In this week’s issue:

Editorial

New Rules for Biosecurity
K. M. Berger and A. I. Leshner
http://www.sciencemag.org/cgi/content/summary/324/5931/1117

Research Summaries

This Week in Science
Editor summaries of this week’s papers.
http://www.sciencemag.org/content/vol324/issue5931/twis.dtl
Editors’ Choice
Highlights of the recent literature
http://www.sciencemag.org/content/vol324/issue5931/twil.dtl

News of the Week

Celebrity Fossil Primate: Missing Link or Weak Link?
A 47-million-year-old fossil primate has been touted as the “missing link” between humans and all other mammals. But many of the leading scientists who study primate evolution don’t think Ida lives up to her billing as a human ancestor.
http://www.sciencemag.org/cgi/content/summary/324/5931/1124

Obama Turns to NASA Veterans to Lead Space Agency
On 23 May, President Barack Obama nominated former astronaut Charles Bolden Jr. and Washington lobbyist Lori Garver to take the positions of NASA administrator and deputy administrator, respectively.
http://www.sciencemag.org/cgi/content/summary/324/5931/1125

As Research Funding Declines, Chávez, Scientists Trade Charges
Tensions are growing between the Venezuelan scientific community and President Hugo Chávez. Critics say that research is being mismanaged, and that the government has fired, demoted, or blacklisted dissidents.
http://www.sciencemag.org/cgi/content/summary/324/5931/1126

New Details on Virus’s Promiscuous Past
An international team of scientists working at breakneck speed has provided the most detailed description yet of the origins of the novel H1N1 swine flu virus now causing a global outbreak, published online by Science on 22 May.
http://www.sciencemag.org/cgi/content/summary/324/5931/1127

The Money to Meet the President’s Priorities
The National Science Foundation has turned recent actions by Congress and the priorities of a new president into an array of programs to strengthen the scientific work force, tackle pressing societal problems, and foster collaborations across disciplines.
http://www.sciencemag.org/cgi/content/summary/324/5931/1128-a

Digging for Fresh Ideas in the Sandpit
Does the idea of writing a grant proposal that’s been all but approved before it’s even sent in sound appealing? Then play in the sandpit.
http://www.sciencemag.org/cgi/content/summary/324/5931/1128-b

From the Science Policy Blog
News about the impact of the U.S. stimulus funding package on researchers, the ongoing battle against swine flu, and the impact of California’s financial troubles on the state’s universities were among the headlines on ScienceInsider last week.
http://www.sciencemag.org/cgi/content/summary/324/5931/1129

Arsenic and Old Mummies: Poison May Have Spurred First Mummies
Arsenic-laced drinking water and resulting child mortality may help explain the puzzle of the world’s first mummies.
http://www.sciencemag.org/cgi/content/summary/324/5931/1130

A Cloudy Crystal Ball for the Coming Season’s Hurricanes
A group of meteorologists that each year for 25 years has tried to decipher what the coming summer and fall have in store for hurricane country has graded itself for the first time.
http://www.sciencemag.org/cgi/content/summary/324/5931/1131-a

From Science’s Online Daily News Site
Highlights from Science's online daily news site, ScienceNOW, this week include a way to make compact discs hold 300 movies or 250,000 songs, preventing crashes by shaking, life in hell, and a new clue to cancer protection in Down syndrome.

http://www.sciencemag.org/cgi/content/summary/324/5931/1131-b

Mystery of the Missing Humpbacks Solved by Soviet Data
A paper in Marine Fisheries Review concludes that the high number of unreported catches by Soviet whalers of humpbacks in the Southern Ocean decimated this population so severely that unlike humpback populations elsewhere, it has not yet recovered.

http://www.sciencemag.org/cgi/content/summary/324/5931/1132

Protecting the Last Great Tuna Stocks
Representatives of Western Pacific island nations last week put the finishing touches on a series of bold new measures aimed at saving the world's last great tuna stocks.

http://www.sciencemag.org/cgi/content/summary/324/5931/1133

Random Samples
http://www.sciencemag.org/content/vol324/issue5931/r-samples.dtl

News Focus

Biologists Struggle to Solve Bat Deaths
An epidemic has stricken the northeastern United States for 3 years. As it spreads, researchers wonder whether a white fungus is the real killer.

http://www.sciencemag.org/cgi/content/summary/324/5931/1134

Gut Reactions
A young microbial ecologist is helping to transform medical microbiology into a modern interdisciplinary science.

http://www.sciencemag.org/cgi/content/summary/324/5931/1136

Obama Moves to Revitalize Chesapeake Bay Restoration
With progress stalled for years, the U.S. Environmental Protection Agency is taking the reins on cleaning up the largest estuary in the United States. It's not going to be easy.

http://www.sciencemag.org/cgi/content/summary/324/5931/1138

Letters

"Agriculture" Is Not a Dirty Word
http://www.sciencemag.org/cgi/content/full/324/5931/1140-a

Schools Anxiously Await NRC Program Rankings
http://www.sciencemag.org/cgi/content/full/324/5931/1140-b

Schools Anxiously Await NRC Program Rankings—Response
http://www.sciencemag.org/cgi/content/full/324/5931/1141-a

White Wolves Can Stand the Heat
http://www.sciencemag.org/cgi/content/full/324/5931/1141-b

Corrections and Clarifications
http://www.sciencemag.org/cgi/content/full/324/5931/1143-a

Books et al.

Debating Reality and Relevance
Troy Duster
Anthropologists, historians, geneticists, philosophers, and bioethicists explore what recent and current research on human genetics implies about the concepts of race and racial difference.

http://www.sciencemag.org/cgi/content/summary/324/5931/1144

Under the Influence of Hormones
Elizabeth Adkins-Regan
Besides discussing empirical and theoretical findings on the roles of hormones in casual and crucial social interactions, the contributors link their topics to related fields such as reproductive ecology and life-history theory.

http://www.sciencemag.org/cgi/content/summary/324/5931/1145

Browsings
http://www.sciencemag.org/cgi/content/summary/324/5931/1146-a

Books Received
A listing of books received at Science during the week ended 22 May 2009.

http://www.sciencemag.org/cgi/content/summary/324/5931/1146-b

Perspectives

Celebrating the 400th Anniversary of Telescope Astronomy
Giovanni F. Bignami
Since Galileo looked skyward 400 years ago, telescopes have evolved to provide a broader and deeper understanding of the universe.

http://www.sciencemag.org/cgi/content/summary/324/5931/1149

Getting in Touch with Your Friends
Christopher J. Marx
Evolution of complex physical interactions between microbes promotes growth and enables behaviors that neither party can perform alone.

http://www.sciencemag.org/cgi/content/summary/324/5931/1150

Slabs Do Not Go Gentle
Guust Nolet
High-resolution seismic tomography reveals an active vertical tear in a descending ocean plate off the coast of Japan.

http://www.sciencemag.org/cgi/content/summary/324/5931/1152

What Determines Coral Health?
V. M. Weis and D. Allemand
Genomic and cellular studies are revealing the physiological mechanisms of symbiosis and calcification, which are central to coral health.
Sorting Out Diabetes
C. M. Orme and J. S. Bogan
Altered trafficking of storage vesicles that harbor a glucose transport protein in muscle and fat tissue may contribute to diabetes.

It's the DNA That Counts
Christina D. Smolke
A simple genetic circuit that counts molecular events may be further developed to program complex cell behaviors.

Review Articles

The Computation of Social Behavior
T. E. J. Behrens et al.

Brevia

Entropic Evidence for Linguistic Structure in the Indus Script
R. P. N. Rao et al.
Analysis of the pattern of symbols confirms the linguistic role of ancient signs.

Reports

Magnetic Field Sensing Beyond the Standard Quantum Limit Using 10-Spin NOON States
J. A. Jones et al.
Quantum mechanical entanglement of nuclei in a single molecule results in an enhancement of the magnetic field sensitivity.

Two-Quantum 2D FT Electronic Spectroscopy of Biexcitons in GaAs Quantum Wells
K. W. Stone et al.
Controlling the phase and timing of four optical pulses enables measurement of correlations between the electronic semiconductor carriers.

Tearing of Stagnant Slab
M. Obayashi et al.
A tear in the plate in the mantle provides information on the subduction history of the western Pacific.

Assessment of Undiscovered Oil and Gas in the Arctic
D. L. Gautier et al.
About 30 percent of the world's undiscovered gas and 13 percent of the world's undiscovered oil probably exist north of the Arctic Circle.

Volcanism, Mass Extinction, and Carbon Isotope Fluctuations in the Middle Permian of China
P. B. Wignall et al.
Fossiliferous rocks from southwest China show that a major extinction in the Middle Permian coincided with extensive volcanic eruptions.

Implications of Limiting CO₂ Concentrations for Land Use and Energy
M. Wise et al.
Technologies for growing crops are potentially as important for limiting the concentration of atmospheric CO₂ as are those for capture and storage.

Penultimate Deglacial Sea-Level Timing from Uranium/Thorium Dating of Tahitian Corals
A. L. Thomas et al.
Sea levels rose during the penultimate deglaciation while Northern Hemisphere insolation was at a minimum.

Topographical and Temporal Diversity of the Human Skin Microbiome
E. A. Grice et al.
The human skin provides a landscape of dry, damp, and greasy niches for a diversity of symbiotic microorganisms.

A Role for the CHC22 Clathrin Heavy-Chain Isoform in Human Glucose Metabolism
S. Vassilopoulos et al.
A human-specific vesicle-forming protein regulates relocation of a glucose transporter to the cell membrane.

Proteasomal Regulation of the Hypoxic Response Modulates Aging in C. elegans
R. Mehta et al.
Induction of the hypoxic response in a worm slows aging and enhances resistance to proteotoxicity.

Synthetic Gene Networks That Count
A. E. Friedland et al.
Genetic counters with the ability to count up to three induction events are constructed in Escherichia coli.

Structural Basis of Transcription: Backtracked RNA Polymerase II at 3.4 Angstrom Resolution
D. Wang et al.
A backtracked RNA polymerase II reveals how the enzyme proofreads the RNA transcript.

High-Frequency, Long-Range Coupling Between Prefrontal and Visual Cortex During Attention
G. G. Gregoriou et al.
Synchrony in neuronal firing within a specific frequency range may regulate interactions between brain structures.
Genome-Wide Identification of Human RNA Editing Sites by Parallel DNA Capturing and Sequencing
J. B. Li et al.
Hundreds of new RNA editing sites are identified in the human genome.

Unstable Tandem Repeats in Promoters Confer Transcriptional Evolvability
M. D. Vinces et al.
Unstable repetitive DNA in the control regions of yeast genes modulates the evolution of chromatin structure and gene expression.