

References

Aktuell

ALDÉN 2022

Markus Aldén, Francisko Olofsson Falla, Daowei Yang, Mohammad Barghouth, Cheng Luan, Magnus Rasmussen & Yang De Marinis, *Intracellular Reverse Transcription of Pfizer BioNTech COVID-19 mRNA Vaccine BNT162b2 In Vitro in Human Liver Cell Line*. *Current Issues in Molecular Biology* **44** (2022), 1115–1126. DOI:10.3390/cimb44030073.

Preclinical studies of COVID-19 mRNA vaccine BNT162b2, developed by Pfizer and BioNTech, showed reversible hepatic effects in animals that received the BNT162b2 injection. Furthermore, a recent study showed that SARS-CoV-2 RNA can be reverse-transcribed and integrated into the genome of human cells. In this study, we investigated the effect of BNT162b2 on the human liver cell line Huh7 in vitro. Huh7 cells were exposed to BNT162b2, and quantitative PCR was performed on RNA extracted from the cells. We detected high levels of BNT162b2 in Huh7 cells and changes in gene expression of long interspersed nuclear element-1 (LINE-1), which is an endogenous reverse transcriptase. Immunohistochemistry using antibody binding to LINE-1 open reading frame-1 RNA-binding protein (ORFp1) on Huh7 cells treated with BNT162b2 indicated increased nucleus distribution of LINE-1. PCR on genomic DNA of Huh7 cells exposed to BNT162b2 amplified the DNA sequence unique to BNT162b2. Our results indicate a fast up-take of BNT162b2 into human liver cell line Huh7, leading to changes in LINE-1 expression and distribution. We also show that BNT162b2 mRNA is reverse transcribed intracellularly into DNA in as fast as 6 h upon BNT162b2 exposure.

Keywords: COVID-19 mRNA vaccine | BNT162b2 | liver | reverse transcription | LINE-1 | Huh7

COHEN 2022

Jon Cohen, *Studies bolster pandemic origin in Wuhan animal market*. *science* **375** (2022), 946–947. DOI:10.1126/science.adb1760.

Close scrutiny of earliest cases and samples from market suggests virus crossed over from animals sold there.

MAXMEN 2022

Amy Maxmen, *Wuhan market was epicentre of pandemic's start, studies suggest*. *nature* **603** (2022), 15–16.

Report authors say that SARS-CoV-2 jumped to people from animals sold at the market on two occasions in late 2019 — but some scientists want more-definitive evidence.

Jungpaläolithikum

WEBER 2022

Gerhard W. Weber et al., *The microstructure and the origin of the Venus from Willendorf*. [Scientific Reports 12 \(2022\), 2926](#).

[DOI:10.1038/s41598-022-06799-z](#).

[SciRep12-02926-Supplement.pdf](#)

The origin and key details of the making of the $\approx 30,000$ year old Venus from Willendorf remained a secret since its discovery for more than a hundred years. Based on new micro-computed tomography scans with a resolution of $11.5 \mu\text{m}$, our analyses can explain the origin as well as the choice of material and particular surface features. It allowed the identification of internal structure properties and a chronological assignment of the Venus oolite to the Mesozoic. Sampling numerous oolite occurrences ranging ≈ 2500 km from France to the Ukraine, we found a strikingly close match for grain size distribution near Lake Garda in the Southern Alps (Italy). This might indicate considerable mobility of Gravettian people and long-time transport of artefacts from South to North by modern human groups before the Last Glacial Maximum.

Gerhard W. Weber, Alexander Lukeneder, Mathias Harzhauser, Philipp Mitteroecker, Lisa Wurm, Lisa-Maria Hollaus, Sarah Kainz, Fabian Haack, Walpurga Antl-Weiser & Anton Kern

Neolithikum

THOMAS 2022

Julian Thomas, *Neolithization and Population Replacement in Britain, An Alternative View*. [Cambridge Archaeological Journal \(2022\), preprint, 1–19](#). [DOI:10.1017/S0959774321000639](#).

Investigation of British Mesolithic and Neolithic genomes suggests discontinuity between the two and has been interpreted as indicating a significant migration of continental farmers, displacing the indigenous population. These incomers had already acquired some hunter-gatherer genetic heritage before their arrival, and this increased little in Britain. However, the proportion of hunter-gatherer genetic ancestry in British Neolithic genomes is generally greater than for most contemporary examples on the continent, particularly in emerging evidence from northern France, while the ultimate origin of British Neolithic populations in Iberia is open to question. Both the date calculated for the arrival of new people in Britain and their westerly origin are at odds with other aspects of the existing evidence. Here, a two-phase model of Neolithization is proposed. The first appearance of Neolithic things and practices significantly predated a more substantial transfer of population, creating the conditions under which new communities could be brought into being. The rather later establishment of a major migration stream coincided with an acceleration in the spread of Neolithic artefacts and activities, as well as an enrichment of the Neolithic material assemblage.

Story or Book

GREENBAUM 2022

Dov Greenbaum & Mark Gerstein, *The lasting legacy of John von Neumann, A new biography seeks to reacquaint readers with the once widely celebrated scientist*. [science 375 \(2022\), 983](#).

The Man from the Future: The Visionary Life of John von Neumann. Ananyo Bhattacharya. Norton, 2022. 368 pp.

The reader learns much about math and physics in this biography, including the differences between the matrix and wave interpretations of quantum mechanics, Gödel's incompleteness theorems, and the mathematics that underlies the Turing machine. In contrast, we learn sparingly little about von Neumann's personal life: for example, that he had an interesting custody agreement with his first wife (his daughter, Marina, was to live with her mother until she reached "the age of reason," at which point she would live with her father in order to "receive the benefit of his genius").