Interactions between microbes and plants can vary widely, depending upon the context and the partners of the interaction. An Editorial on page 691 and a collection of Perspectives starting on page 742 discuss recent advances in our understanding of the biochemistry, signaling, and ecosystem dynamics that reflect how microbes and plants interact.

Illustration: Chris Bickel
## REVIEW

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Elemental Composition of the Martian Crust  
H. Y. McSween Jr. et al.

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A Gene Necessary for Reproductive Suppression in Termites  
J. Korb et al.  
Knocking out the Neofem2 gene in queen termites illicit pre-reproductive behavior in workers.

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Representation of Confidence Associated with a Decision by Neurons in the Parietal Cortex  
R. Kiani and M. N. Shadlen  
Neurons in the primate parietal cortex encode information required to make a decision and also the certainty of that choice.

## REPORTS

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Characterization of Multipartite Entanglement for One Photon Shared Among Four Optical Modes  
S. B. Papp et al.  
Sharing a single photon between four optical modes creates entangled states that could be used in quantum information processing.

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N-Doping of Graphene Through Electrothermal Reactions with Ammonia  
X. Wang et al.  
The edges of graphene nanoribbons incorporate nitrogen atoms after heating in an atmosphere of ammonia.

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An Experimental Design Method Leading to Chemical Turing Patterns  
J. Horváth et al.  
Three design criteria were used to create sustained stationary patterns in the thiourea-iodate-sulfite reaction system.

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An Observation Linking the Origin of Plasmaspheric Hiss to Discrete Chorus Emissions  
J. Bortnik et al.  
The radio waves that remove energetic electrons from Earth’s radiation belts originate outside the plasmasphere.

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The Role of Aerosols in the Evolution of Tropical North Atlantic Ocean Temperature Anomalies  
A. T. Evan et al.  
Changes in tropical North Atlantic sea surface temperatures are caused by variability in atmospheric aerosol abundances.

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UV Absorption Cross Sections of ClOOCl Are Consistent with Ozone Degradation Models  
H.-Y. Chen et al.  
Measurements of how well ClOOCl molecules absorb ultraviolet light support standard models of chlorine-induced ozone degradation.

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Host Inhibition of a Bacterial Virulence Effector Triggers Immunity to Infection  
V. Ntoukakis et al.  
An enzyme in tomato targets bacterial virulence to change the outcome of infection from susceptibility to immunity.

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Development of a Second-Generation Antiandrogen for Treatment of Advanced Prostate Cancer  
C. Tran et al.  
A drug that binds to the androgen receptor acts by disrupting its activity in the cell nucleus.

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Basin-Scale Coherence in Phenology of Shrimps and Phytoplankton in the North Atlantic Ocean  
P. Koeller et al.  
Shrimp reproduction is primed by bottom temperature and not directly by cues from the spring phytoplankton bloom.

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Apicomplexan Parasites Co-Opt Host Calpains to Facilitate Their Escape from Infected Cells  
R. Chandramohanadas et al.  
A host protease helps newly replicated microbial parasites escape from incubator cells.

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Human Induced Pluripotent Stem Cells Free of Vector and Transgene Sequences  
J. Yu et al.  
Human induced pluripotent stem cells can be generated without integration of exogenous DNA into their genomes.

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Benzothiazinones Kill Mycobacterium tuberculosis by Blocking Arabinan Synthesis  
V. Makarov et al.  
An isomerase required for cell-wall synthesis is a target for an alternative drug lead for tuberculosis treatment.

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Mammalian Expression of Infrared Fluorescent Proteins Engineered from a Bacterial Phytochrome  
X. Shu et al.  
An engineered infrared fluorescent protein derived from an extremophile bacterium gives a strong signal in mammalian cells.

### 807

High-Throughput Sequencing of the Zebrafish Antibody Repertoire  
J. A. Weinstein et al.  
Sequencing of immunoglobulin messenger RNA characterizes the diversity of the antibody repertoire in individual zebrafish.

### 811

Movement Intention After Parietal Cortex Stimulation in Humans  
M. Desmurget et al.  
Stimulation of the parietal cortex causes subjects to report having moved, even in the absence of actual motor responses.
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that depend on brain activity.

Optical tracking of neurotransmitter release

in a self-limited manner on copper and can be

transferred to other substrates.

10.1126/science.1171245

IL-21 Is Required to Control Chronic

Viral Infection

H. Elsaesser et al.

Interleukin-21 produced by CD4+ T cells helps

CD8+ T cells control viral infection in a mouse model.

10.1126/science.1174182

Recruitment of an Area Involved in

Eye Movements During Mental Arithmetic

A. Knops et al.

Addition and subtraction are encoded in the

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eye movements and spatial attention.

10.1126/science.1171599

Fluorescent False Neurotransmitters

Visualize Dopamine Release from

Individual Presynaptic Terminals

N. G. Gubernator et al.

Optical tracking of neurotransmitter release

in the brain reveals multiple synaptic populations

that depend on brain activity.

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Transcription Control at the Activation

Domain–Mediator Interface

M. A. Balanomits et al.

Transcriptional activation kinetics vary in different cell types, in part because related transcription factors make alternative mediator interactions.

PERSPECTIVE: Nitric Oxide Links Mitochondrial Fission to Alzheimer’s Disease

B. Westermann

Amyloid β–induced nitrosylation of a GTPase involved in mitochondrial fission is neurotoxic.

PERSPECTIVE: Fragile Axons Forge the Path to Gene Discovery—A MAP Kinase Pathway Regulates Axon Regeneration

G. S. O’Brien and A. Sagasti

In Caenorhabditis elegans, a mitogen-activated protein kinase pathway is required for regenerative, but not developmental, axon outgrowth.

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