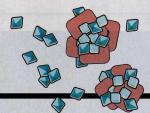
18 JANUARY 2019 • VOLUME 363 • ISSUE 6424



of proteins

Deadly pileups



IN BRIEF

208 News at a glance

IN DEPTH

211 SHAKE-UP THREATENS NOVEL U.S. **ECOLOGY FACILITY**

NEON science head quits, advisers fired after Battelle replaces two top managers By J. Mervis

212 DID NEURONS ARISE FROM AN EARLY **SECRETORY CELL?**

Cell lineage studies of comb jellies and other creatures may suggest a single ancient origin of the nervous system By E. Pennisi

213 IN CONGO, FIGHTING A VIRUS AND A GROUNDSWELL OF FAKE NEWS

Armed conflict and political tensions stoke rumors and misinformation about Ebola By L. Spinney

▶ PODCAST

214 DUELING SPACECRAFT LOOK DEEP INTO SATURN AND JUPITER

NASA probes reveal surprising contrasts between two gas giants By P. Voosen ▶ RESARCH ARTICLE BY L. IESS ET AL

10.1126/science.aat2965; PODCAST

216 PAIN SPREADS FROM SHUTDOWN

Historic spending impasse halts paychecks and projects By D. Malakoff

SCIENCE sciencemag.org

217 FLOTILLA LAUNCHES LARGE SURVEY **OF ANTARCTIC KRILL**

Health of stock is critical to fisheryand to predators By E. Stockstad

FEATURES

218 THE BONES OF BEARS EARS

Paleontologists struggle to protect sites that could rewrite Earth's history By A. Reese

221 THE BRAIN'S TRAFFIC PROBLEMS

Disrupted flow into and out of the nucleus may kill neurons By E. Dolgin

PERSPECTIVES

224 WHEN EARTH GOT PUMMELED

The frequency of impacts on Earth's surface increased about 290 million years ago By C. Koeberl

► REPORT P. 253

225 IRON HITS THE MARK

Strongly electron-donating ligands enable nanosecond lifetimes of iron(III) photoexcited states By E. R. Young and A. Oldacre

▶ REPORT P. 249

227 MICROBIAL GUARDIANS OF **SKIN HEALTH**

Skin microbes can promote skin immunity, repair, and antimicrobial defense By A. Stacy and Y. Belkaid

229 THE CEREBELLUM GETS SOCIAL

The cerebellum can regulate behavior by controlling dopamine release By E. D'Angelo

▶ RESEARCH ARTICLE P. 248

230 ADAPTATIONS OF AN ANCIENT **MODULAR MACHINE**

Mechanism of energy conversion is conserved in the complex I superfamily By U. Brandt

▶ REPORT P. 257

231 GENE THERAPY FOR PATHOLOGIC **GENE EXPRESSION**

Haploinsufficiency in disease can be overcome by boosting gene expression with CRISPR By L. E. Montefiori and M. A. Nobrega ► RESEARCH ARTICLE P. 246

232 B CELLS, CMV, AND STEM CELL **TRANSPLANT**

Host antibodies help prevent CMV dissemination after bone marrow transplantation By M.-L. Alegre ► REPORT P. 288

POLICY FORUM

234 OVERSIGHT OF DIRECT-TO-CONSUMER **NEUROTECHNOLOGIES**

Efficacy of products is far from clear By A. Wexler and P. B. Reiner

BOOKS ET AL.

236 THE REVEALING HISTORY OF A **REVERED WATERWAY**

Human and environmental stories interweave in a meandering meditation on the Ganges River By A. Rademacher

237 NUCLEAR POWER AND PROMISE

Deference to industry trumps safety in the U.S., warns a controversial former regulator By J. D. Hamblin

LETTERS

239 THE VALUE OF SMALL MANGROVE PATCHES

By D. J. Curnick et al.

240 BRAZIL'S ENDANGERED POSTGRADUATE SYSTEM

By H. Martelli Júnior et al.

240 AIRBORNE IN THE ERA OF CLIMATE CHANGE

By K. Jean and C. Wymant

RESEARCH

IN BRIEF

241 From Science and other journals

REVIEW

244 ORGANIC CHEMISTRY

The importance of synthetic chemistry in the pharmaceutical industry *K. R. Campos* et al.

REVIEW SUMMARY; FOR FULL TEXT: dx.doi.org/10.1126/science.aat0805

RESEARCH ARTICLES

245 IMAGING TECHNIQUES

Cortical column and whole-brain imaging with molecular contrast and nanoscale resolution *R. Gao* et al.

RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: dx.doi.org/10.1126/science.aau8302

246 GENE THERAPY

CRISPR-mediated activation of a promoter or enhancer rescues obesity caused by haploinsufficiency *N. Matharu* et al.

RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: dx.doi.org/10.1126/science.aau0629 ▶ PERSPECTIVE P. 231

247 ASYMMETRIC CATALYSIS

Prediction of higher-selectivity catalysts by computer-driven workflow and machine learning *A. F. Zahrt* et al.

RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: dx.doi.org/10.1126/science.aau5631



248 NEUROSCIENCE

Cerebellar modulation of the reward circuitry and social behavior *I. Carta* et al.

RESEARCH ARTICLE SUMMARY; FOR FULL TEXT:
dx.doi.org/10.1126/science.aav0581

▶ PERSPECTIVE P. 229

REPORTS

249 INORGANIC CHEMISTRY

Luminescence and reactivity of a charge-transfer excited iron complex with nanosecond lifetime *K. S. Kjær* et al.

Perspective P. 225

253 IMPACT CRATERS

Earth and Moon impact flux increased at the end of the Paleozoic *S. Mazrouei* et al.

Perspective P. 224

257 PHOTOSYNTHESIS

Structural adaptations of photosynthetic complex I enable ferredoxin-dependent electron transfer *J. M. Schuller* et al.

▶ PERSPECTIVE P. 230

261 CHEMICAL PHYSICS

Observation of magnetically tunable Feshbach resonances in ultracold ²³Na⁴⁰K + ⁴⁰K collisions *H. Yang* et al.

265 SOLAR CELLS

A $\mathrm{Eu^{3^+}}$ - $\mathrm{Eu^{2^+}}$ ion redox shuttle imparts operational durability to Pb-I perovskite solar cells *L. Wang* et al.

270 ORGANIC CHEMISTRY

Concise total syntheses of (-)-jorunnamycin A and (-)-jorunnycin enabled by asymmetric catalysis *E. R. Welin* et al.

276 NEUROSCIENCE

An amygdalar neural ensemble that encodes the unpleasantness of pain *G. Corder* et al.

282 BIODIVERSITY

Agriculturally dominated landscapes reduce bee phylogenetic diversity and pollination services *H. Grab* et al.

285 CILIA

Flagellar microtubule doublet assembly in vitro reveals a regulatory role of tubulin C-terminal tails *M. Schmidt-Cernohorska* et al.

288 IMMUNOTHERAPY

Strain-specific antibody therapy prevents cytomegalovirus reactivation after transplantation *J. P. Martins* et al.

▶ PERSPECTIVE P. 232

294 CELL DIFFERENTIATION

H3K9me3-heterochromatin loss at protein-coding genes enables developmental lineage specification D. Nicetto et al.

DEPARTMENTS

207 EDITORIAL

Why we need fetal tissue research By Sally Temple and Lawrence S. B. Goldstein

314 WORKING LIFE

Lessons from a postdoc gone wrong By Victor S. C. Wong

ON THE COVER



A three-dimensional micrograph, color coded by depth, of neurons at the ellipsoid body in the brain of a fruit fly (*Drosophila melanogaster*), extracted from a much larger dataset

encompassing the entire brain. Combining expansion microscopy with lattice light-sheet microscopy enables rapid fluorescence imaging of neural circuits and their molecular constituents over millimeter dimensions with nanoscale resolution. See page 245. Image: Betzig Lab, Janelia Research Campus/HHMI; Boyden Lab, MIT Media Lab

Science Staff	206
New Products	298
AAAS Meeting Program	299
Science Careers	309

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals mail postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 2019 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership, including subscription (12 months): \$165 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$1971; Foreign postage extra: Mexico, Caribbean (surface mail) \$55; other countries (air assist delivery): \$98. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254881122. Publications Mail *Agreement Number 105952-5; other countries (air assist delivery): \$98. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254881122. Publications Mail *Agreement Number 105952-5; other countries (air assist delivery): \$98. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254881122. Publications Mail *Agreement Number 105952-5; other countries (air assist delivery): \$98. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254881122. Publications Mail *Agreement Number 105952-5; other countries (air assist delivery): \$98. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254881122. Publications Mail *Agreement Number 105952-5; other countries (air assist delivery): \$98. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254881122. Publications Mail *Agreement Number 105952-5; other countries (air assist delivery): \$98. First class, \$98. First class, \$98. First c