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ON THE WEB THIS WEEK
>> Science Podcast
This week’s show features a segment on the science of soundscapes and a roundup of shorts from our daily news site.

>> Find More Online
Check out the latest in a series of Perspectives on Challenges in Climate Science at www.sciencemag.org/extra/climate.

COVER
Composite image from a molecular animation of how endocytic clathrin-coated vesicles ~100 nanometers in diameter form. Clathrin is the principal molecular scaffold for many cellular membrane trafficking processes. The Gordon Research Conference on Lysosomes and Endocytosis will be held 15 to 20 June 2014 in Andover, New Hampshire. See page 902 for the conference schedule and preliminary programs.

Image: Janet Iwasa (University of Utah) and Tom Kirchhausen (Harvard Medical School)

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S. Roy et al.
Transfer of signaling proteins along long filopodia is required for proper development in the fruit fly.
Research Article Summary; for full text: http://dx.doi.org/10.1126/science.1244624
>> Perspective p. 848

853   Rhodium-Catalyzed Intermolecular C–H Silylation of Arenes with High Steric Regiocontrol
C. Cheng and J. F. Hartwig
A catalyst that adds silyl groups to specific sites on aryl rings could streamline synthesis of pharmaceutical intermediates.
>> Perspective p. 850

857   Dendritic Inhibition in the Hippocampus Supports Fear Learning
M. Lovett-Barron et al.
Cholinergic activation of somatostatin-positive hippocampal CA1 interneurons promotes fear-context associations.

REPORTS

864   Discovery of a Three-Dimensional Topological Dirac Semimetal, Na,Bi
Z. K. Liu et al.
Angle-resolved photoemission spectroscopy is used to detect bulk Dirac cones in a three-dimensional analog of graphene.

868   Artificial Muscles from Fishing Line and Sewing Thread
C. S. Haines et al.
Polymer fibers can be transformed into highly efficient artificial muscles through the application of extreme twist.
>> Perspective p. 845

873   “Nonswellable” Hydrogel Without Mechanical Hysteresis
H. Kamata et al.
Addition of a thermoresponsive component to a hydrogel counters its tendency to swell and improves its mechanical properties.
>> Perspective p. 846

875   The Robustness and Evolvability of Transcription Factor Binding Sites
J. L. Payne and A. Wagner
Transcription factor binding sites form connected networks.

878   Structural Insights into Ubiquinone Biosynthesis in Membranes
W. Cheng and W. Li
An integral membrane enzyme active site opens laterally to the lipid bilayer to facilitate catalysis inside the membrane.

Flavivirus NS1 Structures Reveal Surfaces for Associations with Membranes and the Immune System
D. L. Akey et al.
The structure of a viral protein provides a basis for understanding its function and could guide vaccine development.
>> Perspective p. 849

881   Growth Factors Engineered for Super-Affinity to the Extracellular Matrix Enhance Tissue Healing
M. M. Martino et al.
A strategy to engineer tissues uses substantially lower growth factor levels without compromising tissue viability.

885   Action Monitoring and Medial Frontal Cortex: Leading Role of Supplementary Motor Area
F. Bonini et al.
Detection of a core brain region for performance monitoring and error detection in humans is shown.

888   Grid-Layout and Theta-Modulation of Layer 2 Pyramidal Neurons in Medial Entorhinal Cortex
S. Ray et al.
Looking at the entorhinal cortex in tangential sections reveals calbindin-immunopositive neurons arranged in a hexagonal grid.

891   Island Cells Control Temporal Association Memory
T. Kitamura et al.
A distinct set of excitatory neurons in the entorhinal cortex projects directly to specific interneurons in the hippocampus.
>> Perspective p. 849
Editor's Summary

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