

SPECIAL SECTION

Computational Biology

INTRODUCTION

171 Does It Compute?

NEWS

172 Virtual Hot Spots
>> *Science Podcast*

REVIEWS

175 Cell Polarity: Quantitative Modeling as a Tool in Cell Biology
A. Mogilner et al.
>> *Science Podcast*

179 Integrating Genomes
D. R. Zerbino et al.

183 Using Gene Expression Noise to Understand Gene Regulation
B. Munsky et al.

187 Computational Approaches to Developmental Patterning
L. G. Morelli et al.

>> *Editorial p. 131; Policy Forum p. 159; Perspectives pp. 163 and 164; Report p. 229; Science Express Reports by F. Bosveld et al. and P. Müller et al.; Science Signaling; and Science Careers at http://scim.ag/comp_bio*



page 144

EDITORIAL

131 Creativity at the Interface
Bruce Alberts
>> *Computational Biology section p. 171*

NEWS OF THE WEEK

136 A roundup of the week's top stories

NEWS & ANALYSIS

139 Research Cuts Will Cause 'Exodus' From Spain

140 Greece Eyes CERN, ESA Cuts to Plug Budget Gap

141 Ocean's Deep, Dark Trenches to Get Their Moment in the Spotlight
>> *Science Express Perspective by R. A. Lutz and P. G. Falkowski*

143 Sleep Study Suggests Triggers for Diabetes and Obesity
>> *Science Translational Medicine Research Article by O. M. Buxton et al.*

NEWS FOCUS

144 Mystery Disease Haunts Region

147 Sparks Fly Over Shoestring Test of 'Holographic Principle'

150 Lunar and Planetary Science Conference Icy-Hot Mercury's Water Pinned Down in the Dark Tougher Times for Any Life on an Early Mars? Snapshots From the Meeting The Young Solar System Took a One-Two Punch?

LETTERS

152 Outsourced Psychiatry: Remote Support
F. R. Ali et al.

Outsourced Psychiatry: Experts Still Relevant
M. M. Weissman and H. Verdelli

Sound and Fury, Clarified
D. Raouf

Response
C. Mary

Cultural Diversity in a Global Society
L. Cheng

Science Statesmanship
M. D. Lowman

155 CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.

158 The Origins of Grammar
J. R. Hurford, reviewed by R. C. Berwick

POLICY FORUM

159 Shining Light into Black Boxes
A. Morin et al.
>> *Computational Biology section p. 171*

PERSPECTIVES

161 Revitalizing Remyelination—the Answer Is Circulating
S. A. Redmond and J. R. Chan

162 The Strangest Terrestrial Planet
W. B. McKinnon
>> *Reports pp. 214 and 217*

163 Beyond Turing's Machines
A. Hodges

164 Dusting Off the Turing Test
R. M. French
>> *Computational Biology section p. 171*

166 ESCRTing DNA at the Cleavage Site During Cytokinesis
M. Petronczki and F. Uhlmann
>> *Report p. 220*

CONTENTS continued >>



COVER

A series of spheres with two-dimensional patterns generated by computer simulation shows that Turing's reaction-diffusion model may be the basis for skin patterning in animals. A modulation of one parameter value in a reaction-diffusion-based model causes the pattern to change gradually from spots to labyrinths, with the range encompassing the diversity of patterns seen on animal skin. See page 171 and http://scim.ag/comp_bio.

Image: Seita Miyazawa, Osaka University

DEPARTMENTS

127 This Week in *Science*
132 Editors' Choice
134 *Science* Staff
257 New Products
258 *Science* Careers

- 167 **Wiping Drug Memories**
A. L. Milton and B. J. Everitt
>> Report p. 241
- 168 **Monkey See, Monkey Read**
M. L. Platt and G. K. Adams
>> Report p. 245
- 170 **Retrospective: F. Sherwood Rowland (1927–2012)**
R. J. Cicerone et al.

RESEARCH ARTICLE

- 193 **A Fine-Scale Chimpanzee Genetic Map from Population Sequencing**
A. Auton et al.
Chimpanzees show similar genetic recombination rates as humans but differ in the genomic regions involved.

REPORTS

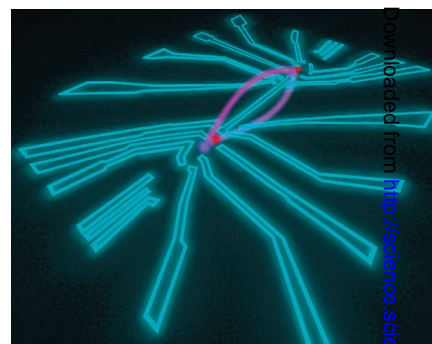
- 198 **Observation of Skyrmions in a Multiferroic Material**
S. Seki et al.
Whirlpools of spin are observed in an insulating material exhibiting both magnetic and ferroelectric order.
- 202 **Demonstration of Entanglement of Electrostatically Coupled Singlet-Triplet Qubits**
M. D. Shulman et al.
The states of two qubits residing in a pair of double quantum dots are rendered interdependent through electrical gating.
- 205 **Topological Transitions in Metamaterials**
H. N. S. Krishnamoorthy et al.
Metamaterials can undergo an optical analog of electronic phase transitions that impacts local light-matter interactions.
- 209 **Ferroelectric Columnar Liquid Crystal Featuring Confined Polar Groups Within Core-Shell Architecture**
D. Miyajima et al.
Precise positioning of polar components in a liquid crystal architecture modulates the collective electronic properties.
- 214 **Gravity Field and Internal Structure of Mercury from MESSENGER**
D. E. Smith et al.
Mercury's outer solid shell is denser than expected, suggesting a deep reservoir of high-density material, possibly iron-sulfide.
- 217 **Topography of the Northern Hemisphere of Mercury from MESSENGER Laser Altimetry**
M. T. Zuber et al.
Mercury's topography indicates sustained geophysical activity for most of the planet's geological history.
>> Perspective p. 162

- 220 **ESCRT-III Governs the Aurora B-Mediated Abscission Checkpoint Through CHMP4C**
J. G. Carlton et al.
The membrane scission and cytokinesis ESCRT machinery may help to protect against genetic damage.
>> Perspective p. 166
- 225 **Atg7 Modulates p53 Activity to Regulate Cell Cycle and Survival During Metabolic Stress**
I. H. Lee et al.
When the autophagy protein tg7 is absent, nutrient withdrawal does not stop the cell cycle.
- 229 **Mechanism of Voltage Gating in Potassium Channels**
M. Ø. Jensen et al.
Molecular dynamics simulations show how a voltage-gated channel closes.
>> Computational Biology section p. 171
- 233 **Ribosome Profiling Shows That miR-430 Reduces Translation Before Causing mRNA Decay in Zebrafish**
A. A. Bazzini et al.
MicroRNAs act to repress their messenger RNA targets first by blocking translation initiation and then through degradation.
- 237 **miRNA-Mediated Gene Silencing by Translational Repression Followed by mRNA Deadenylation and Decay**
S. Djuranovic et al.
MicroRNAs act to destroy their messenger RNA targets by blocking translation initiation, which leads to degradation.
- 241 **A Memory Retrieval-Extinction Procedure to Prevent Drug Craving and Relapse**
Y.-X. Xue et al.
A behavioral intervention that decreases drug seeking in rat models of relapse can decrease drug craving in heroin addicts.
>> Perspective p. 167
- 245 **Orthographic Processing in Baboons (*Papio papio*)**
J. Grainger et al.
Baboons discriminate words from nonwords on the basis of spelling.
>> Perspective p. 168

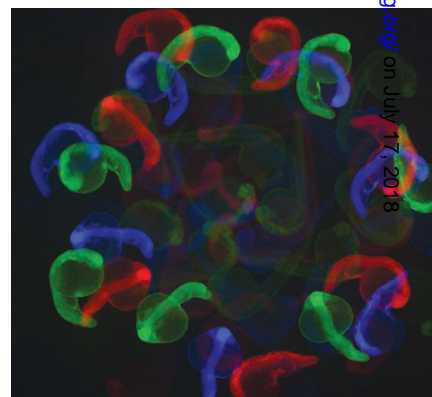
CONTENTS continued >>



pages 168 & 245



page 202



pages 233 & 237

SCIENCEONLINE

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Mechanical Control of Morphogenesis by Fat/Dachsous/Four-Jointed Planar Cell Polarity Pathway

F. Bosveld et al.

Polarized protocadherin and myosin induce an anisotropic tension at cell junctions and thereby shape epithelial tissue.

10.1126/science.1221071

>> *Computational Biology section p. 171*

Differential Diffusivity of Nodal and Lefty Underlies a Reaction-Diffusion Patterning System

P. Müller et al.

The inhibitor Lefty diffuses more widely than the activator Nodal.

10.1126/science.1221920

>> *Computational Biology section p. 171*

Epigenomic Enhancer Profiling Defines a Signature of Colon Cancer

B. Akhtar-Zaidi et al.

Methylation tags at long-distance gene regulatory elements provide a signature specific to cancer cells.

10.1126/science.1217277

A Dive to Challenger Deep

R. A. Lutz and P. G. Falkowski

10.1126/science.1222641

>> *News story p. 141*

Signatures of Majorana Fermions in Hybrid Superconductor-Semiconductor Nanowire Devices

V. Mourik et al.

Theoretically predicted particles that double as their own antiparticles emerge in a superconductor-coupled indium antimonide nanowire.

10.1126/science.1222360

Growing Microtubules Push the Oocyte Nucleus to Polarize the *Drosophila* Dorsal-Ventral Axis

T. Zhao et al.

The addition of tubulin monomers to microtubules provides the force to relocate the oocyte nucleus.

10.1126/science.1219147

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Highlights From Our Daily News Coverage

Land Bridge Caused Wild Temperature Swings

The strip of earth connecting Asia and North America disrupted ocean circulation.

http://scim.ag/Temperature_Swings

Of Robots and Cocktails

A humanoid machine helps researchers understand how we home in on conversations.

http://scim.ag/Humanoid_Machine

Fishing for Fluid Dynamics

Movement of fishermen's nets helps untangle water-flow patterns in an Italian lake.

http://scim.ag/Fluid_Dynamics

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

10 April issue: <http://scim.ag/ss41012>

RESEARCH ARTICLE: Direct Binding Between Orai1 and AC8 Mediates Dynamic Interplay Between Ca²⁺ and cAMP Signaling

D. Willoughby et al.

A signaling complex enables the compartmentalized regulation of cyclic AMP signaling by calcium entering through a specific channel.

RESEARCH ARTICLE: Ras Stabilization Through Aberrant Activation of Wnt/ β -Catenin Signaling Promotes Intestinal Tumorigenesis

W. Jeong et al.

PERSPECTIVE: Wnt/ β -Catenin and MAPK Signaling—Allies and Enemies in Different Battlefields

D. Guardavaccaro and H. Clevers

Crosstalk between the Wnt/ β -catenin and MAPK pathways contributes to colon cancer.

PODCAST

M. Nedergaard et al.

New findings elucidate mechanisms by which astrocytes can modulate neuronal activity.

SCIENCE TRANSLATIONAL MEDICINE

www.sciencetranslationalmedicine.org

Integrating Medicine and Science

11 April issue: <http://scim.ag/stm041112>

EDITORIAL: Toward Precision Medicine—A New Social Contract?

S. Desmond-Hellmann

Patients have the power to drive development of a new taxonomy of disease and precision medicine.

RESEARCH ARTICLE: Adverse Metabolic Consequences in Humans of Prolonged Sleep Restriction Combined with Circadian Disruption

O. M. Buxton et al.

Sleep deficiency and out-of-synch circadian rhythms impair pancreatic insulin secretion, a possible precursor to metabolic syndrome and diabetes.

>> *News story p. 143*

RESEARCH ARTICLE: Model-Based Noninvasive Estimation of Intracranial Pressure from Cerebral Blood Flow Velocity and Arterial Pressure

F. M. Kashif et al.

FOCUS: From Lundberg to SIM-ICP—Computational Physiology and Modeling Intracranial Pressure

B. Goldstein et al.

A model-based, patient-specific, and calibration-free approach is used for continuous, noninvasive estimation of intracranial pressure.

RESEARCH ARTICLE: Prognostic Indicators of Life-Threatening Malaria Are Associated with Distinct Parasite Variant Antigen Profiles

G. M. Warimwe et al.

Two key clinical indicators of life-threatening malaria in African children may be associated with differential expression of parasite surface antigens on infected erythrocytes.

SCIENCE CAREERS

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Free Career Resources for Scientists

Are Computational Biologists the Next Pharma Scientists?

M. Price

Drug development companies are now hiring more computational biologists, creating an abundance of high-paying jobs.

<http://scim.ag/CompBioPharma>

>> *Computational Biology section p. 171*

Going Against the Grain

E. Pain

Graduate student Denis Gebauer had to work hard to prove that his unorthodox findings on crystallization were real.

<http://scim.ag/AgainstGrain>

Swimming With SHARks

R. Kaufman

In a world where research is valued above all, how do teaching and outreach experiences influence careers?

<http://scim.ag/SHARKProject>

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