Science

26 June 2009 | $10

Stem Cells

AAAS

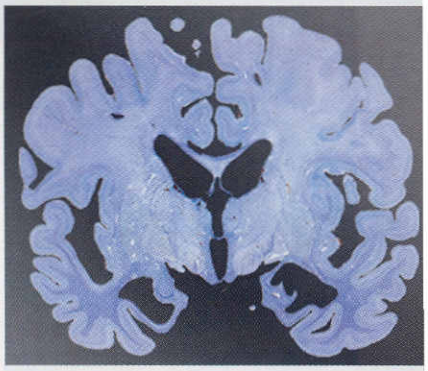
SPECIAL SECTION

Stem Cells

INTRODUCTION

PERSPECTIVES

REVIEWS



page 1634

EDITORIAL

NEWS OF THE WEEK

NEWS FOCUS

LETTERS

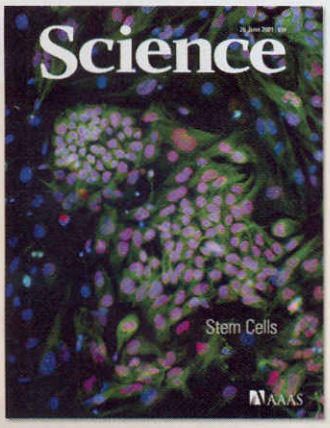
BOOKS *ET AL.*

POLICY FORUM

EDUCATION FORUM

PERSPECTIVES

CONTENTS continued >>



COVER

Colonies of human embryonic stem cells with differentiating cells at their edges, growing on mouse feeder cells. Cell nuclei are stained in blue, nuclear lamina in red, and cytoplasm in green (overlapping blue and red areas appear purple). The self-renewal capacity and pluripotency of human stem cells make them valuable for modeling human disease. These cells also display potential for transplantation medicine. See the special section beginning on page 1661.

Image: Oded Kopper and Nissim Benvenisty, The Hebrew University of Jerusalem

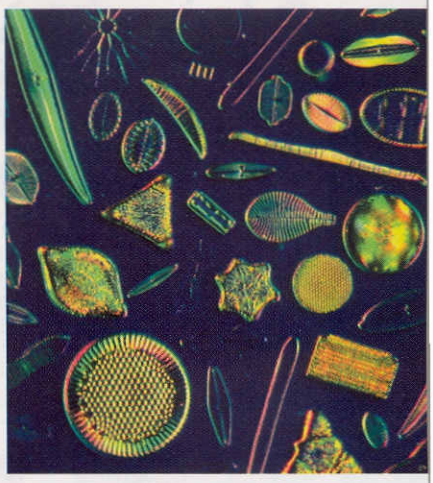
DEPARTMENTS

REVIEW

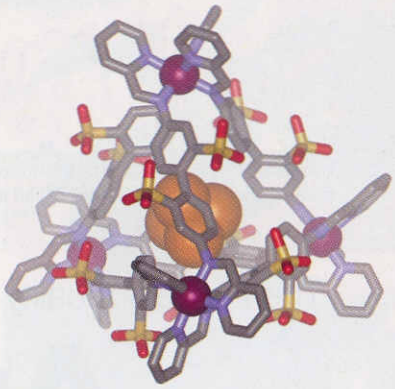
BREVIA

RESEARCH ARTICLE

REPORTS



pages 1651 & 1724



page 1697

CONTENTS continued >>

SCIENCEONLINE

SCIENCEXPRESS
www.sciencexpress.org

String Theory, Quantum Phase Transitions, and the Emergent Fermi Liquid
M. Čubrović et al.

Mathematical methods developed in string theory to describe gravity are applied to complex condensed matter systems.
10.1126/science.1174962

Measuring the Cosmic Ray Acceleration Efficiency of a Supernova Remnant
E. A. Helder et al.

The pressure induced by cosmic rays produced by the explosion of a star exceeds the thermal pressure behind the shock wave.
10.1126/science.1173383

A Gene Network Regulating Lysosomal Biogenesis and Function
M. Sardiello et al.

Coordination of the genes that regulate lysosomal biogenesis occurs via a shared sequence motif and one transcription factor.
10.1126/science.1174447

An ER-Mitochondria Tethering Complex Revealed by a Synthetic Biology Screen
B. Kornmann et al.

A protein complex zippers mitochondria to endoplasmic reticulum for phospholipid transfer.
10.1126/science.1175088

DICER1 Mutations in Familial Pleuropulmonary Blastoma
D. A. Hill et al.

A rare form of lung cancer in children is associated with mutational disruption of an enzyme that generates small noncoding RNAs.
10.1126/science.1174334

SCIENCENOW
www.sciencenow.org
Highlights From Our Daily News Coverage

Atoms Speeding From the Moon
Scientists probing the outer reaches of our solar system have hit upon an unusual phenomenon much closer to home.

Tracking Killers of the Sea
Researchers borrow forensic geographic profiling methods to study how sharks hunt.

Fish Throws Away Its Genes as It Grows
Lamprey sheds one-fifth of its genome, but no one's sure why.

SCIENCESIGNALING
www.sciencesignaling.org
The Signal Transduction Knowledge Environment

RESEARCH ARTICLE: The Kinesin Protein Kif7 Is a Critical Regulator of Gli Transcription Factors in Mammalian Hedgehog Signaling
H. O.-L. Cheung et al.

Kif7 may be the functional equivalent of the *Drosophila* kinesin-like protein Costal2.

RESEARCH ARTICLE: PKC-θ Modulates the Strength of T Cell Responses by Targeting Cbl-b for Ubiquitination and Degradation
T. Gruber et al.

PERSPECTIVE: Activation of T Cells: Releasing the Brakes by Proteolytic Elimination of Cbl-b
M. L. Schmitz

Degradation of the ubiquitin E3 ligase Cbl-b in response to T cell costimulation depends on PKC-θ.

PODCAST
A. Levchenko and A. M. VanHook

A microfluidic device enables high-throughput analysis of signaling in individual cells.

SCIENCECAREERS
www.sciencecareers.org/career_magazine
Free Career Resources for Scientists

Career Renewal for Established Scientists
E. Pain

Staying engaged, motivated, and productive after tenure can be challenging.

Rejuvenation Tips for Tenured Faculty
E. Pain

Here are ways to rekindle a passion for science and inject new life into your research.

Revising Best-Laid Plans
S. Carpenter

Tenured scientists tell stories about how they managed to restart their research careers.

SCIENCEPODCAST
www.sciencemag.org/multimedia/podcast
Free Weekly Show

Download the 26 June *Science* Podcast to hear about new draft NIH guidelines for human stem cell research, investigating the neural basis of memory, your letters to *Science*, and more.

ORIGINSBLOG
blogs.sciencemag.org/origins
A History of Beginnings

SCIENCEINSIDER
blogs.sciencemag.org/scienceinsider
Science Policy News and Analysis

SCIENCESIGNALING
Extra digits without Kif7.

SCIENCECAREERS
Renewing your career after tenure.

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals Mail postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Domestic individual membership and subscription (51 issues): $146 ($74 allocated to subscription). Domestic institutional subscription (51 issues): $835; Foreign postage extra: Mexico, Caribbean (surface mail) $55; other countries (air assist delivery) $85. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254 88122. Publications Mail Agreement Number 1069624. **Printed in the U.S.A.**

Change of address: Allow 4 weeks, giving old and new addresses and 8-digit account number. **Postmaster:** Send change of address to AAAS, P.O. Box 96178, Washington, DC 20090–6178. **Single-copy sales:** $10.00 current issue, $15.00 back issue prepaid includes surface postage; bulk rates on request.

AAAS
ADVANCING SCIENCE, SERVING SOCIETY

CREDITS: (*SCIENCESIGNALING*) RONG MO/THE HOSPITAL FOR SICK CHILDREN; (*SCIENCE CAREERS*) AGRICULTURAL RESEARCH SERVICE/USDA