

Cell Research

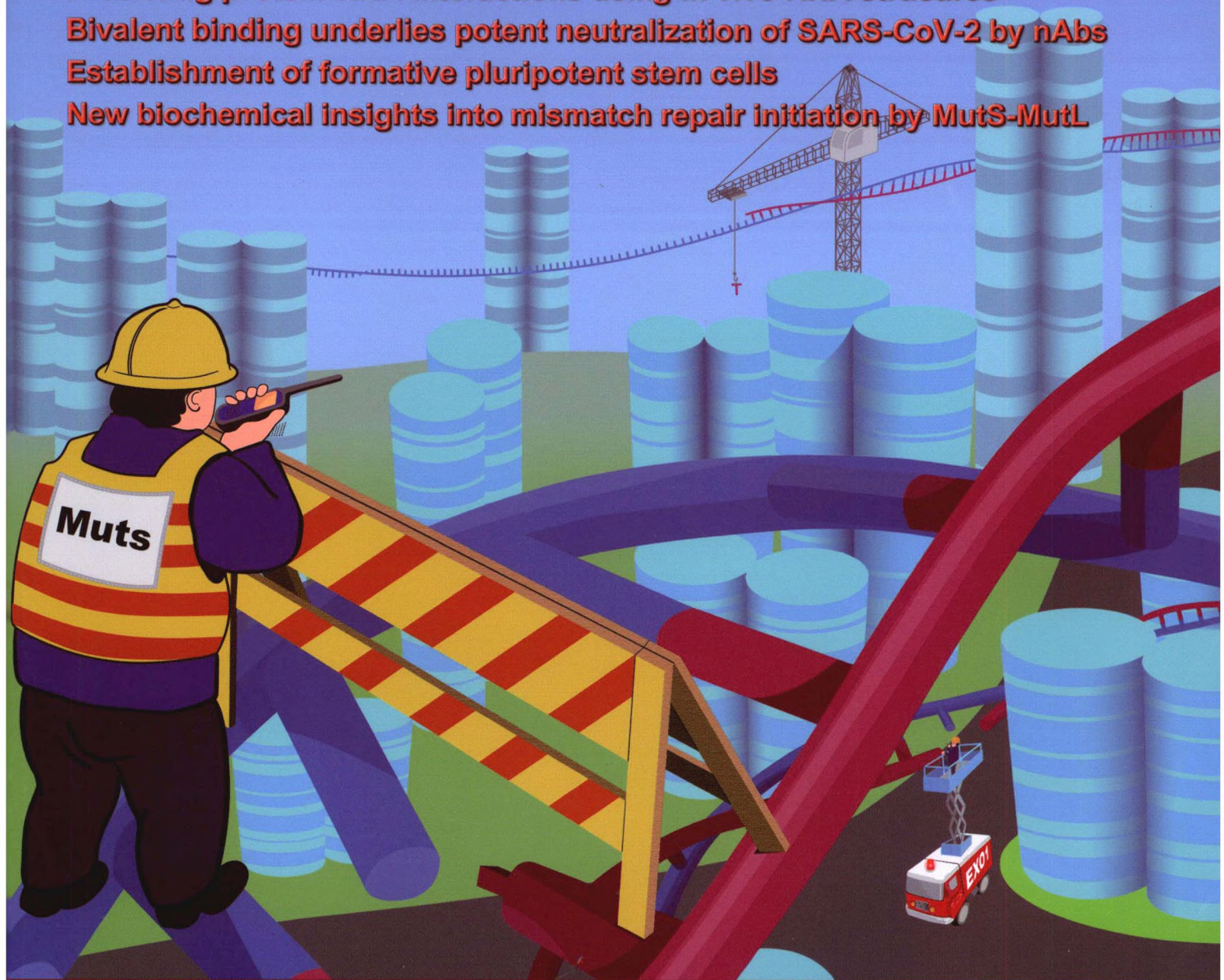


QK2117189

Volume 31 Number 5 May 2021

www.nature.com/cr
www.cell-research.com

Predicting protein-RNA interactions using in vivo RNA structures
Bivalent binding underlies potent neutralization of SARS-CoV-2 by nAbs
Establishment of formative pluripotent stem cells
New biochemical insights into mismatch repair initiation by Muts-MutL



ISSN 1001-0602



9 771001 060238

Center for Excellence in Molecular Cell Science
Chinese Academy of Sciences

SPRINGER NATURE

(Founded in 1990)

Online submission via:
<http://www.nature.com/cr>
<http://www.cell-research.com>

Cell Research is published monthly by Nature Publishing Group (NPG) in partnership with Center for Excellence in Molecular Cell Science (CEMCS), Chinese Academy of Sciences (CAS) since 2006.

Sponsored by:
Center for Excellence in Molecular Cell Science (CEMCS), CAS
© 2021 CEMCS, CAS



Affiliated with:
The Chinese Society for Cell Biology since August 2007



Granted by:
Publishing Foundation of Chinese Academy of Sciences, National Natural Science Foundation of China, and China Association for Science and Technology



This journal is a member of, and subscribes to the principles of, the Committee on Publication Ethics (COPE)
www.publicationethics.org



SPRINGER NATURE

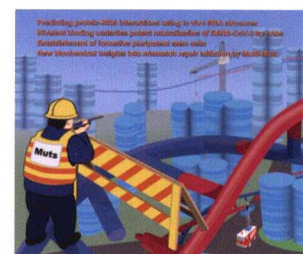
Coordinating Editor for this issue
Li Lu

RESEARCH HIGHLIGHTS

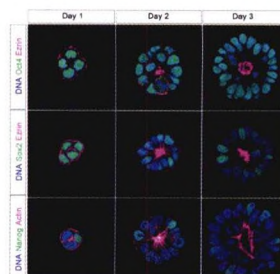
- 489 A new molecular target for antidepressants**
Sarah Ateaque, Yves-Alain Barde
- 491 Double insult: flu bug enhances SARS-CoV-2 infectivity**
Shan Su, Zezhong Liu, Shibo Jiang
- 493 Developments in pluripotency: a new formative state**
Stefan H. A. Hoogland, Hendrik Marks

ARTICLES

- 495 Predicting dynamic cellular protein–RNA interactions by deep learning using in vivo RNA structures** *Open*
Lei Sun, Kui Xu, Wenze Huang, Yucheng T. Yang, Pan Li, Lei Tang, Tuanlin Xiong, Qiangfeng Cliff Zhang
- 517 Structural basis for bivalent binding and inhibition of SARS-CoV-2 infection by human potent neutralizing antibodies** *Open*
Renhong Yan, Ruoke Wang, Bin Ju, Jinfang Yu, Yuanyuan Zhang, Nan Liu, Jia Wang, Qi Zhang, Peng Chen, Bing Zhou, Yaning Li, Yaping Shen, Shuyuan Zhang, Long Tian, Yingying Guo, Lu Xia, Xinyue Zhong, Lin Cheng, Xiangyang Ge, Juanjuan Zhao, Hong-Wei Wang, Xinquan Wang, Zheng Zhang, Linqi Zhang, Qiang Zhou
- 526 Formative pluripotent stem cells show features of epiblast cells poised for gastrulation** *Open*
Xiaoxiao Wang, Yunlong Xiang, Yang Yu, Ran Wang, Yu Zhang, Qianhua Xu, Hao Sun, Zhen-Ao Zhao, Xiangxiang Jiang, Xiaoqing Wang, Xukun Lu, Dandan Qin, Yujun Quan, Jiaqi Zhang, Ng Shyh-Chang, Hongmei Wang, Naihe Jing, Wei Xie, Lei Li
- 542 Mismatch-bound human MutS–MutL complex triggers DNA incisions and activates mismatch repair** *Open*
Janice Ortega, Grace Sanghee Lee, Liya Gu, Wei Yang, Guo-Min Li



Cover: The cover depicts a newly built elevated highway (replicating DNA) that is damaged (mismatch). A worker (MutS–MutL complex) identifies the damage and communicates with the repair department (Exo1) to fix the problem. The columns (buildings) represent chromatin remodeling and DNA metabolic proteins. Designed by Yipin Wu. See page 542–553 by Janice Ortega et al. for details.



Generation of intermediate state 3D Epiblastoids from mESCs. See page 526–541 by Xiaoxiao Wang et al. for details.

- 554 Tissue-specific transcriptional imprinting and heterogeneity in human innate lymphoid cells revealed by full-length single-cell RNA-sequencing *Open***

Luca Mazzurana, Paulo Czarnewski, Viktor Jonsson, Leif Wigge, Markus Ringnér, Teresa C. Williams, Avinash Ravindran, Åsa K. Björklund, Jesper Säfholm, Gunnar Nilsson, Sven-Erik Dahlén, Ann-Charlotte Orre, Mamdoh Al-Ameri, Charlotte Höög, Charlotte Hedin, Sylwester Szczegielniak, Sven Almer, Jenny Mjösberg

- 569 Binding pathway determines norepinephrine selectivity for the human β_1 AR over β_2 AR**

Xinyu Xu, Jonas Kaindl, Mary J. Clark, Harald Hübner, Kunio Hirata, Roger K. Sunahara, Peter Gmeiner, Brian K. Kobilka, Xiangyu Liu

- 580 A novel satiety sensor detects circulating glucose and suppresses food consumption via insulin-producing cells in *Drosophila* *Open***

Wei Qi, Gaohang Wang, Liming Wang

LETTERS TO THE EDITOR

- 589 Genome-scale profiling of circulating cell-free DNA signatures for early detection of hepatocellular carcinoma in cirrhotic patients**

Lei Chen, Ghassan K. Abou-Alfa, Bo Zheng, Jing-Feng Liu, Jian Bai, Lu-Tao Du, Yun-Song Qian, Rong Fan, Xiao-Long Liu, Lin Wu, Jin-Lin Hou, Hong-Yang Wang, The PreCar Team

- 593 Mechanism of dopamine binding and allosteric modulation of the human D1 dopamine receptor *Open***

Youwen Zhuang, Brian Krumm, Huibing Zhang, X. Edward Zhou, Yue Wang, Xi-Ping Huang, Yongfeng Liu, Xi Cheng, Yi Jiang, Hualiang Jiang, Cheng Zhang, Wei Yi, Bryan L. Roth, Yan Zhang, H. Eric Xu

- 597 Structure-based development of three- and four-antibody cocktails against SARS-CoV-2 via multiple mechanisms *Open***

Yao Sun, Lei Wang, Rui Feng, Nan Wang, Yuxi Wang, Dandan Zhu, Xiaorui Xing, Peng Yang, Yanjun Zhang, Weimin Li, Xiangxi Wang

Correction

- 601 Author Correction: A novel pathway regulates social hierarchy via lncRNA AtLAS and postsynaptic synapsin IIb**

Mei Ma, Wan Xiong, Fan Hu, Man-Fei Deng, Xian Huang, Heng-Ye Man, Youming Lu, Dan Liu, Ling-Qiang Zhu

ADVANCE ONLINE PUBLICATION

- The metabolite α -KG induces GSDMC-dependent pyroptosis through death receptor 6-activated caspase-8 *Open***

Jia-yuan Zhang, Bo Zhou, Ru-yue Sun, Yuan-li Ai, Kang Cheng, Fu-nan Li, Bao-rui Wang, Fan-jian Liu, Zhi-hong Jiang, Wei-jia Wang, Dawang Zhou, Hang-zi Chen and Qiao Wu

- Structural basis of human $\alpha 7$ nicotinic acetylcholine receptor activation *Open***

Yue Zhao, Sanling Liu, Yingxin Zhou, Mengge Zhang, Haopeng Chen, H. Eric Xu, Demeng Sun, Lei Liu and Changlin Tian

Cell Discovery

Making publication fun for you

Cell Discovery is an open access international journal that publishes results of high significance and broad interest in all areas of molecular and cell biology. The basic bar of acceptance is comparable to prestigious society journals in the respective field of the work. It is established in 2015 as a sister journal of *Cell Research*, a high-profile international journal with a current impact of 20.507. The new impact of *Cell Discovery* is 6.255.

Authors benefit from:

- Open Access Publication – anyone can download and read your paper
- Wide exposure to a large global audience on nature.com
- Internationally renowned editors and editorial board
- Quality peer-review and fast publication
- Indexed in Scopus and PubMed Central (PMC)
Science Citation Index Expanded (SciSearch®),
Journal Citation Reports/Science Edition

Featured articles

Initial whole-genome sequencing and analysis of the host genetic contribution to COVID-19 severity and susceptibility

Cell Discov. 2020 Nov 10;6(1):83. doi: 10.1038/s41421-020-00231-4.

The differential immune responses to COVID-19 in peripheral and lung revealed by single-cell RNA sequencing

Cell Discov. 2020 Oct 20;6:73. doi: 10.1038/s41421-020-00225-2.

Immune cell profiling of COVID-19 patients in the recovery stage by single-cell sequencing

Cell Discov. 2020 May 4;6:31. doi: 10.1038/s41421-020-0168-9.

Phosphorylation of cGAS by CDK1 impairs self-DNA sensing in mitosis

Cell Discov. 2020 Apr 28;6:26. doi: 10.1038/s41421-020-0162-2.

Single-cell RNA sequencing reveals the heterogeneity of liver-resident immune cells in human

Cell Discov. 2020 Apr 28;6:22. doi: 10.1038/s41421-020-0157-z.

Cell Discovery



Editor-in-Chief: Dangsheng Li

SUBMIT

Visit www.nature.com/celldisc/
to read the Published Papers and Submit Today!