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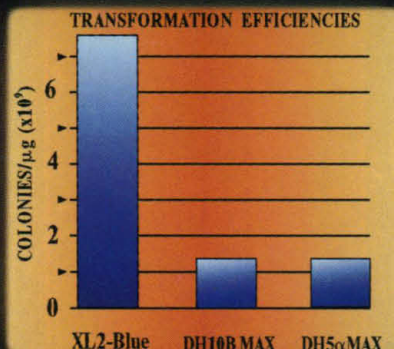
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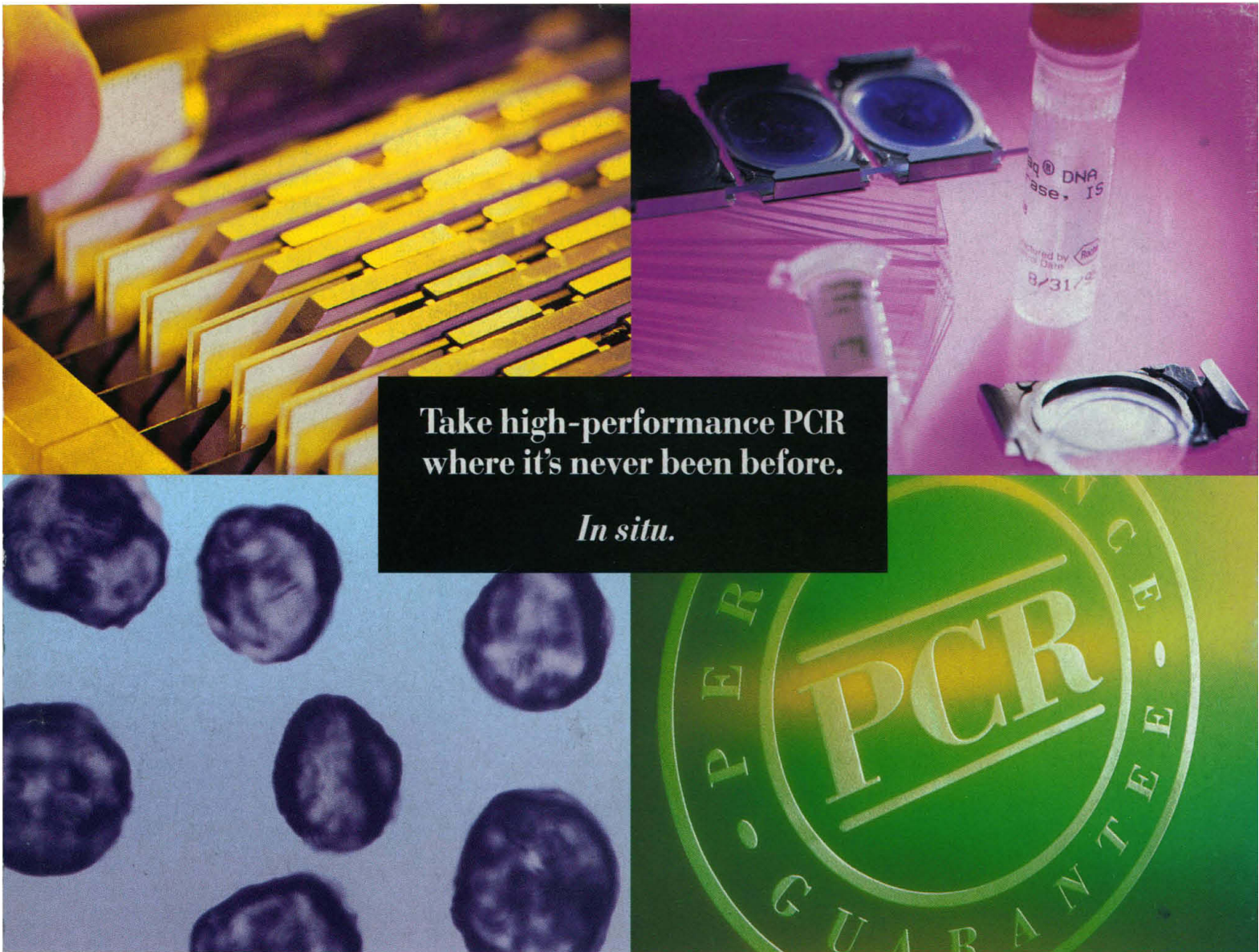
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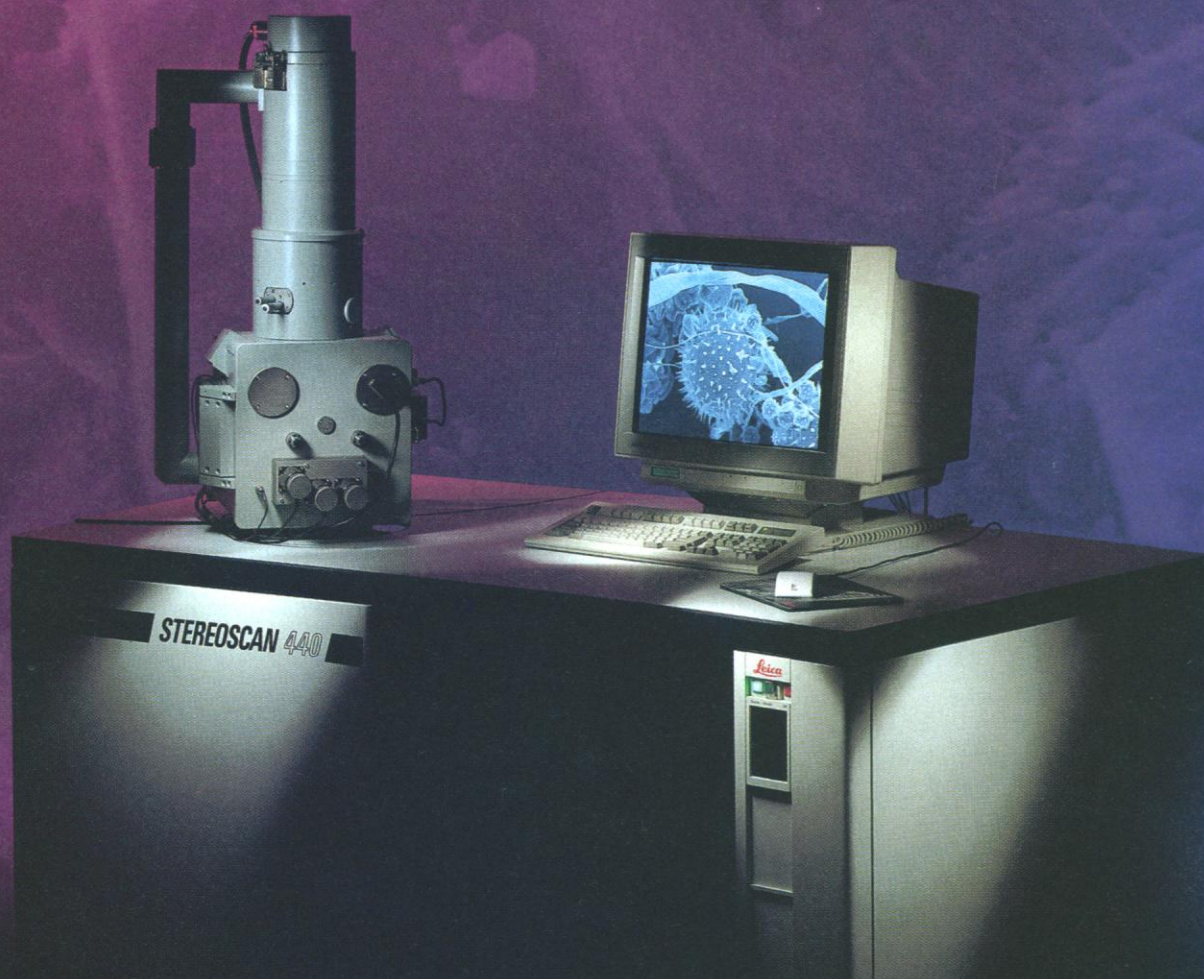


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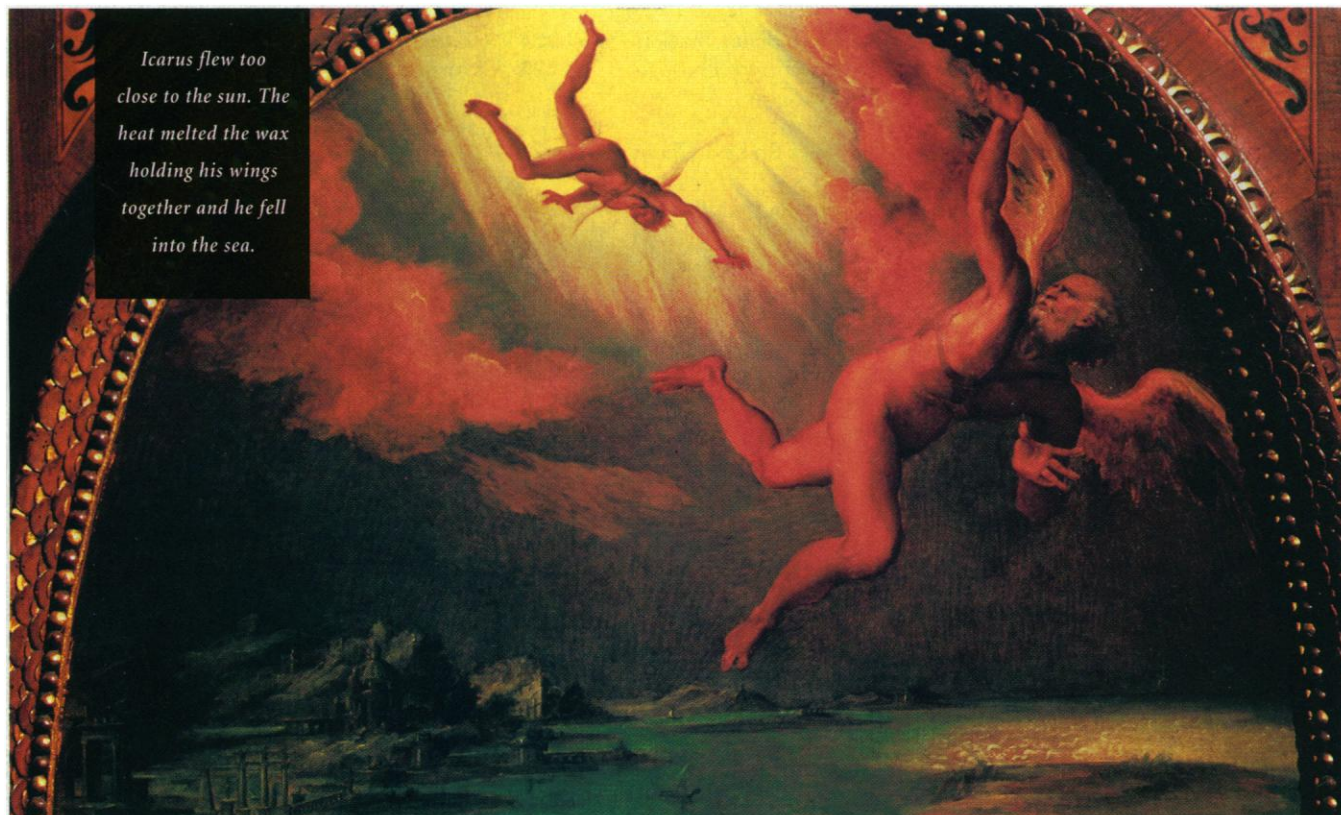
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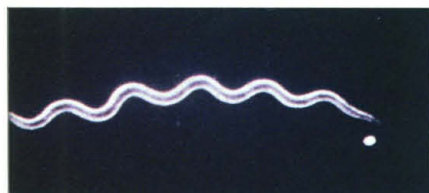
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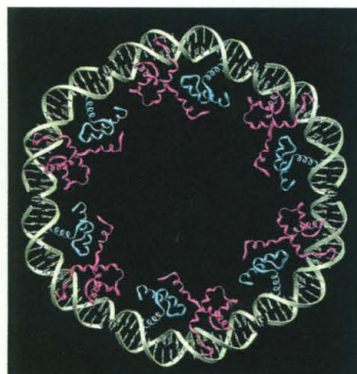
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Does the Lyme
spirochete cause
chronic infections?



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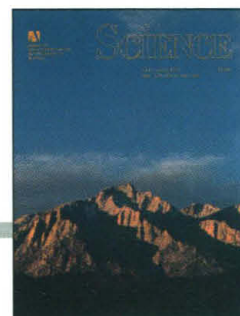
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View westward of Lone Pine Peak (elevation 3945 meters), located on the southern Sierra Nevada crest 10 kilometers southeast of Mount Whitney. Differential rock uplift across the Sierra Nevada fault system has generated more than 2500 meters of relief between

Lone Pine Peak and Owens Valley to the east. Erosion and deposition may be responsible for a large fraction of Cenozoic rock uplift in the Sierra Nevada. See page 277. [Photo: R. S. Anderson]



RESEARCH ARTICLE

Crystal Structure of the MATa1/MAT α 2 Homeodomain Heterodimer Bound to DNA

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Immunosuppression by Glucocorticoids: Inhibition of NF- κ B Activity Through Induction of I κ B Synthesis

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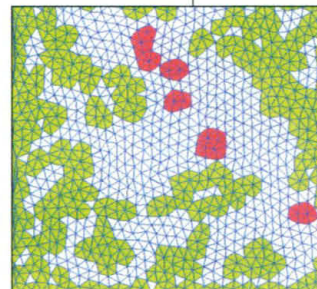
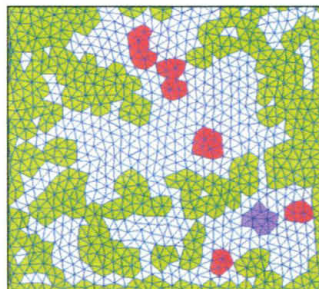
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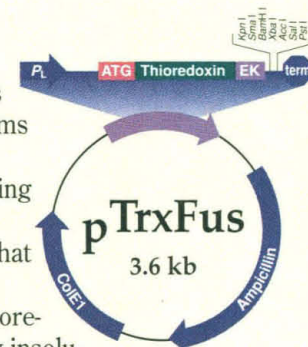
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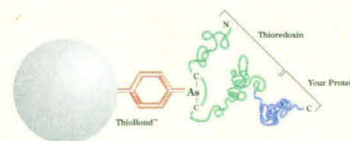
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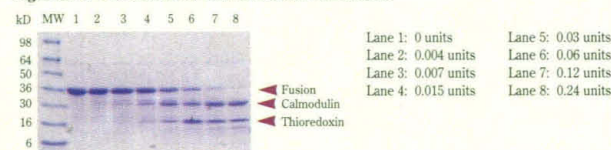


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Quantum computation

One approach for making smaller integrated circuits would be a quantum computer in which the logic states 0 and 1 would be replaced by wave functions and the logic operations by superpositions of quantum states. Theory suggests that quantum computers could be very powerful for tasks such as in Shor's factorization of prime numbers. In a review, DiVincenzo (p. 255) notes that a working quantum computer would be extremely demanding and would require a huge extension of the rudimentary quantum computing possible today.

Magnetoresistive materials

In seeking new materials, combinatorial libraries can be used to synthesize and screen a large number of samples rapidly. Briceño *et al.* (p. 273) used this method to search for materials that exhibit strong magnetoresistance, a property of great interest for downsizing magnetic recording heads. They found a class of cobalt oxides that have large magnetoresistance, and further determined that in contrast to manganese-based compounds, the effect increases as the material is doped with larger alkaline earth ions.

Lifting mountains

What forces cause the uplift of large mountain ranges? Small and Anderson (p. 277; see cover) examine the interplay of erosion and generation of relief, which removes load and induces isostatic uplift, on the formation of the Sierra Nevada, California. Their model shows that coupled erosion along the crest of the range and deposition in

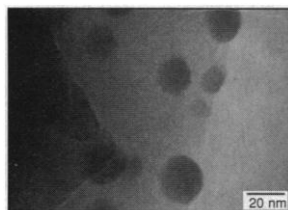
Binding of homeodomain heterodimers to DNA

The MAT $\alpha 2$ homeodomain protein of yeast regulates transcription by binding DNA with either MAT $\alpha 1$ or MCM1. Each of the complexes, $\alpha 1/\alpha 2$ and $\alpha 2/\text{MCM1}$ bind to distinct sites in the yeast genome and repress transcription of the adjacent genes in a cell type-specific manner. Li *et al.* (p. 262; see the Perspective by Andrews and Donoviel, p. 251) present the crystal structure of the $\alpha 1/\alpha 2$ heterodimer bound to DNA. The $\alpha 2$ COOH-terminal tail is disordered when $\alpha 2$ binds DNA alone but becomes ordered in the ternary complex and contacts the $\alpha 1$ homeodomain. Such flexible protein recognition domains may mediate contact between many other heterodimeric transcription factors. Jin *et al.* (p. 209) examine the requirements for proper spacing between the $\alpha 1/\alpha 2$ DNA binding sites and the length of the $\alpha 2$ tail.

the Great Valley could have produced the observed tilting of the range to the west and apparent uplift on the east. Summit elevations may have increased while the mean elevation of the range may have decreased in the past 10 million years.

Rock vein pursuit

Pseudotachylites are veins or larger bodies of melted rock formed by frictional melting, most commonly during asteroid impacts or faulting. The conditions responsible for their formation have been obscure be-



cause analogous features have been difficult to produce in the lab. Fiske *et al.* (p. 281) generated pseudotachylites in high-velocity shock experiments in which they used an aluminum container that deformed with the sample, facilitating strain heating. Strain heating may thus complement shock heating in melting and altering rocks in impact events.

Glucocorticoid mechanism

Although they have been used for years as immunosuppressive and anti-inflammatory agents, little is known about the mechanism of glucocorticoid (GC) action. Scheinman *et al.* (p. 283) and Auphan *et al.* (p. 286; see news story by Marx, p. 232) show that the nuclear factor kappa B (NF- κ B) transcription factor, a regulator of genes involved in the immune response, is repressed by GCs, and that GCs induce increased synthesis of I κ B α , the inhibitor of NF- κ B. This additional I κ B α binds to NF- κ B, preventing its action.

Hearty protein

How large is large? For proteins, most lie within the range of 180 to 900 amino acid residues per molecule (masses of 20,000 to 100,000 daltons). Labeit and Kolmerer (p. 293; see the news story by Barinaga, p. 236) present the molecular cloning and sequencing of titin, a protein from human heart of 26,926 residues (3 million daltons). Analysis of the sequence domains, the messenger RNA splicing patterns in various tissues, and the structural organi-

zation of other muscle proteins suggests that titin serves two functions. First, it specifies the global arrangement of thick, myosin-containing filaments in muscle and, second, selective expression of domains explains the different elasticity of muscles.

Peroxide pathway

Binding of platelet-derived growth factor (PDGF) to its receptor initiates a number of events that transmit signals within the cell. Sundaresan *et al.* (p. 296) report that treatment of vascular smooth muscle cells with PDGF increases the intracellular concentration of hydrogen peroxide (H_2O_2). Responses of the cells to PDGF, such as enhanced DNA synthesis and chemotaxis, were inhibited when the increase in H_2O_2 was blocked. Thus H_2O_2 , like nitric oxide, may function in signal transduction.

Parts of speech

Speech conveys information through both the frequency distribution of sounds (spectral information) as well as timing for making different sounds (temporal cues). Shannon *et al.* (p. 303) show that speech can be recognized with high accuracy even if the spectral information is highly degraded. They added white noise to spoken words and sounds in a way that preserved temporal cues but reduced frequency information into only a few broad bands. Vowels and consonants could be recognized with only three bands of modulated noise. Such results bear not only on how speech is processed in the human brain but can also be useful in designing hearing aids.

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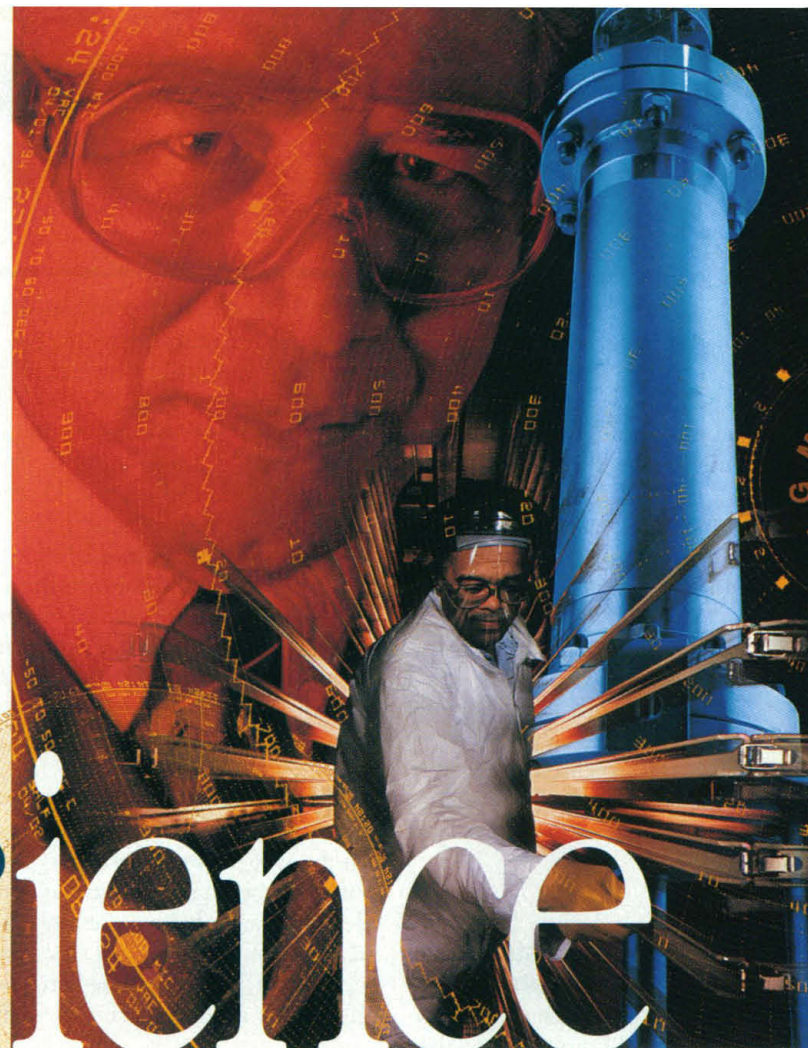
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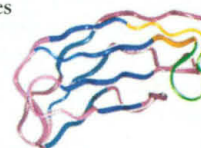
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ACE Substrates and Inhibitors A comprehensive review of current research involving the use of ACE substrates in the determination of Angiotensin Converting Enzyme activity is available from Sigma. In addition, pharmacological studies of the antihypertensive properties of ACE inhibitors are reviewed.

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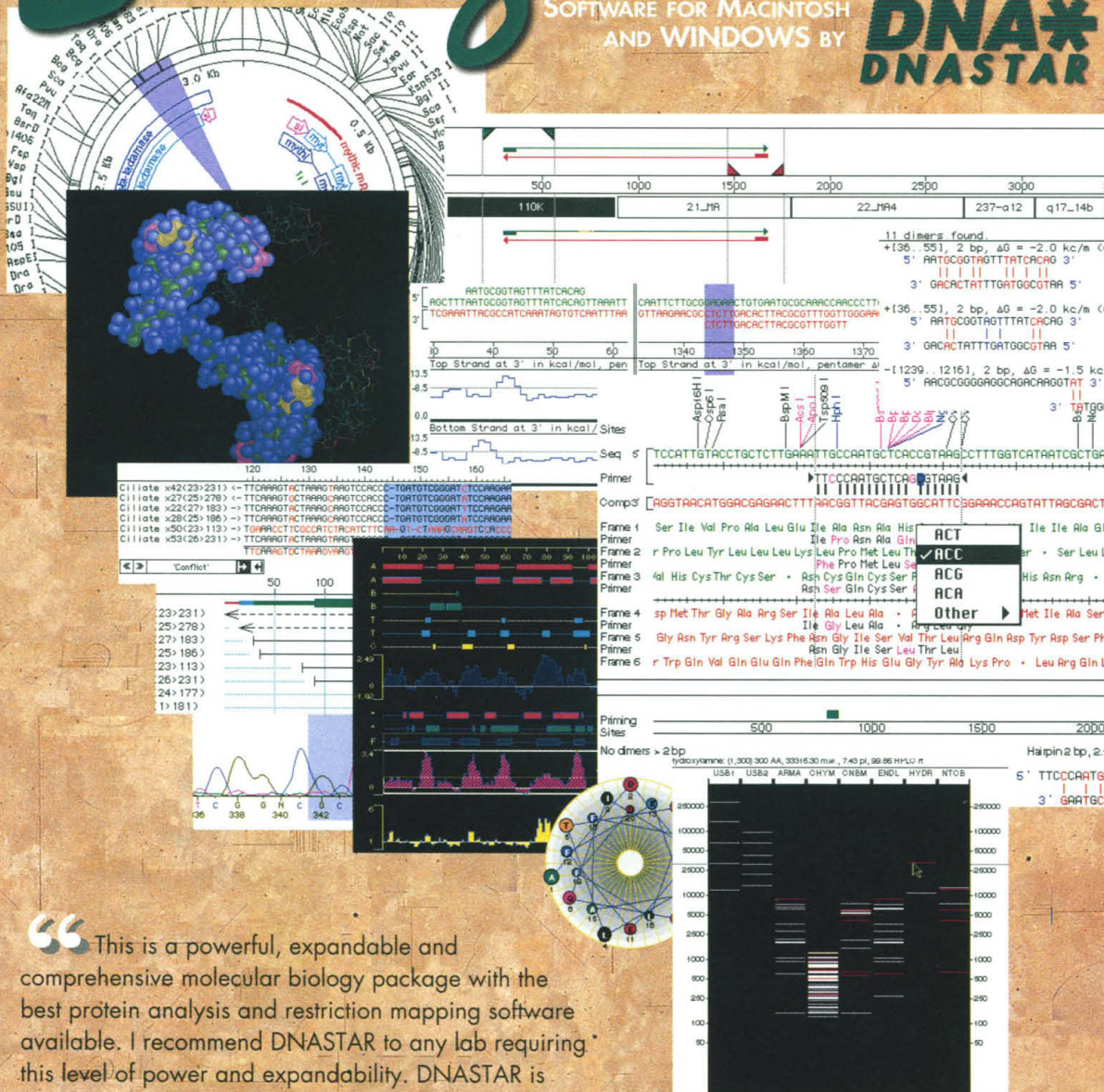
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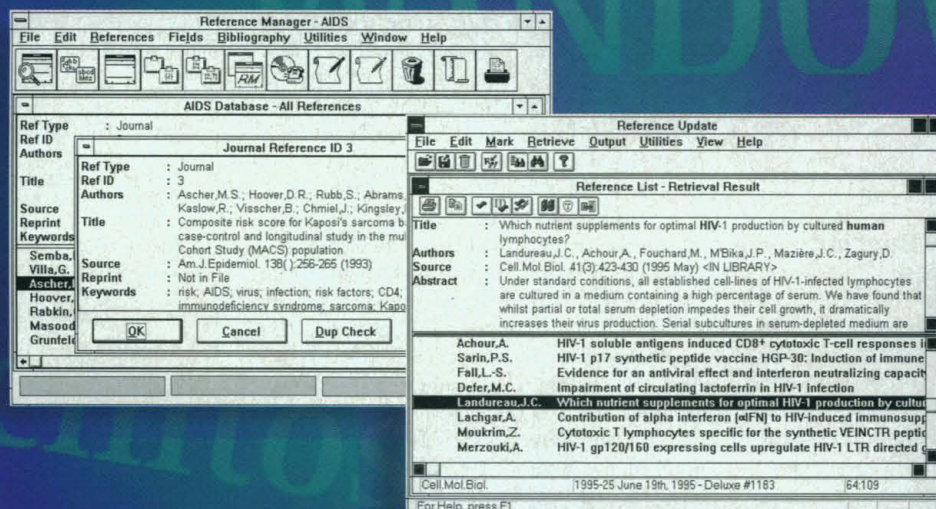
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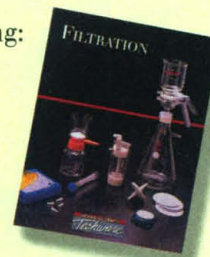
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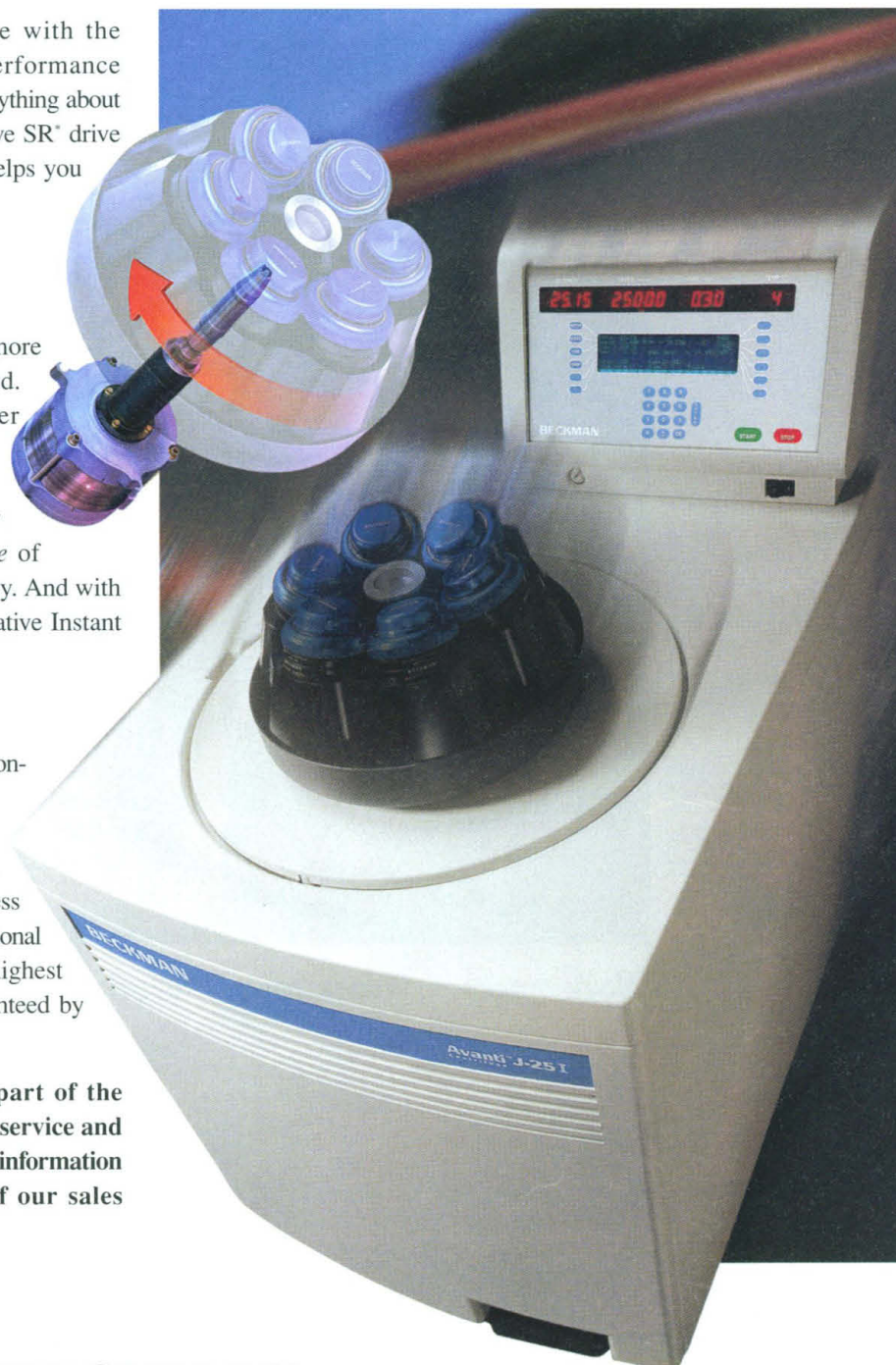
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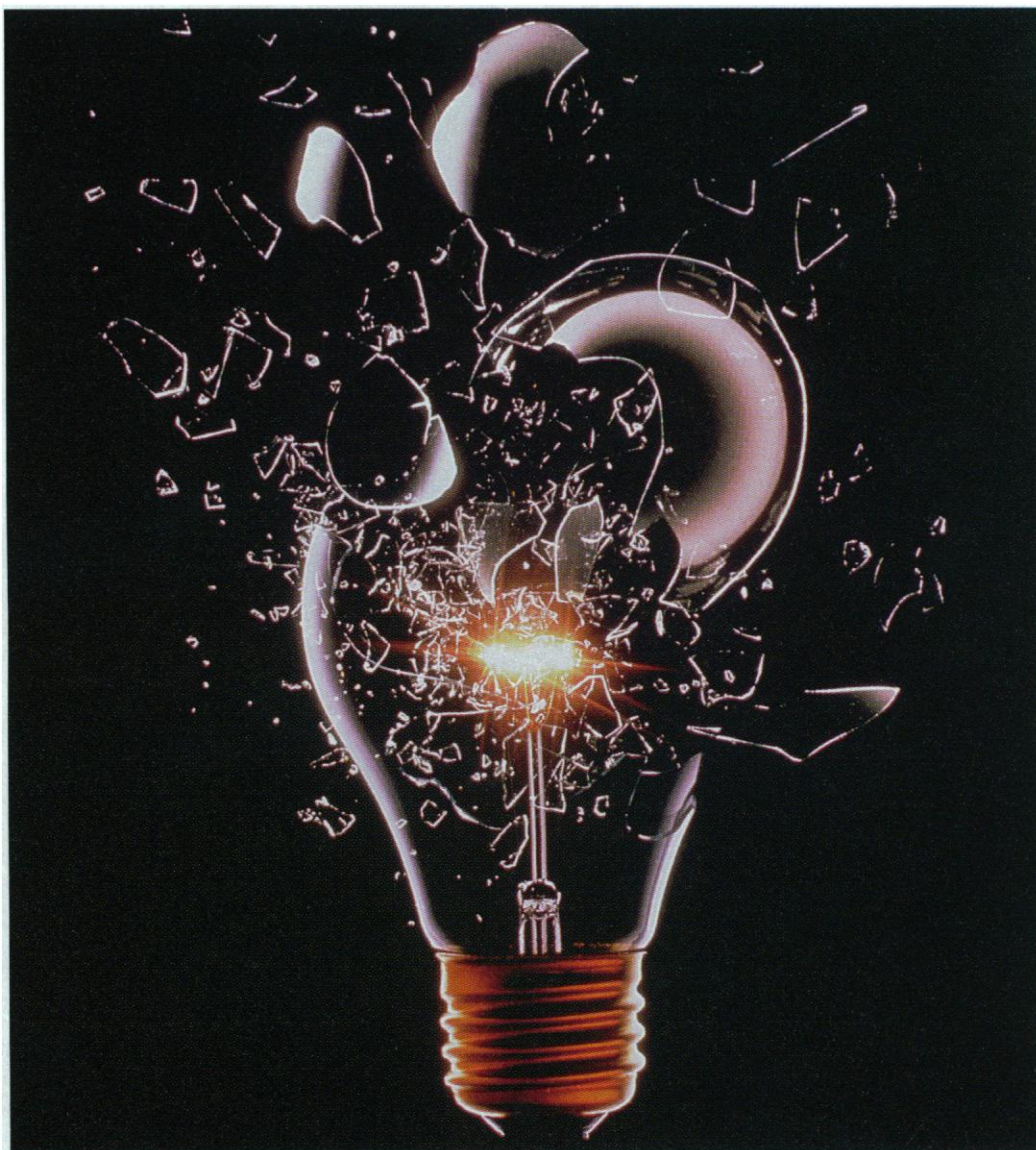
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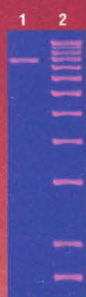


FIGURE. Lane 1: 8.9 kb full-length RT-PCR product of APC transcript from 500 ng of total HeLa RNA isolated using TRIzol Reagent; lane 2: 1 Kb DNA Ladder.

Protocol

HOMOGENIZATION.
Homogenize or lyse sample in TRIzol Reagent.



RNA PRECIPITATION.
Remove aqueous phase. Add isopropanol, centrifuge 10 min.



PHASE SEPARATION.
Add chloroform, mix, centrifuge 15 min.



RNA WASH.
Wash with ethanol. Dry and dissolve RNA pellet.



Product	Cat. No.	Size
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Isolate mRNA

▼ Combines the speed of TRIzol Reagent with the efficiency of oligo(dT) cellulose

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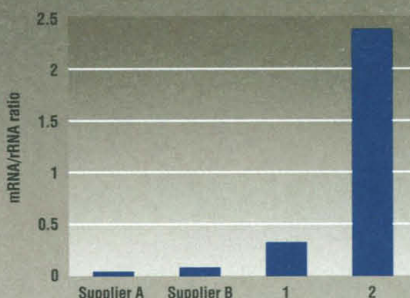


FIGURE. Comparison of mRNA quality purified by three different methods. Amount of GAPDH mRNA was compared to amount of rRNA remaining in each preparation. Supplier A: mRNA isolated by a guanidine isothiocyanate method and single-selection with oligo(dT) cellulose. Supplier B: mRNA isolated by a proteinase K-SDS method and single-selection with oligo(dT) cellulose. 1 and 2: mRNA isolated with the MESSAGEMAKER System and single or double selection with oligo(dT) cellulose.

Product	Cat. No.	Size
MESSAGEMAKER mRNA Isolation System	10551-018	10 reactions

Isolate Genomic DNA

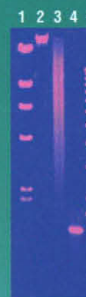


FIGURE. Lane 1: λ DNA/Hind III Fragments; lane 2: 100 ng genomic DNA isolated from rabbit blood using DNAzol Reagent; lane 3: 500 ng genomic DNA, cut with EcoRI, lane 4: 1.3 kb rabbit globin PCR product from genomic DNA isolated using DNAzol Reagent; lane 5: 1 Kb DNA Ladder.

Protocol

HOMOGENIZATION.
Homogenize or lyse sample in DNAzol Reagent.



DNA PRECIPITATION.
Add ethanol, centrifuge 5 min.



RNA REMOVAL.
Centrifuge for 10 min.



DNA WASH.
Wash with ethanol. Dry and dissolve DNA pellet.



Product	Cat. No.	Size
DNAzol Reagent	10503-027	100 ml
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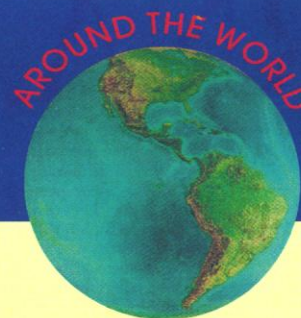
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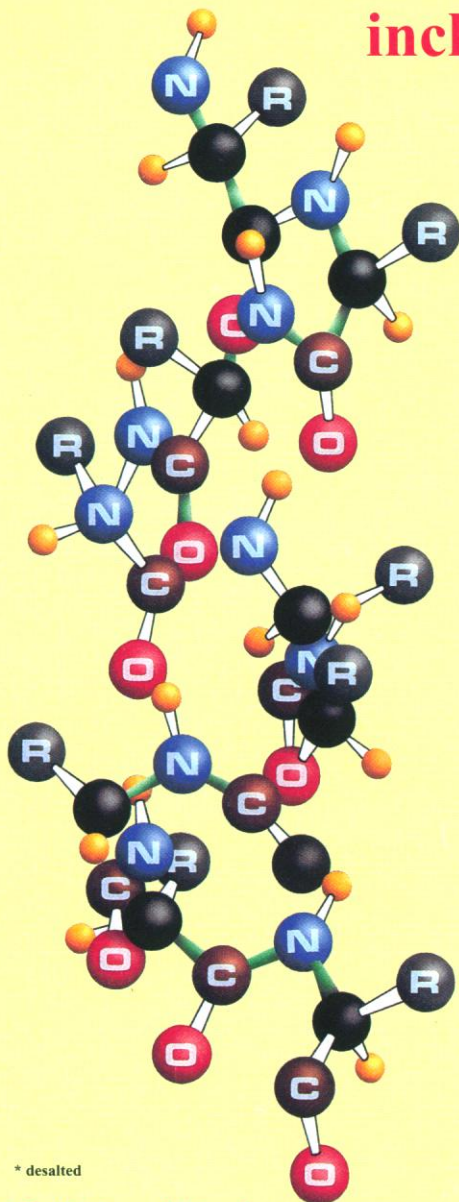
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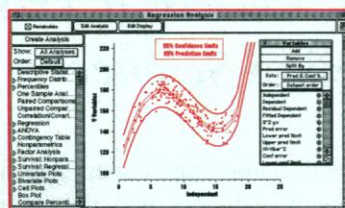
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PROTEIN - ACETALDEHYDE ADDUCTS

L. Lumeng
Y. Israel / R.C. Lin /
O.J. Niemela / D.J. Tuma /
S. Worrall

ETHANOL AND FIBROGENESIS

D.M. Bissell
D.A. Brenner / M. Chojkier /
S.L. Friedman / J. J. Maher /
M. Rojkind / C.H. Wu

SPECIAL LECTURE

D.M. Bissell

PROTEIN METABOLISM AND PROTEIN TRAFFICKING

D.J. Tuma
C.A. Casey / T.M. Donohue /
R. Lakshman / E. Rubin /
S. Schenker

ANGIOTENSIN

COLONY HARBORTOWN
VENTURA, CA
FEBRUARY 18 – 23, 1996

Tadashi Inagami, *Chair*
Pierre Corvol, *Vice Chair*

NEW ASPECTS OF AT₁ SIGNALING

K. Bernstein
K. Bernstein / J. H. Exton /
M. Taubman / B. Berk

ANGIOTENSIN RECEPTORS

T. W. Schwartz
V. Kon / M. Stoll / J. Saavedra

REGULATION OF ADHESION MOLECULES BY ANGIOTENSIN

W. Hsueh
D. Cherish / C. Gicchelli /
T. Borg

VASCULAR CELLS AND ANGIOGENESIS

G. Owens
M. Kirby / E. Olson / R. Nagai

HEART AND ANGIOTENSIN

K. Baker
I. Komuro / B. H. Lorell /
H. Matsubara

BIOANALYTICAL SENSORS

COLONY HARBORTOWN
VENTURA, CA
JANUARY 14 – 19, 1996

Stephen Weber, *Chair*
Irene Walczak, *Vice Chair*

BIOIMITIC RECEPTORS AND SENSORS

M. Meyerhoff
A. Hamilton / D. Reinholdt

ARRAYS

D. Walt
J. Kauer / T. Lu

MICROANALYSIS

M. Wightman
A. Michael / K. Mitchell

NONSPECIFIC TRANSDUCTION

R. Jorgenson
J. Gimzewski / O. Hammil

SESSION TITLES ARE INDICATED IN BOLDFACE, Discussion Leaders in *Italics*, and Speakers in Regular type.

DNA BINDING

C. Murphy
E. Kool / N. Shimamoto

MEMBRANE RECEPTORS

H. Vogel
C. Bargmann / Y. Umezawa

MODIFIED PROTEINS

T. Cass
L. Regan / C. Govardhan

WHOLE CELLS AND SYSTEMS

M. Lerner
R. Zare / H. McConnell

COLLOIDAL, MACROMOLECULAR & POLYELECTROLYTE SOLUTIONS

COLONY HARBORTOWN
VENTURA, CA
FEBRUARY 11 - 16, 1996

Rudolf Klein, *Chair*
Timothy P. Lodge, *Vice Chair*

COLLOIDAL SUSPENSIONS I

P. N. Pusey
S. Fraden / D. Grier /
G. Nägele

COLLOIDAL SUSPENSIONS II

B. Ackerson
M. Medina-Noyola / D. Weitz

COLLOID-POLYMER MIXTURES

A. Gast
D. Frenkel / W. Poon

POLYMERS

C. Han
T. Lodge / T. Perkins /
K. Schweizer

POLYMERS UNDER SHEAR

D. Pine
N. Balsara / J. Israelachvili

LIVING POLYMERS

J. Candau
F. Lequeux / P. Schurtenberger

APPLICATIONS

H. Yu
C. de Kruif / J. Stokes

THE COFFEE RING

P. Chaikin
T. Witten

MEMBRANES, PROTEINS

P. Pincus
V. Bloomfield / S. Safran

POLYELECTROLYTES, THEORY

K. Kremer
J. Joanny / Y. Kantor

POLYELECTROLYTES, EXPERIMENT

K. Schmitz
S. Frster / I. Noda

BIOPHYSICAL ASPECTS

R. Pecora
J. Marko / M. Schurr

GENERAL DISCUSSION

R. Klein
M. Fixman

POSTERS

T. Lodge

COMPOSITES

DOUBLETREE HOTEL
VENTURA, CA
JANUARY 7 - 12, 1996

Dodd Grande, *Chair*
Lawrence T. Drzal, *Vice Chair*

ADVANCES IN THERMOSET MATRIX COMPOSITES

L. Boogh / P. R. Ciriscioli

HIGH TEMPERATURE POLYMER MATRIX COMPOSITES

J. W. Connell / J. McGrath

RECYCLING OF STRUCTURAL COMPOSITES

R. E. Allred

MATERIALS AND PROCESSES FOR HIGH TEMPERATURE CERAMIC BASED COMPOSITES

J. P. Dunkers / S. S. Sternstein

STRUCTURAL BEHAVIOR OF COMPOSITES - DAMAGE MECHANISMS AND ISSUES OF SCALE

F. K. Chang / T. Peijs /
M. Spearing

STRUCTURAL BEHAVIOR OF COMPOSITES - MICROMECHANICS AND MECHANISMS

C. Galiotis / M. R. Wisnom

PROCESS MODELLING AND ADVANCED PROCESSES

M. Rommel / S. W. Tsai /
R. Evans

DRUG CARRIERS IN MEDICINE AND BIOLOGY

HOLIDAY INN
VENTURA, CA
FEBRUARY 25 - MARCH 1, 1996

Theresa Allen & Randall
Mrsny, *Co-Chairs*
R. Duncan & P. Thorpe,
Vice Chairs

DRUG RESISTANCE

R. Borchardt
S. Cole / B. Sikic

ANTISENSE AND GENE THERAPY

L. Mayer
A. Kabanov / A. Smith /
N. Usman

POLYMERS IN ANTI-CANCER APPROACHES

H. Ringsdorf
D. Jones / H. Maeda

LIPOSOMAL THERAPIES

D. Papahadjopoulos
I. Bakker-Woudenberg /
R. Mannino / F. Martin

BIOLOGICAL ISSUES OF DRUG DELIVERY

A. Oliff
M. Inoue / W.C. Shen

TARGETING TO TUMORS

R. Duncan
R. Duncan / C. Hellerqvist /
R. Jain / P. Thorpe

IMMUNOCONJUGATE THERAPIES

P. Thorpe
A. Jones / P. Trail

POLYMER APPLICATIONS

A. Hoffman
J. Cassidy / M. Sefton /
E. Wintermantl

DEBATE: CAN DRUG CARRIERS BE AN EFFECTIVE APPROACH FOR THE TREATMENT OF SOLID TUMORS?

R. Reisfeld / J. Weinstein
R. Duncan / I. Hellstrom /
D. Jones / F. Martin /
L. Mayer / R. Nayar / A. Oliff

ELECTROCHEMISTRY

DOUBLETREE HOTEL
VENTURA, CA
JANUARY 14 - 19, 1996

Janet Osteryoung, *Chair*
Owen Melroy, *Vice Chair*

SENSORS

H. Silverman
G. Swain / C. Ribes /
L. Bachas

PHOTONS

P. Sherwood
D. Scherson / J. Pemberton /
J. Turner

CORROSION

F. Mansfield
H. Issacs / R. Alkire

ELECTRON TRANSFER

R. deLevie
C. Chidsey / M. Sluyters-
Rehbach

BATTERIES

K. Bullock
D. Fauteux / W. Smyrl

FUEL CELLS

R. Paur
S. Swathirajan / T. Mason

ADSORBATES

H. Gray
E. Bowden / K. Niki

SURFACES

J. Gordon
J. Switzer / U. Stimming

OPEN SESSION

O. Melroy

IMMUNOCHEMISTRY AND IMMUNOBIOLOGY

HOLIDAY INN
VENTURA, CA
FEBRUARY 4 - 9, 1996

David Raulet, *Chair*
Diane Mathis, *Vice Chair*

LYMPHOCYTE DEVELOPMENT: PART I

D. Mathis
B. Malissen / D. Schatz

LYMPHOCYTE DEVELOPMENT: PART II

F. Alt
K. Georgeopoulos /
M. Oettinger

CELL DEATH IN THE IMMUNE SYSTEM

S. Nagata
Y. Lazebnik / C. Thompson /
T. Mak

NONCONVENTIONAL RECOGNITION BY T CELLS

K. Fisher-Lindahl
M. Brenner /
H. R. MacDonald

RECOGNITION BY NATURAL KILLER CELLS

E. Long
W. Seaman / L. Lanier /
D. Raulet

COSTIMULATION OF LYMPHOCYTES

J. Bluestone
A. Sharpe / G. Kelsoe

ANTIGEN PRESENTATION TO T CELLS

A. Lanzavecchia
P. Peterson / D. Zaller /
R. Germain

AIDS

A. McMichael
D. Trono / G. Shaw

SIGNAL TRANSDUCTION / TRANSCRIPTIONAL ACTIVATION

G. Crabtree
V. Tybulewicz / D. Littman /
R. Perlmutter

ISOTOPES IN THE PHYSICAL AND LIFE SCIENCES

HOLIDAY INN
VENTURA, CA
FEBRUARY 11 - 16, 1996

Judith Klinman, *Chair*
Tak Ishida, *Vice Chair*

PHYSICAL CHEMISTRY OF ISOTOPES

M. Wolfsberg
M. W. Lee / A. van Hook

TUNNELING IN BIOLOGIC SYSTEMS

R. Schowen
S. Hammes-Schiffer / D.
Northrop / C. Hynes

ISOTOPE EFFECTS IN BIOLOGIC RADICAL GENERATING SYSTEMS

B. Barry
J. Babcock / J. Kozarich

ENZYMATIC H-TRANSFER CATALYSIS

M. Kreevoy
D. Silverman / P. Frey /
W. Bachovchin

ISOTOPES IN ATMOSPHERIC GEOSCIENCE

S. Tyler
P. Quay / M. Thieme

ISOTOPE EFFECTS AS PROBES OF MECHANISM

M. Saunders
K. Westaway / H. Schwarz /
F. Romesberg

ISOTOPIC FRACTIONATION IN BIOLOGIC SYSTEMS

A. Mildvan
J. Markley / V. Anderson /
H. L. Schmidt

HEAVY ATOM EFFECTS IN BIOLOGICAL SYSTEMS

G. Gebauer
A. Giesemann / M. Cleland /
V. Schramm

DINOSAUR PALEOBIOLOGY

J. Bigeleisen
Y. Kolodny / R. Barrick

MAGNESIUM IN BIOCHEMICAL PROCESSES

DOUBLETREE HOTEL
VENTURA, CA
JANUARY 28 – FEBRUARY 2,
1996

Michael E. Maguire, *Chair*
J. A. S. McGuigan, *Vice Chair*

MEASUREMENT OF FREE MAGNESIUM CONCENTRATIONS IN BLOOD AND SERUM: IMPLICATIONS FOR CLINICAL TREATMENT AND BASIC RESEARCH

J. McGuigan
U. Spichiger / B. Altura /
R. Elin

ABSORPTION, DISTRIBUTION AND ELIMINATION OF MAGNESIUM

C. De Rouffignac
H. Classen / C. DeRouffignac /
G. Quamme

COMPARTMENTATION AND BUFFERING OF MAGNESIUM

R.D. Grubbs
R.D. Grubbs / J. Melvin /
A. Romani

MAGNESIUM AND MYOCARDIAL INFARCTION: CLINICAL TRIALS RESULTS AND IMPLICATIONS

H. Karpman
R. Collins / E. Antmann /
M. Egger

INFORMAL DISCUSSION GROUP: EFFECTS AND EPIDEMIOLOGY OF Mg^{2+} ON ISCHEMIC HEART DISEASE

R. Neutra

CELLULAR EFFECTS OF MAGNESIUM

M. Tatibana
M. Tatibana / W. Weglicki /
Karin Nelson

FREE MAGNESIUM AND ITS ACTIONS

E. Murphy
E. Murphy / J. Cowan /
A. Dolphin / M. Horie

MAGNESIUM CARRIERS IN NORMAL AND DISEASE STATES

P. Flatman
P. Flatman / T. G. nther /
J. Vormann / K. Beyenbach

MAGNESIUM IN NEUROTRAUMA AND EPILEPSY

M. Johnston
M. Johnston / Ian Reynolds /
John Swann / Tracy
MacIntosh

INFORMAL DISCUSSION GROUP: Mg^{2+} , CHANNELS, AND EXCITABILITY IN EPILEPSY AND ECLAMPSIA

K. Nelson / M. Johnston

MAGNESIUM TRANSPORT AND MAGNESIUM RECEPTORS IN PATHOGENESIS

M. Maguire
E. Nemeth / M. Maguire /
E. Groisman

MARINE NATURAL PRODUCTS

DOUBLETREE HOTEL
VENTURA, CA
FEBRUARY 25 – MARCH 1, 1996

William Gerwick, *Chair*
J. Cardellina, *Vice Chair*

BIOACTIVE AGENTS FROM MARINE ORGANISMS

R. Andersen / V. Bernan

PHARMACEUTICAL DRUG DEVELOPMENT FROM MARINE ORGANISMS

K. Yamada / F. Valeriote /
M. Munro / T. Higa / R. Kaba

MARINE CHEMICAL ECOLOGY

W. Fenical / W. Boland /
J. Davies / V. Paul /
N. Lindquist

TECHNIQUES IN STRUCTURE ELUCIDATION

G. Crooks

METALS IN BIOLOGY

DOUBLETREE HOTEL
VENTURA, CA
JANUARY 21 – 26, 1996

Stephen J. Lippard, *Chair*
Joann Sanders-Loehr,
Vice Chair

A LOOK TO THE FUTURE

R. Holm
G. Petsko

CYTOCHROME OXYDASES

G. Babcock
N. Blackburn / S. Ferguson /
R. Gennis

MODELS FOR OXYDASES

K. Karlin
J. Collman / J. Sanders /
W. Tolman

METAL DNA PROCESSING AND REPAIR

T. O'Halloran
J. Barton / D. Rindge /
G. Verdine

METAL CHANNELS AND NEUROSCIENCE SIGNAL TRANSDUCTION

J. Berg
J. Falke / G. Yellen

METAL-BINDING BIOMOLECULES AND METALLORECOGNITION

J. Groves
F. Diederich / C. Fierke /
C. Meares

METAL MOBILIZATION

E. Stiefel
D. Kurtz, Jr. / P. Lindley

RADICALS AND COFACTORS

J. Caradonna
R. Finke / M. Ludwig /
M. Newcomb / K. Wieghardt

METHODOLOGY IN BIOINORGANIC CHEMISTRY

B. Hoffman
S. Cramer / S. Dunham /
H. Gray / E. Solomon

GRADUATE RESEARCH SEMINAR: BIOINORGANIC CHEMISTRY (NEW)

HOLIDAY INN
VENTURA, CA
JANUARY 25 – 28, 1996
(THURSDAY - SUNDAY)

Edward H. Ha, *Chair*

MODELS FOR METALLOBIOMOLECULES

John Groves

DNA AND TNA INTERACTIONS WITH TRANSITION METAL COMPLEXES

David Sigman

MULTINUCLEAR METALLOPROTEINS-Mn

*Vincent Pecoraro / James
Penner-Hahn*

MULTINUCLEAR METALLOPROTEINS-Ni

Marcetta Darensbourg

MULTINUCLEAR METALLOPROTEINS-Fe

Steven Watton / Don Kurtz

MULTINUCLEAR METALLOPROTEINS-Cu

William Tolma

MULTINUCLEAR METALLOPROTEINS-Cu,Zn,V

AND Heme
Joan Valentine

MOLECULAR & IONIC CLUSTERS

IL CIOCCO
BARGA, ITALY
MAY 5 – 10, 1996

Udo Buck / Mark Johnson,
Co-Chairs
Roger Milller, *Vice Chair*

SOLUTION IN LARGE SYSTEMS

J. Jortner
A. Apkarian / R. B. Gerber /
W. C. Lineberger

QUANTUM LIQUID CLUSTERS

S. Stringari
J. P. Toennies / G. Scoles

SPECTROSCOPY OF SIZE-SELECTED NEUTRAL AND IONIC CLUSTERS

V. Buch
J. P. Maier / D. Clary /
F. Huisken

REACTIONS IN IONIC CLUSTERS

E. Schlögl
O. Cheshnovsky /
V. E. Bondybey

EXCESS ELECTRONS IN CLUSTERS

J. Lisy
R. E. Continetti /
A. A. Viggiano

SMALL NEURAL COMPLEXES

P. Brechignac
M. Lester / N. Halberstadt /
G. Chalasinski

METAL ATOM SOLVATION

J. Farrar
M. A. Duncan / C. P. Schulz

CLUSTER-SURFACE INTERACTIONS

T. Nagata
G. Ewing / A. Terasaki /
U. Even

TERTIARY STRUCTURE

R. Miller
M. T. Bowers / K. Kaya

MOLECULAR CYTOGENETICS

IL CIOCCO
BARGA, ITALY
APRIL 21 – 26, 1996

David Ward, *Chair*
Thomas Cremer, *Vice Chair*

ADVANCES IN MOLECULAR CYTOGENETIC METHODS

D. Ward
A. Raap / M. Speicher

INSTRUMENTATION AND IMAGE ANALYSIS

H. Tanke
L. van Vliet / J. Piper /
J. Mullikin

GENOMIC AND CHROMOSOMAL EVOLUTION

P. Heslop-Harrison
J. Wienberg / J. Korenberg

COMPARATIVE GENOMIC HYBRIDIZATION

P. Lichter
D. Pinkel / O. Kallioniemi /
T. Reid

CHROMOSOME STRUCTURE

H. Willard
U. Laemmli / G. Bernardi

FUNCTIONAL ORGANIZATION OF THE NUCLEUS: CHROMOSOMES AND TRANSCRIPTION

T. Cremer
D. Spector / R. van Driel

FUNCTIONAL ORGANIZATION OF THE NUCLEUS: DNA-REPLICATION, IMPRINTING AND DNA-REPAIR

R. Laskey

**CLINICAL MOLECULAR
CYTOGENETICS***M. Ferguson-Smith***RARE EVENT DETECTION***J. Gray***MOLECULAR
EVOLUTION (NEW)**

COLONY HARBORTOWN
VENTURA, CA
JANUARY 28 – FEBRUARY 2,
1996

William R. Atchley, *Chair*
Walter M. Fitch, *Vice Chair*

EARLY EVOLUTION

B. Schopf
F. Doolittle / M. Hasegawa

**GENOME AND ORGANELLE
EVOLUTION**

D. Hudson
P. Tucker / J. Palmer /
J. Doebley

NON-TREE-LIKE EVOLUTION

R. Milkman
W. Fitch / Speaker TBA

**EVOLUTION OF DEVELOPMENT
ANDY CLARK**

R. Raff / D. Tautz /
W. Atchley

EXPERIMENTAL PHYLOGENETICS

J. J. Bull
D. Hillis

**MOLECULAR POPULATION
GENETICS**

M. Goodman
M. Ruvoilo / C. Aquadro /
D. Powers

STATISTICAL INFERENCE

B. Weir
N. Goldman / Speaker TBA

VIRAL EVOLUTION

M. Kidwell
P. Sharp / S. Wessler

PATTERN AND FUNCTION

J. Thorne
N. Maizels / M. McClure

MYELIN

IL CIOCCO
BARGA, ITALY
APRIL 28 – MAY 3, 1996

David Colman, *Chair*
Bruce D. Trapp, *Vice chair*

**OLIGODENDROCYTE PRECURSORS
EXPLAINED**

R. Miller / W. Richardson
R. Bansal / C. French-
Constant / J. Grinspan /
B. Zalc

**SIGNAL TRANSDUCTION
MECHANISMS**

M. Chao
Y. Hannum / W. Lesslauer

**DISORDERS OF MYELINATED
AXONS**

J. Griffin
T. Brushart

**MYELIN DEGENERATION AND
REGENERATION**

J. Salzer
M. Bunge / W. Thompson /
M. Filbin

**EVOLUTION AND
CONSCIOUSNESS**

G. Jeserich
S. Nona / R. Gould /
K. Uyemura

NEW TRANSGENIC MODELS

I. Duncan / K. Ikenaka
K. Nave / A. Messing /
W. Stoffel / D. Weinstein / P.
Braun

THE NODE OF RANVIER

B. Barres
M. Ellisman / P. Shrager /
B. Trapp / V. Bennett /
K. Smith

**CONTROL OF MYELINATING
CELL TYPES**

S. Pfeiffer
R. Lazzarini / R. Bunge /
A. Mudge / L. Pedraza /
D. DiUrso / A. Nishiyama

ORGANIC THIN FILMS

HOLIDAY INN
VENTURA, CA
JANUARY 28 – FEBRUARY 2,
1996

John F. Rabolt, *Chair*
Avi Ulman, *Vice Chair*

SELF ASSEMBLED MONOLAYERS

G. Scoles / G. Poirier /
G. Ferguson

ORGANIC AND POLYMERIC LED'S

J. C. Scott / M. Galvin

LANGMUIR-BLODGETT FILMS

C. Knobler / G. Fuller

**PATTERN FORMATION IN THIN
ORGANIC AND POLYMERIC FILMS**

A. Balazs

**LIQUID CRYSTALLINE
ALIGNMENT FOR FLAT PANEL
DISPLAYS**

D. Johansmann / N. Abbott

**TECHNIQUES FOR THIN FILM
CHARACTERIZATION**

B. Lotz

ORIGIN OF LIFE

HOLIDAY INN
VENTURA, CA
JANUARY 7 – 12, 1996

Gerald Joyce, *Chair*
John D. Rummel, *Vice Chair*

ORIGINS OF LIFE ON EARTH

A. Kanavarioti
S. Miller / A. Weiner

POLYMERS OF LIFE

A. Schwartz
A. Eschenmoser / L. Orgel /
J. Ferris

CHEMICAL SELF-REPLICATION

G. Joyce
G. von Kiedrowski / J. Rebek

RNA-BASED EVOLUTION

A. Ellington
J. Szostak / D. Bartel /
M. Yarus

ORIGIN OF THE CELL

J. Rummel
P. L. Luisi / W. F. Doolittle

DEEP MOLECULAR PHYLOGENY

M. Sogin
P. Gogarten / N. Pace /
G. Olsen

EARTH'S EARLIEST BIOSPHERE

A. Knoll
J. W. Schopf / D. DesMarais

**EXOBIOLOGICAL EXPLORATION
OF MARS**

J. Kerridge
J. Farmer / P. Christensen /
C. McKay

A PLANETARY BASIS FOR LIFE

W. Irvine
R. Brown / J. Kasting

**OXYGEN RADICALS
IN BIOLOGY**

DOUBLETREE HOTEL
VENTURA, CA
FEBRUARY 11 – 16, 1996

Kelvin J. A. Davies, *Chair*
Catherine Rice-Evans /
Matthew B. Grisham,
Vice Chairs

**OXYGEN RADICALS &
AIR POLLUTION**

W. A. Pryor / C. E. Cross
C. E. Cross H. J. Forman /
D. J. Massaro / K. B. Adler

**HEALTH BENEFITS OF PLANT-
DERIVED ANTIOXIDANTS**

C. Rice-Evans /
M. E. Haberland
P. M. Bramley / W. Schuch /
W. Bors / D. Leake.

**DEBATE: 1
DO CAROTENOID ACT AS
ANTIOXIDANTS IN VIVO?****DEBATE 2
ARE THE FLAVONOID
CONSTITUENTS OF FOODS
RELEVANT ANTIOXIDANTS
IN VIVO?**

C. Rice-Evans / F. Ursini
L. Packer / N. Krinsky

OXYGEN RADICALS & AGING

H. Warner / M. Vuillaume
R. S. Sohal / L. E. Rikans /
V. J. Cristofalo / C. Finch /
J. S. Valentine /
G. T. Baker III
C. Epstein / R. Weindruch

**OXYGEN RADICALS,
INFLAMMATION, AND
ISCHEMIA/REPERFUSION
INJURIES**

M. B. Grisham / J. ViÖa
D. Wink / T. Manning
P. Kubes / A. Sevanian
J. M. S. Davies / M. Maiorino
S. Wahl / H. Nick

**OXYGEN RADICALS, GROWTH
ARREST, APOPTOSIS & CANCER**

B. T. Mossman / G. Poli
E. Cadenas / C. Pasquier /
A. Azzi . D. R. Crawford

CONFERENCE PLenary LECTURE

K. J. A. Davies
S. Orrenius

**PEPTIDES, CHEMISTRY
& BIOLOGY OF**

DOUBLETREE HOTEL
VENTURA, CA
FEBRUARY 18 – 23, 1996

Charles M. Deber /
John A. Smith, *Co-Chairs*

**CHEMICAL / BIOLOGICAL
INTERFACES**

C. M. Deber
P. G. Schultz / S. K. Burley

NOVEL SYNTHETIC APPROACHES

J. P. Tam
D. H. Rich / B. Imperiali /
K. B. Sharpless / M. Goodman

**RECEPTOR-LIGAND
INTERACTIONS**

T. K. Sawyer
T. Reisine / T. Somers /
P. W. Schiller

**COMBINATORIAL DRUG
DISCOVERY**

A. M. Felix
J. Baldwin / E. M. Gordon /
R. Tung / R. A. Houghten

PEPTIDE TEMPLATES

K. D. Kopple
A. F. Spanola / V. J. Hruby /
M. R. Ghadiri

PEPTIDE DESIGN

T. M. Kubiak
A. Hamilton / J. Chmielewski /
D. F. Veber / J. A. Wells

**PEPTIDES IN IMMUNOBIOLOGY
AND INFLAMMATION**

J. A. Smith
M. M. Davis / H. L. Ploegh /
D. K. Miller

**PEPTIDES AS STRUCTURAL
MODELS**

M. Bodanszky
N. Kallenbach / C. Woodward
/ P. T. Lansbury, Jr. /
T. A. Keiderling

PINEAL CELL BIOLOGY

DOUBLETREE HOTEL
VENTURA, CA
FEBRUARY 4 - 9, 1996

Mark Rollag, *Chair*
Steven M. Reppert, *Vice Chair*

RETINA AS MODEL FOR PINEAL
C. Craft
M. Iuvone / C. Green

PINEALOCYTE SIGNAL TRANSDUCTION
C. Chik
Y. Morita / S. Dryer /
H. Korf / R. Baler

PINEALOCYTE TRANSCRIPTIONAL REGULATION
P. Voisin
P. Sassone-Corsi / D. Klein

MELATONIN ACTION
D. Blask
W. Warren / P. Morgan /
C. Mahle / R. Reiter

MELATONIN ACTION IN HUMANS
J. Arendt
I. Zhdanova / A. Lewy

PINEALOCYTE ENTRAINMENT
Y. Morita
Y. Fukada / M. Max / M. Zatz
/ R. Barrett

RETINA-PINEAL LINKAGE
G. Brainard
I. Morgan / J. Mikkelsen

MELATONIN RECEPTORS
V. Cassone
M. Dubocovich / S. Reppert /
M. Becker-Andre

MELATONIN ANALOGS
S. Reppert
B. Guardiola-Lemaitre /
D. Sugden

PROLACTIN

COLONY HARBORTOWN
VENTURA, CA
FEBRUARY 4 - 9, 1996

Ameae Walker, *Chair*
Nelson D. Horseman,
Vice Chair

THE RELATIVE ROLES OF PRL AND GH IN PROLIFERATION AND DIFFERENTIATION WITHIN THE MAMMARY GLAND
D. Kleinberg / D. Flint /
J. Rosen / B. Vonderhaar /
S. Galosy

PROLACTIN AND RELATED MOLECULE SIGNALING
B. Groner / Y.-F. Wang /
H. Rui / S. Frank

PROLACTIN-RECEPTOR INTERACTIONS
K. Young / A. Gertler /
C. Ormandy

PROLACTIN IN THE IMMUNE SYSTEM
M. Dardenne / K. Kelly /
S. Walker / A. Buckley

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Editors: Mark S. Frankel and Albert H. Teich
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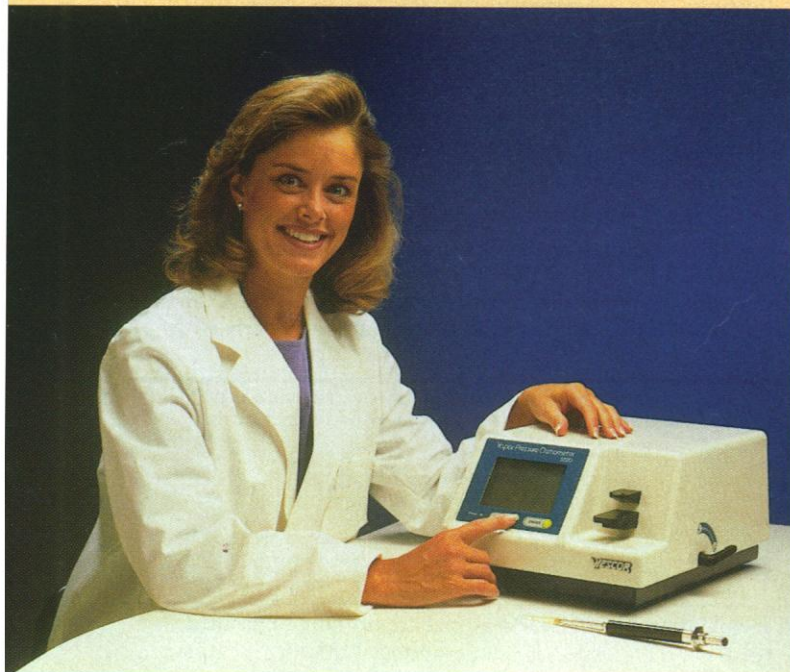
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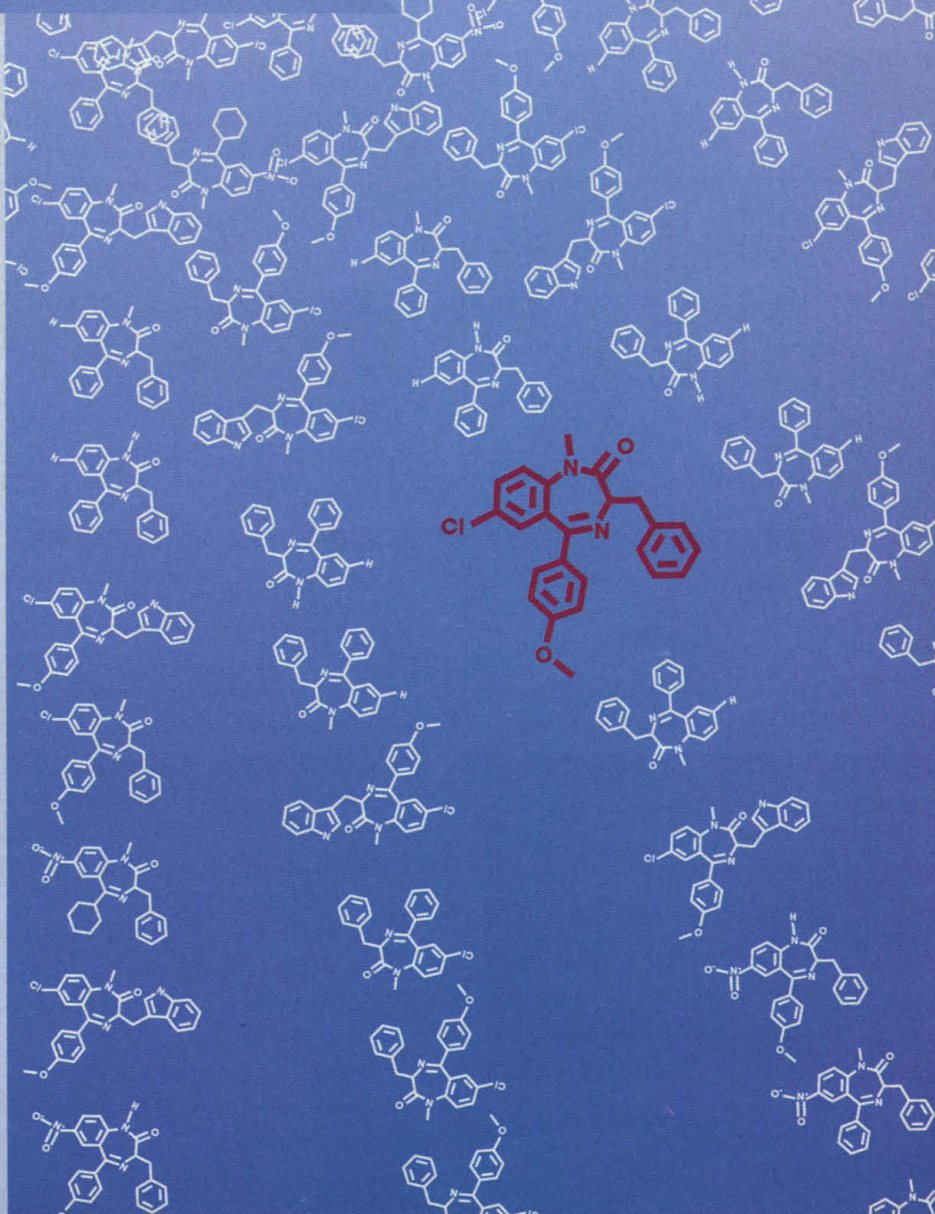
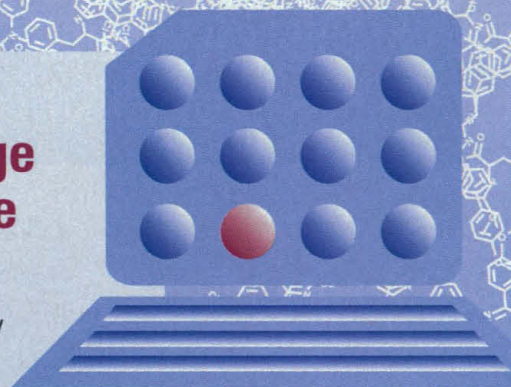
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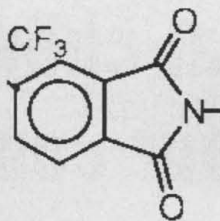
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