A pregnant female tsetse fly (Glossina morsitans), roughly equivalent in size to a housefly. Tsetse flies are the sole carriers of human African trypanosomiasis (sleeping sickness). See pages 349 and 380 for a description of the sequencing and annotation of the tsetse fly genome.

Photo: Geoffrey M. Attardo, Yale School of Public Health
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376 Cryo-EM Study of the Chromatin Fiber Reveals a Double Helix Twisted by Tetranucleosomal Units
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The structure of a segment of chromatin reveals the importance of the linker histone in determining its conformation.
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380 Genome Sequence of the Tsetse Fly (Glossina morsitans): Vector of African Trypanosomiasis
International Glossina Genome Initiative
Blood-sucking tsetses transmit protozoan parasites, harbor multiple symbionts, reproduce viviparously, and lactate.
>> News story p. 349

386 Discovery of Brainwide Neural-Behavioral Maps via Multiscale Unsupervised Structure Learning
J. T. Vogelstein et al.
An atlas is generated to reveal activation of which specific neurons in a Drosophila larva produce specific behaviors.
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392 A Dual-Catalysis Approach to Enantioselective [2 + 2] Photocycloadditions Using Visible Light
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A two-catalyst combination offers long-sought selectivity in intermolecular coupling of olefins to form four-membered rings.
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396 Detection of the Gravitational Lens Magnifying a Type Ia Supernova
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An unusually bright supernova faded away to reveal a foreground galaxy responsible for bending and amplifying its light.
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Hydrogen-rich apatite crystals in lunar volcanic rocks indicate self-inflicted loss of fluorine from basaltic melts.
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402 Preservation of a Preglacial Landscape Under the Center of the Greenland Ice Sheet
P. R. Bierman et al.
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A. R. Babbin et al.
The variable ratio of denitrification to ammonia in the ocean is due to variations in organic matter quality and quantity.

409 Conversion of Channelrhodopsin into a Light-Gated Chloride Channel
J. Wietek et al.
A class of directly light-gated anion channels can be used to block neuronal output in a fully reversible fashion.
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413 High-Resolution Genomic Analysis of Human Mitochondrial RNA Sequence Variation
A. Hodgkinson et al.
Mitochondrial posttranscriptional variation is common among humans and can be attributed to a nuclear gene.

416 Single-Cell Genomics Reveals Hundreds of Coexisting Subpopulations in Wild Prochlororococcus
N. Kashan et al.
Covariation between the core alleles and flexible gene content of a marine cyanobacterium underpins vast diversity.
>> Perspective p. 369; Report p. 409

420 Structure-Guided Transformation of Channelrhodopsin into a Light-Activated Chloride Channel
A. Berndt et al.
A class of directly light-gated anion channels can be used to block neuronal output in a fully reversible fashion.
>> Perspective p. 366

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Brain imaging reveals how the brain can selectively attend to one of two overlapping objects.

427 A Chloroplast Retrograde Signal Regulates Nuclear Alternative Splicing
E. Petriolo et al.
In plants, light-dependent regulation of nuclear alternative splicing involves a signal generated within the chloroplast.
Science 344 (6182), 338-431.

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