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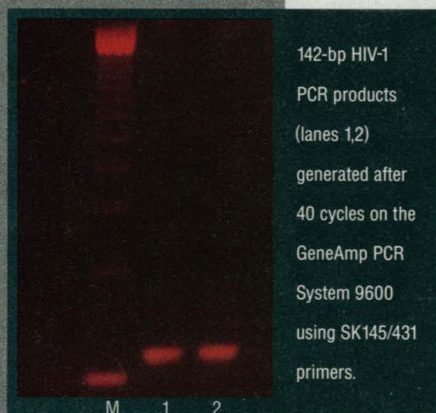
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COVER Magnetic domains in a ferromagnetic garnet film as seen in a polarizing microscope. Up and down domains form a labyrinth of dark and light stripes (11 micrometers wide). Digital pattern analysis identifies clusters of straight-line segments as a fundamental structural motif. Each cluster is color-coded according to orientation of its line segments. See page 1616. [Image by M. Seul, R. Wolfe, L. R. Monar, and L. O'Gorman, AT&T Bell Laboratories]

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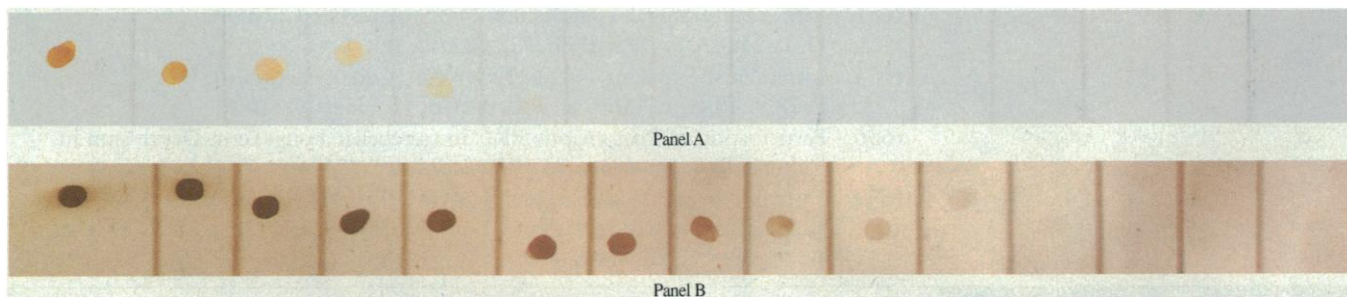
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This Week in SCIENCE

The otters' lament

In a Perspective, Estes (p. 1596) looks at the outcome of rescuing the sea otters of Prince William Sound after the *Exxon Valdez* ran aground in March 1989. Of 357 sea otters captured by rescuers, at best 222 can be said to have been "rehabilitated." Most animals brought to decontamination centers were not heavily contaminated with oil. The best strategy, Estes says, is to first document actual populations and to then build them.

Nuclear politics

High-level radioactive waste is accumulating at sites around the United States. By the end of the decade the amount should reach 40,000 metric tons, but no permanent storage facility or site has been selected. Slovic *et al.* (p. 1603) see public dread of all things radioactive; surveys in the past 5 years of public attitudes toward siting a repository are characterized by negative responses toward nuclear and government programs. Until the public's perceptions change, the only politically feasible solution may be on-site dry-cask storage of radioactive wastes.

Animal lectins

A common fold may occur in the recognition domains of the calcium-dependent (C-type) animal lectins. Weis *et al.* (p. 1608) determined the x-ray structure of the carbohydrate-recognition domain (CRD) of rat mannose-binding protein; holmium was substituted for calcium so that multiwavelength anomalous dispersion could be used. One region of the fold contains extensive nonregular secondary structure that is stabilized by two holmium ions. The structure reveals why 32 residues are highly conserved across the CRDs of C-type lectins, proteins that are involved in cell-surface recognition events that include defense against pathogens.

Layer structure

In systems characterized by competing chemical or physical interactions, distinct domains commonly evolve to form a simple striped pattern. Under certain conditions, these simple patterns dissolve to complex "labyrinthine" patterns (cover). Seul *et al.* (p. 1616) have analyzed the nature and evolution of such patterns in thin ferromagnetic garnet films. They observed that two characteristic labyrinth patterns form regardless of the thermodynamic path used to reach the labyrinthine state. These patterns likely emerge from minimization of free energy.

A large gap

Measurements of the superconducting energy gap Δ for K_3C_{60} and Rb_3C_{60} have been made by tunneling spectroscopy that places constraints on the theory describing these materials. Zhang *et al.* (p. 1619) used a low-temperature scanning tunneling microscope to measure current-voltage curves, from which Δ could be determined. The reduced energy gaps for these materials are significantly larger than those predicted by Bardeen-Cooper-Schrieffer theory, indicating that the pair interaction is strong in these materials.

Tropical potters

The nomadic, foraging peoples who inhabited tropical South America in the late Pleistocene eventually became settled villagers and pottery makers, and did so earlier than other peoples in the Americas. This cultural development occurred even though tropical habitats have been thought to discourage permanent settlements by the indigenous peoples. Roosevelt *et al.* (p. 1621) describe new excavations of a large shell midden at a fishing village, Taperinha, in the lower Amazon of Brazil. Fragile red-brown pottery was radiocarbon dated to between 7000 and 8000 years before the

present, or at least 3000 years earlier than Andean and Mesoamerican pottery.

Porin structure

Porin allows polar, low molecular mass solutes through the outer membrane of Gram-negative bacteria; the x-ray structure of this integral membrane protein has been determined by Weiss *et al.* (p. 1627). Three distinct diffusion channels for small solutes are formed by the association of three 16-stranded β barrels. Calculated electrostatic potentials were used to predict the calcium binding sites and to understand porin's solute selectivity.

Ras, rap, and GAP

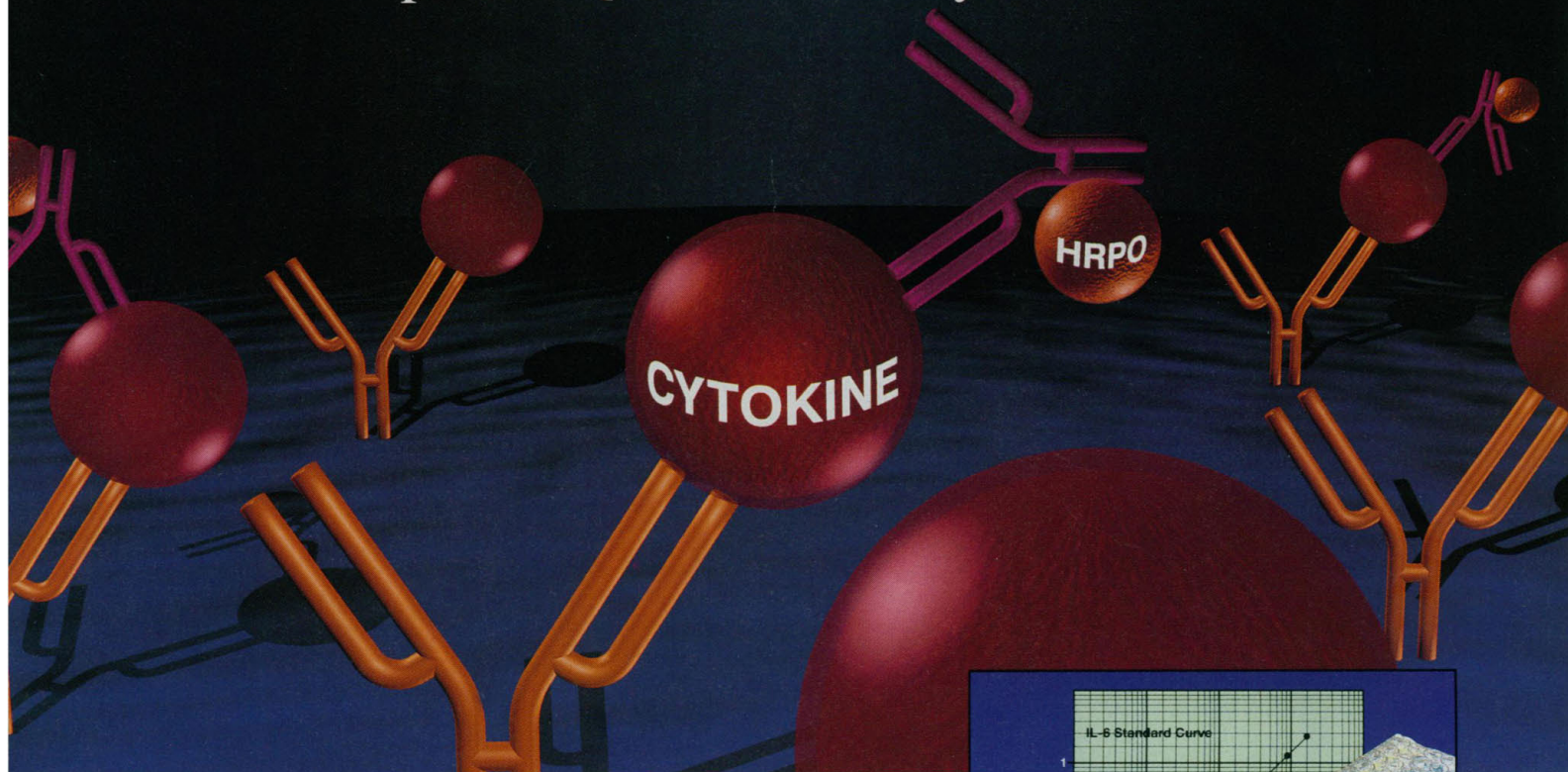
Guanosine triphosphatase (GTPase) activity of Ras and the related protein Rap1A is increased by interaction with certain GTPase-activating proteins (GAPs) such as Ras-GAP and Rap-GAP. Interaction with Ras-GAP appears to inhibit the biological actions of Ras. Zhang *et al.* (p. 1630) have identified different regions of Ras and Rap that confer sensitivity to various GAPs. The ability of Ras to transform cells and its sensitivity to Ras-GAP were found to be partially independent properties.

Dopamine and steroids

Dopamine, a neurotransmitter, can activate several steroid hormone receptors. These receptors, which in their ligand-bound state interact with chromatin and regulate transcription of their target genes, were thought to be activated by binding of their appropriate steroid ligand. Power *et al.* (p. 1636) showed that dopamine could activate the chicken progesterone receptor. Direct binding of dopamine to the receptor was not demonstrated, suggesting that the intracellular receptor could be activated indirectly by dopamine. Activation by progesterone and dopamine could be dissociated.

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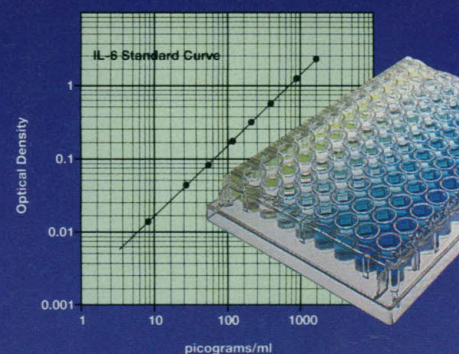
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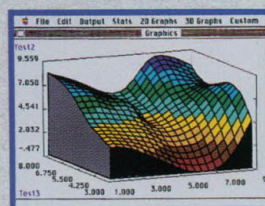
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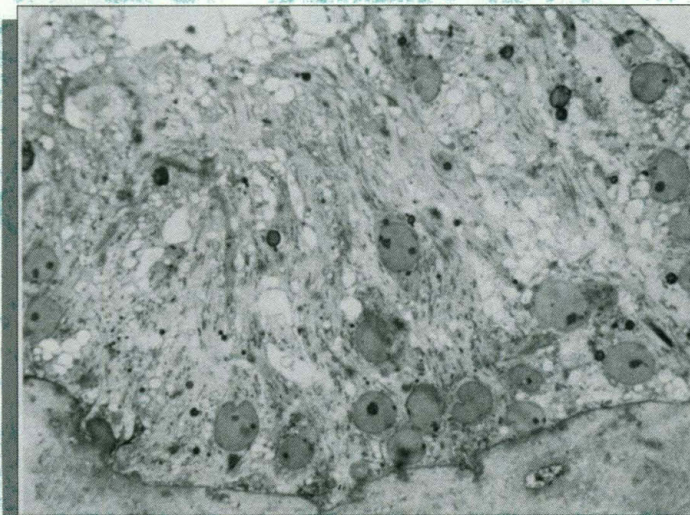
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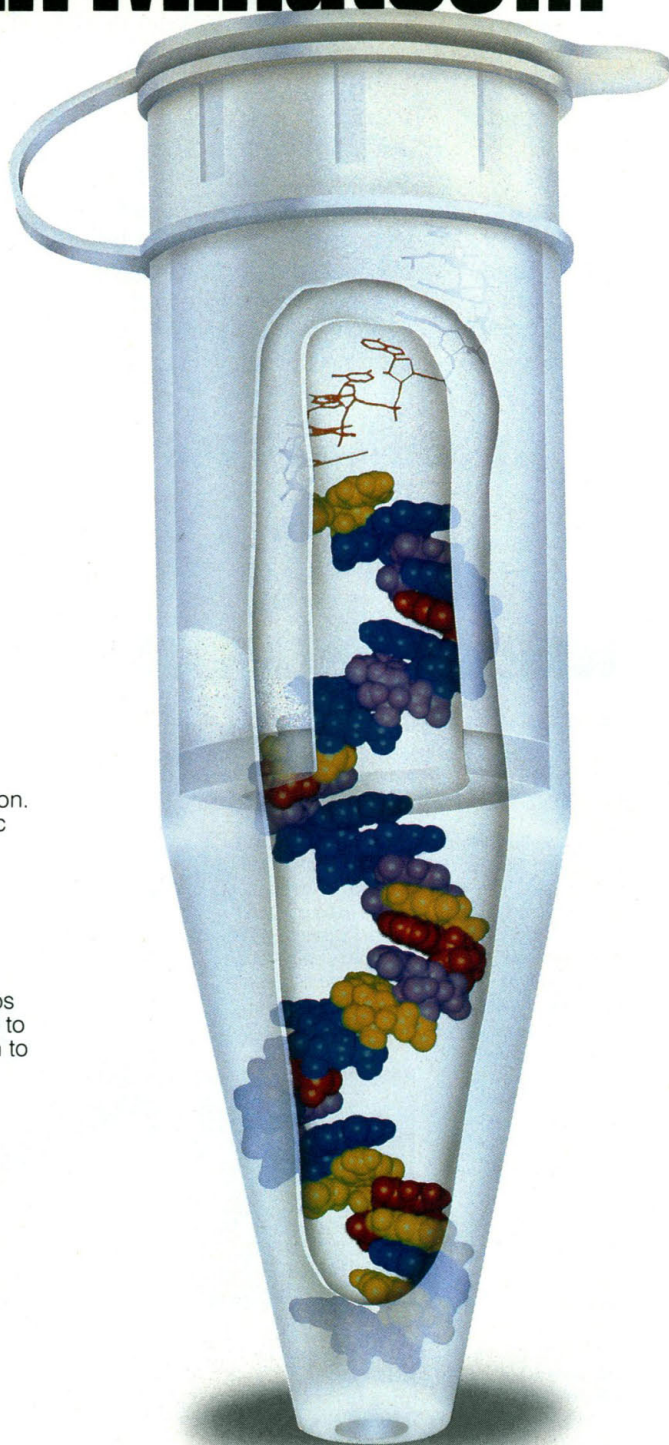


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*patent pending. mRNA model courtesy of BIOSYM

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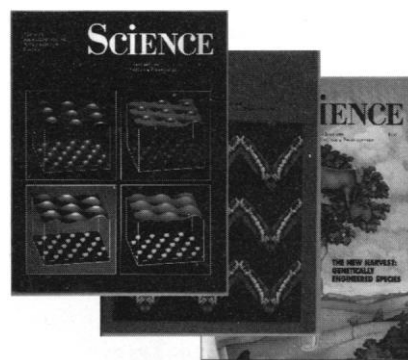
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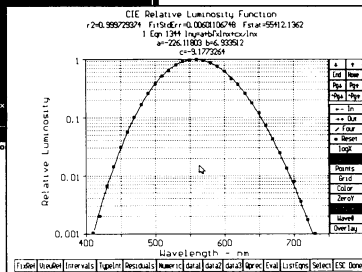
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Rank	F	Eq. ID	Eq. Name
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2	55412.13623	1344	1.0
3	55412.13623	1344	1.0
4	55412.13623	1344	1.0
5	55412.13623	1344	1.0
6	55412.13623	1344	1.0
7	55412.13623	1344	1.0
8	55412.13623	1344	1.0
9	55412.13623	1344	1.0
10	55412.13623	1344	1.0
11	55412.13623	1344	1.0
12	55412.13623	1344	1.0
13	55412.13623	1344	1.0
14	55412.13623	1344	1.0
15	55412.13623	1344	1.0
16	55412.13623	1344	1.0
17	55412.13623	1344	1.0
18	55412.13623	1344	1.0
19	55412.13623	1344	1.0
20	55412.13623	1344	1.0

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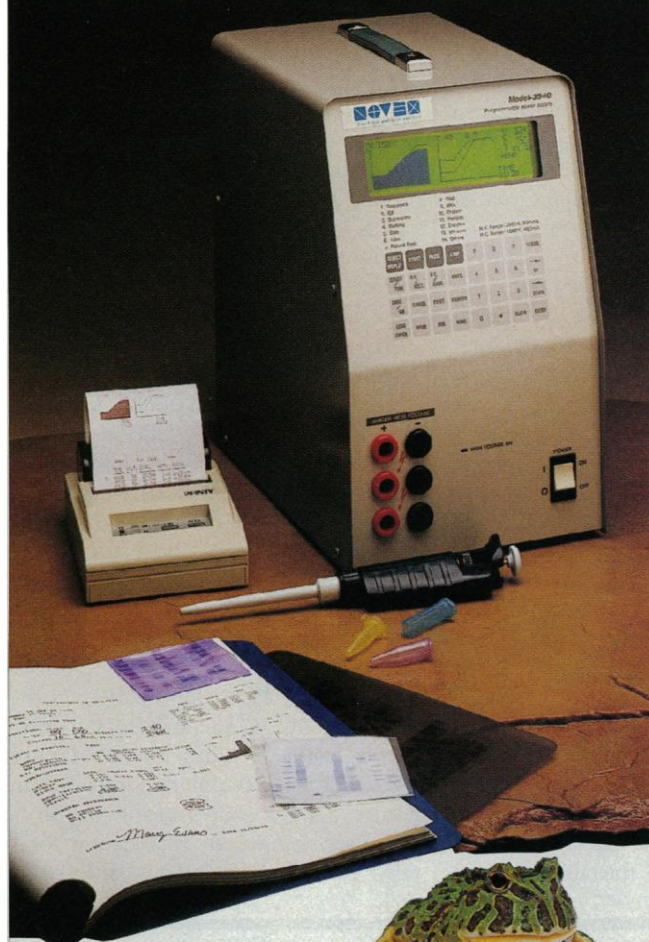


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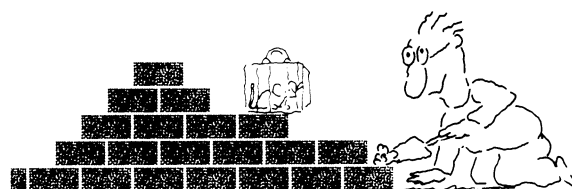
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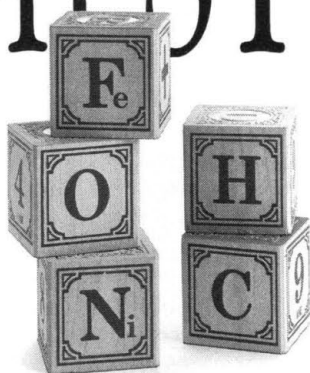
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