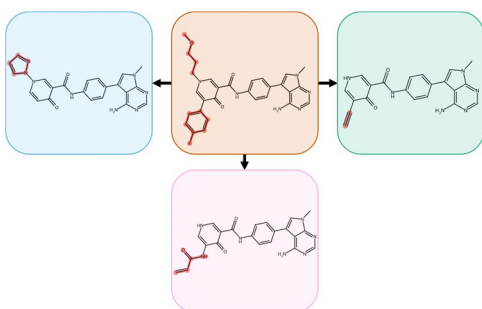
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### Live cell screening to identify RNA-binding small molecule inhibitors of the pre-let-7-Lin28 RNA-protein interaction

Sydney L. Rosenblum, Dalia M. Soueid, George Giambasu, Steve Vander Roest, Alexander Pasternak, Erin F. DiMauro, Vladimir Simov\* and Amanda L. Garner\*

1547



### Systematic generation and analysis of counterfactuals for compound activity predictions using multi-task models

Alec Lamens and Jürgen Bajorath\*





**A new class of 7-deazaguanine agents targeting autoimmune diseases: dramatic reduction of synovial fibroblast IL-6 production from human rheumatoid arthritis patients and improved performance against murine experimental autoimmune encephalomyelitis**

**lead**  
 side chain rigidification  
**five compounds**  
 in vivo screen in murine EAE  
 in vitro screen in human fibroblasts  
 - two compounds identified  
 - greatly improved in vivo activity in an MS disease model  
 - in vitro activity in fibroblasts from rheumatoid arthritis patients

# Coumarin-furo[2,3-*d*]pyrimidine hybrid molecules targeting human liver cancer cells: synthesis, anticancer effect, EGFR inhibition and molecular docking studies

The figure illustrates the design process of a novel EGFR ligand. It starts with the identification of three fragments: Catechol, Hydroxy-2-thiophenol, and Fungitrocin. These fragments are combined through 'Molecular Hybridization' to form a hybrid molecule. This hybrid is then modified to create a 'novel-EGFR ligand candidate'. The candidate is evaluated for its potential as an EGFR ligand, showing interactions with the EGFR protein structure. Key residues involved in the binding are highlighted, including T790, A743, T726, F856, K747, D855, G857, and the DFG motif. The final structure is labeled as a 'Potential anti-EGFR ligand/drug scaffold'.

### Azole-based compounds as potential anti-*Acanthamoeba* agents

## 4-Trifluoromethyl bithiazoles as broad-spectrum antimicrobial agents for virus-related bacterial infections or co-infections

**Antibacterial**

**Antiviral**

**8a, 8j**

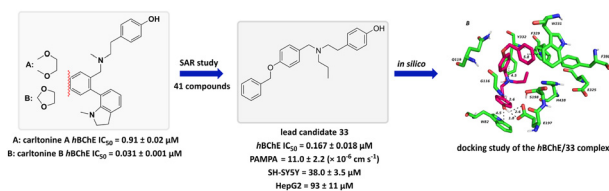
**MR250**

**IC<sub>50</sub> = NA  $\mu$ M (P14KB)**  
**IC<sub>50</sub> = 0.4–9.0  $\mu$ M (HRV16, EVD68, ZIKV)**  
**MIC/MBC/MAC = 2–32  $\mu$ g/mL (Gram +/–)**  
**MIC/MBC/MAC = 0.06–32  $\mu$ g/mL (Gram +/–)**  
**[AB-resistant clinical isolates]**

**IC<sub>50</sub> = 0.09  $\mu$ M (P14KB)**  
**IC<sub>50</sub> = 9.70  $\mu$ M (HRV2)**  
**MIC > 64  $\mu$ g/mL (Gram +/–)**

## RESEARCH ARTICLES

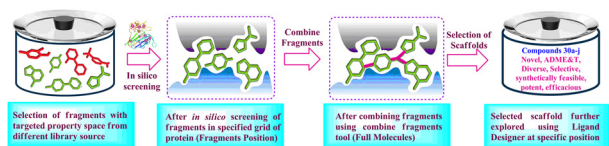
1601



### Carltonine-derived compounds for targeted butyrylcholinesterase inhibition

Filip Pidany, Jana Kroustkova, Jaroslav Jenco, Katerina Hradiska Breiterova, Lubica Muckova, Lucie Novakova, Jiri Kunes, Jakub Fibigar, Tomas Kucera, Martin Novak, Ales Sorf, Martina Hrabanova, Lenka Pulkrabkova, Jiri Janousek, Ondrej Soukup, Daniel Jun, Jan Korabecny\* and Lucie Cahlikova\*

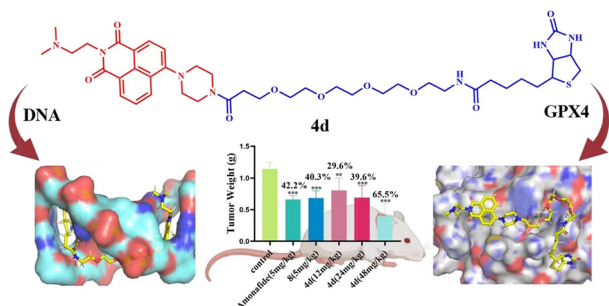
1626



### Computational design, synthesis, and assessment of 3-(4-(4-(1,3,4-oxadiazol-2-yl)-1H-imidazol-2-yl)phenyl)-1,2,4-oxadiazole derivatives as effective epidermal growth factor receptor inhibitors: a prospective strategy for anticancer therapy

Nilesh Raghunath Khedkar, Milind Sindkhedkar\* and Alex Joseph

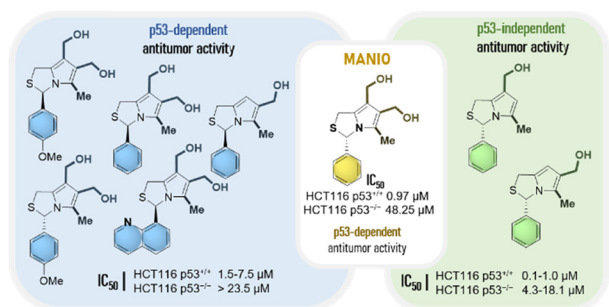
1640



### Design, docking optimization, and evaluation of biotin-PEG4-1,8-naphthalimide as a potent and safe antitumor agent with dual targeting of ferroptosis and DNA

Qi Wang, Si-Min Liang, Zhi-Chen Mao, Xian-Li Ma, Jian-Hua Wei,\* Ri-Zhen Huang\* and Ye Zhang\*

1652



### Chiral hydroxymethyl-1H,3H-pyrrolo[1,2-c]thiazoles: the search for selective p53-activating agents for colorectal cancer therapy

Mees M. Hendrikx, Adelino M. R. Pereira, Ana B. Pereira, Carla S. C. Carvalho, João L. P. Ribeiro, Maria I. L. Soares, Lucília Saraiva\* and Teresa M. V. D. Pinho e Melo\*

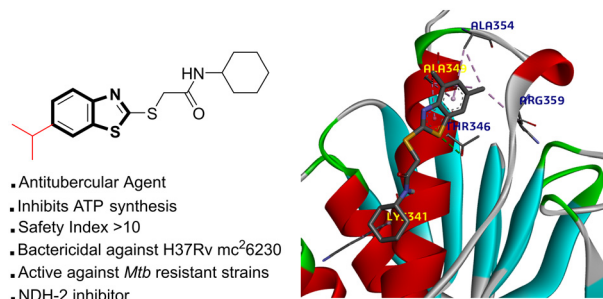


## RESEARCH ARTICLES

1664

## Antitubercular activity of 2-mercaptobenzothiazole derivatives targeting *Mycobacterium tuberculosis* type II NADH dehydrogenase

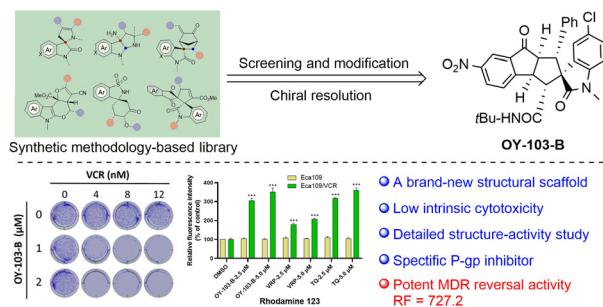
Pallavi Saha, Shashikanta Sau, Nitin Pal Kalia\* and Deepak K. Sharma\*



1675

## Discovery of new tricyclic spiroindole derivatives as potent P-glycoprotein inhibitors for reversing multidrug resistance enabled by a synthetic methodology-based library

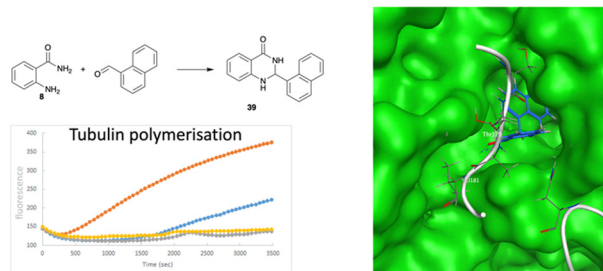
Tao Yu, Rong Zeng, Yu Guan, Bin Pan, Hong-Wei Li, Jing Gu, Peng-Fei Zheng,\* Yan Qian\* and Qin Ouyang\*



1686

## 2,3-Dihydroquinazolin-4(1H)-ones and quinazolin-4(3H)-ones as broad-spectrum cytotoxic agents and their impact on tubulin polymerisation

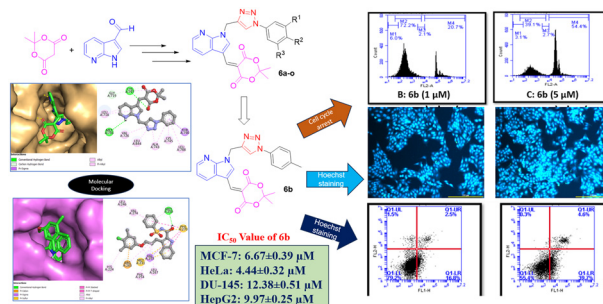
Nicholas S. O'Brien, Jayne Gilbert, Adam McCluskey\* and Jennette A. Sakoff\*



1709

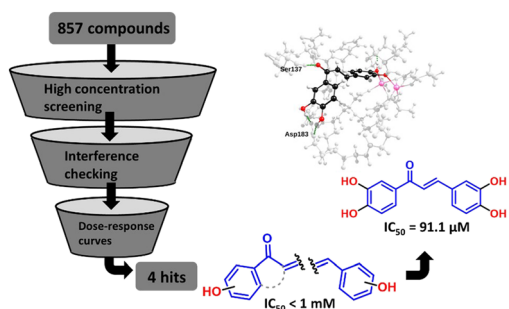
## Design and synthesis of Meldrum's acid based 7-azaindole anchored 1,2,3-triazole hybrids as anticancer agents

Murali Krishna Vanga, Rambabu Bhukya, Vishnu Thumma, S. S. S. Sudha Ambadipudi, V. Lakshma Nayak, Sai Balaji Andugulapati\* and Vijjulatha Manga\*



## RESEARCH ARTICLES

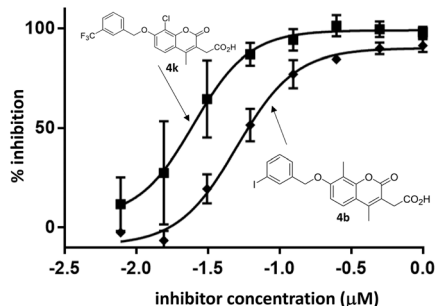
1722



### A colorimetric assay adapted to fragment screening revealing aurones and chalcones as new arginase inhibitors

Jason Muller, Luca Marchisio, Rym Attia, Andy Zedet, Robin Maradan, Maxence Vallet, Alison Aebischer, Dominique Harakat, François Senejoux, Christophe Ramseyer, Sarah Foley, Bruno Cardey, Corine Girard and Marc Pudlo\*

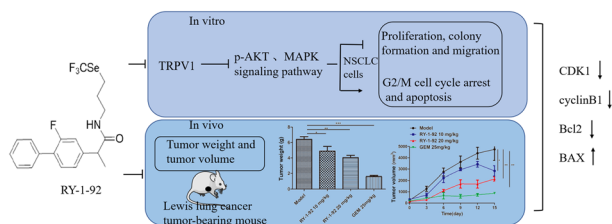
1731



### Substituted 4-methylcoumarin inhibitors of SLC26A3 (DRA) for treatment of constipation and hyperoxaluria

Maria Ahmadi, Livia de Souza Goncalves, Alan S. Verkman, Onur Cil\* and Marc O. Anderson\*

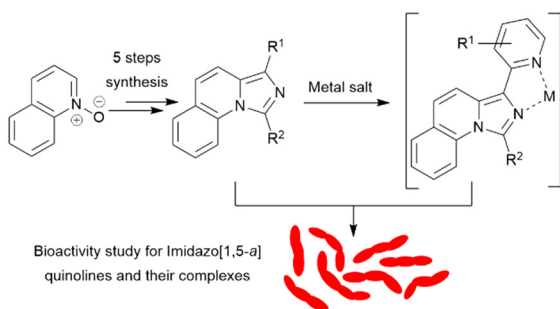
1737



### Anti-cancer activity and mechanism of flurbiprofen organoselenium compound RY-1-92 in non-small cell lung cancer

Bo Cui, Xianda Cheng, Xin Zhang, Lili Chen, Wenqian Pang, Yue Liu, Zhe Yang, Hui Li, Xianran He, Xiaolong Li and Xiuli Bi\*

1746



### Design, synthesis and antimycobacterial activity of imidazo[1,5-a]quinolines and their zinc-complexes

Michael Marnier, Niclas Kulhanek, Johanna Eichberg, Kornelia Harges, Michael Dal Molin, Jan Rybníček, Michael Kirchner, Till F. Schäberle and Richard Göttlich\*





## RESEARCH ARTICLES

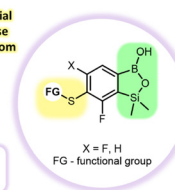
1751

## Exploiting thiol-functionalized benzosiloxaboroles for achieving diverse substitution patterns – synthesis, characterization and biological evaluation of promising antibacterial agents

Krzysztof Nowicki,\* Joanna Krajewska, Tomasz M. Stępniewski, Monika Wielechowska, Patrycja Wińska, Anna Kaczmarczyk, Julia Korpowska, Jana Selent, Paulina H. Marek-Urban, Krzysztof Durka, Krzysztof Woźniak, Agnieszka E. Laudy\* and Sergiusz Luliński\*

A series of 29 new active antibacterial benzosiloxaboroles featuring diverse substitution patterns at the sulfur atom

Synthesis & characteristics  
Antimicrobial activity & cytotoxicity evaluation  
Studies on a plausible mechanism of antibacterial action



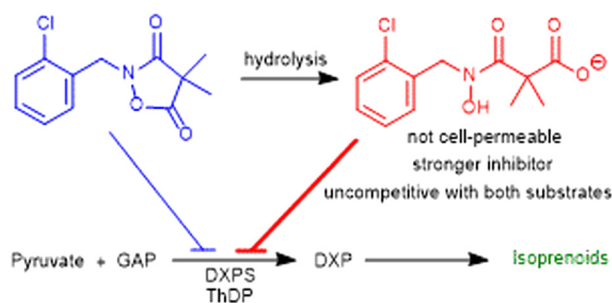
### Benzosiloxaboroles

- Emerging class of boraheterocyclic antimicrobial agents
- Simple and efficient synthesis
- Physicochemical properties beneficial from the viewpoint of medicinal chemistry
- Low cytotoxicity

1773

## Evaluation of ketoclofazone and its analogues as inhibitors of 1-deoxy-D-xylulose 5-phosphate synthases and other thiamine diphosphate (ThDP)-dependent enzymes

Alex H. Y. Chan, Terence C. S. Ho, Imam Fathoni, Rawia Hamid, Anna K. H. Hirsch, Kevin J. Saliba and Finian J. Leeper\*



## CORRECTION

1782

## Correction: Aptamer AS1411 interacts with the KRAS promoter/hnRNP A1 complex and shows increased potency against drug-resistant lung cancer

Yuejie Zhu, Xiang Li, Qi Zhang, Xiantao Yang, Xudong Sun, Yi Pan, Xia Yuan, Yuan Ma, Bo Xu and Zhenjun Yang\*

