Human intestinal bacteria (field-of-view width: ~11.4 µm). The human gut is teeming with symbiotic microbes that interact with their host to maintain health. 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.

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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.
>> Perspective p. 1237; Science Podcast

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.

1283  Room-Temperature Quantum Bit Memory
      Exceeding One Second
  P. C. Maurer et al.
Defects in diamond can be operated as
quantum memories at room temperature.
>> Perspective p. 1239

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.
>> Perspective p. 1243

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.
>> Perspective p. 1242

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
increased 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.
>> Perspective p. 1241

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.
>> The Gut Microbiota section p. 1245

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.
>> News story p. 1228; The Gut Microbiota
section p. 1245

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.
>> Perspective p. 1238; The Gut Microbiota
section p. 1245

CONTENTS continued >>
RESEARCH ARTICLE: Coupled Activation and Degradation of eEF2K Regulates Protein Synthesis in Response to Genotoxic Stress
E. Kruiswijk 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.

PROTOCOL: Labeling and Identification of Direct Kinase Substrates
S. M. Carlson and F. M. White

A strategy that uses analog-sensitive kinases enables the identification of low-abundance kinase substrates.

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Massive Phytoplankton Blooms
K. A. Arrigo et al.

Under Arctic Sea Ice
In midsummer, diatoms have taken advantage of thinning ice cover to feed in nutrient-rich waters. 10.1126/science.1215065

dSarm/Sarm1 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
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.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.1219723

An Asian Origin for Human Ancestors?
A Myanmar fossil suggests that our earliest predecessors may not have come from Africa. http://sci.am/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://sci.am/Large-Insects

RESEARCH ARTICLE: Preexisting BCG-Specific T Cells Improve Intravesical Immunotherapy for Bladder Cancer
C. Biot et al.

Preexisting immunity to bacillus Calmette-Guérin (BCG) improves treatment response to intravesical BCG therapy for bladder cancer in mouse models and humans.

RESEARCH ARTICLE: Identification of Naturally Occurring Fatty Acids of the Myelin Sheath That Resolve Neuroinflammation
P. P. Ho et al.

Myelin fatty acids resolve neuroinflammation.

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
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