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References

Aktuell

Cohen 2021

Jon Cohen, *Call of the Wild.* science **373** (2021), 1072–1077.
DOI:10.1126/science.acx8984.
    Why most scientists say it's unlikely that SARS-CoV-2 originated from a "lab
leak".

Kay 2021

Tomas Kay, Laurent Keller & Laurent Lehmann, *Limited gene flow
leads to individuals being related within groups, Reply to Leimar and
Hammerstein.* PNAS **118** (2021), e2108545118.
    Relatedness covaries with gene flow (4), and it is relatedness, not genetic drift,
which accounts for the observed differences in the simulations of figure 2 b and c
in ref. 3. Genetic drift alone would produce the opposite result, with less coopera-
tion in figure 2b than in figure 2c in ref. 3, since drift increases with gene flow in
island models (equation 2.7 of ref. 4). This is why their paper was included in our
analysis.

Leimar 2021

Olof Leimar & Peter Hammerstein, *Cooperation, with friends or with
relatives?* PNAS **118** (2021), e2107652118.
    We agree with many of the conclusions by Kay et al., but we wish to point out
that the evolutionary stability of the standing strategy, which we investigated,
does not depend on relatedness between donors and recipients of help. We, in
fact, showed this analytically. We argued that the evolutionary success of so-called
image-scoring strategies, proposed by Nowak and Sigmund (3), depends on ge-
netic drift in small populations, and thus potentially on relatedness, whereas the
standing strategy is robust to those effects.

Silva 2021

Paulo J. S. Silva, Claudia Sagastizábal, Luís Gustavo Nonato, Clau-
dio José Struchiner & Tiago Pereira, *Optimized delay of the second
COVID-19 vaccine dose reduces ICU admissions.* PNAS **118** (2021),
e2104640118. DOI:10.1073/pnas.2104640118.
    Slower than anticipated, COVID-19 vaccine production and distribution have im-
paired efforts to curtail the current pandemic. The standard administration sched-
ule for most COVID-19 vaccines currently approved is two doses administered
3 to 4 wk apart. To increase the number of individuals with partial protection,
some governments are considering delaying the second vaccine dose. However, the
delay duration must take into account crucial factors, such as the degree of protec-
tion conferred by a single dose, the anticipated vaccine supply pipeline, and the
potential emergence of more virulent COVID-19 variants. To help guide decision-
making, we propose here an optimization model based on extended susceptible,
exposed, infectious, and removed (SEIR) dynamics that determines the optimal
delay duration between the first and second COVID-19 vaccine doses. The model

assumes lenient social distancing and uses intensive care unit (ICU) admission as a key metric while selecting the optimal duration between doses vs. the standard 4-wk delay. While epistemic uncertainties apply to the interpretation of simulation outputs, we found that the delay is dependent on the vaccine mechanism of action and first-dose efficacy. For infection-blocking vaccines with firstdose efficacy $\geq 50\%$, the model predicts that the second dose can be delayed by ≥ 8 wk (half of the maximal delay), whereas for symptom-alleviating vaccines, the same delay is recommended only if the first-dose efficacy is .70%. Our model predicts that a 12-wk second-dose delay of an infection-blocking vaccine with a first-dose efficacy $\geq 70\%$ could reduce ICU admissions by 400 people per million over 200 d.

Keywords: outbreaks | vaccination | control | strategies

Significance: Shortages of COVID-19 vaccines hampered efforts to fight the current pandemic, leading experts to argue for delaying the second dose to provide earlier first-dose protection to twice as many people. We designed a model-based strategy for identifying the optimal second-dose delay using the hospitalization rate as the key metric. While epistemic uncertainties apply to our modeling, we found that the optimal delay was dependent on first-dose efficacy and vaccine mechanism of action. For infection-blocking vaccines, the second dose could be delayed ≥ 8 weeks if the first-dose efficacy was $\geq 50\%$. For symptom-alleviating vaccines, this delay duration is recommended if the first-dose efficacy was $\geq 70\%$. These results suggest that delaying the second vaccine dose is a feasible option.

WADMAN 2021

Meredith Wadman, *SARS-CoV-2 infection confers greater immunity than shots.* science **373** (2021), 1067–1068. DOI:10.1126/science.acx8993.

Study from Israel, the largest of its kind, also finds infection combined with a single jab is highly protective.

Bibel

EDITOR 2021

Early Alphabetic Writing at Lachish. Biblical Archaeology Review **47** (2021), iii, 12.

HALLOTE 2021

Rachel Hallote, *Does Archaeoology Confirm Joseph's Time in Egypt?* Biblical Archaeology Review **47** (2021), iii, 40–47.

Other details show that we are seeing two sides of the same narrative. In the biblical account, Joseph's family lives in the region of Goshen. The location of Goshen in the eastern Nile Delta was confirmed in the late 19th century by the Egyptologist Édouard Naville, who made the connection between the 20th Nome, known as Kesem or Gesem, and biblical Goshen. This nome is located in the northeastern Nile Delta, exactly where the main Hyksos cities, including Avaris (Tell ed-Dab'a), are located.

SAUTER 2021

Megan Sauter, *Purple Threads from the Days of David and Solomon.* Biblical Archaeology Review **47** (2021), iii, 14–16.

The third purple fabric seems to have been dyed with a "double dyeing" method that involves dipping the threads in two baths of dye. Pliny the Elder describes this technology and the resulting color as the most prestigious shade of purple.

Sukenik 2021

Naama Sukenik, David Iluz, Zohar Amar, Alexander Varvak, Orit Shamir & Erez Ben-Yosef, *Early evidence of royal purple dyed textile from Timna Valley (Israel).* PLoS ONE **16** (2021), e245897. DOI:10.1371/journal.pone.0245897.

pone16-e0245897-Supplement.docx

In the context of a broad study aimed at examining dyeing technologies in the Timna textiles collection, three samples of prestigious fibers dyed with murex sea snail were identified. Our identification is based on the presence of 6-monobromoindigotin and 6,6-dibromoindigotin components (detected using HPLC analysis), which is considered unequivocal evidence for the use of murex-derived purple dyestuff. Furthermore, by comparing the analytical results with those obtained in a series of controlled dyeing experiments we were able to shed more light on the specific species used in the dyeing process and glean insights into the ancient dyeing technology. The samples originated from excavations at the extensive Iron Age copper smelting site of "Slaves' Hill" (Site 34), which is tightly dated by radiocarbon to the late 11th–early 10th centuries BCE. While evidence for the important role of purple dyes in the ancient Mediterranean goes back to the Middle Bronze Age (early 2nd millennium BCE), finds of dyed textiles are extremely rare, and those from Timna are the oldest currently known in the Southern Levant. In conjunction with other observations of the very high quality of the Timna textiles, this provides an exceptional opportunity to address questions related to social stratification and organization of the nomadic society operating the mines (early Edom), the "fashion" of elite in the region during the early Iron Age, trade connections, technological capabilities, and more.

Tabor 2021

James Tabor, *The "Strange" Ending of the Gospel of Mark and Why It Makes All the Difference.* Bible History Daily **2021**, Aug. 14.

Since Mark is our earliest Gospel, written according to most scholars around the time of the destruction of Jerusalem by the Romans in 70 CE, or perhaps in the decade before, we have strong textual evidence that the first generation of Jesus followers were perfectly fine with a Gospel account that recounted no appearances of Jesus. We have to assume that the author of Mark's Gospel did not consider his account deficient in the least and he was either passing on, or faithfully promoting, what he considered to be the authentic Gospel.

Mark knows of no accounts of people encountering the revived corpse of Jesus, wounds and all, walking around Jerusalem. His tradition is that the disciples experienced their epiphanies of Jesus once they returned to Galilee after the eight-day Passover festival and had returned to their fishing in despair. This is precisely what we find in the Gospel of Peter.

Weissbein 2021

Itamar Weissbein, *Canaanite Worship at Lachish*, *New Details Emerge.* Biblical Archaeology Review **47** (2021), iii, 48–54.

Lachish underwent two destructions: one around 1200 B.C.E. and a final catastrophic destruction around 1150 B.C.E., from which the Canaanite city never recovered. After about 200 years of abandonment, the site was resettled in the tenth century B.C.E., this time as a fortified Judahite city.

Klima

CoE 2021

David Coe, Walter Fabinski & Gerhard Wiegleb, *The Impact of CO_2, H_2O and Other "Greenhouse Gases" on Equilibrium Earth Temperatures*. International Journal of Atmospheric and Oceanic Sciences **5** (2021), 29–40.

It has long been accepted that the "greenhouse effect", where the atmosphere readily transmits short wavelength incoming solar radiation but selectively absorbs long wavelength outgoing radiation emitted by the earth, is responsible for warming the earth from the 255K effective earth temperature, without atmospheric warming, to the current average temperature of 288K. It is also widely accepted that the two main atmospheric greenhouse gases are H2O and CO2. What is surprising is the wide variation in the estimated warming potential of CO2, the gas held responsible for the modern concept of climate change. Estimates published by the IPCC for climate sensitivity to a doubling of CO2 concentration vary from 1.5 to 4.5°C based upon a plethora of scientific papers attempting to analyse the complexities of atmospheric thermodynamics to determine their results. The aim of this paper is to simplify the method of achieving a figure for climate sensitivity not only for CO2, but also CH4 and N2O, which are also considered to be strong greenhouse gases, by determining just how atmospheric absorption has resulted in the current 33K warming and then extrapolating that result to calculate the expected warming due to future increases of greenhouse gas concentrations. The HITRAN database of gaseous absorption spectra enables the absorption of earth radiation at its current temperature of 288K to be accurately determined for each individual atmospheric constituent and also for the combined absorption of the atmosphere as a whole. From this data it is concluded that H2O is responsible for 29.4K of the 33K warming, with CO2 contributing 3.3K and CH4 and N2O combined just 0.3K. Climate sensitivity to future increases in CO2 concentration is calculated to be 0.50K, including the positive feedback effects of H2O, while climate sensitivities to CH4 and N2O are almost undetectable at 0.06K and 0.08K respectively. This result strongly suggests that increasing levels of CO2 will not lead to significant changes in earth temperature and that increases in CH4 and N2O will have very little discernable impact.

Keywords: Carbon Dioxide | Climate Sensitivity | Greenhouse Effect | Climate Change