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953  Widespread Occurrence of Self-Cleaving Ribozymes
C.-H. T. Webb et al.
Once thought to be an oddity, small catalytic RNAs have been found in a wide range of organisms.

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COVER
The Interstellar Boundary Explorer (IBEX) spacecraft has returned the first global images of the interaction of our heliosphere with the local interstellar medium. IBEX observations show a ribbon of energetic neutral atoms (reds to greens), snaking between the positions of the two Voyager spacecraft (white dots). This ribbon marks the region where the galactic magnetic field (gray lines) wraps most tightly around the heliosphere’s boundary. See the series of Reports starting on page 959.

Image: Patrick McPike/Adler Planetarium

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RESEARCH ARTICLE

954 Starvation Protects Germline Stem Cells and Extends Reproductive Longevity in C. elegans
G. Angelo and M. R. Van Gilst
During starvation, germline stem cells are saved for regeneration when food is restored.

974 A Strain-Driven Morphotropic Phase Boundary in BiFeO$_3$
R. J. Zeches et al.
Growth of epitaxial films of BiFeO$_3$ on various substrates may provide a route toward making lead-free ferroelectric devices.

980 Observation of the Role of Subcritical Nuclei in Crystallization of a Glassy Solid
B.-S. Lee et al.
Fluctuation transmission electron microscopy images nanoscale nuclei and their influence on subsequent crystallization.

REPORTS

959 Global Observations of the Interstellar Interaction from the Interstellar Boundary Explorer (IBEX)
D. J. McComas et al.

962 Width and Variation of the ENA Flux Ribbon Observed by the Interstellar Boundary Explorer
S. A. Fuselier et al.

964 Structures and Spectral Variations of the Outer Heliosphere in IBEX Energetic Neutral Atom Maps
H. O. Funsten et al.

966 Comparison of Interstellar Boundary Explorer Observations with 3D Global Heliospheric Models
N. A. Schwadron et al.

969 Direct Observations of Interstellar H, He, and O by the Interstellar Boundary Explorer
E. Möbius et al.
Detection of H, He, and O flowing into the heliosphere from the interstellar medium tells us about our local interstellar environment.

971 Imaging the Interaction of the Heliosphere with the Interstellar Medium from Saturn with Cassini
S. M. Krimigis et al.
Observations by Cassini show that some of the features revealed by IBEX extend to high energies.

977 Observation of Half-Quantum Vortices in an Exciton-Polariton Condensate
K. G. Lagoudakis et al.
Evidence is presented for the existence of half-quantum vortices in exciton-polariton condensates.

984 Partitioning Recent Greenland Mass Loss
M. van den Broeke et al.
The major components of decay contributing to mass loss from the Greenland Ice Sheet can be quantified.

986 CD4$^+$ Regulatory T Cells Control T$_h$17 Responses in a Stat3-Dependent Manner
A. Chaudhry et al.
Suppressor T cells regulate different classes of immune responses through induction of specific transcription factors.

991 A Spindle Assembly Checkpoint Protein Functions in Prophase I Arrest and Prometaphase Progression
H. Homer et al.
A protein vital for correct segregation of chromosomes in mitosis is also needed to complete meiosis in mouse oocytes.

994 Two Chemoreceptors Mediate Developmental Effects of Dauer Pheromone in C. elegans
K. Kim et al.
Chemical signals that determine alternative nematode developmental programs act via two G protein–coupled receptors.

998 Sexual Conflict Resolved by Invasion of a Novel Sex Determiner in Lake Malawi Cichlid Fishes
R. B. Roberts et al.
A color phenotype that is advantageous to females is linked to a sex-determining gene locus in cichlids.

1002 Mutations in Two Independent Pathways Are Sufficient to Create Hermaphroditic Nematodes
C. Baldi et al.
Female nematode worms can be turned into hermaphrodites through the modification of two genes.

1005 Amyloid-$\beta$ Dynamics Are Regulated by Orexin and the Sleep-Wake Cycle
J.-E. Kang et al.
Sleep patterns can influence amyloid plaque formation in a mouse model of Alzheimer’s disease.
Scientists have pinpointed how rheumatoid arthritis spreads inside the body. A. Schurger et al.

Insertion of a nucleotide during the repair of a complex lesion in DNA requires tagging of a lysine residue. T.iku et al.

Reproducibility Distinguishes Conscious from Nonconscious Neural Representations A. Schurger et al.

Analysis of functional magnetic resonance imaging data reveals that neural activation patterns are more reproducible for seen versus unseen objects. T.iku et al.

Perspective: Aiming Straight for the Heart—Prolyl Hydroxylases Set the BAR J. A. Garcia et al.

α2-adrenergic receptor density is regulated by oxygen availability. T.iku et al.

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A protein kinase phosphorylates arginine residues in a transcriptional factor during the bacterial heat shock response. T.iku et al.

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A transcriptional co-regulator links glucocorticogenesis and ER stress responses in the liver. T.iku et al.


FBXO31 is a damage-induced checkpoint protein that enhances cyclin D1 degradation in response to genotoxic stress. T.iku et al.

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Cross talk between TOR and MAPK signaling pathways determines mitotic onset in fission yeast during nutrition stress. T.iku et al.

Research Article: H2S Signals Through Protein S-Sulfhydration A. K. Mustafa et al.

The gasotransmitter hydrogen sulfide signals by sulfhydrating target proteins. T.iku et al.

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Hypertrophy triggers discussions on the translational challenges of gene therapy. T.iku et al.

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Gene therapy in monkeys shows promise for muscle-wasting diseases. T.iku et al.

Podcast S. H. Snyder and A. M. VanHook

An unlikely collaboration resulted in a new technique for measuring hormone levels. T.iku et al.

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