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#### 157 EPIDEMIOLOGY

Wildfires send scientists scrambling to study health effects



#### 158 RESEARCH POLICY

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#### 160 HUMAN SPACEFLIGHT

India announces ambitious mission

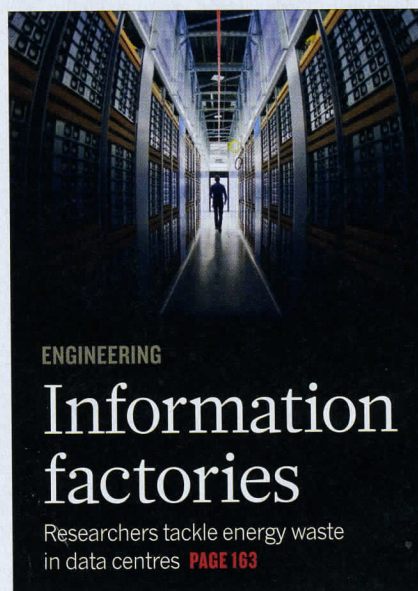
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Astrophysicist to spend \$3 million award on promoting diversity

#### 161 INFORMATION

Google unveils search engine for data

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### ENGINEERING

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Researchers tackle energy waste in data centres **PAGE 163**

## TECHNOLOGY

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##### AI tames the scientific literature

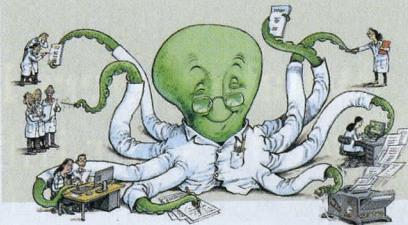
Developers seek ways to automate hypothesis generation

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### PUBLISHING

## Prolific authors

John P A Ionnadis, Richard Klavans & Kevin W Boyack identify the biologists bringing out more than one paper every week **PAGE 167**



#### 170 SOCIETY

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#### 173 PHYSICS

##### Of arms and astrophysics

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#### 175 SCIENCE HISTORY

##### The last polymath

Henning Schmidgen

#### 176 PSYCHOLOGY

##### Self-made creators of Myers-Briggs

S Alexander Haslam

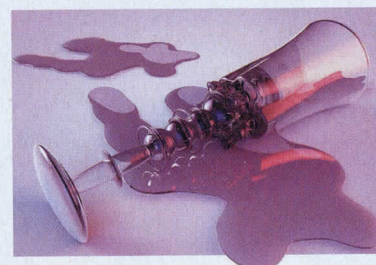
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177 Kauri forests imperilled / Extreme-weather links / Undergraduate research / Teach peer-review

### FUTURES

#### 280 The congress

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## RESEARCH

### NEW ONLINE

179 Papers published this week at nature.com

### NEWS & VIEWS

#### 180 PHYSIOLOGY

##### Receptor becomes a ligand

RANKL acts as a signal-transducing molecule to promote bone formation  
*Mone Zaidi & Christopher P Cardozo*

SEE ARTICLE P.195

#### 181 CONDENSED-MATTER PHYSICS

##### Spins travel far in an antiferromagnet

Controlled long-distance spin transport in an antiferromagnetic insulator  
*Sergio M Rezende* SEE LETTER P.222

#### 182 BIOPHYSICS

##### A 3D cell shape found in sheets and tubes

A cell shape dubbed scutoid has been found in curved epithelia  
*Guy B Blanchard*

#### 183 ENVIRONMENTAL SCIENCE

##### The future of tidal wetlands is in our hands

Simulations of the effects of sea-level rise on tidal wetlands  
*Jonathan D Woodruff* SEE LETTER P.231

#### 185 IMMUNOLOGY

##### Elusive inflammation insight uncovered

PINK1 and parkin proteins prevent inflammation caused by mitochondria  
*Alexandra Stolz & Ivan Dikic*

SEE LETTER P.258

#### 186 MOLECULAR BIOLOGY

##### Proteins assemble as they are being made

Evidence that most eukaryotic protein-complex assembly is co-translational  
*Christine Mayr* SEE LETTER P.268

### ARTICLES

#### 189 DRUG DISCOVERY Optimized

arylomycins are a new class of Gram-negative antibiotics  
*P A Smith et al.*

#### 195 PHYSIOLOGY Coupling of bone

resorption and formation by RANKL reverse signalling  
*Y Ikebuchi et al.* SEE N&V P.180

#### 201 CANCER Precancerous neoplastic cells

can move through the pancreatic ductal system  
*A P Makohon-Moore et al.*



### ON THE COVER

## Time to fight back

Christopher Heise, Peter Smith and their colleagues present the chemical optimization of the arylomycin class of natural products into a potent, broad-spectrum antibiotic that is active against clinical isolates of Gram-negative bacteria in vitro and in vivo, raising the promise of new treatments for multidrug-resistant infections. **PAGE 189**

### LETTERS

#### 206 ASTROPHYSICS Autogenous and

efficient acceleration of energetic ions upstream of Earth's bow shock  
*D L Turner et al.*

#### 211 PARTICLE PHYSICS Observation of

the 1S-2P Lyman- $\alpha$  transition in antihydrogen  
*M Ahmadi et al.*

#### 216 NANOSCALE DEVICES Hundred-fold

enhancement in far-field radiative heat transfer over the blackbody limit  
*D Thompson et al.*

#### 222 CONDENSED-MATTER PHYSICS Tunable

long-distance spin transport in a crystalline antiferromagnetic iron oxide  
*R Lebrun et al.* SEE N&V P.181

#### 226 MATERIALS SCIENCE Three-dimensional

printing of hierarchical liquid-crystal-polymer structures  
*S Gantenbein et al.*

#### 231 ENVIRONMENTAL SCIENCE Future

response of global coastal wetlands to sea-level rise  
*M Schuerch et al.* SEE N&V P.183

#### 235 EVOLUTION Stepwise and independent

origins of roots among land plants  
*A J Hetherington & L Dolan*

#### 239 NEUROSCIENCE Sensing with tools

extends somatosensory processing beyond the body  
*L E Miller et al.*

#### 243 STEM CELLS In vivo reprogramming of

wound-resident cells generates skin epithelial tissue  
*M Kurita et al.*

#### 248 PLANT SCIENCES Phosphocode-

dependent functional dichotomy of a common co-receptor in plant signalling  
*A Perraki et al.*

#### 253 VIROLOGY An orthogonal proteomic

survey uncovers novel Zika virus host factors  
*P Scaturro et al.*

#### 258 IMMUNOLOGY Parkin and PINK1

mitigate STING-induced inflammation  
*D A Sliter et al.* SEE N&V P.185

#### 263 CELL BIOLOGY GAPDH inhibits

intracellular pathways during starvation for cellular energy homeostasis  
*J-S Yang et al.*

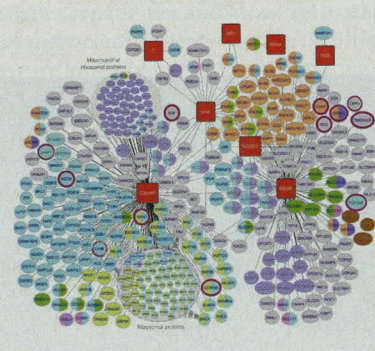
#### 268 MOLECULAR BIOLOGY Cotranslational

assembly of protein complexes in eukaryotes revealed by ribosome profiling  
*A Shiber et al.* SEE N&V P.186

### VIROLOGY

## Hosting Zika

A network of interactions between Zika virus and host cell factors. **PAGE 253**



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