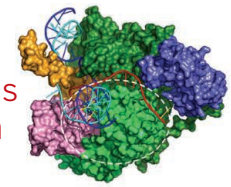
RESEARCH



Mutually exclusive mechanisms in transcription and replication

Agaronyan et al., *p. 548*

IN *SCIENCE* JOURNALS

Edited by **Stella Hurtley**

SUPERNOVAE

Burbling explosions blow metallic bubbles

Stars more than about eight times the mass of the Sun don't go out quietly. Asymmetric explosions are kicked off by the collapse of their iron cores when no more fusion energy can sustain them. Exactly how this stellar catastrophe proceeds is difficult to probe. Milisavljevic *et al*. have now peered into the supernova remnant Cas A in the near-infrared and present a three-dimensional map of its interior unshocked ejecta. The bubble-like structure points to turbulent mixing, which may help us understand other supernova remnants whose structure cannot be seen in such detail. — MMM

Science, this issue p. 526

PROTEIN STRUCTURE

Structural clues to protein function

Translocator protein (TSPO) is a mitochondrial membrane protein thought to transport cholesterol and porphyrins. Its detailed function remains unclear, but interest in it is high because TSPO is involved in a variety of human diseases. Two papers now present crystal structures of bacterial TSPOs. Li *et al*. show that a mutant that mimics a human single polymorphism associated with psychiatric disorders has structural changes in a region implicated in cholesterol binding. Guo *et al*. suggest that TSPO may be more than a transporter. They show how it catalyzes the degradation of porphyrins, a function that could be important in protection against oxidative stress. — VV

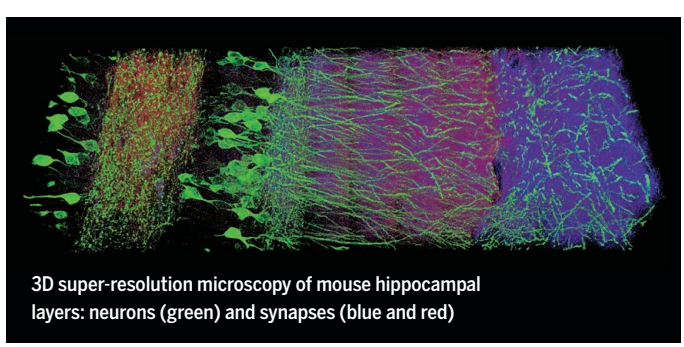
Science, this issue p. 555, p. 551

OPTICAL IMAGING

Overcoming the limits of the microscope

The resolution of a light microscope is limited. Physicists have long since worked out what these limits are and which parameters determine the spatial resolution. Many groups have nevertheless made numerous attempts to overcome these resolution limits. Rather than improving the power and quality of the microscope, Chen *et al*. instead expanded the biological specimens under study (see the Perspective by Dodt). They introduced a polymer gel into fixed cells and tissues and chemically induced swelling of the polymer by almost two orders of magnitude. They could then produce much higher-resolution images of their samples, which included the mouse hippocampus. — PRS

Science, this issue p. 543; see also p. 474



3D super-resolution microscopy of mouse hippocampal layers: neurons (green) and synapses (blue and red)

PHOTOS: (TOP TO BOTTOM) NASA/ESA/THE HUBBLE HERITAGE STSCI/AURA. ESA/HUBBLE COLLABORATION; CHEN *ET AL*.