

EDITORIAL

- 1113 Research Vital to Economic Growth
Raymond L. Orbach

NEWS OF THE WEEK

- 1118 A roundup of the week's top stories

NEWS & ANALYSIS

- 1121 Scientists Fear WFIRST Will Be Trailing the Pack
- 1122 Do Island Sites Suggest a Coastal Route to the Americas?
>> *Report p. 1181*
- 1123 Feathers Are Flying Over Colombian Bird Name Flap
- 1124 Ten Years After Buddhas Destroyed, Afghans Work to Save Monastery
- 1127 Outrage Greet NSF Decision to End STEM Fellows Program

NEWS FOCUS

- 1128 Breaking the Chain in Bangladesh
A Startling Villain
>> *Science Podcast*
- 1132 Have Physicists Already Glimpsed Particles of Dark Matter?
- 1134 Keeping Europe's Basic Research Agency on Track

LETTERS

- 1136 Assessing Chemical Risk: Societies Offer Expertise
The American Society of Human Genetics et al.
A Defense of the Primitive Cheetah Skull
J. H. Mazák and P. Christiansen
Response
D. Tao and Q. Zhanxiang
Habitats at Risk: A Step Forward, a Step Back
L. Gibson and N. S. Sodhi

BOOKS ET AL.

- 1138 Tracking Medicine
J. E. Wennberg, reviewed by H. Krumholz

POLICY FORUM

- 1139 The Biodiversity and Ecosystem Services Science-Policy Interface
C. Perrings et al.

PERSPECTIVES

- 1141 Gradient Scaling and Growth
L. Le Goff and T. Lecuit
>> *Research Article p. 1154*
- 1142 Toward Synthesis of Arbitrary Optical Waveforms
D. D. Yavuz
>> *Report p. 1165*
- 1143 Molecular Motors, Beauty in Complexity
J. A. Spudich
>> *Research Article p. 1159*
- 1145 New Epigenetic Drivers of Cancers
S. J. Elsässer et al.
>> *Report p. 1199*
- 1146 Local Peeling of Graphene
D. Gunlycke and P. E. Sheehan
>> *Report p. 1168*
- 1147 Establishing the Secretion Hierarchy
L. M. Stamm and M. B. Goldberg
>> *Reports pp. 1188 and 1192*

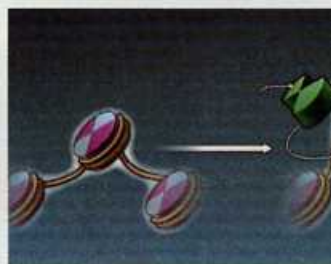
REVIEW

- 1149 Controlling and Coordinating Development in Vector-Transmitted Parasites
K. R. Matthews

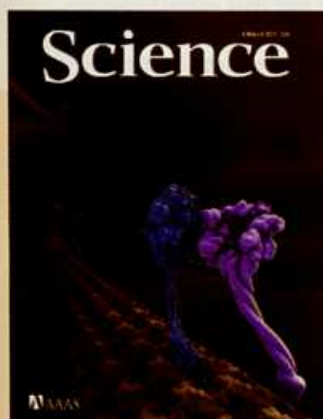
CONTENTS continued >>



page 1128



pages 1145 & 1199



COVER

Artistic rendering of dynein motor proteins moving along microtubules, based on a crystal structure reported by Carter *et al.* on p. 1159. This study reveals the architecture of the molecular machine that powers the beating of cilia and intracellular transport and provides insight into the mechanism by which energy from adenosine triphosphate hydrolysis is converted into motion.

Image: Graham Johnson, The Scripps Research Institute and grahamj.com

DEPARTMENTS

- 1109 This Week in *Science*
1114 Editors' Choice
1116 *Science* Staff
1214 New Products
1215 *Science* Careers

RESEARCH ARTICLES

- 1154 **Dynamics of Dpp Signaling and Proliferation Control**
O. Wartlick et al.
 Mitosis starts when morphogen signaling levels have increased by half since the beginning of the cell cycle.
 >> *Perspective p. 1141*
- 1159 **Crystal Structure of the Dynein Motor Domain**
A. P. Carter et al.
 The structure reveals the functional elements of the dynein motor and suggests how they change conformation during motility.
 >> *Perspective p. 1143*

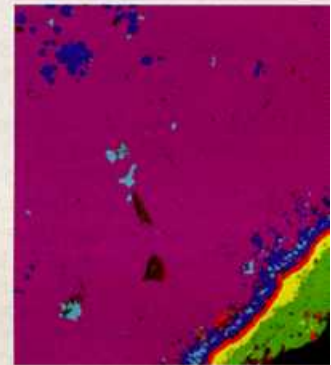
REPORTS

- 1165 **Synthesis and Measurement of Ultrafast Waveforms from Five Discrete Optical Harmonics**
H.-S. Chan et al.
 Optical fields have been manipulated like radio frequencies into sawtooth and square-wave patterns.
 >> *Perspective p. 1142*
- 1168 **Layer-by-Layer Removal of Graphene for Device Patterning**
A. Dimiev et al.
 Reactions of graphene with zinc enable etching of a single graphene layer.
 >> *Perspective p. 1146; Science Podcast*
- 1172 **Helix-Rod Host-Guest Complexes with Shuttling Rates Much Faster than Disassembly**
Q. Gan et al.
 A molecular helix wrapped around a rigid rod can unwind and move between binding sites.
- 1175 **Oxygen Isotope Variations at the Margin of a CAI Records Circulation Within the Solar Nebula**
J. I. Simon et al.
 Isotope measurements within an inclusion in a meteorite reveal a record of processes in the early solar system.
- 1178 **Dietary Change and Evolution of Horses in North America**
M. C. Mhlbachler et al.
 A survey of horse-teeth wear during the past 55 million years implies that evolutionary pressures were generally low.
- 1181 **Paleoindian Seafaring, Maritime Technologies, and Coastal Foraging on California's Channel Islands**
J. M. Erlandson et al.
 Archaeological sites reveal a variety of tools used to hunt marine birds, mammals, and fish 12,000 years ago.
 >> *News story p. 1122; Science Podcast*

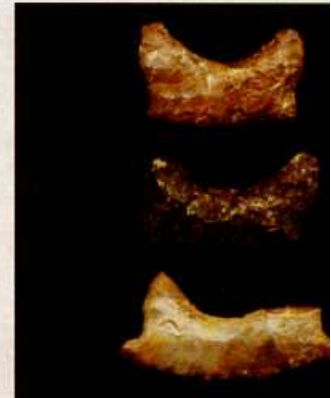
- 1185 ***Pseudomonas sax* Genes Overcome Aliphatic Isothiocyanate-Mediated Non-Host Resistance in *Arabidopsis***
J. Fan et al.
 Natural-product effectors of disease resistance in *Arabidopsis* reveal complementary disabling mechanisms in the pathogen.
- 1188 **A Sorting Platform Determines the Order of Protein Secretion in Bacterial Type III Systems**
M. Lara-Tejero et al.
 The bacterial enteropathogen *Salmonella* sorts its effector protein substrates prior to secretion.
- 1192 **Three-Dimensional Model of *Salmonella*'s Needle Complex at Subnanometer Resolution**
O. Schraidt and T. C. Marlovits
 A cryo-electron microscopy structure of a bacterial secretion complex reveals threefold symmetry.
 >> *Perspective p. 1147*
- 1196 **Structures of SAS-6 Suggest Its Organization in Centrioles**
M. van Breugel et al.
 Self-assembly of a centriolar protein may contribute to organizing the cartwheel-like hub and establishing centriole symmetry.
- 1199 ***DAXX/ATRX, MEN1, and mTOR* Pathway Genes Are Frequently Altered in Pancreatic Neuroendocrine Tumors**
Y. Jiao et al.
 A rare but deadly form of human pancreatic cancer harbors mutations in chromatin remodeling genes.
 >> *Perspective p. 1145*
- 1203 **Different B Cell Populations Mediate Early and Late Memory During an Endogenous Immune Response**
K. A. Pape et al.
 A cell enrichment technique reveals the dynamics of the endogenous memory B cell response.
- 1207 **Enhancement of Consolidated Long-Term Memory by Overexpression of Protein Kinase $M\zeta$ in the Neocortex**
R. Shema et al.
 In rats, overexpression of a persistently active protein kinase C isoform enhances memories long after they have been formed.

CONTENTS continued >>

page 1149



page 1175



pages 1122 & 1181