Cover

End-on view of the atomic model of the bacterial actinlike ParM protein double-helical filament, generated from an electron microscopic reconstruction. A bipolar spindle of antiparallel ParM filaments pushes plasmids to the cell poles, constituting the simplest known apparatus for the segregation of genetic information.

The loops on the outside of the 8- to 9-nanometer-thick filaments are involved in spindle formation. See page 1334.

Image: Jan Löwe
RESEARCH ARTICLE

1308 Crystal Structure of the Calcium Release–Activated Calcium Channel Orai
X. Hou et al.
The unusual architecture of this ion-channel pore regulates the flow of calcium into cells.

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H. J. Pietsch et al.
A computer-intensive search revealed gamma-ray pulsations from an exotic binary star system in data from the Fermi Telescope.

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W. Boo et al.
A near-field optical probe designed to maximize its own signal enhancement can be used to image nonmetallic samples.

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Z. Han et al.
A photoreduction system combining nanoparticulate light absorbers with a soluble molecular catalyst proves stable for weeks.

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G. K. S. Prakash et al.
Proper choice of base and solvent renders fluoroform a useful reagent to introduce trifluoromethyl groups into a range of compounds.

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Control over the presence of adsorbed hydrogen enables rapid sequential deposition of metal monolayers from aqueous solution.

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R. S. McWilliams et al.
Mantle minerals conductive at the high pressures and temperatures of planetary interiors could induce a magnetic field.

1334 A Bipolar Spindle of Antiparallel ParM Filaments Drives Bacterial Plasmid Segregation
P. Gayathri et al.
A bipolar spindle, formed by antiparallel actin-like filaments, pushes sister plasmids apart.

1337 Kinetic Responses of β-Catenin Specify the Sites of Wnt Control
A. R. Hernández et al.
Reducing the rate of phosphorylation of β-catenin leads to an increase in the steady-state level of the unmodified form.

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W. Wang et al.
Opsin-based light absorption was tuned over a 200-nanometer range by rationally engineering retinol-binding protein.

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The complete set of proteins required for a mutagenic DNA-repair pathway is defined in Escherichia coli.

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Interaction of a platelet protein and a red cell protein enables platelets to attack malarial parasites inside red cells.

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The developmental stages of the sleeping sickness parasite can now be observed without the tsetse fly.

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N. Kyritsis et al.
An inflammatory response to traumatic injury promotes neurogenesis and repair in the zebrafish brain.

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Y. Liu et al.
Androgen-driven changes in receptor expression disrupt a neuronal signaling pathway and de-innervation.

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I. K. Sur et al.
A human genetic variant, identified in genome-wide association studies as increasing cancer risk, alters tumorigenesis in mice.

1363 Evolution of an MCM Complex in Flies That Promotes Meiotic Crossovers by Blocking BLM Helicase
K. P. Kohl et al.
Minichromosome maintenance proteins have been co-opted to make meiotic recombination safe in flies.
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M. T. Zuber et al.
10.1126/science.1231507

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10.1126/science.1231530

Ancient Igneous Intrusions and Early Expansion of the Moon Revealed by GRAIL Gravity Gradiometry
J. C. Andrews-Hanna et al.
10.1126/science.1231753

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J. A. Riffell et al.
10.1126/science.1225483

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T. Shimazu et al.
10.1126/science.1227166

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M. S. Han et al.
10.1126/science.1227568

Germline DNA Demethylation Dynamics and Imprint Erasure Through 5-Hydroxymethylcytosine
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RESEARCH ARTICLE: RNF4-Dependent Hybrid SUMO-Ubiquitin Chains Are Signals for RAP80 and Thereby Mediate the Recruitment of BRCAL1 to Sites of DNA Damage
C. M. Guzzo et al.
DNA repair proteins find sites of damage marked by hybrid SUMO-ubiquitin chains.

RESEARCH ARTICLE: G Protein–Coupled Receptor–Mediated Activation of p110β by Gδy Is Required for Cellular Transformation and Invasiveness
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Loss of the phosphatase PTPN22 enhances the functions of both effector and regulatory T cells.

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E. O. Benetzeu and S. G. Martin
Oscillations in the localization of active Cdc42 govern polarized cell growth in yeasts.

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L. Buxo et al.
Degradation of an inhibitor of noncanonical NF-κB signaling promotes cell survival.

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5 December issue: http://scim.ag/stm120512

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T. Yang et al.
MECP2 gene duplication causes immune dysregulation by suppressing IFN-γ production from T helper cells.

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The FDA announces a nonprofit partnership to advance regulatory science for medical technology development.

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M. De Franceschi et al.
Nurr1 mediates protection of dopamine neurons by GDNF in response to α-synuclein–mediated toxicity.

RESEARCH ARTICLE: Decreased Tonic Inhibition in Cerebellar Granule Cells Causes Motor Dysfunction in a Mouse Model of Angelman Syndrome
K. Egeroa et al.
Ube3a deficiency causes decreased cerebellar tonic inhibition by preventing degradation of GAT1 in Angelman syndrome.