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ON THE WEB THIS WEEK
>> Science Podcast
Listen to stories on the minimum requirements for a Y chromosome, the future of missile defense, details of an extraordinary gamma-ray burst, and more.

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COVER
Hit distribution (red, early; green, late) of a neutrino interaction with the Antarctic IceCube neutrino detector on 14 July 2011. Light from this transfer of 250 teraelectron volts of energy fills a sphere 600 meters across. This event, among the highest-energy neutrino interactions ever observed, forms part of the first evidence for a high-energy neutrino flux of astrophysical origin. See pages 920 and 947 and http://dx.doi.org/10.1126/science.1242856.

Credit: IceCube Collaboration

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946 Beyond Stem Cells: Self-Renewal of Differentiated Macrophages
M. H. Sieweke and J. E. Allen
Review Summary; for full text: http://dx.doi.org/10.1126/science.1242974

964 Constraints on the Late Holocene Anthropogenic Contribution to the Atmospheric Methane Budget
L. Mitchell et al.
Records derived from polar ice cores provide constraints on methane emissions during the late preindustrial Holocene.
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967 Commensal Bacteria Control Cancer Response to Therapy by Modulating the Tumor Microenvironment
N. Iida et al.

971 The Intestinal Microbiota Modulates the Anticancer Immune Effects of Cyclophosphamide
S. Viaud et al.
The gut microbiota promote the efficacy of several antineoplastic agents in mice.
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974 Evidence for High-Energy Extraterrestrial Neutrons at the IceCube Detector
IceCube Collaboration
The IceCube observatory at the South Pole detected neutrinos from outside our solar system.
Research Article Summary; for full text: http://dx.doi.org/10.1126/science.1242856
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976 Substitutions Near the Receptor Binding Site Determine Major Antigenic Change During Influenza Virus Evolution
B. F. Koel et al.
The major antigenic changes of the influenza virus are primarily caused by a single amino acid near the receptor binding site.

979 Selective C-H Fluorination of Pyridines
P. S. Fier and J. F. Hartwig
A mild fluorination method could help produce compounds of interest in medicinal research.

983 Identification and Rescue of α-Synuclein Toxicity in Parkinson Patient–Derived Neurons
C. Y. Chang et al.
Screening in yeast yields an effective therapeutic for Parkinson’s patient-derived neuronal stem cells.

987 The Human Language–Associated Gene SRPX2 Regulates Synapse Formation and Vocalization in Mice
G. M. Sia et al.
Studies in mice and rats elucidate the function of a protein encoded by a gene that affects language.
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991 Evidence that the Fosfomycin-Producing Epoxidase, HppE, Is a Non–Heme-Iron Peroxidase
C. Wang et al.
An iron enzyme previously thought to use O₂ as an oxidant appears to use peroxide instead.
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995 Defining Stem Cell Dynamics in Models of Intestinal Tumor Initiation
L. Vermeulen et al.
Common genetic alterations during tumor initiation in the mouse gut reveal clonal advantages.
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997 The Intestinal Microbiota Modulates the Anticancer Immune Effects of Cyclophosphamide
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947 Imaging of a Circumsolar Dust Ring Near the Orbit of Venus
M. H. Jones et al.
Imaging data from the STEREO mission indicate the presence of a dust ring around Venus.

956 Defining Stem Cell Dynamics in Models of Intestinal Tumor Initiation
L. Vermeulen et al.
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958 Organization of the Mitotic Chromosome
N. Naumova et al.
Chromosome conformation changes dramatically during the cell cycle and is unlikely to carry epigenetic information.
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961 Imaging a Circumsolar Dust Ring Near the Orbit of Venus
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