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Orbulina universa, a planktonic foraminifera captured live from surface waters off Santa Catalina Island, California. Symbiotic dinoflagellates inhabit the calcite spines (length ~2.5 millimeters) radiating out from a spherical calcite shell (diameter ~0.5 millimeters). After four weeks, the shells sink to the sea floor and become part of the deep-sea microfossil assemblage. The geochemical compositions of these fossils are used to reconstruct past changes in seawater chemistry (see page 818).

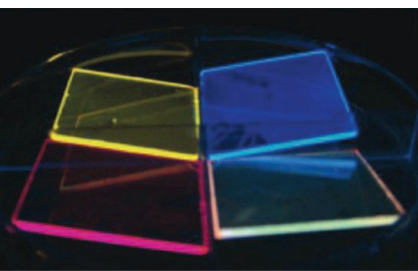
Photo: Howard J. Spero, University of California, Davis

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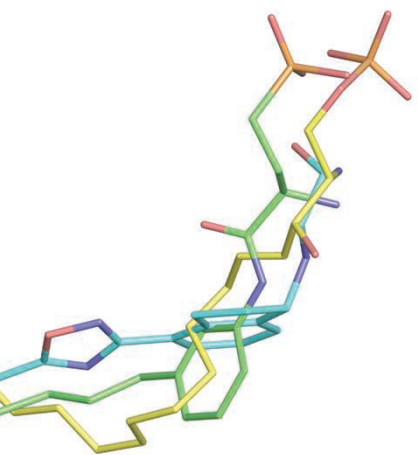
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>> *Perspective p. 810*
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Validation of predicted nonfunctional alleles in the human genome affects the medical interpretation of genomic analyses.
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Nuclear magnetic resonance shows that an exotic state of matter may have the properties necessary for error-free quantum computing.
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>> *Perspective p. 805*
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A channel in a lipid-dependent G protein–coupled receptor allows a ligand to access its binding site from within the plasma membrane.
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Expression of nitric oxide synthase followed by peroxidase activity makes *Plasmodium* visible to the insect's complement system.
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Individual assistant professors hired since 1990 at 14 U.S. universities were tracked from time of hire to time of departure.
>> *Science Podcast*

SCIENCEONLINE

SCIENCEEXPRESS

www.sciencexpress.org

Lin28b Reprograms Adult Bone Marrow Hematopoietic Progenitors to Mediate Fetal-like Lymphopoiesis

J. Yuan et al.

The RNA binding protein Lin28 drives fetal modes of immune cell development.

10.1126/science.1216557

The Transcription Factor c-Maf Controls Touch Receptor Development and Function

H. Wende et al.

A mutation known to cause cataracts also disables a specialized mechanosensory receptor in mice and humans.

10.1126/science.1214314

Influence of Synaptic Vesicle Position on Release Probability and Exocytotic Fusion Mode

H. Park et al.

Tracking of individual synaptic vesicles reveals that kiss-and-run fusion is concentrated near the center of the synapse.

10.1126/science.1216937

Observation of Quantum Criticality with Ultracold Atoms in Optical Lattices

X. Zhang et al.

Trapped low-temperature atoms model the transition between insulating and superfluid states in a more complex material.

10.1126/science.1217990

¹⁸²W Evidence for Long-Term Preservation of Early Mantle Differentiation Products

M. Touboul et al.

Tungsten isotopes in ancient volcanic rocks suggest sluggish mixing processes in the primitive mantle.

10.1126/science.1216351

Surveillance of Animal Influenza for Pandemic Preparedness

J. S. M. Peiris et al.

10.1126/science.1219936

>> *News story p. 785; Policy Forums pp. 799, 801, and 802; see all H5N1 coverage online at http://scim.ag/_h5n1*

TECHNICALCOMMENTS

Comment on "A Diverse Assemblage of Late Cretaceous Dinosaur and Bird Feathers from Canadian Amber"

C. J. Dove and L. C. Straker

Full text at www.sciencemag.org/cgi/content/full/335/6070/796-b

Response to Comment on "A Diverse Assemblage of Late Cretaceous Dinosaur and Bird Feathers from Canadian Amber"

R. C. McKellar et al.

Full text at www.sciencemag.org/cgi/content/full/335/6070/796-c

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Highlights From Our Daily News Coverage

Embryos Starved of Oxygen May Be 'Programmed' for Heart Disease

A rat study suggests antioxidants could help.

http://scim.ag/Embryos_Oxygen

Is Agriculture Sucking Fresh Water Dry?

Crops account for 92% of fresh water used each year, according to a new global analysis.

http://scim.ag/Fresh_Water

A Piranha-Proof Fish

Unique scales keep arapaima from becoming lunch.

<http://scim.ag/Piranha-Proof>

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

14 February issue: <http://scim.ag/ss021412>

RESEARCH ARTICLE: Selective TRIF-Dependent Signaling by a Synthetic Toll-Like Receptor 4 Agonist

W. S. Bowen et al.

A single change in a synthetic lipid A mimetic may reduce the toxicity of this vaccine adjuvant.

RESEARCH ARTICLE: MNK2 Inhibits eIF4G

Activation Through a Pathway Involving Serine-Arginine-Rich Protein Kinase in Skeletal Muscle

S.-I. Hu et al.

In muscle, the kinase-dependent and -independent activities of MNK2 exert a negative effect on protein synthesis pathways.

TEACHING RESOURCE: Measurement of cAMP in an Undergraduate Teaching Laboratory, Using ALPHAscreen Technology

J. D. Bartho et al.

Students measure the changes in cyclic AMP, a second messenger molecule, with a light-based assay.

ST NETWORK: Minimum Information for Biological and Biomedical Investigations (MIBBI)

This site provides checklists that specify the metadata required for experimental data sets.

ST NETWORK: Protein Information Resource (PIR)

Access tools for integrating genomic and proteomic information from various databases.

PODCAST

M. Peters-Golden and A. M. VanHook

The protein phosphatase activity of PTEN impairs macrophage phagocytosis of a fungal pathogen by promoting actin depolymerization.

SCIENCE TRANSLATIONAL MEDICINE

www.sciencetranslationalmedicine.org

Integrating Medicine and Science

15 February issue: <http://scim.ag/stm021512>

RESEARCH ARTICLE: MicroRNA-21 Promotes Fibrosis of the Kidney by Silencing Metabolic Pathways

B. N. Chau et al.

MicroRNA-21 contributes to fibrosis in the kidney by posttranscriptionally regulating lipid metabolism genes.

RESEARCH ARTICLE: T-Type Calcium Channel Blockers That Attenuate Thalamic Burst Firing and Suppress Absence Seizures

E. Tringham et al.

T-type calcium channel blockers attenuate neural activity in the thalamus and suppress seizures in a genetic model of epilepsy.

RESEARCH ARTICLE: Phosphorylated α -Synuclein in Parkinson's Disease

Y. Wang et al.

An assay for detecting phosphorylated α -synuclein in CSF may help to diagnose Parkinson's disease and determine disease severity.

PERSPECTIVE: Viral and Inflammatory Triggers of Neurodegenerative Diseases

M. Deleidi and O. Isacson

Immune pathways induced by viral infections render neurons vulnerable to subsequent degeneration.

SCIENCE CAREERS

www.sciencereers.org/career_magazine

Free Career Resources for Scientists

Tooling Up: The Big Disconnect

D. Jensen

In today's biomedical industry, pinpoint hiring is the rule.

http://scim.ag/TU_Disconnect

Perspective: Bridging Your Research Into Public Health

K. Chan

A public health researcher and former bench scientist offers advice on how to implement your science in the real world.

<http://scim.ag/KeeChan>

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Science Policy News and Analysis

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