Liver cells possess a well-defined morphology and interact in time and space with their neighbors, with the extracellular matrix, and with the bloodstream. A special section starting on page 1205 describes some of the basic tenets of spatial cell biology.

Image: Frank Geisler/Alamy (liver cells); iStockphoto.com (compass rose)
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R.-S. Mani et al.
Androgen signaling facilitates the formation of an oncogenic fusion gene in prostate cancer cells.

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J. E. Carette et al.
A method identifies human factors required for successful microbial pathogenesis.

Proteome Organization in a Genome-Reduced Bacterium
S. Kühner et al.
The simplified proteome of a bacterium provides insight into the organization of proteins into molecular machines.

Directed Transport of Atoms in a Hamiltonian Quantum Ratchet
T. Salger et al.
A quantum ratchet, which operates without dissipation, is created with a Bose-Einstein condensate and optical potentials.

Visualizing the 3D Internal Structure of Calcite Single Crystals Grown in Agarose Hydrogels
H. Li et al.
Electron tomography shows that physical interactions may be sufficient to incorporate macromolecules into a calcite crystal.

Formation of Compositionally Abrupt Axial Heterojunctions in Silicon-Germanium Nanowires
C.-Y. Wen et al.
A solid alloy catalyst is used to synthesize atomically sharp interfaces in silicon-germanium nanowires.

Selective Phenol Hydrogenation to Cyclohexanone Over a Dual Supported Pd–Lewis Acid Catalyst
H. Liu et al.
The cooperation of two common catalysts unexpectedly facilitates selective synthesis of a commodity chemical compound.
RESEARCH ARTICLE: Ca²⁺ Puffs Originate from Pre-Established Stable Clusters of Inositol Trisphosphate Receptors
I. F. Smith et al.
Localized calcium signals called Ca²⁺ puffs arise at pre-established clusters of IP₃Rs.
PERSPECTIVE: Maintaining Diplomatic Relations Between Mammals and Beneficial Microbial Communities
D. A. Hill and D. Artis
The adaptive immune system compensates if innate mechanisms fail to contain microbes in the mammalian intestine.

PODCAST
T. Pawson and A. M. VanHook
Bioinformatics analysis reveals how protein domain composition correlates with evolutionary change.

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Opportunities are expanding for natural scientists willing to tackle climate change.
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S. Carpenter
New programs help prepare scientists for the interdisciplinary nature of climate change research.

On-the-Ground Training for Climate Change Researchers
E. Pain
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In emergency situations, forensic methods need preliminary validation to ensure accurate interpretation.

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