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>> Science Podcast
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COVER
The ability to publish papers and underlying data in full on the Internet is changing how scientists communicate. However, trust in the integrity of submissions and in peer reviewers is being tested by a recent disruptive change: open access. In a special section, Science probes the dramatic shifts in the landscape of scientific communication. See page 56.

Image: David Plunkert
RESEARCH ARTICLES

84  Integrative Annotation of Variants from 1092 Humans: Application to Cancer Genomics  
E. Khurana et al.  
Regions under strong selection in the human genome identify noncoding regulatory elements with possible roles in disease.  
Research Article Summary; for full text:  
http://dx.doi.org/10.1126/science.1235587

85  Mice Genetically Deficient in Vasopressin V1a and V1b Receptors Are Resistant to Jet Lag  
Y. Yamaguchi et al.  
In mice, the pace of recovery from jet lag is partly determined by vasopressin signaling in a certain region of the brain.  
>> Perspective p. 52

REPORTS

91  Selective Gas Transport Through Few-Layered Graphene and Graphene Oxide Membranes  
H. W. Kim et al.  
Stacked graphene and graphene oxide membranes prepared with gas flow channels exhibit tunable gas separation performance.

95  Ultrathin, Molecular-Sieving Graphene Oxide Membranes for Selective Hydrogen Separation  
H. Li et al.  
Ultrathin graphene oxide membranes show enhanced separation selectivity for hydrogen gas.

98  Specific Chemical Reactivities of Spatially Separated 3-Aminophenol Conformers with Cold Ca2+ Ions  
Y.-P. Chang et al.  
A molecular beam technique measures the different reactivities of a compound’s distinct rotational conformations.  
>> Perspective p. 46

101  Nitrogen Isotopic Composition and Density of the Archean Atmosphere  
B. Marty et al.  
Earth’s Archean atmosphere contained roughly as much nitrogen between 3.0 and 3.5 billion years ago as it does today.

104  Following Gene Duplication, Paralog Interference Constrains Transcriptional Circuit Evolution  
C. R. Baker et al.  
Interactions between recent gene duplicates may create functional interference, selecting for regulatory complexity.

108  Surviving in a Marine Desert: The Sponge Loop Retains Resources Within Coral Reefs  
J. M. de Goede et al.  
Sponges take up dissolved organic matter and convert it into consumable cellular material.

111  Allele-Specific Silencing of Mutant Myh6 Transcripts in Mice Suppresses Hypertrophic Cardiomyopathy  
J. Jiang et al.  
In a mouse model, heart disease can be delayed by a therapy that prevents expression of the disease-causing mutation.

114  A Thylakoid-Located Two-Pore K+ Channel Controls Photosynthetic Light Utilization in Plants  
L. Carraretto et al.  
The electrochemical gradient used to make adenosine triphosphate in photosynthesis is modulated by potassium counterflow.  
>> Perspective p. 50

118  Fungal Small RNAs Suppress Plant Immunity by Hijacking Host RNA Interference Pathways  
A. Weiberg et al.  
A pathogenic fungus delivers small RNA molecules to disable gene regulatory systems in the target plant.  
>> Perspective p. 45

123  Crystal Structure of Na+, K+-ATPase in the Na+-Bound State  
M. Nyblom et al.  
The location of three bound sodium ions and the mechanism of sodium release in a key plasma membrane ion pump are revealed.

127  Quantifying Long-Term Scientific Impact  
D. Wang et al.  
Early citation history can be used to model the total number of citations a paper will receive and to compare journals.  
>> Perspective p. 44; Communication in Science section p. 56