14 JULY 2017 • VOLUME 357 • ISSUE 6347

ON THE COVER
A groundskeeper sprays pesticide to control mosquitoes in Miami, Florida, in 2016. Zika virus is spread by the ubiquitous Aedes aegypti mosquito. This flavivirus has caused a huge outbreak of infection across South America, where it has been associated with neurological abnormalities in newborn children. The virus has spread north, and cases of infection have been detected in the United States. For more on anticipating infectious disease outbreaks, see page 144. Photo: © Gaston De Cardenas/Miami Herald/TNS via Getty Images

NEWS

IN BRIEF
112 News at a glance

IN DEPTH
115 LABMADE SMALLPOX IS POSSIBLE, STUDY SHOWS
Reconstitution of horsepox virus from mail-order DNA reignites synthetic biology debate By K. Kupferschmidt

117 TRUMP’S SCIENCE SHOP IS SMALL AND WAITING FOR LEADERSHIP
White House office has so far played little role in policy By J. Mervis

118 CUBESAT NETWORKS HASTEN SHIFT TO COMMERCIAL WEATHER DATA
Two companies hope to sell atmospheric data to NOAA By E. Hand

119 A TRANS-ATLANTIC TRANSPARENCY GAP ON ANIMAL EXPERIMENTS
As institutions in the United Kingdom and elsewhere publicize their research, many U.S. universities stay quiet By M. Wadman

120 A PUSH FOR LOW-CARBON FUELS PAYS OFF IN CALIFORNIA
But new EPA rule would cut federal support for advanced biofuels like biodiesel By R. F. Service

FEATURE
122 SURVIVING THE CURE
A stem cell transplant helped beat back a young doctor’s cancer. Now, it’s assaulting his body By J. Cohen

INSIGHTS

PERSPECTIVES
126 A RAVEN’S MEMORIES ARE FOR THE FUTURE
Ravens can plan for expected future events based on past experiences By M. Boeckle and N. S. Clayton

128 THE IMPORTANCE OF BEING MODULAR
An experiment proves the value of modularity in complex systems under perturbation By M. Sales-Pardo

129 IMMUNOLOGY TAUGHT BY RATS
A rodent model of hepatitis C virus infection should guide therapeutics and vaccines By P. Klenerman and E. J. Barnes

130 OF SIZZLING STEAKS AND DNA REPAIR
A pathway protects cells from mutations caused by sugar-derived aldehydes By K. J. Patel

132 PLASMONIC IMAGING IS GAINING MOMENTUM
Terahertz nanospectroscopy reveals many-body interactions in graphene By D. N. Basov and M. M. Fogler

133 HOW DO MINIPROTEINS FOLD?
A high-throughput study yields libraries of miniproteins that help to explain how proteins are stabilized By D. N. Woolfson et al.

POLICY FORUM
135 WHEN EARLY ADOPTERS DON’T ADOPT
How do bitcoin early adopters seed the adoption S curve? By C. Catalini and C. Tucker

SPECIAL SECTION
Emerging Infectious Diseases

INTRODUCTION
144 Outbreak

REVIEWS
146 Driving improvements in emerging disease surveillance through locally relevant capacity strengthening J. E. B. Halliday et al.

149 Opportunities and challenges in modeling emerging infectious diseases C. J. E. Metcalf and J. Lessler

153 Improving vaccine trials in infectious disease emergencies M. Lipsitch and N. Eyali

156 When an emerging disease becomes endemic G. F. Medley and A. Vassall

SEE ALSO ► EDITORIAL P. 111

OF SIZZLING STEAKS AND DNA REPAIR
A pathway protects cells from mutations caused by sugar-derived aldehydes

By K. J. Patel

► REPORT P. 208

INTRODUCTION
144 Outbreak

REVIEWS
146 Driving improvements in emerging disease surveillance through locally relevant capacity strengthening J. E. B. Halliday et al.

149 Opportunities and challenges in modeling emerging infectious diseases C. J. E. Metcalf and J. Lessler

153 Improving vaccine trials in infectious disease emergencies M. Lipsitch and N. Eyali

156 When an emerging disease becomes endemic G. F. Medley and A. Vassall

SEE ALSO ► EDITORIAL P. 111

OF SIZZLING STEAKS AND DNA REPAIR
A pathway protects cells from mutations caused by sugar-derived aldehydes

By K. J. Patel

► REPORT P. 208

128 THE IMPORTANCE OF BEING MODULAR
An experiment proves the value of modularity in complex systems under perturbation By M. Sales-Pardo

► REPORT P. 199

129 IMMUNOLOGY TAUGHT BY RATS
A rodent model of hepatitis C virus infection should guide therapeutics and vaccines By P. Klenerman and E. J. Barnes

► REPORT P. 204

130 OF SIZZLING STEAKS AND DNA REPAIR
A pathway protects cells from mutations caused by sugar-derived aldehydes By K. J. Patel

► REPORT P. 208

132 PLASMONIC IMAGING IS GAINING MOMENTUM
Terahertz nanospectroscopy reveals many-body interactions in graphene By D. N. Basov and M. M. Fogler

► REPORT P. 187

133 HOW DO MINIPROTEINS FOLD?
A high-throughput study yields libraries of miniproteins that help to explain how proteins are stabilized By D. N. Woolfson et al.

► RESEARCH ARTICLE P. 168

135 WHEN EARLY ADOPTERS DON’T ADOPT
How do bitcoin early adopters seed the adoption S curve? By C. Catalini and C. Tucker

► PODCAST

FEATURE
122 SURVIVING THE CURE
A stem cell transplant helped beat back a young doctor’s cancer. Now, it’s assaulting his body By J. Cohen

INSIGHTS

PERSPECTIVES
126 A RAVEN’S MEMORIES ARE FOR THE FUTURE
Ravens can plan for expected future events based on past experiences By M. Boeckle and N. S. Clayton

► REPORT P. 202

128 THE IMPORTANCE OF BEING MODULAR
An experiment proves the value of modularity in complex systems under perturbation By M. Sales-Pardo

► REPORT P. 199

129 IMMUNOLOGY TAUGHT BY RATS
A rodent model of hepatitis C virus infection should guide therapeutics and vaccines By P. Klenerman and E. J. Barnes

► REPORT P. 204

130 OF SIZZLING STEAKS AND DNA REPAIR
A pathway protects cells from mutations caused by sugar-derived aldehydes By K. J. Patel

► REPORT P. 208

132 PLASMONIC IMAGING IS GAINING MOMENTUM
Terahertz nanospectroscopy reveals many-body interactions in graphene By D. N. Basov and M. M. Fogler

► REPORT P. 187

133 HOW DO MINIPROTEINS FOLD?
A high-throughput study yields libraries of miniproteins that help to explain how proteins are stabilized By D. N. Woolfson et al.

► RESEARCH ARTICLE P. 168

135 WHEN EARLY ADOPTERS DON’T ADOPT
How do bitcoin early adopters seed the adoption S curve? By C. Catalini and C. Tucker

► PODCAST

FEATURE
122 SURVIVING THE CURE
A stem cell transplant helped beat back a young doctor’s cancer. Now, it’s assaulting his body By J. Cohen

INSIGHTS

PERSPECTIVES
126 A RAVEN’S MEMORIES ARE FOR THE FUTURE
Ravens can plan for expected future events based on past experiences By M. Boeckle and N. S. Clayton

► REPORT P. 202
159 From Science and other journals

162 NEUROSCIENCE
History of winning remodels thalamo-PFC circuit to reinforce social dominance T. Zhou et al.

168 PROTEIN FOLDING
Global analysis of protein folding using massively parallel design, synthesis, and testing G. J. Rocklin et al.

175 CHEMISTRY
Snap deconvolution: An informatics approach to high-throughput discovery of catalytic reactions K. Troshin and J. F. Hartwig

181 GRAPHENE
High-temperature quantum oscillations caused by recurring Bloch states in graphene superlattices R. Krishna Kumar et al.

185 STELLAR ACTIVITY
Reconciling solar and stellar magnetic cycles with nonlinear dynamo simulations A. Strugarek et al.

187 GRAPHENE ELECTRONICS
Tuning quantum nonlocal effects in graphene plasmonics M. B. Landeberg et al.

191 MAGNETISM
All-oxide–based synthetic antiferromagnets exhibiting layer-resolved magnetization reversal B. Chen et al.

195 SPINTRONICS
Control and local measurement of the spin chemical potential in a magnetic insulator C. Du et al.

199 ECOLOGICAL NETWORKS
Effects of network modularity on the spread of perturbation impact in experimental metapopulations L. J. Gilarranz et al.

202 COGNITION
Ravens parallel great apes in flexible planning for tool-use and bartering C. Kabuduyi and M. Osvath

204 HEPATITIS C VIRUS
Mouse models of acute and chronic hepatitis virus infection E. Billerbeck et al.

208 DNA REPAIR
Guanine glycation repair by DJ-1/Park7 and its bacterial homologs G. Richarme et al.

212 DEVELOPMENTAL BIOLOGY
Germ line–inherited H3K27me3 restricts enhancer function during maternal-to-zygotic transition F. Zenk et al.

DEPARTMENTS

111 EDITORIAL
Can we beat influenza? By W. Zhang and R. G. Webster

222 WORKING LIFE
Academia needs to confront sexism By a postdoc who persisted
Science 357 (6347), 111-222.