False-colored scanning electron microscopy image of innate immune cells and the parasite Trypanosoma brucei (purple; length: 15 micrometers) in an infected mouse liver. The parasite is transmitted between mammalian hosts, including humans, by the bite of infected tsetse flies and is responsible for human sleeping sickness, a lethal disease that is a serious problem in Africa. See page 463.

Image: Gilles Vanwalleghem, Daniel Monteyne, Etienne Pays, and David Pérez-Morga, Laboratory of Molecular Parasitology and Center for Microscopy and Molecular Imaging, Université Libre de Bruxelles, Gosselies, Belgium
REVIEW

431 New Paradigms in Type 2 Immunity
B. Pulendran and D. Artis

BREVIA

436 Explosive Backpacks in Old Termite Workers
J. Šobotník et al.
As Neocapritermes taracua termites age, they develop a suicidal toxic apparatus that bursts during aggressive encounters.
>> Science Podcast

RESEARCH ARTICLE

437 The Connectome of a Decision-Making Neural Network
T. A. Jarrell et al.
The complete wiring structure of the synaptic network governing mating behavior of male nematodes is revealed.
>> Perspective p. 416

REPORTS

444 Binary Interaction Dominates the Evolution of Massive Stars
H. Sana et al.
Analysis of a sample of massive stars in our Galaxy implies that most will interact with a nearby companion.

446 Excitation of Orbital Angular Momentum Resonances in Helically Twisted Photonic Crystal Fiber
G. K. L. Wong et al.
Adding chirality to the structure of a photonic crystal fiber may provide another route to controlling light transmission.

450 Plasmonic Nanolaser Using Epitaxially Grown Silver Film
Y.-J. Lu et al.
An atomically smooth layer of silver enhances the performance of nanophotonic devices.

453 Predictive Self-Assembly of Polyhedra into Complex Structures
P. F. Damasceno et al.
Two parameters relating to particle shape and nearest neighbors reveal the preferred packing of complex structures.
>> Perspective p. 417; Science Podcast

457 The Tides of Titan
L. Iess et al.
Gravity measurements by the Cassini spacecraft suggest that Saturn’s moon Titan hosts a subsurface ocean.

459 Isotropic Events Observed with a Borehole Array in the Chelungpu Fault Zone, Taiwan
K.-F. Ma et al.
High-pressure fluids induce fracturing along preexisting cracks near the site of a recent earthquake.

463 Adenylate Cyclases of Trypanosoma brucei Inhibit the Innate Immune Response of the Host
D. Salmon et al.
Parasites release cyclic adenosine monophosphate when swallowed up by myeloid cells, thereby turning off a host defense pathway.

467 GFAJ-1 Is an Arsenate-Resistant, Phosphate-Dependent Organism
T. J. Erb et al.
Absence of Detectable Arsenate in DNA from Arsenate-Grown GFAJ-1 Cells
M. L. Reeves et al.
Claims of arsenic substitution for phosphorus in the biomolecules of a Mono Lake bacterium are not independently reproduced.

473 The Structure and Catalytic Cycle of a Sodium-Pumping Pyrophosphatase
J. Kellosalo et al.
Structures of a Thermotoga maritima sodium ion-pumping, membrane-integral pyrophosphatase provide a model of the pumping mechanism.

477 Human α-Defensin 6 Promotes Mucosal Innate Immune Through Self-Assembled Peptide Nanonets
H. Chu et al.
Rather than killing bacteria directly, a gut antimicrobial peptide forms netlike structures that ensnare invading bacteria.
>> Perspective p. 420

481 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.
>> Perspective p. 418

485 Memory’s Penumbra: Episodic Memory Decisions Induce Lingering Mnemonic Biases
K. Duncan et al.
It takes time for the hippocampus to switch between laying down new memories and recalling old ones.

CONTENTS continued >>