

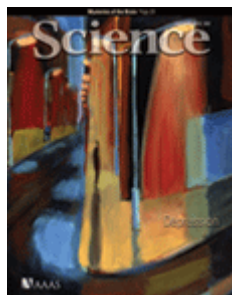
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Special Issue

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Depression

INTRODUCTION

Defeating the Dementors

Peter Stern

Science 5 October 2012: 67.

[Full Text](#) [Full Text \(PDF\)](#)

Review**Synaptic Dysfunction in Depression: Potential Therapeutic Targets**

Ronald S. Duman and George K. Aghajanian

Science 5 October 2012: 68-72.[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)**Perspectives****Depression and Hippocampal Neurogenesis: A Road to Remission?**

Amelia J. Eisch and David Petrik

Science 5 October 2012: 72-75.[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)**Are We Getting Closer to Valid Translational Models for Major Depression?**

Olivier Berton, Chang-Gyu Hahn, and Michael E. Thase

Science 5 October 2012: 75-79.[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)**The Science of Resilience: Implications for the Prevention and Treatment of Depression**

Steven M. Southwick and Dennis S. Charney

Science 5 October 2012: 79-82.[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Podcast Interview](#)**Contents**For all checked items [VIEW ABSTRACT](#)**This Week in *Science***

Editor summaries of this week's papers.

Science 5 October 2012: 11.[Full Text](#) [Full Text \(PDF\)](#)

EDITORIAL:

The Burden of Mood Disorders

Hans-Ulrich Wittchen

Science 5 October 2012: 15.[Summary](#) [Full Text](#) [Full Text \(PDF\)](#) [Podcast Interview](#)**Editors' Choice**

Highlights of the recent literature.

Science 5 October 2012: 17.[Full Text](#) [Full Text \(PDF\)](#)**Cover Stories: Abstract Ideas***Science* 5 October 2012: 1.

Science can require a good deal of abstract thinking, and sometimes it makes sense to extend this approach

[Full Text](#)

Science Podcast

Science 5 October 2012: 140.

The show includes depression resilience, properties of dinosaur teeth, mysteries of the brain, and more.

[Summary](#) [Full Text](#) [Transcript](#)

New Products

Science 5 October 2012: 140.

A weekly roundup of information on newly offered instrumentation, apparatus, and laboratory materials of researchers.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

News of the Week

This Week's Section

Science 5 October 2012: 22-24.

[Summary](#) [Full Text \(PDF\)](#)

Around the World

Science 5 October 2012: 22-23.

In science news around the world this week, prison terms are being sought for seven Italian earthquake engineers who downplayed the risk of the deadly earthquake that struck L'Aquila in 2009, billions of euros in Spanish reconstruction unspent, a new Ebola-like virus has been discovered in the Democratic Republic of the Congo, and a Japanese discovery of element 113.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

Random Sample

Science 5 October 2012: 23-24.

Researchers found that geography plays a role in why biomedical papers are retracted, eminent 19th century naturalist Russel Wallace now has his own Web site, and this week's numbers quantify the annual worldwide cost of coral reef loss and average decline in coral cover on the Great Barrier Reef from 1985 to 2012.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

Newsmakers

Science 5 October 2012: 23.

This week's Newsmakers are Barry Commoner, a cell biologist, proponent of the Nuclear Test Ban Treaty and environmental movement, who died on 30 September at the age of 95; polar bear researcher Charles Mowat, who worked after being cleared of charges of research misconduct; and physicist Stefano Ragazzi, who has been a leader at the Gran Sasso National Laboratory in Italy.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

Findings

Science 5 October 2012: 23.

[Full Text](#) [Full Text \(PDF\)](#)

News & Analysis

CONDENSED-MATTER PHYSICS

Supersolidity Shot Down by Its Own Discoverer

Adrian Cho

Science 5 October 2012: 25-26.

It now appears that the bizarre phenomenon of supersolidity—in which ultracold, highly pressurized solid through itself like a liquid without any viscosity—simply doesn't exist.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

JAPAN

Utility Sacrificed for Speed, Supercomputer Critics Say

Dennis Normile

Science 5 October 2012: 26.

As Japan's K computer, which made headlines in June 2011 as the world's fastest supercomputer, is put problems, some scientific users say it was too narrowly built for speed.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

CLIMATE CHANGE

Researchers Struggle to Assess Responses to Ocean Acidification

David Malakoff

Science 5 October 2012: 27-28.

Scientists met last week to discuss how to build a better crystal ball to gauge the effects of rising CO₂ er

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

CHEMISTRY

'Awesome' Synthesis Could Boost Protein-Based Drugs

Robert F. Service

Science 5 October 2012: 28.

Synthetic chemists reported last week that for the first time they had synthesized erythropoietin with a un that decorate the outside of the natural molecule.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

BIOMEDICINE

Pharma Firms Push for Sharing of Cancer Trial Data

Yudhijit Bhattacharjee

Science 5 October 2012: 29.

A consortium of pharmaceutical companies hopes to improve the success rate of experimental cancer th researchers to share data from clinical trials.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

News Focus

Mysteries of the Brain

Leslie Roberts and John Travis

Science 5 October 2012: 30.

[Full Text](#) [Full Text \(PDF\)](#) [Podcast Interview](#)

MYSTERIES OF THE BRAIN

How Are Memories Retrieved?

Greg Miller

Science 5 October 2012: 30-31.

New work suggests that memory is far more fluid than neuroscientists thought, and that memory retrieval shaping memory over time.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

MYSTERIES OF THE BRAIN

Why Is Mental Illness So Hard to Treat?

Greg Miller

Science 5 October 2012: 32-33.

The human brain is complex and difficult to study, which has impeded development of drug treatments for tools and new ways of thinking could help the field gain new traction.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

MYSTERIES OF THE BRAIN

Why Are Our Brains So Big?

Michael Balter

Science 5 October 2012: 33-34.

The leading hypothesis for why humans have such large brains is that we live in large social groups, which processing power. But which came first, the big groups or the big brains?

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

MYSTERIES OF THE BRAIN

Why Are You and Your Brain Unique?

Greg Miller

Science 5 October 2012: 35-36.

Recent work has provided clues about the neural basis of individual differences in behavior, cognition, and there's still much we don't know.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

MYSTERIES OF THE BRAIN

Can We Make Our Brains More Plastic?

Gretchen Vogel

Science 5 October 2012: 36-39.

Neuroscientists have begun to understand a few of the factors that govern the flexibility of certain parts of the brain that may one day make it possible to rewire the adult brain.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

MYSTERIES OF THE BRAIN

Brain Teasers

Greg Miller

Science 5 October 2012: 39.

The brain poses many more than just the five quandaries highlighted in this package. *Science* summarizes brain that any neuroscientist should be proud to tackle.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

Letters

NextGenVOICES

Science 5 October 2012: 40-43.

[Full Text](#) [Full Text \(PDF\)](#) [NextGenVoices Results](#)

Books *et al.*

AGRICULTURE

Infusing Evolutionary Perspectives

Allison A. Snow

Science 5 October 2012: 45.

Questioning both the techno-centric approach of biotech and those who advocate blindly trying to mimic nature, Denison argues that Darwinian insights are crucial to identify promising approaches to crop breeding and

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

EVOLUTION

They've Kept On Keeping On

Emma Sherratt

Science 5 October 2012: 46.

Forrey introduces readers to well-worn organisms that, having endured all of the difficulties thrown at them, are as "messengers from deep geological time."

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

Browsings

Science 5 October 2012: 46.

[Full Text](#) [Full Text \(PDF\)](#)

Books Received

Science 5 October 2012: 46.

A [listing of books received](#) at *Science* during the week ending 28 September 2012.

[Summary](#)

Essays on Science and Society

EPPENDORF WINNER

When Attention Wanders

Marlene R. Cohen

Science 5 October 2012: 58-59.

Examining the neural process of visual attention helps decipher how the brain extracts important sensory

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

EPPENDORF FINALIST

Striatal Interneurons: Causes of or Cures for Movement Disorders?

Aryn Gittis

Science 5 October 2012: 59.[Full Text](#) [Full Text \(PDF\)](#)

EPPENDORF FINALIST

The Cellular Feeling of Pressure

Bertrand Coste

Science 5 October 2012: 59.[Full Text](#) [Full Text \(PDF\)](#)**Policy Forum**

ENERGY

Deploying Off-Grid Technology to Eradicate Energy Poverty

Benjamin K. Sovacool

Science 5 October 2012: 47-48.

Projects must account for social and behavioral factors influencing renewable energy technology adoption.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)**Perspectives**

EPIDEMIOLOGY

Malaria in the Post-Genome Era

Brian Greenwood and Seth Owusu-Agyei

Science 5 October 2012: 49-50.

New approaches to malaria control should include the development of tools that rely on genome-based interventions.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

ECOLOGY

How Insect Herbivores Drive the Evolution of Plants

J. Daniel Hare

Science 5 October 2012: 50-51.

The presence or absence of particular herbivore species influences which plant genotypes are favored by natural selection.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

DEVELOPMENTAL BIOLOGY

Intestinal Wound Healing Requires a Wnt Balancing Act

Terrence A. Barrett

Science 5 October 2012: 51-52.

Control of wound healing via balancing signaling regulators may have implications for treating inflammatory bowel disease.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

CANCER

Bacteria Deliver a Genotoxic Hit

Robert F. Schwabe and Timothy C. Wang

Science 5 October 2012: 52-53.

Intestinal inflammation can promote colorectal cancer by altering the composition of the gut microbiota.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

GEOPHYSICS

Earthquakes in the Lab

Toshihiko Shimamoto and Tetsuhiro Togo

Science 5 October 2012: 54-55.

Friction experiments using a flywheel-based apparatus can be used to simulate natural earthquakes.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

MATERIALS SCIENCE

Melting Colloidal Crystals from the Inside Out

Eric R. Weeks

Science 5 October 2012: 55-56.

How crystals melt can be seen directly by studying size-tunable colloidal particles.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

BIOCHEMISTRY

A DNA Twist Diffuses and Hops

Maxim Y. Sheinin and Michelle D. Wang

Science 5 October 2012: 56-57.

Single-molecule techniques reveal short- and long-range dynamics of supercoiled DNA.

[Summary](#) [Full Text](#) [Full Text \(PDF\)](#)

Review

Theory and Simulation in Neuroscience

Wulfram Gerstner, Henning Sprekeler, and Gustavo Deco

Science 5 October 2012: 60-65.

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)

Reports

The Shortest-Known-Period Star Orbiting Our Galaxy's Supermassive Black Hole

L. Meyer, A. M. Ghez, R. Schödel, S. Yelda, A. Boehle, J. R. Lu, T. Do, M. R. Morris, E. E. Becklin, and K.

Science 5 October 2012: 84-87.

A star can help probe Einstein's general relativity theory close to a black hole that is 4 million times as massive as our Sun.

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

Imaging the Homogeneous Nucleation During the Melting of Superheated Colloidal Crystals

Ziren Wang, Feng Wang, Yi Peng, Zhongyu Zheng, and Yilong Han

Science 5 October 2012: 87-90.

Uniform colloidal crystals are used to study the effects of superheating on homogeneous melting.

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

A Local Proton Source Enhances CO₂ Electroreduction to CO by a Molecular Fe Catalyst

Cyrille Costentin, Samuel Drouet, Marc Robert, and Jean-Michel Savéant

Science 5 October 2012: 90-94.

Phenol groups in an iron complex appear to facilitate catalysis of carbon dioxide reduction by supplying p

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

Dynamics of DNA Supercoils

M. T. J. van Loenhout, M. V. de Grunt, and C. Dekker

Science 5 October 2012: 94-97.

Published online 13 September 2012 [DOI:10.1126/science.1225810]

The movement of intertwined loops, or plectonemes, along a twisted DNA molecule was visualized.

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

Complex Dental Structure and Wear Biomechanics in Hadrosaurid Dinosaurs

Gregory M. Erickson, Brandon A. Krick, Matthew Hamilton, Gerald R. Bourne, Mark A. Norell, Erica Lilleod

Science 5 October 2012: 98-101.

The teeth in duck-billed dinosaurs were as functionally refined as those of present-day mammals.

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#) [Podcast Interview](#)

Rapid Acceleration Leads to Rapid Weakening in Earthquake-Like Laboratory Experiments

J. C. Chang, D. A. Lockner, and Z. Reches

Science 5 October 2012: 101-105.

High-velocity experiments simulate slip along a fault patch during a large earthquake.

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

The Efficacy of Student-Centered Instruction in Supporting Science Learning

E. M. Granger, T. H. Bevis, Y. Saka, S. A. Southerland, V. Sampson, and R. L. Tate

Science 5 October 2012: 105-108.

A randomized trial reveals that opportunities to support models with evidence aids understanding in grad

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

Wnt5a Potentiates TGF- β Signaling to Promote Colonic Crypt Regeneration After Tissue Injury

Hiroyuki Miyoshi, Rieko Ajima, Christine T. Luo, Terry P. Yamaguchi, and Thaddeus S. Stappenbeck

Science 5 October 2012: 108-113.

Published online 6 September 2012 [DOI:10.1126/science.1223821]

Repair of the intestinal epithelium requires both cell proliferation and replacement of crypt stem cells.

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

Insect Herbivores Drive Real-Time Ecological and Evolutionary Change in Plant Populations

Anurag A. Agrawal, Amy P. Hastings, Marc T. J. Johnson, John L. Maron, and Juha-Pekka Salminen

Science 5 October 2012: 113-116.

Protecting the common evening primrose from being eaten by insects alters its phenotype in only five gro

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

Natural Enemies Drive Geographic Variation in Plant Defenses

Tobias Züst, Christian Heichinger, Ueli Grossniklaus, Richard Harrington, Daniel J. Kliebenstein, and Linds

Science 5 October 2012: 116-119.

A field study demonstrates that specialist aphid feeders cause changes in the defenses mounted by plan

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

Intestinal Inflammation Targets Cancer-Inducing Activity of the Microbiota

Janelle C. Arthur, Ernesto Perez-Chanona, Marcus Mühlbauer, Sarah Tomkovich, Joshua M. Uronis, Ting-Turki Abujamel, Belgin Dogan, Arlin B. Rogers, Jonathan M. Rhodes, Alain Stintzi, Kenneth W. Simpson, J Temitope O. Keku, Anthony A. Fodor, and Christian Jobin

Science 5 October 2012: 120-123.

Published online 16 August 2012 [DOI:10.1126/science.1224820]

Microbes resident in the gut can promote colorectal cancer in mice in an inflammation-independent man

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

BDNF Is a Negative Modulator of Morphine Action

Ja Wook Koo, Michelle S. Mazei-Robison, Dipesh Chaudhury, Barbara Juarez, Quincey LaPlant, Deverou Haosheng Sun, Kimberly N. Scobie, Diane Damez-Werno, Marshall Crumiller, Yoshinori N. Ohnishi, Yoko David M. Dietz, Mary Kay Lobo, Rachael L. Neve, Scott J. Russo, Ming-Hu Han, and Eric J. Nestler

Science 5 October 2012: 124-128.

Morphine reward is modulated by ventral tegmental area brain-derived neurotrophic factor in a way that i of cocaine reward.

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

Shared Synaptic Pathophysiology in Syndromic and Nonsyndromic Rodent Models of Autism

Stéphane J. Baudouin, Julien Gaudias, Stefan Gerharz, Laetitia Hatstatt, Kuikui Zhou, Pradeep Punnakkal Will Spooren, Rene Hen, Chris I. De Zeeuw, Kaspar Vogt, and Peter Scheiffele

Science 5 October 2012: 128-132.

Published online 13 September 2012 [DOI:10.1126/science.1224159]

Deficiency or mutation of the postsynaptic adhesion protein neuroligin-3 may contribute to cognitive defe

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

In Monkeys Making Value-Based Decisions, LIP Neurons Encode Cue Salience and Not Action Value

Marvin L. Leathers and Carl R. Olson

Science 5 October 2012: 132-135.

Parietal cortex neurons respond to cues that predict large penalties as well as large rewards.

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

Network Resets in Medial Prefrontal Cortex Mark the Onset of Behavioral Uncertainty

Mattias P. Karlsson, Dougal G. R. Tervo, and Alla Y. Karpova

Science 5 October 2012: 135-139.

Abrupt neuronal activity in the rat prefrontal cortex indicates a switch from exploitation to exploration.

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplementary Materials](#)

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PROGRESS IN IMMUNOLOGY: From Basic Discoveries to Medical Innovation

Science 5 October 2012: 140.

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