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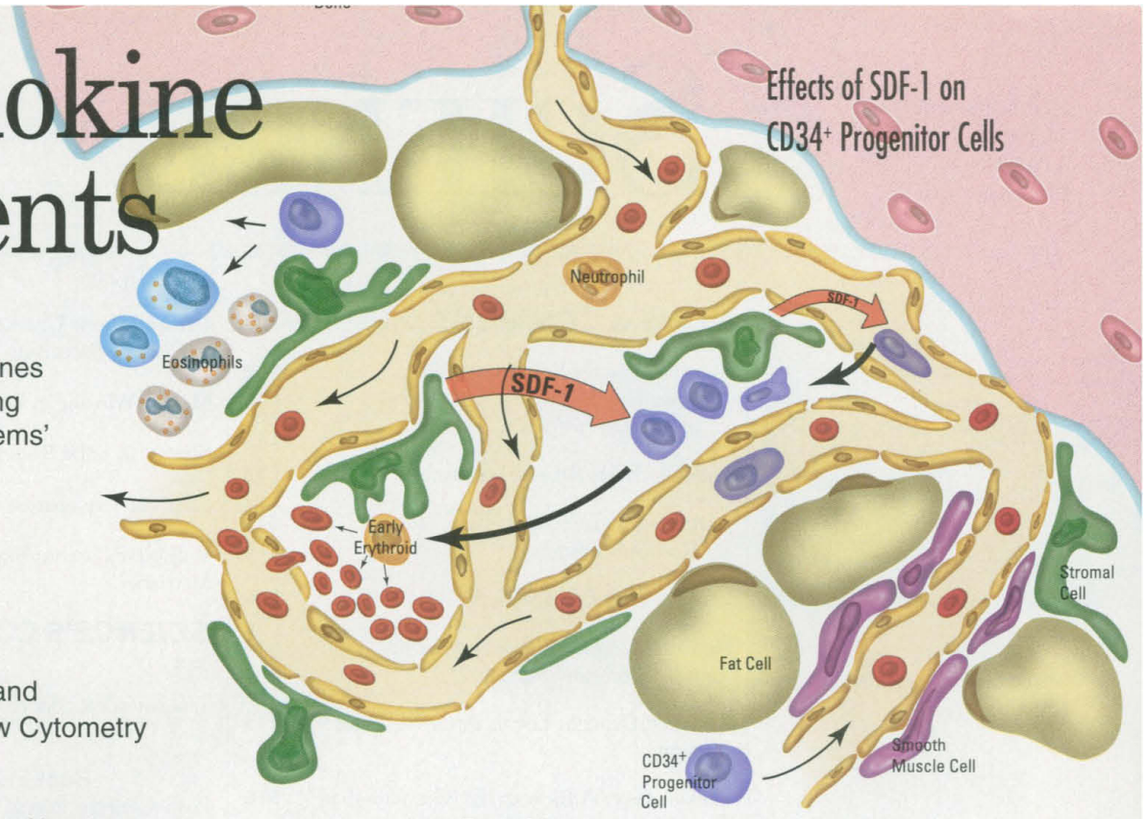

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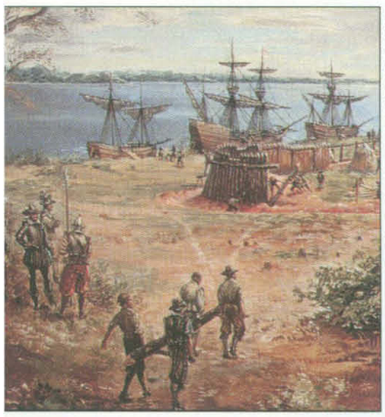
510
Threats to Kenya's biodiversity



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Colonists confront climate

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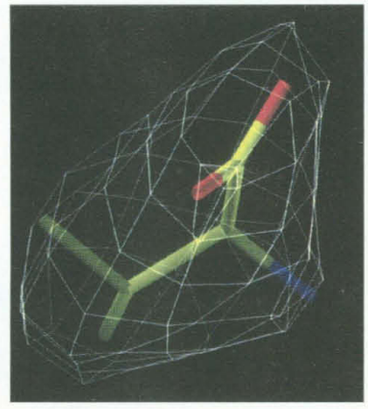
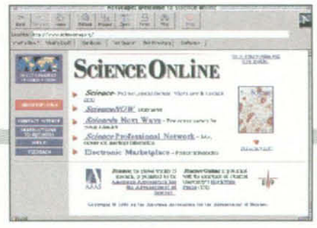
COVER

A modification of fluorescence in situ hybridization allowed the detection of the birth of individual actin messenger RNAs (mRNAs), depicted here in a digital image. Within the nucleus (delineated by the blue border), the gene is templating nascent RNAs, represented by the cluster of cubes (voxels). After synthesis, single mRNA molecules spiral away from this transcription site toward the nuclear periphery and move into the cytoplasm. See page 585. [Image: A. Femino]

REPORTS



541 & 578
Planning for amino acids



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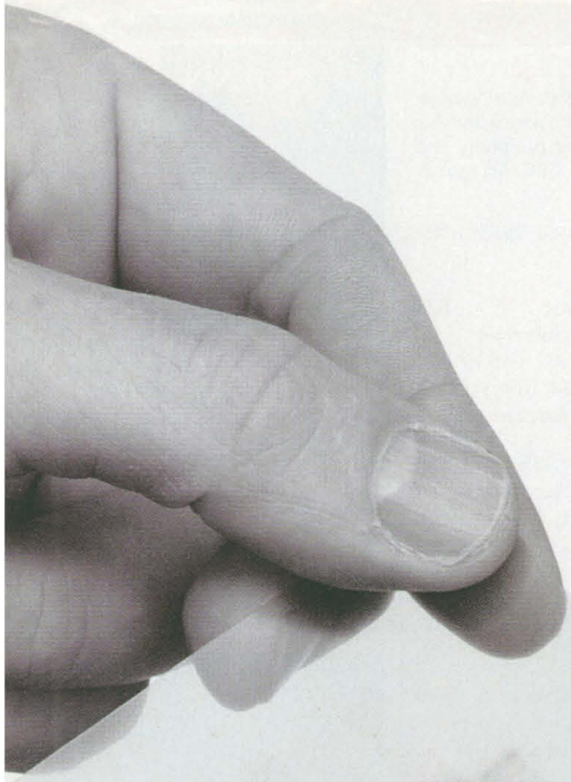

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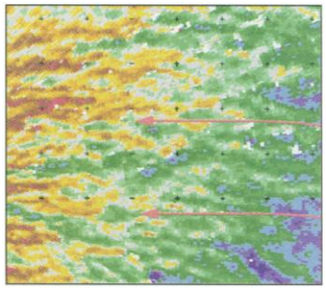
THIS WEEK IN SCIENCE

edited by BROOKS HANSON

Inside a hurricane

Damage from a hurricane can vary greatly over a few tens to hundreds of meters, indicating that the intensity of hurricanes can vary on these short length scales. Observational evidence linking hurricane dynamics to these damage patterns is difficult because few measurements have high enough spatial resolution to pick up the dynamic features. Wurman and Winslow (p. 555) used a high-resolution mobile weather radar to investigate hurricane Fran in 1996 and show that intense, sub-kilometer-scale boundary layer rolls significantly modulated the near-surface wind speed and extreme wind gusts.



■

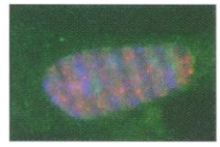
Hierarchical switching

Self-organization of polymeric materials can result in the formation of distinct phases, such as lamellar or tubular structures; the characteristic length scale of these structures depends on various parameters such as composition and temperature. By switching between different phases, the physical properties of the material can be changed. Ruokolainen *et al.* (p. 557) show that by using an appropriate diblock copolymer and by altering the chemical composition of one of the block copolymer phases with additional compounds, phase switching can be achieved on two different length scales, one at around 5 nanometers and the other at about 30 nanometers. The conductivity of the materials changes with temperature, indicating that changes in the dimensionality of the phases (such as from one-dimensional tubules to two-dimensional lamella) lead to anisotropy in the conductivity.

■

Eyes on the nucleus

As the site of DNA synthesis, repair, transcription, and RNA processing, the nucleus is a virtual hub of cellular activity. Relatively little is known about how many of these nuclear processes are organized in space and time. Femino *et al.* (p. 585; see cover) developed a quantitative fluorescence in situ hybridization (FISH) technique that allowed them to monitor the activity of single RNA molecules within the cell. Using this technique, they generated a kinetic profile of individual transcription events (initiation, elongation, termination, and messenger RNA transport) at a single β-actin allele in serum-stimulated fibroblasts. Nelms *et al.* (p. 590) used ultrasoft x-rays to induce DNA double-strand breaks in defined subnuclear regions of human fibroblasts and then visualized over time the relative positions of the damaged DNA and specific repair proteins. In contrast to other nuclear processes, repair does not appear to involve movement of DNA through the nucleus; rather, the repair proteins relocalize directly to the sites of DNA damage. Lamond and Earnshaw (p. 547) review current evidence on the role of distinct nuclear structures in a variety of cellular processes.



Atomic Kondo effects

When a single magnetic impurity is introduced into a nonmagnetic metal, at sufficiently low temperatures the host's electrons form a many-body ground state that screens the spin of the local impurity. This screening cloud exhibits a dense set of low-energy excitations known as the Kondo resonance. Madhavan *et al.* (p. 567) present evidence for a Kondo resonance for a single cobalt atom on a gold surface. Spectra obtained with a scanning tunneling microscope at cryogenic temperatures reveal a narrow resonance localized over the cobalt atom that the authors interpret as a Kondo resonance.

Dry landings

The fate of the Lost Colony, England's first attempt at settling North America, has been uncertain. Most settlers survived the first year, but the colony was not heard from again. By using a tree-ring climate index developed from cyprus trees, Stahle *et al.* (p. 564) now show that the colonists arrived just before one of the worse droughts in the region in the last 800 years beginning in 1587. The next settlement at Jamestown in 1607 was just barely successful: Only 38 of 108 colonists survived the first year. The record shows that Jamestown was settled near the beginning of a prolonged 7-year drought.

■

Direct oxidative activation of methane

Conversion of low molecular weight alkanes, such as methane, to liquids, such as methanol, would allow reserves of natural gas to supplement petroleum fuels and chemical feedstocks. The carbon-hydrogen bonds in these compounds are quite unreactive, and oxidation routes to generate derivatives directly must avoid total oxidation to products such as CO and CO_2. Periana *et al.* (p. 560; see the news story by Service, p. 525) report that a platinum complex with nitrogen-bearing ligands, dichloro (η-2-{2,2′-bipyrimidyl})platinum(II), converts methane to methyl bisulfate with SO_3 as an oxidant in concentrated sulfuric acid at 220° Celsius. The yield for one pass of methane through the reaction is 72 percent, and the product can be hydrolyzed to methanol.

■

Gender bias

How are the various aspects of words retrieved during speech? Van Turennout *et al.* (p. 572) use event-related potentials and a two-stage task to suggest that the syntactic characteristics (gender of nouns) are retrieved from the brain approximately 40 milliseconds prior to phonology (the initial phoneme of nouns).

■

Heart receptors

Myocardial hypertrophy occurs in human diseases that place increased demand on the heart and can ultimately lead to ventricular failure. Various cell surface receptors such as α_1-adrenergic receptors or angiotensin II receptors that couple to the G_q class of heterotrimeric guanine nucleotide binding proteins (G proteins) can contribute to ventricular hypertrophy. Akhter *et al.* (p. 574) made transgenic mice that expressed a fragment of the G_q α subunit specifically in heart tissues. This peptide interfered with signal-

(Continued on page 495)

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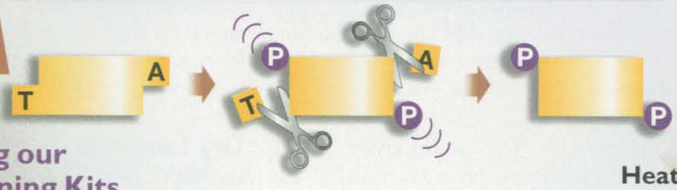

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References

1. Brownstein, J.M., *et al.* (1996) *BioTechniques* **20**, 1004–1010.
2. Magnuson, V.L., *et al.* (1996) *BioTechniques* **21**, 700–709.
3. Novy, R.E., Yaeger, K.W., and Kolb, K.M. (1996) *In**Novations* **6**, 7–11.

*The Polymerase Chain Reaction (PCR) process is covered by patents owned by Hoffmann-La Roche.
†Conditions that use DNA polymerases lacking 3'→5' exo-activity (*e.g., Taq, Tth*)

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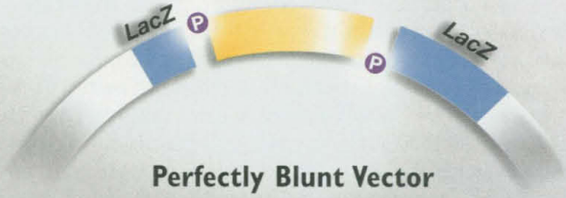

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(Continued from page 493)

ing by all receptors coupled to G_q. When such transgenic mice were manipulated to cause pressure overload of the heart, less ventricular hypertrophy was observed in animals expressing the G_q peptide than in control animals. The results suggest that inhibition of multiple receptors that signal through G_q might be an effective strategy to prevent progression of myocardial hypertrophy to heart failure.

■

Making a commitment

A key aspect of control of the cell division cycle is appropriate initiation of DNA synthesis once and only once per cell cycle. Zou *et al.* (p. 593) show that in budding yeast, part of such control is mediated by regulated binding of the protein Cdc45 to chromatin at origins of DNA replication. Binding of Cdc45 is shown to be dependent on the activity of the cyclin–cyclin-dependent kinase complex known as S phase–promoting factor (SPF). Cdc45 interacts with other proteins (Cdc6p and Mcm2p) that associate with DNA as part of the pre-replication complex. Loading of Cdc45 onto the replication origin appears to provide a critical event by which SPF activity brings about commitment to the initiation of DNA replication.

■

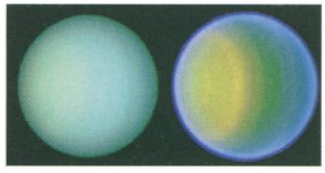
Secretory architecture

Salmonella typhimurium is one of several diverse bacterial pathogens that has evolved a specialized secretion system (type III) for delivery of proteins into the host cell. Kubori *et al.* (p. 602) have visualized this secretory complex by electron microscopy. The complex spans both inner and outer bacterial membranes, and consists of a cylindrical base that resembles flagellar basal bodies and a slender, needle-like domain that projects outward from the cell surface.

■

Clouds on Uranus

In many images, Uranus resembles a soft blue sphere that offers little understanding of the possible dynamic motions of the atmosphere. Karkoschka (p. 570) took near-infrared images of Uranus with the Hubble Space Telescope in July and October 1997 and observed 10 clouds with high contrast compared to the atmosphere.



By tracking the motions of these clouds and comparing these observations with Voyager 2 images taken in 1986, he concludes that the rate of rotation of the clouds in the southern hemisphere has not changed between 1986 and 1997. In addition, clouds in the northern hemisphere appear to be circling the planet at a slower rate than the southern clouds.

■

B cell survival

B lymphocytes need to bind to their antigen and to gain access to the germinal center (GC) of the spleen to become antibody-secreting plasma cells. Fischer *et al.* (p. 582) have observed that high-affinity antigen alone cannot ensure the survival of the B cell in the GC. Through the use of mice genetically deficient in the type 2 complement receptors (Cr2), they have determined that the GC survival signal is provided by the binding of a fragment of activated complement to the Cr2. This system may act as a safeguard against autoreactive B cells, which would fail to survive because active forms of complement are primarily abundant during infection and inflammation.

■

Sorting amino acids

Loading an amino acid onto its transfer RNA (tRNA) accurately is an essential step in decoding genetic information. The two-stage reaction involves recognition and activation of the amino acid, followed by recognition and attachment to the appropriate tRNA. Nureki *et al.* (p. 578; see the commentary by Fersht, p. 541) describe the structure of isoleucyl–tRNA synthetase and how it implements a two-sieve mechanism. First, amino acids larger or more polar than isoleucine are repulsed from the amino acid recognition site. Second, aminoacyl–tRNAs containing an amino acid smaller than isoleucine fit into and are hydrolyzed by the editing site which appears to utilize a hydrolytic module reminiscent of an aspartate protease.

■

Conductin and wnt signaling

Signaling by wnt is involved in diverse developmental processes that include cell fate decisions and morphogenesis. The protein β-catenin regulates gene expression in response to wnt signaling. Behrens *et al.* (p. 596) report the identification of a mouse axin homolog, conductin, that forms a complex with the tumor suppressor gene product APC (adenomatous polyposis coli) to direct the degradation of β-catenin. It is shown that conductin controls the stability of β-catenin. Thus, conductin represents a newly identified protein that regulates wnt signaling, a pathway that is involved in both development and carcinogenesis

■

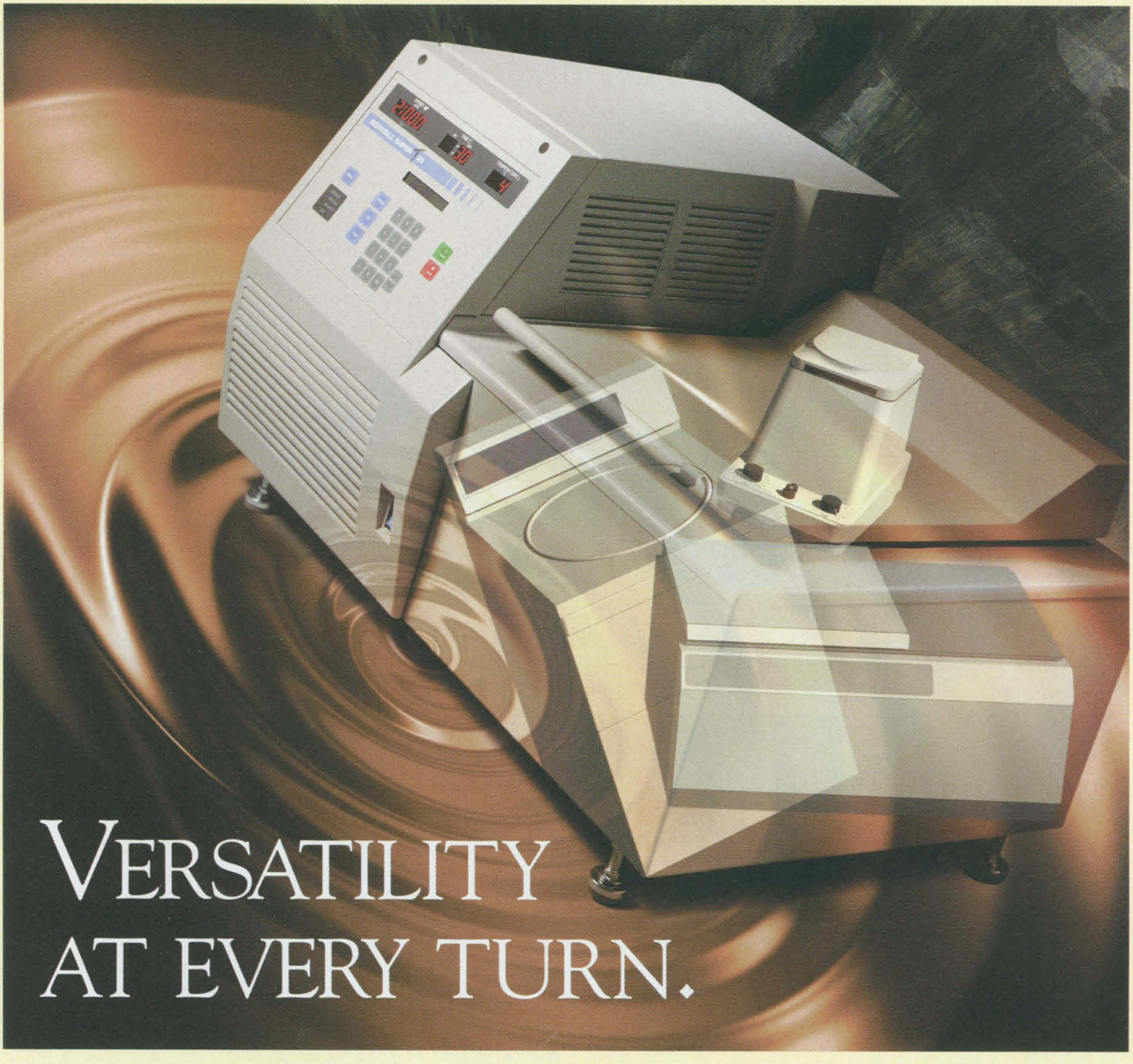
Gene capture

A structural and functional relation between the *Vibrio cholerae* repeated sequences (VCRs) and a class of mobile genetic elements (integrons) that have previously been associated with antibiotic resistance have been found by Mazel *et al.* (p. 605). The VCRs may have acted during the evolution of *Vibrio* as a "gene-capture" system for acquiring heterologous genes.

■

Checkpoint role for p38

To prevent errors in cell division, cells have a checkpoint mechanism that monitors proper assembly of the spindle (the machinery that moves the chromosomes to daughter cells). If all is not well, a signal is sent that arrests the process of cell division. In the meiotic cycle of *Xenopus* oocytes, mitogen-activated protein (MAP) kinase is required for proper function of the spindle checkpoint. Takenaka *et al.* (p. 599) report that in the mitotic cycle of somatic cells, a different MAP kinase family member, p38, is necessary for checkpoint function and can arrest cells in M phase in the absence of spindle defects. The results reveal an additional role for the p38 protein, known to be activated in cells exposed to various stressful stimuli.



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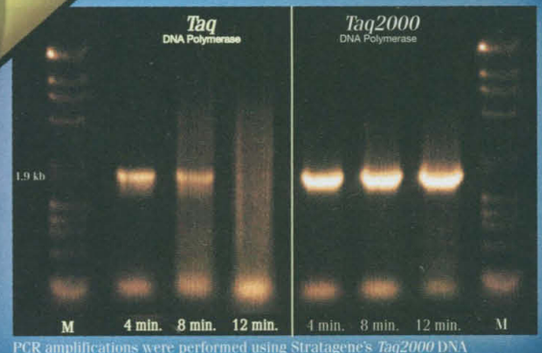

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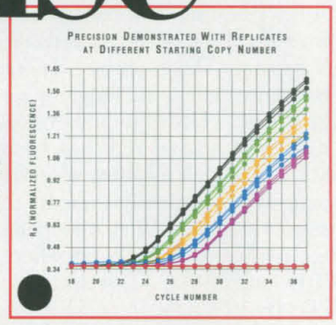

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1. Heid, Christian A., et al. 1996. Real Time Quantitative PCR. Genome Research 6: 986-994. from Molecular Endocrinology
2. Gibson, Ursula E.M., et al. 1996. A Novel Method for Real Time Quantitative RT-PCR. Genome Research 6: 995-1001

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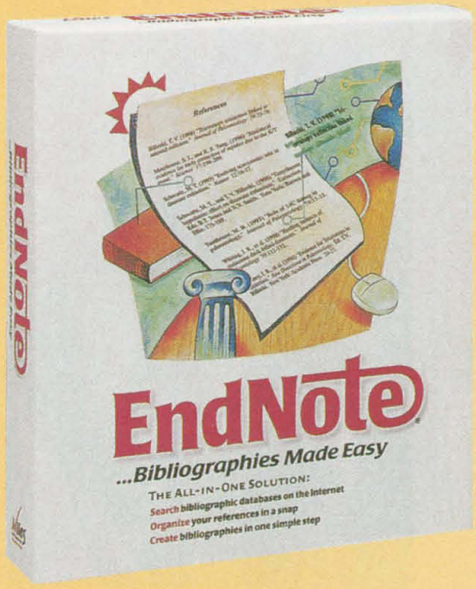

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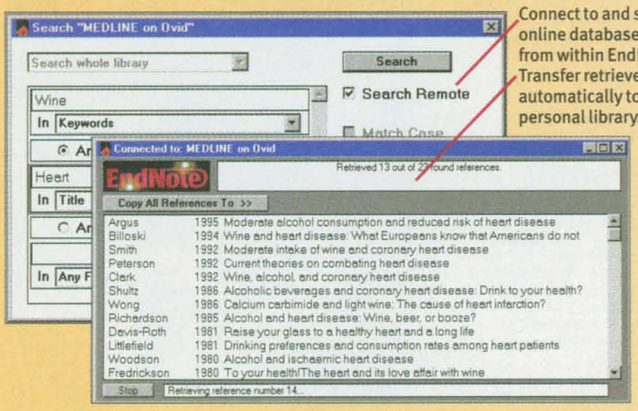

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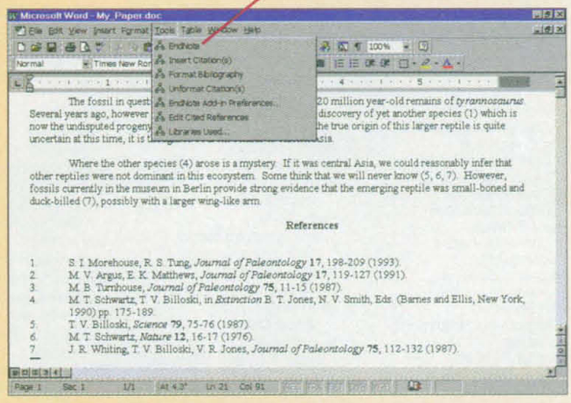

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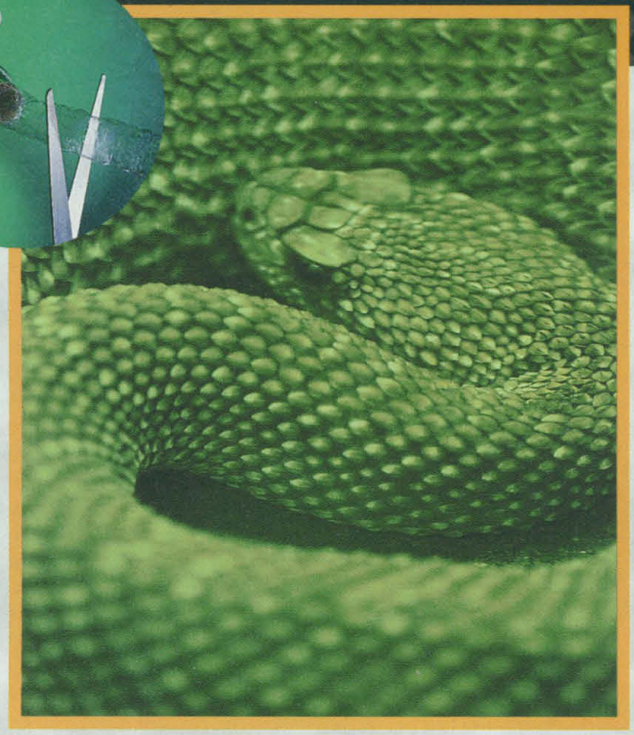

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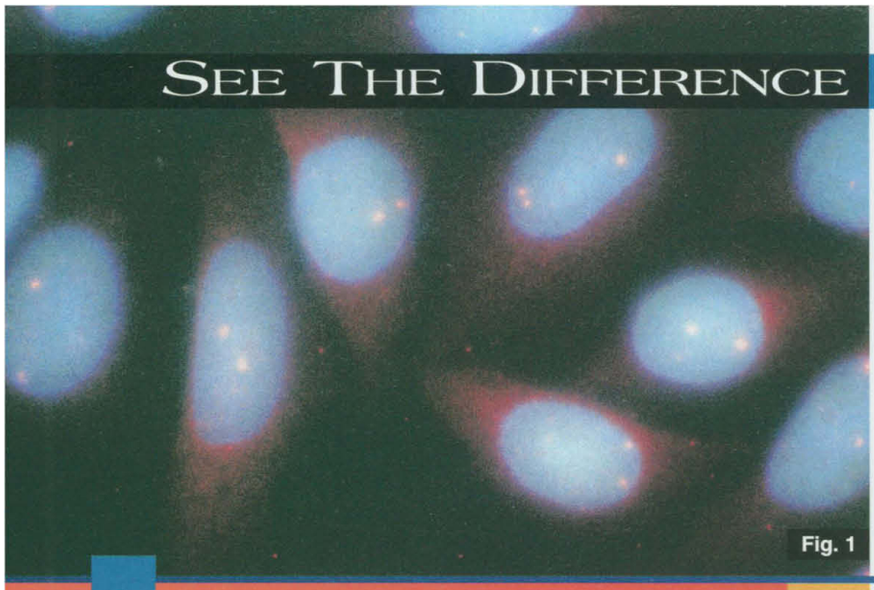

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Fig. 1. Sensitive detection of integrated HPV in SiHa cells using TSA-Direct (Cyanine 3 FISH). Biotinylated HPV-16 E6 DNA probe (1000 bp) hybridized to cultured SiHa cells. TSA fluorescence detection used Streptavidin-HRP followed by Cyanine 3 Tyramide. Slide counterstained with Hoechst 33342 (Molecular Probes, Inc.) and evaluated using separate tetramethylrhodamine and DAPI filters. Photo taken on KODAK 1000 speed film with 5 second (Cyanine 3 Tyramide) and 0.5 second (Hoechst 33342) double exposure using a 100X objective.

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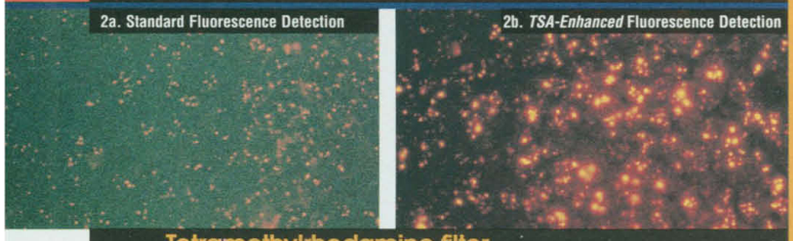

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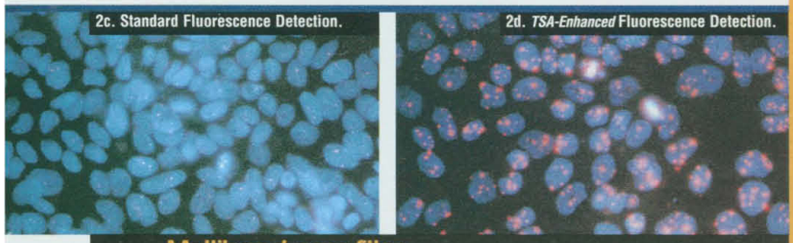

Multiband pass filter

Figs. 2a-d. Comparison of HPV fluorescence detection using Cy™3-conjugated Streptavidin versus TSA-Direct (Cyanine 3 FISH). Biotinylated HPV-16 E6 DNA probe hybridized to cultured CaSki cells.

2a-b. Standard fluorescence detection carried out with Cy™3-conjugated Streptavidin (Jackson ImmunoResearch Laboratories, Inc.). TSA-enhanced fluorescence used Streptavidin-HRP followed by Cyanine 3 Tyramide. Slides counterstained with Hoechst 33342 (Molecular Probes, Inc.) and evaluated using a tetramethylrhodamine filter. Photos taken using KODAK 1000 speed film with a 1 second exposure using a 40X objective.

2c-d. Protocol same as above but counterstained slides evaluated using a multiband pass filter. Photos taken using KODAK 1000 speed film with a 1 second exposure using a 40X objective.

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Fig. 3a-b. Comparison of standard fluorescence detection using Cy™3-conjugated Streptavidin versus TSA-Direct (Cyanine 3). Courtesy of *Kevin Roth, M.D., Ph.D., Washington University School of Medicine, St. Louis, MO.* Bouin's fixed, paraffin embedded mouse intestinal tissue, deparaffinized and incubated with biotinylated wheat germ agglutinin. Sections incubated with Cy3-conjugated Streptavidin (3a) or with Streptavidin-HRP followed by Cyanine 3 Tyramide (3b). Wheat Germ Agglutinin labels intestinal epithelial cells at the base of the crypts.

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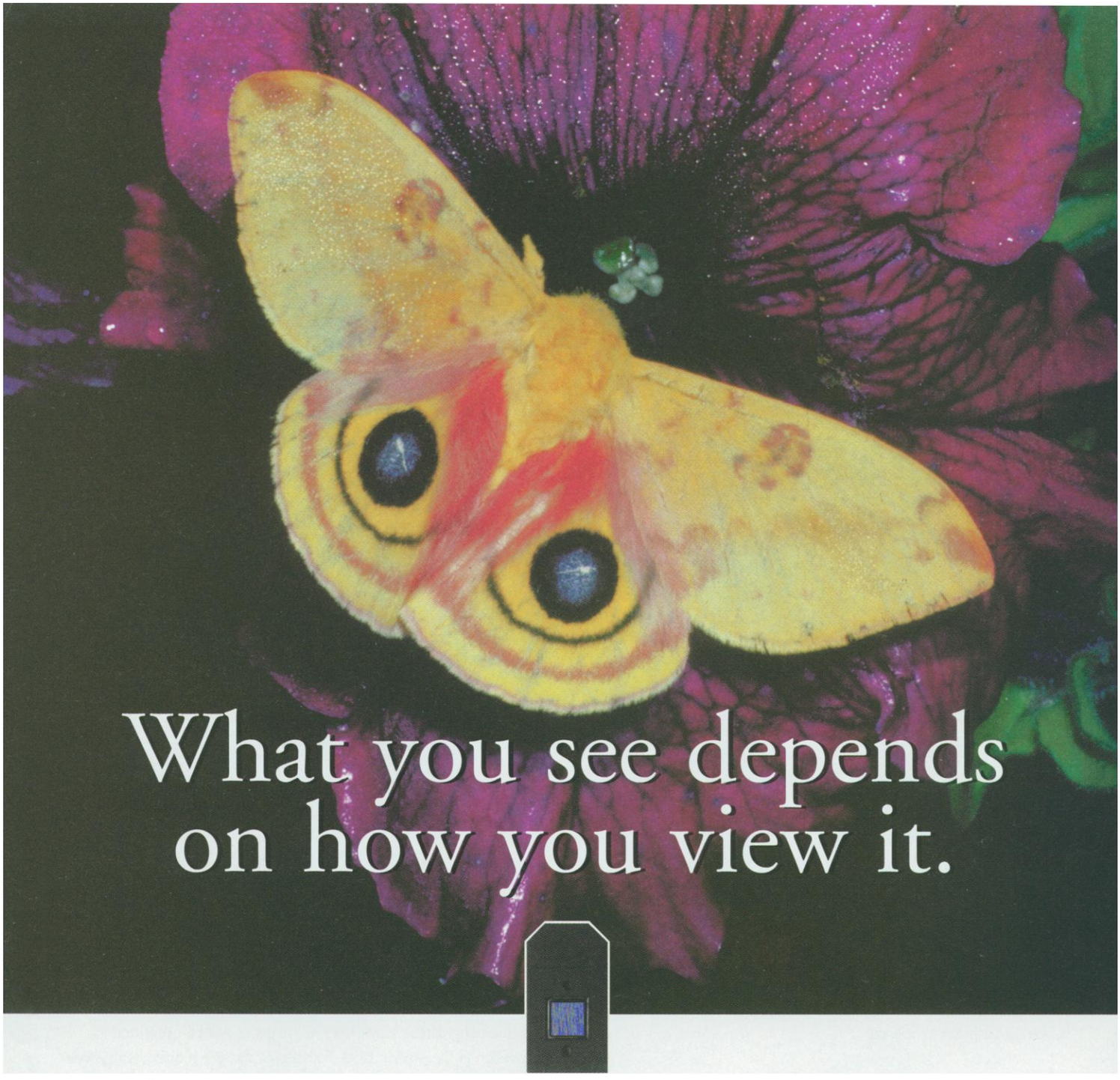

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The grand prize is US$20,000 with an additional seven runners-up winning US$5,000 and being announced in *Science*. The winning essay will be published in full. The award ceremony will be held in Sweden in early December. The Grand Prize winner will feature in next year's Amersham Pharmacia Biotech & *Science* Prize for Young Scientists advertisement. As an additional bonus, all winners and finalists receive a free subscription to *Science*.

Call for entries.

To be eligible, you must have received your Ph.D. between January 1 and December 31, 1997. Your thesis has to be in the field of molecular biology and submitted to us in the form of a 1,000-word essay which describes your work and places it in perspective with regard to the field of molecular biology. The essay can be written in English, French, German, Spanish, Japanese or Chinese (Mandarin).

The closing date is May 31, 1998. All prizes will be presented in Sweden in December 1998. Full details, and the required entry form can be collected from:

* the administrator of the award committee at the address below
* from the *Science* homepage at http://www.aaas.org/science/prize.htm
* from the Amersham Pharmacia Biotech homepage at http://www.apbiotech.com

amersham pharmacia biotech & SCIENCE PRIZE FOR YOUNG SCIENTIST in molecular biology 1998

Amersham Pharmacia Biotech and *Science* Young Scientist Prize Selection Committee

Enquiries in Europe should be addressed to: Science International Thomas House 14 George IV Street Cambridge CB2 1HH UK
Tel: +44 1223 302067. Fax: +44 1223 302 068

Enquiries in the United States and other regions should be addressed to: Science 1200 New York Avenue, N.W., Room #1053 Washington, DC 20005 USA
Tel: +1 202 236 6553. Fax: +1 202 289 7562

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INFORMATION ABOUT PERKIN-ELMER'S PCR LICENSING PROGRAM

At Perkin-Elmer we are proud of our role in developing PCR technology. From the start, as the exclusive licensee of PCR for research and other non-diagnostic applications, we have provided scientists with innovative tools for PCR and access to the technology.

The Nobel Prize winning PCR process is covered by patents in many countries throughout the world. Because PCR is patented, using PCR, even for research, requires a license. In keeping with our philosophy of maximizing scientists' access to PCR, Perkin-Elmer makes licenses available in a number of ways. To make it easy for users to obtain the PCR rights they need, we not only offer PCR rights in a variety of ways directly to end users, we also have licensed many of our competitors to convey these rights with their products.

Obtaining a license to perform automated PCR for your own research is easy. You can obtain the license automatically by using a licensed DNA polymerase (available from over 20 manufacturers) with an Authorized thermal cycler (available from a number of thermal cycler suppliers). Alternatively, if you choose not to use products from Perkin-Elmer or other licensed manufacturers, you need to purchase the appropriate PCR research rights directly from Perkin-Elmer.*

Perkin-Elmer also offers licenses for other uses of PCR (for example, for providing services) in a variety of fields, either directly through license agreements or through products from Perkin-Elmer and licensed competitors which convey these rights. In addition to research, these fields include agricultural testing, animal identity testing, environmental testing, food testing, forensics and human identity testing, and quality control testing.

For more detailed information on how to obtain a license to practice the PCR process, please visit our website at www.perkin-elmer.com/ab/pcr licensefaq. Or contact us at PE Applied Biosystems, Licensing Department, 850 Lincoln Centre Drive, Foster City, CA 94404 USA, fax (650) 638-6071, phone (650) 638-5845.

** Please note that, in addition to the PCR process rights, you may need other patent rights associated either with instruments or reagents.*

Our goal is to continue developing PCR and maximizing its availability to users around the world.

PE Applied Biosystems

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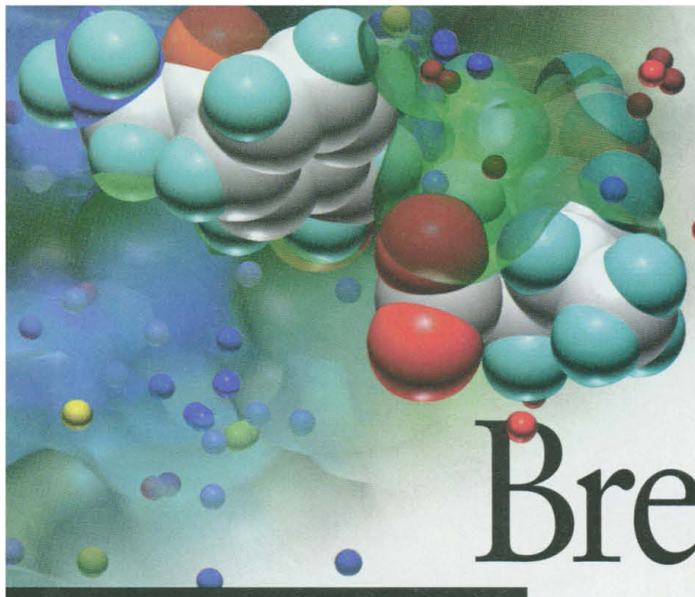

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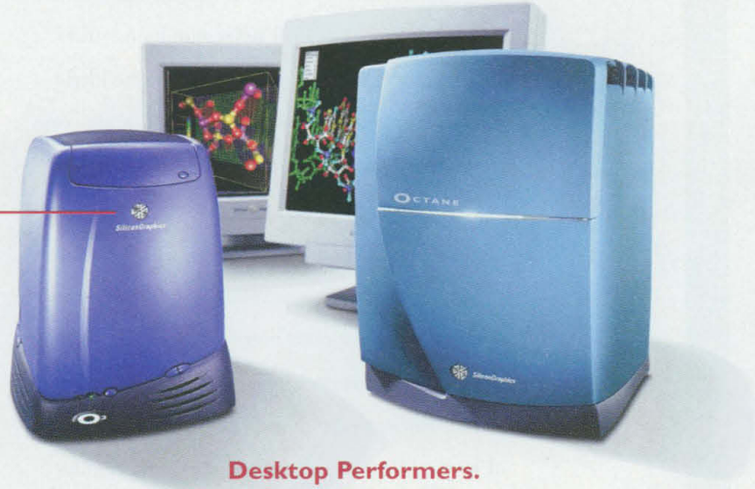

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REQUEST FOR PROPOSALS

Funding available worldwide for innovative methods that:

- eradicate non-enveloped viruses in whole human plasma
- range from initial technology assessment to advanced methods development
- are safe, effective and practical.

It is essential the applicant be in a position to convey to the Consortium the rights in resulting research.

FUNDING

Budget considerations:

- should reflect intensity of research and anticipated outcomes
- one-year basis
- continuation of funding possible upon favorable evaluation of progress and potential.

APPLICATION PROCESS

Proposals:

- may be submitted any time
- will be evaluated promptly on both technical merit and the business case.

The first step is to communicate with the Consortium Executive Director about non-confidential aspects of the proposal.

CONTACT:
Frederick A. Dombrose, Ph.D.
Executive Director
5925 Carnegie Blvd., Suite 500
Charlotte, NC 28209 U.S.A.
Phone (704) 571-4070
Fax (704) 571-4071
e-mail: fdcps@aol.com
see: www.plasmaconsortium.com

Consortium for Plasma Science, LLC

The Consortium for Plasma Science, LLC, is a collaborative effort of five major blood fractionation companies: Alpha Therapeutic Corporation; Baxter Healthcare Corporation; Bayer Corporation; Centeon, LLC; and NABI.

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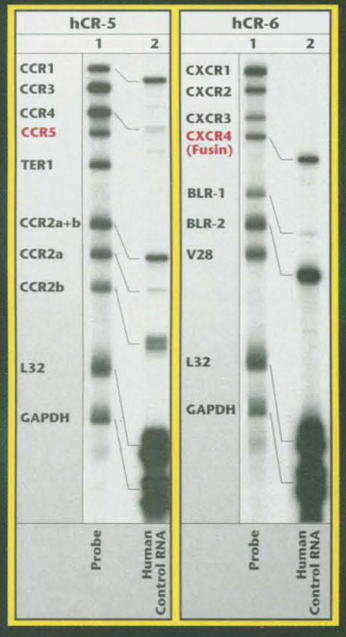

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TECH.SIGHT

PRODUCTS

DNA Gel Extraction Kit

The QUANTA GELEX kit provides a 12-minute protocol for extracting DNA from agarose gels and solutions. DNA fragments in the range of 200 bp to 8.7 kb in length can be isolated with yields up to 90%. DNA can be recovered from a variety of agaroses including standard laboratory quality and low–melting point agaroses. The kit is based on the use of a chaotropic salt solution in which an agarose gel slice containing DNA is dissolved. DNA is then bound to a resin, pelleted, eluted, and dissolved in pure water. The DNA recovered is ready to use in manipulations such as amplification, ligation, digestion with restriction enzymes, and labeling. **Quantum Biotechnologies. For information call 888-362-5487 or circle 142 on the Reader Service Card.**

Nitrogen-Specific HPLC Detector

Model 8060 Nitrogen-Specific High-Performance Liquid Chromatography (HPLC) Detector is capable of quantitating unknown compounds without using the unknown as a reference, which can save the analyst hours or even months of work. Its equimolar response allows quantitation of all nitrogen-containing compounds, using any readily available nitrogen standards, over five orders of magnitude. Because the device responds only to nitrogen-containing compounds, it can be used without derivatization. The detector offers a linear calibration curve over a wide range, an equimolar response for all nitrogen-containing compounds, and a detection limit that rivals other HPLC detectors. **ANTEK Instruments. For information call 800-365-2143 or circle 143 on the Reader Service Card.**

Spectrometers with Automated Atomizer Exchange

The AAnalyst 700 and AAnalyst 800 high-performance atomic absorption (AA) spectrometers feature an automated motorized atomizer exchange. With these new instruments, switching between flame and graphite furnace AA operating mode is accomplished by a simple software command, offering operators convenience and time efficiency. For the first time, the full dynamic range and versatility of both atomic absorption techniques are available in a single, software-controlled instrument. The AAnalyst 700 is equipped with a high-performance burner system for flame AA and a Heated Graphite Atomizer furnace with deuterium background corrector. Both atomization devices are mounted on a motorized sliding carriage and can be moved to the sample compartment within seconds on command from the system software. Since no alignment is required, analyses can start immediately. The AAnalyst 800 works in the same simple, efficient way, but is equipped with a Transversely Heated Graphite Furnace with longitudinal Zeeman-effect background corrector. **Perkin-Elmer. For information call 800-762-4000 or circle 144 on the Reader Service Card.**

Microreactor Sorting System

The *AutoSort*-10K Microreactor Sorting System is designed to extend the manufacturer's "directed sorting" split and pool technique for use with libraries in the range of 10,000 compounds. By automating the reaction and cleavage sorting operations, the instrument is capable of helping the chemist synthesize large libraries of discrete compounds rapidly and efficiently. The *AutoSort*-10K can

accommodate up to 10,000 microreactors. These microreactors then pass through the integrated scanner and are sorted at the rate of 1000 per hour, into as many as 48 separate containers. This sorting system can be used between synthetic chemistry reaction steps or when synthesis is complete. **Irori. For information call 619-546-1300 or circle 145 on the Reader Service Card.**

Imbalance-Correcting Rotor

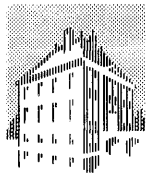
The high-capacity GH-3.8A with ARIES Smart Balance Technology corrects for balance errors, rather than merely compensating for them. Users can easily run different quantities of samples or tubes, eliminating the time-consuming task of balancing. The rotor can correct itself and complete the run even when an imbalance occurs at high speed, such as when a tube breaks. The GH-3.8A is a multifunctional horizontal bucket rotor that can handle bottle volumes from

(continued on page 613)

CALL FOR PROPOSALS

The Mid- & Far-IR User Facility

FELIX



The international free-electron laser user-facility FELIX in The Netherlands provides continuously tunable radiation in the range of 100-2000 cm^{-1} (5-100 μm), at peak powers in excess of 100 MW in sub-ps pulses, and is being used for scientific research in (bio-)medicine, (bio-)chemistry and (bio-)physics. The present call, with **deadline 1 June**, concerns the period September 1998 - February 1999.

Beam time is allocated on the basis of a review of the submitted research proposals by a Programme Advisory Committee. **Access is free of charge** for all non-propriatory research. The facility is supported under the European TMR Programme for Access to Large-Scale Facilities and limiting funding for travel and subsistence is available for researchers from EU countries.

Guidelines for submitting a proposal and further information on FELIX and ancillary equipment are available by internet (http://www.rijnh.nl/DEPARTMENTS/LASER/FELIX/felix.html) or via

Mrs Laura M.P. van Veenendaal

FOM Institute for Plasma Physics
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The Netherlands

e-mail: lauravv@rijnh.nl
fax: +31-30-60 31204

Circle No. 42 on Readers' Service Card

The AAAS Pacific Division 79th Annual Meeting
June 28 - July 2, 1998
Utah State University
Logan, Utah

SYMPOSIA/WORKSHOPS

- Pedology of Western Ecosystems
- Managing Coyotes with Fertility Control: Is It Feasible?
- Ethical and Social Concerns Related to Transgenic Animals and Cloning
- Ordovician of Utah: History and Prospect
- Organic Contaminants in the Soil Environment
- Alternative Medicine: Philosophy and Function of Nutritional Supplements
- Women in Physics: Past Present, and Future
- The Colorado Basin

FIELD TRIPS

- Soil-Geomorphology-Biota Relationships in Pluvial Lake Bonneville Deposits and the Bear River Range
- Bear River Migratory Bird Refuge and Promontory Point
- Logan Canyon and the Ordovician of Utah
- Geology of the Colorado Plateau Region of Southern Utah
- National Wildlife Research Center's Predator Ecology and Behavior Applications Project Facility
- Plant Diversity along the Jardine Juniper Trail up Logan Canyon

Visit the PDAAAS Program Website at:
http://psb.usu.edu/aaas-pd/index.html
For information, contact Dr. David E. Bilderback, Division of Biological Sciences, The University of Montana, Missoula, MT 59812

(continued from page 611)

2.5 ml to 750 ml, making it appropriate for applications such as milk tests, oil tests, cell cultures, hazardous waste samples, and environmental samples. **Beckman Instruments. For information call 800-742-2345 or circle 146 on the Reader Service Card.**

Yeast Transformation Kit

A complete, economical kit for yeast transformation and six Drop-Out Medium Supplements for selecting yeast transformants are available. The kit, based on the lithium acetate method, is optimized for use with *Saccharomyces cerevisiae*. **Sigma. For information call 800-282-1298 or circle 147 on the Reader Service Card.**

Thermal Cycler

The Techne Genius Thermal Cycler is designed to serve the researcher's requirements for large capacity, high throughput sequencing and polymerase chain reaction. It features a 384-format block that is interchangeable with the device's other blocks. The 384 block format allows the researcher to scale up from existing 96-well formats and reduce costs by reducing sample and reagent volumes. The Genius offers temperature accuracy and block uniformity. It features a self-adjusting heated lid that allows for oil-free reactions. **Techne. For information call 800-225-9243 or circle 148 on the Reader Service Card.**

DNA Sequencing Pipette

The SequaPipette is an eight-tip strip and multichannel pipette designed for DNA sequencing. The SequaStrip Tips are disposable, short tips with a very flat, narrow paddle. The strip is perfectly straight to make loading easy, and the pipette is calibrated for a precise draw every time. The strips are designed for the ABI 373 and 377 Prism Sequencing Systems and fit 0.2-, 0.3-, and 0.4-mm gels. **Embi Tec. For information call 800-255-1777 or circle 149 on the Reader Service Card.**

Literature

Chemistry & Life Sciences Products is a CD-ROM catalog that enables users to search the product database quickly and build purchase orders or requests for quotes on desktop computers. The interactive disk offers a variety of searching mechanisms. **Kimble/Kontes. For information call 609-692-8500 or circle 150 on the Reader Service Card.**

Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and government organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsement by *Science* or AAAS of any products or materials mentioned in Tech.Sight is not implied. Additional information may be obtained from the manufacturers or suppliers named by circling the appropriate number on the Reader Service Card and placing it in a mailbox. Postage is free.