COVER
Waiting for a vaccination to curb a meningitis epidemic under way in Koudougou district, Burkina Faso, in March. An affordable new meningitis vaccine in the works promises to prevent, not just control, these frequent epidemics. See page 1710.
Image: Monique Berlier/MVP-PATH

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A large enzyme complex assembles peptide natural products without ribosomal participation by successive catalytic steps at the end of a flexible, substrate-loaded arm.
10.1126/science.1159850

Measurement of the Distribution of Site Enhancements in Surface-Enhanced Raman Scattering
Y. Fang, N.-H. Seong, D. D. Dlott
The distribution of electric field–enhancing sites on a nanostructured substrate is measured by using the enhanced field to damage those sites.
10.1126/science.1159499

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M. J. Crockett et al.
Individuals with low levels of brain serotonin are less likely to accept an unfair offer of money from other players in a laboratory game.

Deep Drilling into the Chesapeake Bay Impact Structure
G. S. Gohn et al.
Drill cores from the Chesapeake Bay impact crater reveal that the impact moved huge blocks of country rock, trapped salty pore water, and still affects microbial communities.

Simulations of the motions of atomic dislocations in a face-centered cubic metal allow these dynamics to be related to the metal’s bulk strength and deformation. >> Perspective p. 1729

A polymer and platinum nanoparticles stabilized with a ligand form large lamellar or inverse hexagonal structures that can be fused to create porous platinum-carbon composites.

Observation of gamma rays from a quasar 5 billion light-years away implies that the background light in the universe is consistent with surveys of stars and galaxies.

Scanning tunneling microscope data and calculations show that near-surface titanium sites, not bridging oxygen vacancies, determine the useful electronic properties of TiO₂.
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A tryptophan residue placed between a donor and acceptor in a protein acts as a relay and accelerates long-distance electron transfer by more than a factor of 100.

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Nuclear DNA sequences of 19 loci from 169 bird species lead to a revised phylogenetic tree of avian evolution, in which several well-accepted orders are not monophyletic.

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A 100-year survey shows that the optimal elevations for growth of plant species in European temperate forests have shifted upward by about 30 meters per decade.

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β-arrestin, which has several known roles in signaling systems, also links a key receptor to a motor protein so that the receptor can be transported to cilia for sensing environmental cues.

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The transesterification splicing reactions performed on RNA by the spliceosome protein complex in eukaryotic cells are reversible.

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Altering the frequency of the adjacent codons in the poliovirus genome results in an attenuated virus that could form the basis of a vaccine.

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M. T. P. Gilbert et al.
Ancient human DNA sequences from Greenland suggest that the earliest inhabitants of the far north were from a lineage distinct from extant Native Americans and Eskimos.
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HIGHLIGHTS FROM OUR DAILY NEWS COVERAGE

Smart Girls Eat Fish
Choice of dietary fat affects intelligence.

It’s a Dog’s (Genetic) Life
Pointing, herding, and life span of dogs linked to specific stretches of DNA.

Down Under, Fish Numbers Climb Up
Rapid recovery of a key species in Australia points to efficacy of fishing bans.

SCIENCE SIGNALING
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PERSPECTIVE: Uncoupling the Role of Sonic Hedgehog in Limb Development—Growth and Specification
P. Francis-West and R. Hill
Sonic hedgehog (Shh) is required for both proliferation and specification of cells in the developing limb bud.

PERSPECTIVE: p53 Brings a New Twist to the Smad Signaling Network
A. Atfi and R. Baron
Interactions between p53 and Smad proteins influence the responses to the TGF-β pathway, which may be important for progression of some types of cancer.

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Mastering Your Ph.D.: Better Communication With Your Supervisor
P. Gosling and B. Noordam
When was the last structured conversation you had with your supervisor?

Liberal Arts College Faculty: Finding the Sweet Spot
S. Webb
You need to find the elusive balance between teaching and research.

Creativity and Persistence Overcome Failure
L. Laursen
A senior scientist shares how he got past some early challenges.

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Science 320 (5884), 1691-1790.