

Cell Research



Volume 31 Number 7 July 2021

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



Vaccines-elicited immune response to SARS-CoV-2 variants

Single-cell transcriptomic analyses of human embryonic skeletogenesis

Direct control of Ca^{2+} channels by ultrafast laser

COMP is an endogenous allosteric modulator of AT1 receptor

ISSN 1001-0602



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



Supported by SPFCAS

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
Jiajun Xu

RESEARCH HIGHLIGHTS

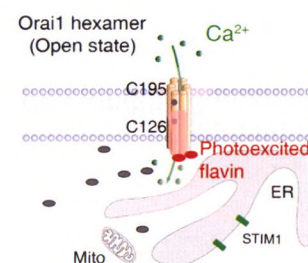
- 723** **Intestinal tête-à-tête: helminths blunt immunity against flaviviruses**
David E. Place, Thirumala-Devi Kanneganti
- 725** **Ultrasensitive antigen density discrimination by synNotch**
Divanshu Shukla, James L. Riley
- 727** **Remote light-activation of native Orai channels**
Sarah A. Kazzaz, James H. Baraniak Jr, Yandong Zhou, Donald L. Gill
- 730** **Self-made allosteric: endogenous COMP antagonizes pathologic AT1_AR signaling**
Ama Dedo Okyere, Douglas G. Tilley

ARTICLES

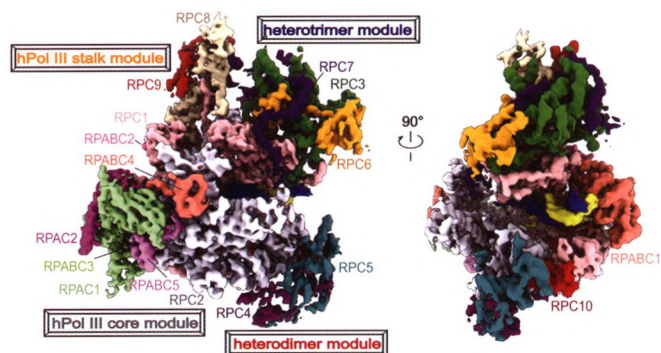
- 732** **Humoral immune response to circulating SARS-CoV-2 variants elicited by inactivated and RBD-subunit vaccines** *Open*
Yunlong Cao, Ayijiang Yisimayi, Yali Bai, Weijin Huang, Xiaofeng Li, Zhiying Zhang, Tianjiao Yuan, Ran An, Jing Wang, Tianhe Xiao, Shuo Du, Wenping Ma, Liyang Song, Yongzheng Li, Xiang Li, Weiliang Song, Jiajing Wu, Shuo Liu, Xuemei Li, Yonghong Zhang, Bin Su, Xianghua Guo, Yangyang Wei, Chuanping Gao, Nana Zhang, Yifei Zhang, Yang Dou, Xiaoyu Xu, Rui Shi, Bai Lu, Ronghua Jin, Yingmin Ma, Chengfeng Qin, Yuchun Wang, Yingmei Feng, Junyu Xiao, Xiaoliang Sunney Xie
- 742** **Dissecting human embryonic skeletal stem cell ontogeny by single-cell transcriptomic and functional analyses** *Open*
Jian He, Jing Yan, Jianfang Wang, Liangyu Zhao, Qian Xin, Yang Zeng, Yuxi Sun, Han Zhang, Zhijie Bai, Zongcheng Li, Yanli Ni, Yandong Gong, Yunqiao Li, Han He, Zhilei Bian, Yu Lan, Chunyu Ma, Lihong Bian, Heng Zhu, Bing Liu, Rui Yue
- 758** **Direct control of store-operated calcium channels by ultrafast laser** *Open*
Pan Cheng, Xiaoying Tian, Wanyi Tang, Juan Cheng, Jin Bao, Haipeng Wang, Sisi Zheng, Youjun Wang, Xunbin Wei, Tunan Chen, Hua Feng, Tian Xue, Keisuke Goda, Hao He



Cover: The Monkey King is reminiscent of the embryonic skeletal stem and progenitor cells (eSSPCs) that localize in the perichondrial region of the developing long bones (mimicked by the Golden Cudgel), which self-renew and give rise to skeletal lineage cells as revealed by our single-cell transcriptomic and functional analyses. The image is designed by Zhenyu Hong and edited by Ran Li and Jing Yan. See page 742-757 by Jian He et al. for details.



Schematic diagram of the general mechanism of femtoSOC, a method that enables direct control of Ca²⁺ channels solely by ultrafast laser. See page 758-772 by Pan Cheng et al. for details.



Cryo-EM maps of human RNA polymerase III elongation complex. See page 791-800 by Liang Li et al. for details.

801 The noncanonical role of the protease cathepsin D as a cofilin phosphatase **Open**

Yi-Jun Liu, Ting Zhang, Sicong Chen, Daxiao Cheng, Cunjin Wu, Xingyue Wang, Duo Duan, Liya Zhu, Huifang Lou, Zhefeng Gong, Xiao-Dong Wang, Margaret S. Ho, Shumin Duan

LETTERS TO THE EDITOR

814 Dominant mutations in *CHK1* cause pronuclear fusion failure and zygote arrest that can be rescued by *CHK1* inhibitor **Open**

Honghui Zhang, Tailai Chen, Kelian Wu, Zhenzhen Hou, Shigang Zhao, Chuanxin Zhang, Yuan Gao, Ming Gao, Zi-Jiang Chen, Han Zhao

818 SARS-CoV-2 spike protein interacts with and activates TLR41

Yingchi Zhao, Ming Kuang, Junhong Li, Ling Zhu, Zijiang Jia, Xuefei Guo, Yaling Hu, Jun Kong, Hang Yin, Xiangxi Wang, Fuping You

821 Solution structure of the voltage-gated Tim23 channel in complex with a mitochondrial presequence peptide

Shu Zhou, Maosen Ruan, Yunyan Li, Jing Yang, Suwen Bai, Christian Richter, Harald Schwalbe, Can Xie, Bing Shen, Junfeng Wang

CORRECTION

825 Publisher Correction: SARS-CoV-2 spike protein interacts with and activates TLR4

Yingchi Zhao, Ming Kuang, Junhong Li, Ling Zhu, Zijiang Jia, Xuefei Guo, Yaling Hu, Jun Kong, Hang Yin, Xiangxi Wang, Fuping You

773 Cartilage oligomeric matrix protein is an endogenous β -arrestin-2-selective allosteric modulator of AT1 receptor counteracting vascular injury **Open**

Yi Fu, Yaqian Huang, Zhao Yang, Yufei Chen, Jingang Zheng, Chenfeng Mao, Zhiqing Li, Zhixin Liu, Bing Yu, Tuoyi Li, Meili Wang, Chanjuan Xu, Yiwei Zhou, Guizhen Zhao, Yiting Jia, Wei Guo, Xin Jia, Tao Zhang, Li Li, Ziyi Liu, Shengchao Guo, Mingliang Ma, Heng Zhang, Bo Liu, Junbao Du, Wengong Wang, Chaoshu Tang, Pei Gao, Qingbo Xu, Xian Wang, Jianfeng Liu, Jinpeng Sun, Wei Kong

791 Structure of human RNA polymerase III elongation complex

Liang Li, Zishuo Yu, Dan Zhao, Yulei Ren, Haifeng Hou, Yanhui Xu

ADVANCE ONLINE PUBLICATION

Delineating spatiotemporal and hierarchical development of human fetal innate lymphoid cells **Open**

Chen Liu, Yandong Gong, Han Zhang, Hua Yang, Yang Zeng, Zhilei Bian, Qian Xin, Zhijie Bai, Man Zhang, Jian He, Jing Yan, Jie Zhou, Zongcheng Li, Yanli Ni, Aiqing Wen, Yu Lan, Hongbo Hu and Bing Liu

Pericytes augment glioblastoma cell resistance to temozolomide through CCL5-CCR5 paracrine signaling **Open**

Xiao-Ning Zhang, Kai-Di Yang, Cong Chen, Zhi-Cheng He, Qiang-Hu Wang, Hua Feng, Sheng-Qing Lv, Yan Wang, Min Mao, Qing Liu, Yao-Yao Tan, Wen-Ying Wang, Tian-Ran Li, Lin-Rong Che, Zhong-Yi Qin, Ling-Xiang Wu, Min Luo, Chun-Hua Luo, Yu-Qi Liu, Wen Yin, Chao Wang, Hai-Tao Guo, Qing-Rui Li, Bin Wang, Wei Chen, Shuang Wang, Yu Shi, Xiu-Wu Bian and Yi-Fang Ping

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

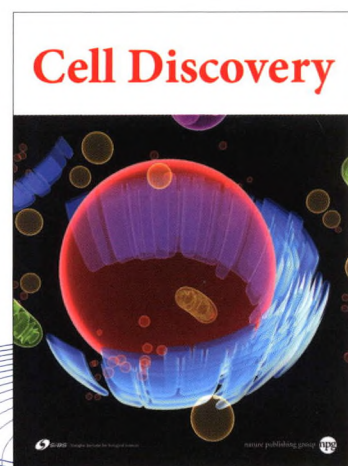
Cell Discov. 2020 May 4;6:31. doi: 10.1038/s41421-020-0168-9.

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.



Editor-in-Chief: Dangsheng Li

SUBMIT

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