

Foreword

Two years after the SARS-CoV-2 outbreak upended life as the world knew it, the routine around the globe is now slowly starting to return to what it was like pre-pandemic. In 2022, scientists started returning to their benches in full capacity as well as attending conferences in-person again. These social connections facilitate invaluable discussions, networking opportunities, and beneficial collaborations, which, here at *Cell Reports*, have led to another year of publishing strong, exciting science. We saw many fascinating works, ranging from a genetic study that shows that Doppelgangers possess similar genotypes to a microbiome study that reveals that giant pandas' gut bacteria compensate for seasonal shifts in nutrients. Here, we present a collection of papers from 2022 that highlight these, and other, seminal works.

We call this collection the *Best of Cell Reports*, but it really represents some of our favorite papers from among more than 1500 reports, articles, resources, and reviews that were published in *Cell Reports* from late 2021 through late 2022. We considered Plum Metrics, reader downloads, and citations when making our selections, but our collection is only a small sample of our authors' work. We encourage you to browse our Open Access archives to see how far biology has advanced over the course of the year.

Thank you to our authors, reviewers, editorial board members, Cell Press colleagues, and scientific advisors for building this journal alongside us. We hope you enjoy this 2022 *Best of Cell Reports* edition, and we look forward to more thought-provoking, strong science that will continue to emerge from the face-to-face interactions that are happening now.

Also, we are grateful for the generosity of our sponsors, who helped to make this reprint collection possible.

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The CellPress logo features a stylized blue icon of a cell or molecule to the left of the word "CellPress" in a bold, blue, sans-serif font.

Cell Reports

Best of 2022

Reports

Look-alike humans identified by facial recognition algorithms show genetic similarities

Ricky S. Joshi, Maria Rigau, Carlos A. García-Prieto, Manuel Castro de Moura, David Piñeyro, Sebastian Moran, Veronica Davalos, Pablo Carrión, Manuel Ferrando-Bernal, Iñigo Olalde, Carles Lalueza-Fox, Arcadi Navarro, Carles Fernández-Tena, Decky Aspandi, Federico M. Sukno, Xavier Binefa, Alfonso Valencia, and Manel Esteller

Cryo-EM structure of the SARS-CoV-2 Omicron spike

Gabriele Cerutti, Yicheng Guo, Lihong Liu, Liyuan Liu, Zhening Zhang, Yang Luo, Yiming Huang, Harris H. Wang, David D. Ho, Zizhang Sheng, and Lawrence Shapiro

Articles and Resources

Seasonal shift of the gut microbiome synchronizes host peripheral circadian rhythm for physiological adaptation to a low-fat diet in the giant panda

Guangping Huang, Le Wang, Jian Li, Rong Hou, Meng Wang, Zhilin Wang, Qingyue Qu, Wenliang Zhou, Yonggang Nie, Yibo Hu, Yingjie Ma, Li Yan, Hong Wei, and Fuwen Wei

Suppression of MYC transcription activators by the immune cofactor NPR1 fine-tunes plant immune responses

Mika Nomoto, Michael J. Skelly, Tomotaka Itaya, Tsuyoshi Mori, Takamasa Suzuki, Tomonao Matsushita, Mutsutomo Tokizawa, Keiko Kuwata, Hitoshi Mori, Yoshiharu Y. Yamamoto, Tetsuya Higashiyama, Hironaka Tsukagoshi, Steven H. Spoel, and Yasuomi Tada

Mapping the evolution of T cell states during response and resistance to adoptive cellular therapy

Pavan Bachireddy, Elham Azizi, Cassandra Burdziak, Vinhkhong N. Nguyen, Christina S. Ennis, Katie Maurer, Cameron Y. Park, Zi-Ning Choo, Shuqiang Li, Satyen H. Gohil, Neil G. Ruthen, Zhongqi Ge, Derin B. Keskin, Nicoletta Cieri, Kenneth J. Livak, Haesook T. Kim, Donna S. Neuberg, Robert J. Soiffer, Jerome Ritz, Edwin P. Alyea, Dana Pe'er, and Catherine J. Wu

TNF leads to mtDNA release and cGAS/STING-dependent interferon responses that support inflammatory arthritis

Joschka Willemsen, Marie-Therese Neuhoff, Thomas Hoyler, Emma Noir, Clemence Tessier, Sophie Sarret, Tara N. Thorsen, Amanda Littlewood-Evans, Juan Zhang, Maroof Hasan, James S. Rush, Danilo Guerini, and Richard M. Siegel

Prenatal environmental stressors impair postnatal microglia function and adult behavior in males

Carina L. Block, Ozgur Eroglu, Stephen D. Mague, Caroline J. Smith, Alexis M. Ceasrine, Chaichontat Sriworarat, Cameron Blount, Kathleen A. Beben, Karen E. Malacon, Nkemdilim Ndubuizu, Austin Talbot, Neil M. Gallagher, Young Chan Jo, Timothy Nyangacha, David E. Carlson, Kafui Dzirasa, Cagla Eroglu, and Staci D. Bilbo

Dissecting mammalian spermatogenesis using spatial transcriptomics

Haiqi Chen, Evan Murray, Anubhav Sinha, Anisha Laumas, Jilong Li, Daniel Lesman, Xichen Nie, Jim Hotaling, Jingtao Guo, Bradley R. Cairns, Evan Z. Macosko, C. Yan Cheng, and Fei Chen

Chromatin-state barriers enforce an irreversible mammalian cell fate decision

M. Andrés Blanco, David B. Sykes, Lei Gu, Mengjun Wu, Ricardo Petroni, Rahul Karnik, Mathias Wawer, Joshua Rico, Haitao Li, William D. Jacobus, Ashwini Jambhekar, Sihem Cheloufi, Alexander Meissner, Konrad Hochedlinger, David T. Scadden, and Yang Shi

The gut microbiota of environmentally enriched mice regulates visual cortical plasticity

Leonardo Lupori, Sara Cornuti, Raffaele Mazziotti, Elisa Borghi, Emerenziana Ottaviano, Michele Dei Cas, Giulia Sagona, Tommaso Pizzorusso, and Paola Tognini



On the cover: Featured on the cover is a cross-section of visually striking images published on the cover of *Cell Reports* from late 2021 through late 2022. Images are courtesy of (from left to right): Stephanie Makdissi (volume 38 issue 9); Igor Bonacossa-Pereira and Nick Valmas (volume 38 Issue 10); Marla C. Glass (volume 39 issue 3); Sarah K. Rempel (volume 39 issue 7); and Selma Nayebi (volume 40 issue 9).