

NEWS & COMMENTARIES



Time me by the moon: The evolution and function of lunar timing systems

Andrés Ritter and Kristin Tessmar-Raible 2024

<https://doi.org/10.1038/s44319-024-00196-5>

The paper discusses the Mythology and the Moon. It states that the moon and its nighttime cycle have been revered in human mythology and folklore since the beginning of time, with the Earth's satellite frequently being attributed with unique abilities related to fertility and reproduction. It cite the Aristotle's work "On the Parts of Animals" contains a quote from fishermen that states, "The moon nourishes the mussels and inflates the urchins." This quotation indicates that people recognized over 4,000 years ago that there was a link between the physiology of animals and the phases of the moon. Over time, this viewpoint has become more generic and inflated. For further reading, please refer to paper cites above.



FDA approves third anti-amyloid antibody for Alzheimer disease

<https://www.nature.com/articles/d41573-024-00116-1>

The US FDA has approved Eli Lilly's donanemab (Kisunla) for the treatment of early-stage symptomatic Alzheimer's disease, as reported by Asher Mullard. Eisai and Biogen's lecanemab (Leqembi) are now its competitors, and both antibodies are vying to overshadow Biogen's now-canceled first-in-class anti-amyloid aducanumab (Aduhelm).



The citation black market: schemes selling fake references alarm scientists

Dalmeet Singh Chawla

<https://www.nature.com/articles/d41586-024-01672-7>

The ways in which researchers can artificially inflate their reference counts are growing.

Research-integrity watchers are concerned about the growing ways in which scientists can fake or manipulate the citation counts of their studies. In recent months, increasingly bold practices have surfaced. One approach was revealed through a

sting operation in which a group of researchers bought 50 citations to pad the Google Scholar profile of a fake scientist they had created.

SCIENTISTSOCIETY



ROLE OF ELITES: The role of emerging elites in the formation and development of communities after the fall of the Roman Empire

Tian et al., 2024

<https://doi.org/10.1073/pnas.2317868121>

This paper describe comparison of novel genomes with the pre-existing to investigates the function of elite groups in the formation of a community at Collegno, Italy, in the sixth to eighth centuries by fusing paleogenomic and isotopic data with historical and archaeological information. The study

discovered that the site originated from highly esteemed biological and social groupings. In addition, the community welcomed and included those with a variety of genetic backgrounds.



Scientists, your local communities need you. It's time to step up

By Arti Garg

<https://www.nature.com/articles/d41586-024-02758-y>

In this report Arti Garg states that the importance of engineers and researchers who are equipped with the knowledge to have motivation in participating in regional policymaking initiatives. It's easier and more rewarding than it might seem, so they should go for it. The effectiveness of most policies, from combating the COVID-19 pandemic to addressing climate

change, depends on how they are carried out in practice. Local governments, municipalities, and community-based organizations are typically in charge of this duty.

SELECTED PUBLICATIONS



Early biological markers of post-acute sequelae of SARS-CoV-2 infection

Scott Lu... Ahmed Chenna, ...J. Daniel Kelly, 2024

<https://doi.org/10.1038/s41467-024-51893-7>

This study examined the relationship between early viral dynamics and immune responses in individuals with and without post-acute COVID-19 symptoms (PASC). They found that individuals with PASC had higher viral loads and lower antibody levels during the early stages of infection compared to those who fully recovered. However, there were no significant differences in

immune markers. These findings suggest that early viral dynamics may play a role in the development of PASC, emphasizing the importance of understanding these factors for future research and treatment.

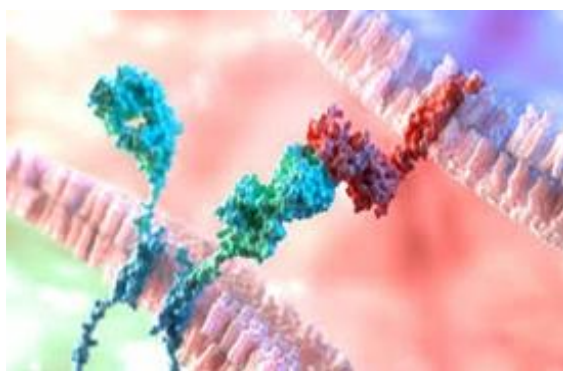


T4 DNA polymerase prevents deleterious on-target DNA damage and enhances precise CRISPR editing

Yang et al., 2024

<https://doi.org/10.1038/s44318-024-00158-6>

This study highlights safety challenges in CRISPR/Cas9 gene editing, specifically unintended large deletions and chromosomal translocations. Researchers identified T4 DNA polymerase from phage T4, which significantly reduces unwanted on-target damage and increases precise 1- to 2-base-pair insertions during editing (CasPlus). CasPlus improved efficiency in correcting mutations and restoring dystrophin in human cardiomyocytes, reduced large deletions in mouse germline editing, and minimized chromosomal translocations in human T cells. Overall, CasPlus presents a safer and more efficient gene editing tool for therapeutic application.

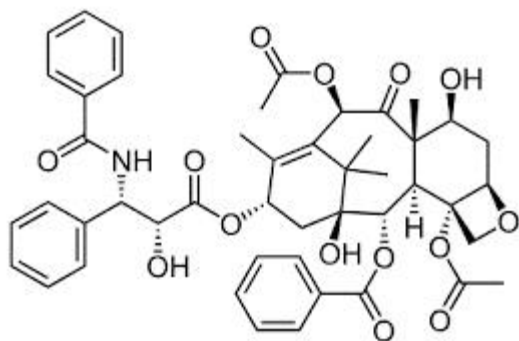


Case study of CD19-directed chimeric antigen receptor T-cell therapy in a subject with immune-mediated necrotizing myopathy treated in the RESET-Myositis™ phase I/II trial

Volkov et al., 2024

[https://www.cell.com/molecular-therapy-family/molecular-therapy/fulltext/S1525-0016\(24\)00591-4](https://www.cell.com/molecular-therapy-family/molecular-therapy/fulltext/S1525-0016(24)00591-4)

This study reports on the safety and efficacy of CABA-201, a fully human 4-1BBz anti-CD19 CAR T-cell therapy, in a patient with immune-mediated necrotizing myopathy (IMNM). CABA-201 was well-tolerated, with no cytokine release syndrome (CRS) or neurotoxicity (ICANS). Muscle strength improved, CK levels decreased, and peripheral B-cells were depleted by day 15 post-infusion. Autoantibodies related to the disease decreased, while antibodies for pathogens remained stable. The infusion product mainly consisted of CD4+ effector memory T-cells, and expansion peaked at day 15, showing promising pharmacodynamic activity.



A chemical screen identifies PRMT5 as a therapeutic vulnerability for paclitaxel-resistant triple-negative breast cancer

Zhang et al., 2024

<https://doi.org/10.1016/j.chembiol.2024.08.003>

This study identifies a vulnerability in paclitaxel-resistant triple-negative breast cancer (TNBC) to protein arginine methyltransferase (PRMT) inhibition. Resistant cells evade paclitaxel by stabilizing mitotic chromatin, and inhibiting PRMT5 disrupts RNA splicing, reducing AURKB protein expression and selective mitotic catastrophe. Combining type I PRMT inhibition with PRMT5 further suppresses tumor growth by targeting AURKB signaling. These results were confirmed in a patient-derived xenograft model, supporting the potential for PRMT inhibition as a therapeutic strategy for paclitaxel-resistant TNBC.

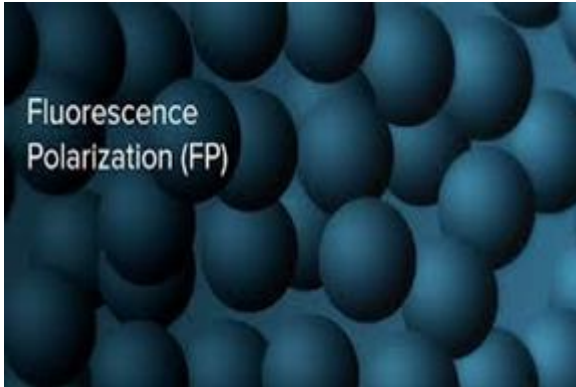


The traditional Chinese medicine Qiliqiangxin in heart failure with reduced ejection fraction: a randomized, double-blind, placebo-controlled trial

Cheang et al., 2024

<https://doi.org/10.1038/s41591-024-03169-2>

In this paper published in Nature Medicine, the authors present findings from a randomized, double-blind, placebo-controlled trial on Qiliqiangxin (QLQX), a traditional Chinese medicine, for treating heart failure with reduced ejection fraction (HFrEF). The study shows that QLQX significantly improves left ventricular ejection fraction and reduces heart failure-related hospitalization and mortality rates compared to a placebo. The results suggest that QLQX could be a beneficial complementary treatment for HFrEF, with potential implications for integrating traditional medicine into modern heart failure management strategies.



High-Throughput Screening for LC3/GABARAP Binders Utilizing the Fluorescence Polarization Assay

Schwalm et al., 2024

https://link.springer.com/protocol/10.1007/978-1-0716-4067-8_17

This chapter protocol presents a new high-throughput screening method for identifying LC3/GABARAP protein binders using a fluorescence polarization (FP) assay. The method helps in understanding the interactions of autophagy-related Atg8-family proteins with peptides, proteins, or small molecules, providing crucial data for drug discovery and inhibitor development. The chapter covers the principles of FP assays, a case study on peptide interaction with human Atg8 proteins, and guidance on data analysis and quality control.

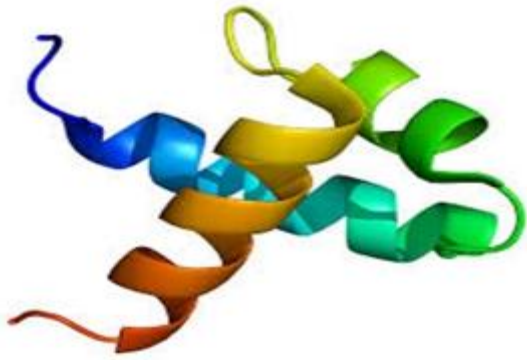


Early biological markers of post-acute sequelae of SARS-CoV-2 infection

Lu et al., 2024

<https://doi.org/10.1038/s41467-024-51893-7>

This study examined the relationship between early viral dynamics and immune responses in individuals with and without post-acute COVID-19 symptoms (PASC). The authors found that individuals with PASC had higher viral loads and lower antibody levels during the early stages of infection compared to those who fully recovered. However, there were no significant differences in immune markers. These findings suggest that early viral dynamics may play a role in the development of PASC, emphasizing the importance of understanding these factors for future research and treatment.

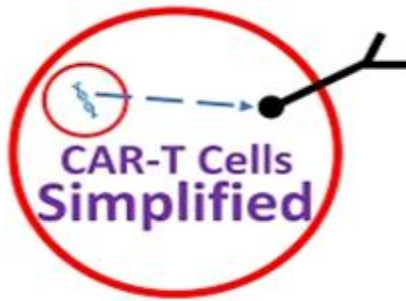


MYB-related transcription factors control chloroplast biogenesis

Frangedakis et al., 2024

[https://www.cell.com/cell/fulltext/S0092-8674\(24\)00713-X](https://www.cell.com/cell/fulltext/S0092-8674(24)00713-X)

The paper identifies MYB-related transcription factors as key regulators of chloroplast biogenesis, focusing on the liverwort *Marchantia polymorpha* and angiosperm *Arabidopsis thaliana*. These factors control genes related to chlorophyll biosynthesis, carbon fixation, and photosystem assembly, working alongside GLK transcription factors. The study reveals that MYB-related proteins have a broader target range than GLKs, suggesting their essential role in chloroplast development and photosynthesis, highlighting potential targets for improving photosynthetic efficiency in crops.



Allogeneic CD19-targeted CAR-T therapy in patients with severe myositis and systemic sclerosis

Wang et al., 2024

<https://doi.org/10.1016/j.cell.2024.06.027>

This paper describes the engineering of CD19-targeting CAR-T cells from healthy donor using CRISPR-Cas9 to overcome the immune rejection issue. The engineered cell was used to treat a patient with refractory immune-mediated necrotizing myopathy and two patients with diffuse cutaneous systemic sclerosis. The treatment showed that the infused cells persisted for over 3 months, achieving complete B cell depletion within 2 weeks of treatment. Moreover, the toxicity related to CAR-T cell was absent and it demonstrates that there is a possibility to develop off-the-shelf CAR-T cells in treating severe refractory autoimmune diseases.

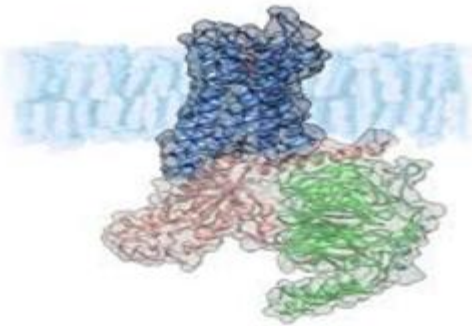


Unchecked growth: Pushing the limits on RNA virus genome size in the absence of known proofreading

Glasner and Daugherty, 2024

<https://doi.org/10.1073/pnas.2414223121>

This report summarizes the work carried out by Petrone et al. 2024 who describe the exciting discovery of a member of the Flaviviridae with a ~40 kb genome that contains no domains previously associated with polymerase error correcting. It highlights the dangerous errors of RNA viruses that is prone on RNA-dependent RNA polymerases. It leads to many mutations in the virus in each round of replication and lead in driving the RNA viruses to be dangers especially in viruses that have genome around 10 kb or less. The only exceptions are those belonging to the Nidovirales family, some of whose members have stolen error-correcting domains from cellular hosts.



Stabilization of interdomain closure by a G protein inhibitor

Todd et al., 2024

<https://doi.org/10.1073/pnas.2311711121>

This paper describes the discovery of small molecules as inhibitors of G-protein through interdomain closure stabilization from single-molecule, molecular dynamics, and biochemical experiments. This discovery opens the door to the creation of novel therapeutics that are specifically. The study gives a rise of the possibility to overcome the challenge in developing G-protein inhibitor-based therapy. Although specific inhibitors of the Gq/11-class of G proteins have been found, it is still unclear whether similar inhibitory mechanisms apply to all classes of heterotrimeric G proteins and how precisely their biophysical mechanism of action is supposed to work.



Nucleated synthetic cells with genetically driven intercompartment communication

Ioannou et al., 2024

<https://doi.org/10.1073/pnas.2404790121>

This study describes the building of an inner compartment that resembles a nucleus surrounded by cytoplasm using an emulsion-based technology. It shows that the inner and outer compartment composition can be controlled that allows different genetic material and biochemical pathways to be encapsulated in separate compartments, and the expression of membrane-bound machinery mediates signaling events between the two cellular regions. It is the first study that overcomes the difficulties of the majority of existing synthetic cell systems that are restricted to single-compartment designs.

RECOMMENDED EVENTS

ScienceWebinars



Workplace wins: Finding a fulfilling career and overcoming stigma in rare disease

Thursday, September 19, 2024, 12 Noon Eastern (ET), 9 a.m. Pacific (PT), 5 p.m. UK (BST), 6 p.m. Central Europe (CET)

- Hear from those who have successfully navigated careers in the context of rare disease
- Learn about laws that protect people with disabilities in the workplace

<https://www.science.org/content/webinar/workplace-wins-finding-fulfilling-career-and-overcoming-stigma-rare-disease>



ArabLab

24-26 September 2024, Dubai, UAE

ArabLab 2024, the most powerful annual show for the global Laboratory Analytical Industry.

The “LIVE LAB SHOW” that works for you

<https://www.arablab.com/>

Cancer Immunotherapy Winter School

February 11-14, 2025 in Austin, TX and Virtually



Tailored to early-to-mid career scientists and clinicians in the field of cancer immunotherapy working in academic, clinical, industry and government settings, this hybrid program provides the best in cancer immunotherapy education taught by leading experts in the field.

https://sitcancer.org/education/winterschool-2025?utm_source=email&utm_medium=realmagnate&utm_campaign=im24



The 2025 BIO International Convention Call for Sessions is Now Open!

The submission deadline is October 17, 2024. Individuals whose proposals have been selected will be notified mid-January 2025.

More than 19,000 industry experts convene once a year to discuss the most pressing issues and trends affecting the biotech industry. The Call for Sessions is your opportunity to showcase thought leadership by speaking on or helping build a panel for the BIO 2025 program.

<https://www.abstractscorecard.com/cfp/submit/login.asp?EventKey=AOLREEVJ>

JOBS CORNER



The Institute for Molecular Medicine Finland (FIMM) is hiring 2 Doctoral Researchers in Human Genomics and Complex Disorders at the University of Helsinki, Finland.

<https://www.helsinki.fi/en/about-us/careers/open-positions>



Head of Structural Biology

Helix BioStructures · Indianapolis, IN (On-site)

Helix BioStructures, LLC (HBS) is a contract research organization based in Indianapolis, Indiana, providing early drug discovery services to the biopharmaceutical industry.

<https://www.helixbiostructures.com/>



Senior Research Manager, Early-Mid Career Researchers

Discovery Research at Wellcome is recruiting. We have three Senior Research Manager roles (including this one in my team) open until 22 September.

https://wellcome.wd3.myworkdayjobs.com/en-US/Wellcome/jobs/details/Senior-Research-Manager--Early--Mid-Career-Researchers_R-002236-1



Post-doc opportunity

A postdoc position at Harvard Medical School is now open for a Computational Biologist / Immunologist to join a cutting-edge project on HIV research. We're looking for someone with strong skills in sequencing, data analysis, and proficiency in Python and/or R. If you're passionate about advancing HIV research and have the right expertise, please email your CV to fnaitmohamed@mgh.harvard.edu for initial consideration.

We only ask you to co-sponsor scientific event for the emerging countries contact us: admin@algeriansca-dz.org

