A joint Science and Science Translational Medicine special section (see page 1245) explores advances in microbial ecology, microbial and host metabolisms, and interactions between gut microbes and the host immune system. Complementary articles discuss how to apply this knowledge to boost health and nutrition, combat infectious disease, and control noncommunicable diseases such as obesity and diabetes.
BREVIA

1274  Crystal Structure of Human Enterovirus 71
P. Plevka et al.
The structure of a virus linked to neurological disease reveals how drugs targeting viruses in this family can be modified.

RESEARCH ARTICLE

1275  The Stomatopod Dactyl Club: A Formidable Damage-Tolerant Biological Hammer
J. C. Weaver et al.
The structure of mantis clubs is optimized to prevent complete failure caused by repetitive impacts.

REPORTS

1280  Quantum Information Storage for over 180 s Using Donor Spins in a 28Si “Semiconductor Vacuum”
M. Steger et al.
An almost isotopically pure sample of 28Si provides a vacuumlike environment for 31P qubits.

1287  Bright Coherent Ultrahigh Harmonics in the keV X-ray Regime from Mid-Infrared Femtosecond Lasers
T. Popmintchev et al.
An electron excitation process in a high-pressure gas converts infrared light into a well-confined beam of x-rays.

1291  The Heliosphere’s Interstellar Interaction: No Bow Shock
D. J. McComas et al.
Observations from the Interstellar Boundary Explorer are not consistent with a bow shock ahead of the heliosphere.

1294  Templating Three-Dimensional Self-Assembled Structures in Bilayer Block Copolymer Films
A. Tavakkoli K. G. et al.
An array of posts guides the bilayer assembly of block copolymers with independent control of morphology and orientation.

1298  Titanium and Zinc Oxide Nanoparticles Are Proton-Coupled Electron Transfer Agents
J. N. Schrauben et al.
Protons can play more of a role than previously appreciated in charge-transfer events at nanoparticle interfaces.

1301  Interglacial Hydroclimate in the Tropical West Pacific Through the Late Pleistocene
A. N. Meckler et al.
Precipitation in Borneo, largely invariant during the last four interglacial periods, decreased during glacial terminations.

1304  Global Honey Bee Viral Landscape Altered by a Parasitic Mite
S. J. Martin et al.
The arrival on Hawaii of the mite Varroa has decreased diversity and increased prevalence of deformed wing virus.

1306  Vitamin K₂ Is a Mitochondrial Electron Carrier That Rescues Pink1 Deficiency
M. Vos et al.
Adding vitamin K rescues fruit flies bearing a mutation in a Parkinson’s disease gene homolog.

1310  Actin Network Architecture Can Determine Myosin Motor Activity
A.-C. Reymann et al.
Myosin crumples up antiparallel actin fibers and leaves parallel bundles intact.

1314  Interactions Between Commensal Fungi and the C-Type Lectin Receptor Dectin-1 Influence Colitis
I. D. Iliev et al.
Mammals contain resident fungal intestinal populations that influence disease susceptibility.

1317  Chemokine Gene Silencing in Decidual Stromal Cells Limits T Cell Access to the Maternal-Fetal Interface
P. Nancy et al.
Turning off the expression in the placenta of T cell attractants allows the mother to tolerate the fetus.

1321  Innate Lymphoid Cells Promote Anatomical Containment of Lymphoid-Resident Commensal Bacteria
G. F. Sonnenberg et al.
Lymphocytes prevent bacteria from spreading beyond gut-associated lymphoid tissues and causing systemic inflammation.

1325  Regulated Virulence Controls the Ability of a Pathogen to Compete with the Gut Microbiota
N. Kamada et al.
Virulence genes and nutritional requirements determine the course of a gastroenteric bacterial infection in mice.

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**SCIENCEEXPRESS**
www.sciencexpress.org
Massive Phytoplankton Blooms
Under Arctic Sea Ice
K. R. Arrigo et al.
In midsummer, diatoms have taken advantage of
thinning ice cover to feed in nutrient-rich waters.
10.1126/science.1215065
dSARM1 Is Required for Activation
of an Injury-Induced Axon Death Pathway
J. M. Osterloh et al.
Mutations in a scaffold protein block the Wallerian
degeneration of axons in flies and mice.
10.1126/science.1223899

**MMS19 Assembles Iron-Sulfur Proteins
Required for DNA Metabolism and Genomic Integrity
O. Stelling et al.
A protein thought to be involved in DNA repair
is, in fact, responsible for inserting iron-sulfur clusters into enzymes.
10.1126/science.1219723
MMS19 Links Cytoplasmic Iron-Sulfur Cluster Assembly to DNA Metabolism
K. Gari et al.
A protein that associates with DNA metabolism enzymes serves as a platform for the integration
of iron-sulfur clusters.
10.1126/science.1219664

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The annoying insect’s tough body lets it survive
midair collisions with much bigger raindrops and keep on flying.
http://scim.ag/Raindrops-Mosquitoes
An Asian Origin for Human Ancestors?
A Myanmar fossil suggests that our earliest
predecessors may not have come from Africa.
http://scim.ag/Asian-Origin
Where Have the Hawk-Sized Insects Gone?
A study suggests that as bird flight improved, the size
of their insect prey dropped considerably.
http://scim.ag/Large-Insects

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The Signal Transduction Knowledge Environment
5 June issue: http://scim.ag/ss060512
RESEARCH ARTICLE: Matrix Rigidity Controls Endothelial Differentiation and Morphogenesis of Cardiac Precursors
Kshitzer et al.
Culturing cardiac precursors on a surface with the same rigidity as heart tissue increases the yield of endothelial cells.

RESEARCH ARTICLE: Coupled Activation and Degradation of eEF2K Regulates Protein Synthesis in Response to Genotoxic Stress
F. Kruszewik et al.
PERSPECTIVE: F-Box Proteins Elongate Translation During Stress Recovery
S. Meloche and P. P. Roux
DNA damage triggers the phosphorylation of factors involved in protein synthesis to regulate polypeptide elongation.

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6 June issue: http://scim.ag/stm060612
The Gut Microbiota: Joint Special Section
PERSPECTIVE: The Human Gut Microbiota and Undernourishment
J. I. Gordon et al.
Interactions between breast milk and the developing gut microbiota and immune system modulate
malnutrition.

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On the 8 June Science Podcast: harnessing biological hammers, respecting our microbial
health implications of mass gatherings, and more.

**RESEARCH ARTICLE:** Phase 1 Study of Stereotactic Body Radiotherapy and Interleukin-2—Tumor and Immunological Responses
S. K. Seung et al.
Stereotactic body radiation therapy enhances tumor response rate to high-dose interleukin-2 in a phase
1 study.

**RESEARCH ARTICLE:** A Validated Tumorgraft Model Reveals Activity of Dovitinib Against Renal Cell Carcinoma
S. Sivanand et al.
An extensively validated tumorgraft model shows activity of investigational agent dovitinib against renal cell carcinoma.

**RESEARCH ARTICLE:** Noninvasive Whole-Genome Sequencing of a Human Fetus
J. O. Kitman et al.
Sequencing of cell-free fetal-derived DNA from maternal plasma provides a noninvasive way to predict the fetal genome sequence.