NEWS

IN BRIEF
8 News at a glance

IN DEPTH
10 RESEARCH AGENCIES REVEL IN FINAL 2016 BUDGET
NIH gets $2 billion hike, NASA and DOE science grow, NSF avoids restrictive language By J. Mervis

12 AS EBOLA EPIDEMIC DRAWS TO A CLOSE, A THIN SCIENTIFIC HARVEST
Thirteen clinical trials in West Africa have yielded only one unequivocally positive result By J. Cohen and M. Enserink

13 SPERM RNA FRAGMENTS MODIFY OFFSPRING METABOLISM
Molecules transfer mouse paternal parental traits to progeny By M. Leslie

14 FUNDING FOR KEY DATA RESOURCES IN JEOPARDY
NIH genome institute wants to scale back support of human and model organism databases By J. Kaiser

FEATURE
16 UNFILLED VIALS
Scientifically feasible vaccines against major diseases are stalled for lack of funds. Science names 10 top candidates that need a boost By J. Cohen

INSIGHTS

LETTERS
20 NEXTGEN VOICES: POLITICAL PRIORITIES

PERSPECTIVES
24 ILLUMINATING ANHEDONIA
Optogenetics and fMRI reveal the brain circuitry of anhedonia By T. W. Robbins

25 SEEING mTORC1 SPECIFICITY
Structural information reveals how a multiprotein complex responds to amino acid abundance By G. R. Buel and J. Blenis

BOOKS ET AL.
35 NEWTON’S APPLE AND OTHER MYTHS ABOUT SCIENCE
R. L. Numbers and K. Kampourakis, Eds. reviewed by J. Endersby

NEWS

IN DEPTH
15 CALIFORNIA STEM CELL AGENCY PLOTS A RACE TO THE CLINIC
CIRM lays out endgame and prospects for new money By K. Servick

26 WHEN TWO REACTIONS BECOME ONE
Merging two fundamental reactions of organoboron compounds provides a new platform for catalysis By J. W. B. Fyfe and A. J. B. Watson

28 THE EVOLUTION OF ANTI-EVOLUTION POLICIES AFTER KITZMILLER V. DOVER
A phylogeny identifies ancestors of modern creationist legislation By N. J. Matzke

30 THE SCREAMS OF A STAR BEING RIPPED APART
A star being devoured by a black hole provides a route to study accretion and jet formation By G. C. Bower

32 THE POWER OF CROWDS
Combining humans and machines can help tackle increasingly hard problems By P. Michelucci and J. L. Dickinson

34 MICROBES IN A KNIGHT’S ARMOR
Bacteria studded with nanoparticles produce acetate from carbon dioxide and sunlight By V. Müller

REPORTS
41 SEEING mTORC1 SPECIFICITY

RESEARCH ARTICLES PP. 43, 48, & 53
IN BRIEF
37 From Science and other journals

REVIEW
40 ANTIBIOTIC RESISTANCE
Multidrug evolutionary strategies to reverse antibiotic resistance M. Baym et al.
REVIEW SUMMARY; FOR FULL TEXT:
dx.doi.org/10.1126/science.aac3292

RESEARCH ARTICLES
41 NEURAL CIRCUITS
Prefrontal cortical regulation of brainwired circuit dynamics and reward-related behavior E. A. Perenzini et al.
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT:
dx.doi.org/10.1126/science.aac6633

METABOLISM
43 Sestrin2 is a leucine sensor for the mTORC1 pathway R. L. Wolfson et al.
48 Architecture of human mTORC1 complex 1 C. H. S. Aylett et al.
53 Structural basis for leucine sensing by the Sestrin2-mTORC1 pathway R. A. Saxton et al.

REPORTS
58 3D PRINTING
Additive manufacturing of polymer-derived ceramics Z. C. Eckel et al.
▶ VIDEO

62 BLACK HOLE PHYSICS
A radio jet from the optical and x-ray bright stellar tidal disruption flare ASASSN-14li S. van Velzen et al.
▶ PERSPECTIVE P. 30

65 ASTROCHEMISTRY
Statistical ortho-to-parat ratio of water desorbed from ice at 10 kelvin T. Hama et al.

68 MEMBRANES
Sieving hydrogen isotopes through two-dimensional crystals M. Lozada-Hidalgo et al.

70 ORGANIC CHEMISTRY
Catalytic conjunctive cross-coupling enabled by metal-induced metallate rearrangement L. Zhang et al.
▶ PERSPECTIVE P. 26

74 MICROBIAL ENGINEERING
Self-photosensitization of nonphotosynthetic bacteria for solar-to-chemical production K. K. Sakimoto et al.
▶ PERSPECTIVE P. 34

VIROLOGY
77 An orthopoxvirus-based vaccine reduces virus excretion after MERS-CoV infection in dromedary camels B. L. Haagmans et al.
81 Co-circulation of three camel coronavirus species and recombination of MERS-CoVs in Saudi Arabia J. S. M. Sabir et al.

84 GENOME EDITING
Rationally engineered Cas9 nuclease with improved specificity I. M. Slaymaker et al.

88 PROTEIN TRANSLOCATION
Structure of the Sec61 channel opened by a signal sequence R. M. Voorhees and R. S. Hegde

DEPARTMENTS
7 EDITORIAL
New members of the family By Marcia McNutt

98 WORKING LIFE
Beyond the tick boxes By Artaza Gilani

ON THE COVER
Vials of experimental vaccines against severe acute respiratory syndrome, Marburg virus, and chikungunya sit on ice at the Vaccine Pilot Plant run by the U.S. National Institutes of Health in Frederick, Maryland. In the wake of the Ebola epidemic in West Africa, a growing number of researchers and public health advocates are arguing that more should be done to aggressively advance vaccines that have weak commercial markets but appear feasible. See page 16. Photo: © Ken Garrett

Science Staff.............................................6
New Products...................................................92
Science Careers..................................................93

Published by AAAS
1 JANUARY 2016 • VOL 351 ISSUE 6268 5