IN BRIEF

14 News at a glance

IN DEPTH

16 Europe builds ‘digital twin’ of Earth to hone climate forecasts

17 China’s bold climate pledge earns praise—but is it feasible?

18 Record U.S. and Australian fires raise fears for many species

19 Stem cell studies probe origins of the placenta

20 The ‘bat man’ tackles COVID-19

22 A call for diagnostic tests to report viral load

FEATURES

24 Official inaction

27 Disgraced researchers can still reap drug industry payouts

INSIGHTS

30 NextGen Voices: Funding fix: Spend time

32 Shifts and drifts in prion science

34 Mutational selection in normal urothelium

36 Coaxing stem cells to repair the spinal cord

37 A rival to superalloys at high temperatures

NOTES

48 A cruel end to too many lives

50 Glymphatic failure as a final common pathway to dementia

56 Beyond aggregation: Pathological phase transitions in neurodegenerative disease

61 Translating genetic risk of Alzheimer’s disease into mechanistic insight and drug targets

66 Microglia modulate neurodegeneration in Alzheimer’s and Parkinson’s diseases

ON THE COVER

Neurodegeneration in later life robs us of our abilities and our memories, slowly and inexorably, like leaves falling from a tree. A greater understanding of the pathophysiological underpinnings within the brain may provide crucial hints that will help us delay and perhaps even reverse symptoms.

See page 48. Illustration: Simon Prades

SEE ALSO PERSPECTIVE p. 32
A boost for freshwater conservation
Integrating freshwater and terrestrial conservation planning has high returns
By R. Abell and I. J. Harrison
REPORT p. 117

POLICY FORUM
40 How to fix the GDPR’s frustration of global biomedical research
Sharing of data for research beyond the EU must improve By J. Bovenberg et al.

BOOKS ET AL.
43 Flawed research and its enduring repercussions
A journalist recounts how he exposed problems with a study linking vaccines and autism By P. A. Offit

44 Training tomorrow’s scientists
Prioritizing STEM diversity, equity, and inclusion requires rethinking graduate education By A. Huderson

PRIZE ESSAY
45 The origins of thirst
Sensory signals arise throughout the body and converge in the brain to regulate drinking
By C. A. Zimmerman

RESEARCH

IN BRIEF
70 From Science and other journals

RESEARCH ARTICLES

73 Neurodevelopment
A latent lineage potential in resident neural stem cells enables spinal cord repair
E. Llorens-Bobadilla et al.
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: DX.DOI.ORG/10.1126/SCIENCE.ABB8795
PERSPECTIVE p. 36

74 Solar cells
Vapor-assisted deposition of highly efficient, stable black-phase FAPbI3 perovskite solar cells
H. Lu et al.
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: DX.DOI.ORG/10.1126/SCIENCE.ABB8985

75 Mutation
Extensive heterogeneity in somatic mutation and selection in the human bladder
A. R. J. Lawson et al.

82 Macroscopic somatic clonal expansion in morphologically normal human urothelium
R. Li et al.
PERSPECTIVE p. 34

89 Coronavirus
Selective and cross-reactive SARS-CoV-2 T cell epitopes in unexposed humans
J. Mateus et al.

95 Metallurgy
Multiplicity of dislocation pathways in a refractory multiprincipal element alloy
F. Wang et al.
PERSPECTIVE p. 37

101 Organic chemistry
A universal system for digitization and automatic execution of the chemical synthesis literature
S. H. M. Mehr et al.

REPORTS

108 Solar cells
Impact of strain relaxation on performance of α-formamidinium lead iodide perovskite solar cells
G. Kim et al.

113 Developmental biology
An adhesion code ensures robust pattern formation during tissue morphogenesis
T. Y.-C. Tsai et al.

117 Conservation planning
Integrated terrestrial-freshwater planning doubles conservation of tropical aquatic species
C. G. Leal et al.
PERSPECTIVE p. 38

121 Sex determination
The mouse Sry locus harbors a cryptic exon that is essential for male sex determination
S. Miyawaki et al.

Electrocalorics
125 Giant temperature span in electrocaloric regenerator
A. Torelló et al.

129 A high-performance solid-state electrocaloric cooling system
Y. Wang et al.

DEPARTMENTS

13 Editorial
Fire in our future
By William Wallace Covington and Stephen Pyne
NEWS STORY p. 18

138 Working Life
A leap of faith
By Rachel Mason

Science Staff ............................................. 10
New Products ........................................... 134
Science Careers ...................................... 135

Published by AAAS
2 OCTOBER 2020 • VOL 370 ISSUE 6512  9

SCIENCE sciencemag.org

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. 444460) paid at Washington, DC, and additional mailing offices. Copyright © 2020 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic subscription rate (ISSN 0036-8075) is 0036-8075. Science is indexed in the Reader’s Guide to Periodical Literature and in several specialized indexes.