IN BRIEF
8 Roundup of the week's news

IN DEPTH
10 INCHING TOWARD THE 3D GENOME
Maps of DNA’s loops and folds advance—but may disagree
By E. Pennisi

11 GEOSCIENTISTS AIM TO MAGNIFY SPECIALIZED WEB SEARCHING
National Science Foundation project, GeoLink, could become search hub for the geoscience community
By J. You

12 THE BAD LUCK OF CANCER
Analysis suggests most cases can’t be prevented
By J. Couzin-Frankel

13 TARGETS OF MISCONDUCT PROBE LAUNCH A LEGAL COUNTERATTACK
Heart researchers claim inquiry damaged their careers and derailed the sale of stem cell company
By K. Servick

FEATURES
14 EXODUS FROM THE EAST
Thousands of scientists—along with entire universities—have fled war-torn eastern Ukraine. Others have staked their futures on the breakaway republics
By R. Stone

16 UKRAINE MOURNS A LOST SCIENCE JEWEL
By R. Stone

18 INFLAMMATION’S STOP SIGNALS
Inflammation doesn’t just peter out. The body actively shuts it down, using signals that researchers hope to transform into therapies
By M. Leslie

INSIGHTS

LETTERS
22 NEXTGEN’S COURSE CATALOG

PERSPECTIVES
26 KILLER FAT
Adipocytes in the skin release an antimicrobial factor to fight staphylococcus infection
By J. F. Alcorn and J. K. Kolls

∼ REPORT P. 67

27 CONUNDRUM OF JUMBLED MOSQUITO GENOMES
Multiple Anopheles mosquito genome sequences reveal extreme levels of mixing
By A. G. Clark and P. W. Messer

∼ RESEARCH ARTICLES PP. 42 & 43

29 CONSTRUCTION AND DECONSTRUCTION OF ALDEHYDES BY TRANSFER HYDROFORMYLATION
A soluble rhodium catalyst converts alkenes to aldehydes without the need for toxic or explosive gas-phase reactants
By C. R. Landis

∼ REPORT P. 56

30 PERSISTERS UNMASKED
Intracellular toxins cause bacterial growth arrest and antibiotic tolerance
By D. W. Holden

32 LYSOSOMAL LIPID LENGTHENS LIFE SPAN
A fatty acid moves from the lysosome to the nucleus, altering gene expression and extending longevity in the worm
By S. Han and A. Brunet

∼ REPORT P. 83

34 REBOOTING MOOC RESEARCH
Improve assessment, data sharing, and experimental design
By J. Reich

∼ PODCAST

BOOKS ET AL.
36 THE SOCIAL MACHINE
By J. Donath, reviewed by J. Golbeck

37 LINES IN THE ICE
P. Hatfield and T. Harper, curators; reviewed by J. Fahrenkamp-Uppenbrink
38 From Science and other journals

41 2D MATERIALS
Graphene, related two-dimensional crystals, and hybrid systems for energy conversion and storage
F. Bonaccorso et al.
REVIEW SUMMARY: FOR FULL TEXT: dx.doi.org/10.1126/science.1258524

42 Extensive introgression in a malaria vector species complex revealed by phylogenomics
M. C. Fontaine et al.
RESEARCH ARTICLE SUMMARY: FOR FULL TEXT: dx.doi.org/10.1126/science.1258522

43 Highly evolvable malaria vectors: The genomes of 16 Anopheles mosquitoes D. E. Neafsey et al.
RESEARCH ARTICLE SUMMARY: FOR FULL TEXT: dx.doi.org/10.1126/science.1258524

44 STRUCTURAL BIOLOGY
Mechanistic insight from the crystal structure of mitochondrial complex I V. Zickermann et al.

49 ORGANIC CHEMISTRY
Nanomole-scale high-throughput chemistry for the synthesis of complex molecules A. Buitrago Santanilla et al.

53 QUANTUM OPTICS
Quantum harmonic oscillator state synthesis by reservoir engineering D. Kienzler et al.

56 ORGANIC CHEMISTRY
Rh-catalyzed C–C bond cleavage by transfer hydroformylation S. K. Murphy et al.
PERSPECTIVE P. 29

60 REACTION DYNAMICS
Extremely short-lived reaction resonances in CI + HD (υ = 1) → DCI + H due to chemical bond softening T. Yang et al.

63 BACTERIAL EVOLUTION
The type VI secretion system of Vibrioncholerae fosters horizontal gene transfer S. Borgeaud et al.

67 INNATE IMMUNITY
Dermal adipocytes protect against invasive Staphylococcus aureus skin infection L. Zhang et al.
PERSPECTIVE P. 26

71 VIRUS STRUCTURE
Structure and inhibition of EV-D68, a virus that causes respiratory illness in children Y. Liu et al.

73 PROTEIN SYNTHESIS
Rqc2p and 60S ribosomal subunits mediate mRNA-independent elongation of nascent chains P. S. Shen et al.

79 CANCER ETIOLOGY
Variation in cancer risk among tissues can be explained by the number of stem cell divisions C. Tomasetti and B. Vogelstein NEWS STORY P. 12

83 AGING
Lyosomal signaling molecules regulate longevity in Caenorhabditis elegans A. Folick et al.
PERSPECTIVE P. 32

98 WORKING LIFE
My liberation through science By Mary Paffenroth

ON THE COVER
Colored scanning electron micrograph of the mouthparts of a female Anopheles gambiæe mosquito. Sheathed in a scaly lower lip ending in two hairy lobes (blue) are a pair of saw-toothed stylets (green) used to cut into the skin. Because only female Anopheles blood feed, only females transmit malaria—a disease that claims the lives of more than half a million children each year. See pages 27, 42, and 43. Image: Science Photo Library

Science Staff .............................................. 6
New Products ........................................ 87
Science Careers ....................................... 88

Published by AAAS