COVER
A metaphorical USB cable transmitting genetic information to "reprogram" cells symbolizes the Breakthrough of the Year for 2008. Advances in the burgeoning field of cellular reprogramming have brought scientists closer to the goal of using stem cells to better understand and someday treat disease. See the special section beginning on page 1766.

Image: Chris Bickel

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10.1126/science.1165787

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A Glucosinolate Metabolism Pathway in Living Plant Cells Mediates Broad-Spectrum Antifungal Defense
P. Bednarek et al.
Plant cells defend against fungal attack through an innate immunity pathway in which infection triggers glucosinolate synthesis, stimulating formation of a protective callose.
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A. Colmone et al.
Cancerous immune cells create abnormal microenvironments in bone marrow that attract normal immune precursor cells, disrupting their function and exacerbating disease.

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Representation of Geometric Borders in the Entorhinal Cortex
T. Solstad et al.
A previously unknown cell type in the brain’s cortex encodes geometric boundaries of the nearby environment, perhaps providing a frame of reference.
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E. Pain
Curiosity, boldness, and single-mindedness won Austrian scientist Konrad Hockeding a place in cell reprogramming, Science’s Breakthrough of the Year for 2008.>> Breakthrough of the Year section p. 1766 and
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Translational researchers are pushing a fundamental change in the way science has operated for decades.

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Visualizing gene expression dynamics.

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VIDEO: 2008 Breakthrough of the Year
An introduction to some of the work that led studies in reprogramming cells to be tagged the top scientific story for 2008.>> Breakthrough of the Year section p. 1766 and
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