A mouse embryo at 9 days of gestation, stained for \( \alpha \)-fetoprotein in the liver bud and yolk sac (upper left and right green domains) and for the transcription factor Pdx-1 in the ventral and dorsal pancreas buds (upper and lower red domains). Understanding the basis for organ development can provide insights into disease and stem cell programming. See the special section beginning on page 1489.

*Image: Ewa Wandzioch and Ken Zaret*
SCIENCE EXPRESS

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DEVELOPMENTAL BIOLOGY
Human Fetal Hemoglobin Expression Is Regulated by the Developmental Stage-Specific Repressor BCL11A
V. G. Sankaran et al.
A way to reactivate a fetal form of \(\gamma\)-globin in adults—by releasing it from repression by an inhibitor—may prove useful for treating certain genetic anemias.
10.1126/science.1165409

CELL BIOLOGY
Nascent RNA Sequencing Reveals Widespread Pausing and Divergent Initiation at Human Promoters
L. J. Core, J. J. Waterfall, J. T. Lis
RNA sequencing identifies antisense transcription immediately upstream of genes with transcriptionally engaged RNA polymerase.
10.1126/science.1162228

CELL BIOLOGY
Divergent Transcription from Active Promoters
A. C. Seila et al.
Active genes produce promoter-localized sense and antisense short RNAs, suggesting frequent transcription by divergently oriented RNA polymerase II complexes at mammalian promoters.
10.1126/science.1162253

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U. Riebesell et al.
full text at www.sciencemag.org/cgi/content/full/322/5907/1466b
Response to Comment on “Phytoplankton Calcification in a High-CO\(_2\) World”
M. D. Iglesias-Rodriguez et al.
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U. Schneider et al.
A cold atom cloud confined to an optical lattice can be tuned from a metal to an insulator.
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P. Eckle et al.
A technique based on resolving the momentum of an electron escaping from a helium atom in an elliptically polarized light field clocks tunneling at less than 34 attoseconds.

GEOPHYSICS
Optical Absorption and Radiative Thermal Conductivity of Silicate Perovskite to 125 GPa
H. Keppler, L. S. Dubrovinsky, O. Naraygina, I. Kantor
At high pressures, silicate perovskite, abundant in Earth’s mantle, is not opaque to optical and infrared light, implying that radiative heat flow is important in the deep Earth.

PLANETARY SCIENCE
Quasi-Periodic Bedding in the Sedimentary Rock Record of Mars
K. W. Lewis et al.
Stereo topographic mapping on Mars shows that some large impact craters were filled with sedimentary rock sequences made up of cyclical packages of meter-scaled beds.

MOLECULAR BIOLOGY
Photoexcited CRY2 Interacts with CIB1 to Regulate Transcription and Floral Initiation in Arabidopsis
H. Liu, X. Yu, K. Li, J. Kleijnot, H. Yang, D. Lisierto, C. Lin
Blue light triggers the association of a photoreceptor, transcription factor, and DNA site, thus inducing expression for the gene FT (flowering time) and initiating flowering.

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A Stress Signaling Pathway in Adipose Tissue Regulates Hepatic Insulin Resistance
G. Sabio et al.
In mice, some detrimental effects of a diet high in fat—insulin resistance, for instance—result from hormonal signals sent from fat cells to the liver.

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A. McMahon, W. Supatto, S. E. Fraser, A. Stathopoulos
Live fluorescence imaging of over 1500 cells within a Drosophila embryo during gastrulation reveals that a fibroblast growth factor coordinates cell migration.

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Astrogial Metabolic Networks Sustain Hippocampal Synaptic Transmission
N. Rouach, A. Koulakoff, V. Abudara, K. Willecke, C. Giaume
The glial astrocytes that surround neurons supply glucose or lactate to excitatory synapses though gap junctions that open when the neurons are active.

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Centromere-Associated Female Meiotic Drive Entails Aberrant Bursting in the Hippocampus
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Activation of a glutamate receptor in hippocampal cells leads to secondary opening of a gap junction–like channel that can contribute to seizure-like bursting.

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Maternal Alloantigens Promote the Development of Tolerogenic Fetal Regulatory T Cells in Utero
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