CONTENTS

5 SEPTEMBER 2014 • VOLUME 345 • ISSUE 6201

NEWS

IN BRIEF
1102 Roundup of the week’s news

IN DEPTH
1105 POLICE CLAIM LEADING FLU RESEARCHER ILLEGALLY SOLD VIRUS
Italian probe depicts web of scandal, including illegal animal vaccines and deliberate outbreaks By L. Margottini

1106 THREE-PART ANCESTRY FOR EUROPEANS
Eurasian “ghost lineage” contributed to most modern European genomes By A. Gibbons

1108 ESTIMATING THE EBOLA EPIDEMIC
Modelers of infectious diseases strive to predict spread of the virus—and how to stop it By K. Kupferschmidt

1109 SMALL MAMMALS VANISH IN NORTHERN AUSTRALIA
Scientists are struggling to rein in the culprit: feral cats, aided by fire By D. Lewis

1110 RIKEN SHRINKS TROUBLED CENTER
Japan’s developmental biology powerhouse brought to knees by misconduct revelations By D. Normile

1111 CELLULOSIC ETHANOL AT LAST?
Large volumes of fuel from crop wastes will soon start flowing in the U.S.—unless policymakers balk By R. F. Service

FEATURES

1112 THE CATALYST
Marc Lipsitch wants to turn the bitter debate over risky virus research into a search for solutions By J. Kaiser

1115 A POLICY MORASS
By D. Malakoff
EDITORIAL P. 1101

INSIGHTS

PERSPECTIVES

1116 GREENLAND DEGLACIATION PUZZLES
Nitrogen isotope data help to resolve puzzling observations during the last deglaciation By L. C. Sime
REPORT P. 1177

1118 CLOGGING INFORMATION FLOW IN ALS
Dipeptide repeat proteins produced in certain neurodegenerative diseases exert toxicity by blocking RNA biogenesis By J. P. West III and A. D. Gitler
RESEARCH ARTICLE P. 1139; REPORT P. 1192

1120 MICROBIAL PROTEINS AND OCEANIC NUTRIENT CYCLES
Ocean microbes respond to limited nutrients by tuning the abundance of specific proteins By C. M. Moore
REPORTS PP. 1170 & 1173

1121 PARTICLE PHYSICS IN A SUPERCONDUCTOR
A superconducting condensate can display analogous behavior to the Higgs field By A. Pushkin and A. Leitenstorfer
REPORT P. 1145

1122 PARTITIONING THE CIRCADIAN CLOCK
Sirtuin proteins divide control of the circadian gene expression and metabolism By Y. Xi and D. Chen

1124 A WAKE-UP CALL WITH COFFEE
 Recording and archiving crop phenotype diversity needs to catch up with genomic data By D. Zamir
REPORT P. 1181

1125 APPLYING SCIENTIFIC PRINCIPLES IN INTERNATIONAL LAW ON WHALING
The approach might address disputes beyond whaling and the courtroom By W. de la Mare et al.

BOOKS ET AL.

1127 ON LOOKING
By A. Horowitz, reviewed by A. Wang

1127 MATHBYTES
By T. Chartier, reviewed by R. Skyner

1128 GROWING FOOD IN A HOTTER, DRIER LAND
By G. P. Nabhan, reviewed by K. Watt

LETTERS

1129 FAUNA IN DECLINE: MEEK SHALL INHERIT
By A. V. Christianini et al.

1129 FAUNA IN DECLINE: EXTINCT PIGEON’S TALE
By D. E. Blockstein and S. A. Temple

1130 CARBON: NO SILVER BULLET
By J. W. M. van der Meer et al.

1130 TECHNICAL COMMENT ABSTRACTS

DEPARTMENTS

1101 EDITORIAL
Culture of responsibility By Ruth L. Berkelman and James W. Le Duc
NEWS STORIES PP. 1112 & 1115

1206 WORKING LIFE
Reviewing the reviewers By Jim Austin

Published by AAAS
RESEARCH

IN BRIEF
1131 From Science and other journals

RESEARCH ARTICLES
1134 INNATE IMMUNITY
Intracellular sensing of complement C3 activates cell autonomous immunity
J. C. H. Tam et al.
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: dx.doi.org/10.1126/science.1256070

1135 DYNAMIC ORDERING
Topology and dynamics of active nematic vesicles F. C. Keber et al.

1139 NEURODEGENERATION
Poly-peptides encoded by the C9orf72 repeats bind nucleoli, impede RNA biogenesis, and kill cells I. Kwon et al.
▶ PERSPECTIVE P. 1118; REPORT P. 1192

REPORTS
1145 SUPERCONDUCTIVITY
Light-induced collective pseudospin precession resonating with Higgs mode in a superconductor R. Matsunaga et al.
▶ PERSPECTIVE P. 1121

1149 NANOMATERIALS
Self-assembly of magnetite nanocubes into helical superstructures G. Singh et al.

1153 METAL ALLOYS
A fracture-resistant high-entropy alloy for cryogenic applications B. Gludovatz et al.

1158 CRYSTAL NUCLEATION
In situ TEM imaging of CaCO3 nucleation reveals coexistence of direct and indirect pathways M. H. Nielsen et al.

1162 SUPERNOVAE
Early 87Ni decay gamma rays from SN2014J suggest an unusual explosion R. Diehl et al.

1165 EARTHQUAKE DYNAMICS
Intense foreshocks and a slow slip event preceded the 2014 Iquique Mw 8.1 earthquake S. Ruiz et al.

1170 METALLOPROTEINS
A complex iron-calcium cofactor catalyzing phosphotransfer chemistry S. C. Yong et al.
▶ PERSPECTIVE P. 1120

1173 MARINE MICROBES
Multiple nutrient stresses at intersecting Pacific Ocean biomes detected by protein biomarkers M. A. Saito et al.
▶ PERSPECTIVE P. 1120

1177 PALEOClimATE
Greenland temperature response to climate forcing during the last deglaciation C. Buizert et al.
▶ PERSPECTIVE P. 1116

1181 PLANT GENOMICS
The coffee genome provides insight into the convergent evolution of caffeine biosynthesis F. Denouët et al.
▶ PERSPECTIVE P. 1124

1184 GENOME EDITING
Prevention of muscular dystrophy in mice by CRISPR/Cas9–mediated editing of germline DNA C. Long et al.

1188 THE RIBOSOME
How the ribosome hands the A-site tRNA to the P site during EF-G–catalyzed translocation J. Zhou et al.

1192 NEURODEGENERATION
C9orf72 repeat expansions cause neurodegeneration in Drosophila through arginine-rich proteins S. Mizielinska et al.
▶ PERSPECTIVE P. 1118; RESEARCH ARTICLE P. 1139

ON THE COVER
Artist’s impression of how a monolayer of aligned microtubule filaments is assembled on the inner leaflet of a lipid bilayer. Powered by molecular motors, liquid crystalline microtubules generate dynamic states that include sustained oscillations of topological defects and shape-changing materials with streaming filopodia-like protrusions. See page 1135.
Image: Christoph Hohmann, Nanosystems Initiative Munich

Science Staff ............................. 1100
New Products ................................ 1195
Science Careers .......................... 1196