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Crystal structures of the 70S ribosome from the bacterium Thermus thermophilus in complex with translation elongation factors Tu (EF-Tu) and G (EF-G). During protein synthesis, EF-Tu (in periwinkle blue, center) delivers an aminoacyl transfer RNA (green) to the ribosome for each amino acid indicated by the messenger RNA. As the polypeptide chain grows, EF-G (in green at top right) helps move the mRNA and tRNAs through the ribosome. See pages 688 and 694.

Images: Larissa Ulisko, Rebecca Voorhees, Martin Schmeing
RESEARCH ARTICLES

682  Intergenerational Wealth Transmission and the Dynamics of Inequality in Small-Scale Societies  
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694  The Structure of the Ribosome with Elongation Factor G Trapped in the Posttranslocational State  
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Interfaces of oxide metals and insulators confine a superconducting state to one copper oxide plane.

702  Reconstruction of Molecular Orbital Densities from Photoemission Data  
P. Puschnig et al.  
Maps of photoelectron momentum can reveal the orbital geometries of aromatic molecules adsorbed on surfaces.

706  Synergic Sedation of Sensitive Anions: Alkali-Mediated Zincation of Cyclic Ethers and Ethene  
A. R. Kennedy et al.  
Tandem coordination by zinc and an alkali metal increases the reactivity of carbon-hydrogen bonds of organic molecules.  
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716  Improved Attribution of Climate Forcing to Emissions  
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Modeling equine influenza reveals how epidemics originate in amino acid evolution to escape immunity.

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Y. Yang et al.  
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A Simple Cipher Governs DNA Recognition by TAL Effectors
M. J. Moscou and A. J. Bogdanove
Xanthomonas bacteria use an amino acid–based code to target effector molecules to specific DNA sequences. 10.1126/science.1178817

Structure of Monomeric Yeast and Mammalian Sec61 Complexes Interacting with the Translating Ribosome
T. Becker et al.
A single copy of a protein-conducting channel molecule provides a conduit for polypeptide translocation across membranes. 10.1126/science.1178535

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RESEARCH ARTICLE: An Atypical CNG Channel Activated by a Single cGMP Molecule Controls Sperm Chemotaxis
W. Röngke et al.
The ability of a single molecule of cGMP to activate the K+-selective cyclic nucleotide-gated channel allows sea urchin sperm to find an egg. 10.1126/science.1178547

RESEARCH ARTICLE: Increased MKK4 Abundance with Replicativ e Senescence Is Linked to the Joint Reduction of Multiple microRNAs
B. S. Marasa et al.
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Several microRNAs jointly regulate the abundance of the kinase MKK4 during replicative senescence.

PER SPECTIVE: Confronting Morphogen Gradients— How Important Are They for Growth?
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A graded distribution of Wingless is not required for growth of the fly wing.

PER SPECTIVE: P-REX2a Driving Tumorigenesis by PTEN Inhibition
N. R. Leslie
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TEACHING RESOURCE: To Co-Author or Not to Co-Author—How to Write, Publish, and Negotiate Issues of Authorship with Undergraduate Research Students
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The rewards associated with publishing with undergraduate students outweigh the challenges.

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S. Webb
With the right support, it is possible to succeed in science after a family-related hiatus.

A Life Lived Backward
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PERSPECTIVE: Waiting to Exhale—Hope for Lung Transplant Recipients
D. S. Wilkes
Local induction of IL-10 promotes recovery of function in human lung explants deemed not suitable for transplantation.

RESEARCH ARTICLE: Special Immune Cells Create Destructive Environment in Emphysemic Lungs
M. Shan et al.
An autoimmune reaction created by immune cells in the lungs of patients with emphysema drives lung destruction.

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