Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
A COMPENDIUM OF REVIEWS IN BIOCHEMISTRY AND MOLECULAR BIOLOGY PUBLISHED IN THE FIRST HALF OF 1992

IAN G. GILES

Department of Biochemistry, University of Southampton, Southampton, SO9 3TU, UK

[ E-mail: I.G.Giles@soton.ac.uk ]
[ Fax: +44 703 594459 ]

(Received 2 September 1992)

Abstract—1. A compendium of reviews and mini-reviews in Biochemistry and Molecular Biology published in the first half of 1992 is presented. In all 499 titles are listed from 95 different publications.

2. This compendium presents the references by Journal Name. Keywords have been included with each reference to increase the value of the collection. Keyword and author cross-reference indexes are not included but are available in the electronic database from which this version was constructed. Should anyone wish to have this information in electronic form it can be distributed on MS-DOS formatted floppy disks in either Reference Manager or Medline format. The author should be contacted for details of the number of preformatted floppy disks required.

COMPENDIUM OF REVIEWS LISTED BY JOURNAL

Acta Biochimica Polonica

Zydowo M.M. (1991) Universal significance of adenylate metabolism. Acta Biochim. Pol. 38, 25-33.
purine nucleotide cycle; AMP-deaminase; anaplerotic process; skeletal-muscle; vitamin-D; rat; heart.

Plochocka D. and Rabcezenko A. (1991) Modelling of structure and function of proteins and nucleic acids. Acta Biochim. Pol. 38, 281-293.
secondary-structure; conformational-analysis; deoxyribofuranose ring; complementary surfaces; reverse-transcriptase; tertiary structure; ribonuclease ms; furanose ring; DNA; pseudorotation.

Kochman M. and Wieczorek E. (1991) Molecular mechanism of the juvenile hormone action. Acta Biochim. Pol. 38, 393-405.
last-instar larvae; Galleria mellonella lepidoptera; cardiaca corpora allata; Trichoplusia ni Hubner; Manduca sexta; binding-protein; acid m ethyltransferase; Diploptera puncta; Leucophaea maderae; tobacco hornworm.

Advances in Second Messenger and Phosphoprotein Research

Barber R., Goka T.J. and Butcher R.W. (1992) Cyclic AMP turnover in intact tissue—role of cyclic nucleotide phosphodiesterases. Adv. Sec. Mess. Phosphoprot. Res. 25, 1-11.
nucleotide phosphodiesterase; phosphodiesterases; 449 cells.

Kessin R.H., Fleischmann R.D., Gottesman M.M., Jastorff B. and CAMPagne M.M.V. (1992) Use of the yeast low-Km cAMP-phosphodiesterase gene to control cyclic AMP levels in mammalian cells. Adv. Sec. Mess. Phosphoprot. Res. 25, 13-27.
dependent protein-kinase; Dictyostelium discoideum; Saccharomyces cerevisiae; signal-transduction; transcription; forskolin; cloning.

Wu Z.F., Sharma R.K. and Wang J.H. (1992) Catalytic and regulatory properties of calmodulin-stimulated phosphodiesterase isozymes. Adv. Sec. Mess. Phosphoprot. Res. 25, 29-43.
cyclic-nucleotide phosphodiesterase; dependent phosphodiesterase; protein-kinase; brain; forms; purification; testis.

Thomas M.K., Frankis S.H., Beebe S.J., Geuys T.W. and Corbin J.D. (1992) Partial mapping of cyclic nucleotide sites and studies of regulatory mechanisms of phosphodiesterases using cyclic nucleotide analogues. Adv. Sec. Mess. Phosphoprot. Res. 25, 45-53.
dependent protein-kinase; GMP phosphodiesterase; fat-cells; binding; insulin; specificity; activation; cAMP; cGMP; phosphorylation; cyclic-nucleotides; nucleotides.

Stroop S.D. and Beavo J.A. (1992) Sequence homology and structure—function studies of the bovine cyclic GMP stimulated and retinal phosphodiesterases. Adv. Sec. Mess. Phosphoprot. Res. 25, 55-71.
nucleotide phosphodiesterase; cGMP-binding; identification; purification; subunit; cascade; domain; tissue; cDNA.

Grant P.G., Decamp D.L., Bailey J.M., Colman R.F. and Colman R.W. (1992) Low-Km cyclic AMP phosphodiesterase from human platelets—stimulation of activity by phosphorylation of the enzyme and affinity labeling of the active site. Adv. Sec. Mess. Phosphoprot. Res. 25, 73-85.
nucleotide phosphodiesterase; isocitrate dehydrogenase; glutamate-dehydrogenase; rat platelets; purification; activation; identification; 5'-diphosphate; 2',5'-bisphosphate; cyclic-AMP-phosphodiesterase.
Conti M., Swinnen J.V., Tsikalas K.E. and Jin S.L.C. (1992) Structure and regulation of the rat high-affinity cyclic AMP phosphodiesterases—a family of closely related enzymes. *Adv. Sec. Mess. Phosphoprot. Res.* 25, 87-99.

Kurihara T., Monoh K., Takahashi Y., Goto K. and Kondo H. (1992) 2',3'-cyclic-nucleotide phosphodiesterase—complementary DNA and gene cloning for mouse enzyme and in situ hybridization of the messenger RNA in mouse brain. *Adv. Sec. Mess. Phosphoprot. Res.* 25, 101-110.

Makino H., Suzuki T., Kajimuna H., Yamazaki M., Ito H. and Yoshida S. (1992) The role of insulin-sensitive adenylate cyclase in insulin action. *Adv. Sec. Mess. Phosphoprot. Res.* 25, 111-122.

Weishaar R.E., Kobylarzinger D., Keiser J.A., Wright C.D., Cornicelli J. and Panek R. (1992) Cyclic nucleotide phosphodiesterases in rod photoreceptors. *Adv. Sec. Mess. Phosphoprot. Res.* 25, 15-45.

Manganiello V.C., Degerman E., Smith C.J., Vasta V., Tornqvist H. and Belfrage P. (1992) Mechanisms for activation of the rat adipocyte particulate cyclic-GMP-inhibited cyclic AMP phosphodiesterase and its importance in the antilipolytic action of insulin. *Adv. Sec. Mess. Phosphoprot. Res.* 25, 147-164.

Thompson W.J., Lavis V.R., Whalin M.E. and Sirada S.J. (1992) Regulatory mechanisms of particulate cyclic nucleotide phosphodiesterases. *Adv. Sec. Mess. Phosphoprot. Res.* 25, 165-184.

Makino H., Suzuki T., Kajinuma H., Yamazaki M., Ito H. and Yoshida S. (1992) The role of insulin-sensitive phosphodiesterase in insulin action. *Adv. Sec. Mess. Phosphoprot. Res.* 25, 185-199.

Kishi Y., Ashikaga T. and Numano F. (1992) Phosphodiesterases in vascular endothelial cells. *Adv. Sec. Mess. Phosphoprot. Res.* 25, 201-213.

Tani T., Sakurai K., Kiura Y., Ishikawa T. and Hidaka H. (1992) Demonstration of functional compartments of cyclic AMP in rat platelets by the outer segments; cyclic nucleotide phosphodiesterase; vertebrate photoreceptors; transducin; subunit; conductance; membranes; cascade; vision; retina; photoreceptors.

Manganiello V.C., Degerman E., Smith C.J., Vasta V., Tornqvist H. and Belfrage P. (1992) Mechanisms for activation of the rat adipocyte particulate cyclic-GMP-inhibited cyclic AMP phosphodiesterase and its importance in the antilipolytic action of insulin. *Adv. Sec. Mess. Phosphoprot. Res.* 25, 147-164.

Thompson W.J., Lavis V.R., Whalin M.E. and Sirada S.J. (1992) Regulatory mechanisms of particulate cyclic nucleotide phosphodiesterases. *Adv. Sec. Mess. Phosphoprot. Res.* 25, 165-184.

Makino H., Suzuki T., Kajinuma H., Yamazaki M., Ito H. and Yoshida S. (1992) The role of insulin-sensitive phosphodiesterase in insulin action. *Adv. Sec. Mess. Phosphoprot. Res.* 25, 185-199.

Kishi Y., Ashikaga T. and Numano F. (1992) Phosphodiesterases in vascular endothelial cells. *Adv. Sec. Mess. Phosphoprot. Res.* 25, 201-213.

Tani T., Sakurai K., Kiura Y., Ishikawa T. and Hidaka H. (1992) Demonstration of functional compartments of cyclic AMP in rat platelets by the outer segments; cyclic nucleotide phosphodiesterase; vertebrate photoreceptors; transducin; subunit; conductance; membranes; cascade; vision; retina; photoreceptors.
Torphy T.J., Livi G.P., Balcarek J.M., White J.R. and Undem B.J. (1992) Therapeutic potential of isoform-selective phosphodiesterase inhibitors in the treatment of asthma. Adv. Sec. Mess. Phosphoprot. Res. 25, 289-305.
cyclic-AMP-phosphodiesterase; affinity cAMP phosphodiesterase; dependent protein-kinase; Drosophila dunce gene; nucleotide phosphodiesterase; Saccharomyces cerevisiae; histamine-release; atopic-dermatitis; human basophils; human lung.
Pang D.C. (1992) Tissue and species specificity of cardiac cAMP-phosphodiesterase inhibitors. Adv. Sec. Mess. Phosphoprot. Res. 25, 307-320.
cyclic-AMP phosphodiesterase; sarcoplasmic-reticulum; cardiotonic activity; cardiovascular properties; ventricular muscle; guinea-pig; milrinone; amrinone; calcium; potent.
Robertson D.W. and Boyd D.B. (1992) Structural requirements for potent and selective inhibition of low-Km, cAMP-specific phosphodiesterases. Adv. Sec. Mess. Phosphoprot. Res. 25, 321-340.
molecular mechanics calculations; positive inotropic agents; cardiotonic agents; binding-sites; nucleotide phosphodiesterase; bipyridine cardiotonic; vascular smooth-muscle; model.
Silver P.J., Gordon R.J., Buchholz R.A., Dundore R.L., Ferguson E.W., Harris A.L. and Pagani E.D. (1992) Comparative studies on cyclic nucleotide phosphodiesterases and inhibitors in experimental models of hypertension, congestive heart failure, and allergic asthma. Adv. Sec. Mess. Phosphoprot. Res. 25, 341-351.
healed myocardial-infarction; vascular smooth-muscle; guinea-pig; AMP phosphodiesterase; isozyme inhibition; cardiac-muscle; milrinone; activation; enalapril; agents; cyclic-nucleotides; nucleotides; heart.
Takagi K., Ogawa K., Tanaka H., Satake T., Watanabe Y., Chijiwa T. and Hidaka H. (1992) Relaxant effects of various xanthine derivatives—relationship to cyclic nucleotide phosphodiesterase inhibition. Adv. Sec. Mess. Phosphoprot. Res. 25, 353-362.
tracheal smooth-muscle; theophylline; antagonists; cyclic-nucleotides; nucleotides.
Chiba S., Karasawa Y. and Furukawa Y. (1992) CAMP-dependent positive chronotropic and inotropic responses in the blood-perfused dog atrium. Adv. Sec. Mess. Phosphoprot. Res. 25, 363-372.
cross-circulated atrial; agents; acetylcholine; failure; dogs.
Tanaka T., Masuoka H., Ito M., Nakano T., Naka M. and Hidaka H. (1992) cAMP phosphodiesterase from human heart and drug action. Adv. Sec. Mess. Phosphoprot. Res. 25, 373-381.
adenoine-monophosphate phosphodiesterase; potent cardiac bipyridine; vascular smooth-muscle; nucleotide phosphodiesterase; selective-inhibition; platelet-aggregation; forms; purification; milrinone; amrinone; cAMP; cAMP phosphodiesterase; heart.
Kambayashi J., Watase M., Kawasaki T., Shiba E., Sakon M., Mori T., Isaka Y., Kimura K. and Kamada T. (1992) Phosphodiesterase inhibitors as antiplatelet agents in vascular surgery. Adv. Sec. Mess. Phosphoprot. Res. 25, 383-393.
deposition; aspirin; grafts.
Numano F., Kishi Y. and Ashikaga T. (1992) Clinical studies of phosphodiesterase inhibitors for cardiovascular disease. Adv. Sec. Mess. Phosphoprot. Res. 25, 395-407.
cyclic-nucleotides; atherosclerosis; in vitro; cells; wall.
Majkowski J. (1992) Long-term treatment of amyotrophic lateral sclerosis with phthalazinol. Adv. Sec. Mess. Phosphoprot. Res. 25, 409-416.
clinical-features; prognosis.

American Journal of Medical Genetics

Nance M.A. and Berry S.A. (1992) Cockayne syndrome—review of 140 cases. Am. J. Med. Genet. 42, 68-84.
light-irradiated-cells; ultraviolet-light; xeroderma pigmentosum; DNA repair; peripheral neuropathy; syndrome fibroblasts; early onset; pruritis-diagnosis; inherited disease; RNA synthesis.
Schmidt M. and Dusart D. (1992) Functional disomies of the X-chromosome influence the cell selection and hence the X-inactivation pattern in females with balanced X-autosome translocations—a review of 122 cases. Am. J. Med. Genet. 42, 161-169.
Duchenne muscular dystrophy; hypohidrotic ectodermal dysplasia; critical region hypothesis; autosomal translocation; incontinentia pigmenti; late replication; X-13 translocation; girl; locus; rhabdomyosarcoma.
O'Connor T.A. and Higgins R.R. (1992) Trisomy-16p in a liveborn infant and review of trisomy-16p. Am. J. Med. Genet. 42, 316-319.
translocation; duplication.
Boyd E., Grass F.S., Park J.C., Knutson K. and Stevenson R.E. (1992) Duplication of distal-19q—clinical report and review. Am. J. Med. Genet. 42, 326-330.
trisomy; translocation.
Valentine B.A., Winand N.J., Pradhan D., Moise N.S., Delahunta A., Kornegey J.N. and Cooper D.J. (1992) Canine X-linked muscular dystrophy as an animal model of Duchenne muscular dystrophy—a review. Am. J. Med. Genet. 42, 352-356.
glycoprotein; deficiency; protein; litter; locus; dogs.
Dallapiccola B., Zelante L., Mingarelli R., Pellegrino M. and Bertozzi V. (1992) Baller-Gerold syndrome—case report and clinical and radiological review. Am. J. Med. Genet. 42, 365-368.
radial aplasia; craniosynostosis.
Krasikov N., Thompson K. and Sekhon G.S. (1992) Brief clinical report—monosomy 18q12.1→21.1—a recognizable aneuploidy syndrome—report of a patient and review of the literature. Am. J. Med. Genet. 43, 531-534.

Verloes A., Mulliez N., Gonzales M., Laloux F., Hermannsle T., Pierard G.E. and Koulisher L. (1992) Restrictive dermopathy, a lethal form of arthrogryposis multiplex with skin and bone dysplasias—3 new cases and review of the literature. Am. J. Med. Genet. 43, 539-547.

Leonard C., Hurzet J.L., Imbert M.C., Leboeuf Y., Selva J. and Boulley A.M. (1992) Trisomy-16p in a liveborn offspring due to maternal translocation t(16-21)(q11-p11) and review of the literature. Am. J. Med. Genet. 43, 621-625.

Analytical Biochemistry

Xie L.Q., Markides K.E. and Lee M.L. (1992) Biomedical applications of analytical supercritical fluid separation techniques. Anal. Biochem. 200, 7-19.

Hozier J.C. and Davis L.M. (1992) Review—cytogenetic approaches to genome mapping. Anal. Biochem. 200, 205-217.

Ichikawa Y., Look G.C. and Wong C.H. (1992) Review—enzyme-catalyzed oligosaccharide synthesis. Anal. Biochem. 202, 215-238.

Wood P.J. (1992) The measurement of parathyroid hormone. Ann. Clin. Biochem. 29, 11-21.

Newman D.J., Henneberry H. and Price C.P. (1992) Particle enhanced light scattering immunoassay. Ann. Clin. Biochem. 29, 22-42.

Soldin S.J. (1992) Drug receptor assays—quo vadis. Ann. Clin. Biochem. 29, 132-136.

Taylor A.J. and Vadgama P. (1992) Analytical reviews in clinical biochemistry—the estimation of urea. Ann. Clin. Biochem. 29, 245-264.
Compendium of reviews 1992 1855

Archives of Biochemistry and Biophysics

Aggarwal B.B. and Pocsik E. (1992) Cytokines—from clone to clinic. Arch. Biochem. Biophys. 292, 335-359.

Biology

Biochemistry Cell Biology

Johnstone R.M. (1992) Maturation of reticulocytes—formation of exosomes as a mechanism for shedding membrane proteins. Biochem. Cell Biol 70, 179-190.

Biochemical Journal

Wallimann T., Wyss M., Brdiczka D., Nicolay K. and Eppenberger H.M. (1992) Intracellular compartmentation, structure and function of creatine kinase isozymes in tissues with high and fluctuating energy demands—the phosphocreatine circuit for cellular energy homeostasis. Biochem. J. 281, 21-40.

Biochemical Medicine and Metabolic Biology

Golshani S. (1992) Insulin, growth factors, and cancer cell energy metabolism—an hypothesis on oncogene action. Biochem. Med. Metab. Biol 47, 108-115.

Biochemistry—English Translation

N.B., Vorotnikov A.V., Biryukov K.G. and Shirinskii V.P. (1991) Caldesmon and calponin—the proteins involved in regulation of myosin-actin interaction in nonmuscle cells and smooth muscles. Biochemistry-Engl. Tr. 56, 939-953.
Biochimica et Biophysica Acta

Allen J.F. (1992) Protein phosphorylation in regulation of photosynthesis. Biochim. Biophys. Acta 1099, 275-335.

Anthony C. (1992) The c-type cytochromes of myelotrophic bacteria. Biochim. Biophys. Acta 1099, 1-15.

Hoch F.L. (1992) Cardiolipins and biomembrane function. Biochim. Biophys. Acta 1113, 71-133.

Wiegandt H. (1992) Insect glycolipids. Biochim. Biophys. Acta 1113, 335.

Wiegandt H. (1992) Origins and fates of fatty acyl-CoA esters. Biochim. Biophys. Acta 1113, 335.

Bandekar J. (1992) Lipid flow in bile formation. Biochim. Biophys. Acta 1113, 335.

Coleman R. and Rahman K. (1992) Yolk lipids. Biochim. Biophys. Acta 1113, 335.

Hardie D.G. (1992) Regulation of fatty acid and cholesterol metabolism by the AMP-activated protein kinase. Biochim. Biophys. Acta 1113, 231-238.

Waku K. (1992) Origins and fates of fatty acyl-CoA esters. Biochim. Biophys. Acta 1124, 101-111.

Kukas A. (1992) Yolk lipids. Biochim. Biophys. Acta 1124, 205-222.

Held P.G. and Heintz N.H. (1992) Eukaryotic replication origin. Biochim. Biophys. Acta 1130, 1-19.

Kukas A. (1992) Yolk lipids. Biochim. Biophys. Acta 1124, 205-222.

Kukas A. (1992) Yolk lipids. Biochim. Biophys. Acta 1124, 205-222.

Ponta H. and Herrlich P. (1992) Interference of pathway specific transcription factors. Biochim. Biophys. Acta 1129, 255-261.

Thoma F. (1992) Nucleosome positioning. Biochim. Biophys. Acta 1130, 1-19.

Elmoataa C., Dornand J. and Mani J.C. (1992) Extracellular ATP and cell signalling. Biochim. Biophys. Acta 1134, 31-45.
Zidovetzki R. and Lester D.S. (1992) The mechanism of activation of protein kinase C—a biophysical perspective. *Biochim. Biophys. Acta* 1134, 261-272.

Hofmann F., Dostmann W., Keilbach A., Landgraf W. and Ruth P. (1992) Structure and physiological role of cGMP-dependent protein kinase. *Biochim. Biophys. Acta* 1135, 51-60.

Vega M.A. (1992) Adenosine deaminase deficiency—a model system for human somatic cell gene correction therapy. *Biochim. Biophys. Acta* 1138, 253-260.

Percheron F., Foglietti M.J., Bernard M. and Ricard B. (1992) Mammalian β-D-mannosidase and β-mannosidosis. *Biochimie* 74, 5-11.

Biol M.C., Martin A. and Louisot P. (1992) Nutritional and developmental regulation of glycosylation processes in digestive organs. *Biochimie* 74, 13-24.

Wienhues U. and Neupert W. (1992) Protein translocation across mitochondrial membranes. *Bioessays* 14, 17-23.

Sinensky M. and Lutz R.J. (1992) The prenylation of proteins. *Bioessays* 14, 25-31.

Jones P.A., Rideout W.M., Shen J.C., Spruck C.H. and Tsai Y.C. (1992) Methylation, mutation and cancer. *Bioessays* 14, 37-41.

Gorbsky G.J. (1992) Chromosome motion in mitosis. *Bioessays* 14, 43-48.

Jones A.M. and Prasad P.V. (1992) Auxin-binding proteins and their possible roles in auxin mediated plant cell growth. *Bioessays* 14, 49-54.

Kuriyama R. and Nislow C. (1992) Molecular components of the mitotic spindle. *Bioessays* 14, 81-88.

Albertini D.F. (1992) Regulation of meiotic maturation in the mammalian oocyte—interplay between exogenous cues and the microtubule cytoskeleton. *Bioessays* 14, 97-103.
Wehle E. (1992) The end of the message—3’-end processing leading to polyadenylated messenger RNA. Bioessays 14, 113-118.

Wahle E. (1992) The end of the message—3’-end processing leading to polyadenylated messenger RNA. Bioessays 14, 113-118.

poly(A) addition site; polymerase-ii; transcription termination; Saccharomyces cerevisiae; elements downstream; globin gene; cleavage; in vitro; sequences.

Lairdoffringa LA. (1992) What determines the instability of c-myc proto-oncogene messenger RNA? Bioessays 14, 119-124.

mouse plasmacytomas; rich sequences; degradation; fos; stability; poly(A); identification; transcription; translocation; truncation.

Treisman J., Harris E., Wilson D. and Desplan C. (1992) The homeodomain—a new face for the helix-turn-helix. Bioessays 14, 145-150.

DNA-binding specificity; Drosophila embryogenesis; ultrabithorax proteins; in vitro transcription; segmentation gene; sequence; antennapedia; activation; repression.

Vitale A. and Chrispeels M.J. (1992) Sorting of proteins to the vacuoles of plant cells. Bioessays 14, 151-160.

Phaseolus vulgaris cotyledons; transgenic tobacco plants; storage protein; endoplasmic reticulum; intracellular-transport; pea cotyledons; phytohemagglutinin; glycosylation; bodies; seeds.

Arkhipova I.R. and Ilyin Y.V. (1992) Control of transcription of Drosophila retrotransposons. Bioessays 14, 161-168.

RNA polymerase-ii; long terminal repeats; TATA box binding; transposable element; nucleotide-sequence; functional-analysis; gypsy transposon; mammalian lines; control regions; gene.

Reiter R.J. (1992) The ageing pineal gland and its physiological consequences. Bioessays 14, 169-175.

melatonin receptors; adrenergic receptor; circadian variations; N-acetylserotonin; plasma melatonin; serum melatonin; hamsters; gerbil; brain; reduction.

Downward J. (1992) Regulatory mechanisms for ras proteins. Bioessays 14, 177-184.

GTAAse-activating protein; neurofibromatosis type-1 gene; nucleotide exchange-reaction; gap-associated proteins; growth-factor; tyrosine phosphorylation; ras-p21 gtpase; stimulation; p21; receptors.

Rusciano D. and Burger M.M. (1992) Why do cancer cells metastasize into particular organs? Bioessays 14, 185-194.

arg-gly-asp; growth-factor; tumor-cell; extracellular-matrix; endothelial-cells; homing receptors; carcinoma cells; melanoma-cells; host organ; adhesion.

Raff R.A. (1992) Direct-developing sea urchins and the evolutionary reorganization of early development. Bioessays 14, 211-218.

Heliocidaris erythrogramma; cell lineage; C. elegans; dorsoventral axis; 1st cleavage; embryo; gastrulation; expression; genes; mechanisms.

Jeffrey W.R. and Swalla B.J. (1992) Evolution of alternate modes of development in Ascidiens. Bioessays 14, 219-226.

cell lineage; embryos; segregation; expression; eggs; embryogenesis; mechanisms; enzyme.

Freeling M., Bertrand Garcia R. and Sinha N. (1992) Maize mutants and variants altering developmental time and their heterochronic interactions. Bioessays 14, 227-236.

plants; evolution; phylogeny; genetics; leaves.

Cavener D.R. (1992) Transgenie animal studies on the evolution of genetic regulatory circuitries. Bioessays 14, 237-244.

tissue-specific expression; Drosophila melanogaster transformants; glucose dehydrogenase gene; human α-1-antitrypsin; Hawaiian Drosophila; mice; adh.

Krumlauf R. (1992) Evolution of the vertebrate hox homeobox genes. Bioessays 14, 245-252.

homeodomain-DNA complex; embryonic expression; mouse hindbrain; homeotic genes; Drosophila; antennapedia; muro; protein; organization; spectroscopy.

Mathews C.K. and J.T.P. (1992) DNA precursor asymmetries, replication fidelity, and variable genome evolution. Bioessays 14, 295-301.

deoxyribonucleotide triphosphate pools; mammalian-cells; ribonucleotide reductase; spontaneous mutation; mismatch correction; bacteriophage-T4; repair; misincorporation; mutation; hydroxynucleoside pools.

Kunkel T.A. (1992) Biological asymmetries and the fidelity of eukaryotic DNA replication. Bioessays 14, 303-308.

in vitro replication; mammalian genome; mutation-rates; cells; misalignment; mismatch; regions; repair.

Emmons S.W. (1992) From cell fates to morphology—developmental genetics of the Caenorhabditis elegans male tail. Bioessays 14, 309-316.

Caenorhabditis elegans; post-embryonic development; pattern-formation; expression; genes; communication; mutations; mutants; lineages; neurons.

Prescott D.M. (1992) Cutting, splicing, reordering, and elimination of DNA sequences in hypotrichous ciliates. Bioessays 14, 317-324.

protozoa Ostreococcus novae; macronuclear development; ciliates; orassus; genome; genes; stylosynochys; molecules; excision; element.

Murrayrust J., McLeod A.N., Blundell T.L. and Wood S.P. (1992) Structure and evolution of insulins—implications for receptor binding. Bioessays 14, 325-331.

growth factor-i; amino-acid sequence; tertiary structure; prothoracotropic hormone; conformational change; chain; determinants; specificity; homology; relaxin.

Giles I.A. (1992) Control of transcription of Drosophila retrotransposons. Bioessays 14, 161-168.

RNA polymerase-ii; long terminal repeats; TATA box binding; transposable element; nucleotide-sequence; functional-analysis; gypsy transposon; mammalian lines; control regions; gene.
Compendium of reviews 1992

Sullivan N.F. and Willis A.E. (1992) Cancer predisposition in Bloom's syndrome. *Bioessays* 14, 333-336.

> DNA ligase-1; myc transgenic mice; syndrome cells; syndrome fibroblasts; prone family; mutation; expression; oncogene; gene; ras.

**Biofactors**

Adamo M., Roberts C.T. and Leroith D. (1992) How distinct are the insulin and insulin-like growth factor? -signalling systems. *Biofactors* 3, 151-157.

Helmreich E.J.M. (1992) How pyridoxal 5'-phosphate could function in glycogen phosphorylase catalysis. *Biofactors* 3, 159-172.

Ross N.S. and Hansen T.P.B. (1992) Riboflavin deficiency is associated with selective preservation of critical flavoenzyme-dependent metabolic pathways. *Biofactors* 3, 185-190.

Aron D.C. (1992) Insulin-like growth factor-I and erythropoiesis. *Biofactors* 3, 211-216.

Silver B.J. (1992) Platelet-derived growth factor in human malignancy. *Biofactors* 3, 217-227.

Aron D.C. and Rossiter B.J.F. (1992) Review—molecular medicine. *Biofactors* 3, 229-239.

**Biological Chemistry Hoppe-Seyler**

Caskey C.T. and Rossiter B.J.F. (1992) Review—molecular medicine. *Biol Chem Hoppe-Seyler* 373, 159-170.

Levit M.N. and Shkrob A.M. (1992) Lignin and ligninase. *Biofactors* 3, 309-345.

**Bioorganic Chemistry**

Akopyan T.N., Arzumanayan A.M., Aghajanyan A.G. and Arutyunyan A.A. (1991) Synaptosomal degradation of neuropeptides. *Bioorg. Khim* 17, 1589-1604.

| Biological Polymers |
|---------------------|
| Illich P. and Prendergast F.G. (1992) Protein—nucleic acid interactions. (1) Electronic structures of cytosine, indole, and guanine complexes. *Biopolymers* 32, 667-694. |

| Resonance Raman spectroscopy; random phase approximation; molecular structure; picosecond spectroscopy; atomic resolution; linear dichroism; DNA-binding; A-DNA; spectra; tryptophan. |
Biotechniques

Atlas R.M., Sayler G., Burlage R.S. and Bej A.K. (1992) Molecular approaches for environmental monitoring of microorganisms. *Biotechniques* 12, 706.

DNA colony hybridization; polymerase chain-reaction; genetically engineered microorganisms; toxigenic *Escherichia coli*; ribosomal-RNA sequences; Gram negative bacteria; gene probe methods; *Listeria monocytogenes*; enzymatic amplification; oligonucleotide probes.

**Biotechnology and Applied Biochemistry**

Bajpai P. and Bajpai P.K. (1992) Arachidonic acid production by microorganisms. *Biotechnol. Appl. Biochem.* 15, 1-10.

*Crasostrea virginica*; unsaturated fatty-acids; food sources; *Porphyridium*; o-3; larvae.

**Cancer Genetics and Cytogenetics**

Bridge J.A., Neff J.R. and Mouron B.J. (1992) Giant cell tumor of bone—chromosomal analysis of 48 specimens and review of the literature. *Cancer Genet. Cytogenet.* 58, 2-13.

Brown K.W., Gardner A., Williams J.C., Mott M.G., McDermott A. and Maitland N.J. (1992) Paternal origin of 11p15 duplications in the Beckwith-Wiedemann syndrome—a new case and review of the literature. *Cancer Genet. Cytogenet.* 58, 66-70.

Wilms tumor; trisomy 11p15; chromosome-11; predisposition; alleles; dosage; cells; gene; Beckwith-Wiedemann syndrome.

Bellomo M.J., Parlier V., Muhlematter D., Grob J.P. and Beris P. (1992) Three new cases of chromosome-3 rearrangement in band-q21 and band-q26 with abnormal thrombopoiesis bring further evidence to the existence of a 3q21q26-syndrome. *Cancer Genet. Cytogenet.* 59, 138-160.

acute nonlymphocytic leukemia; chronic myelogenous leukemia; chronic myeloid leukemia; acute megakaryoblastic leukemia; chronic myeloblastic-leukemia; British cooperative group; myelodysplastic syndromes; blast crisis; translocation t(1-3).

Pedersen B. (1992) Survival of patients with T(1-7)(p11-p11)—report of 2 cases and review of the literature. *Cancer Genet. Cytogenet.* 60, 53-59.

acute nonlymphocytic leukemia; translocation 1-7; myelodysplastic syndromes; chromosome analysis; myeloid disorders; secondary.

**Cell**

Nussal G.J.V. (1992) The molecular and cellular basis of affinity maturation in the antibody response. *Cell* 68, 1-2.

Thomas G. (1992) MAP kinase by any other name smells just as sweet. *Cell* 68, 3-6.

protein-kinase; insulin; identification; muscle.

Thach R.E. (1992) Cap recap—the involvement of EIF-4F in regulating gene expression. *Cell* 68, 177-180.

messenger-RNA; translational repression; initiation factor-4e; protein-synthesis; binding protein; phosphorylation; complex; leader; cells.

Gurdon J.B. (1992) The generation of diversity and pattern in animal development. *Cell* 68, 185-199.

peripheral nervous-system; cell-adhesion molecules; messenger-RNA; embryonic induction; Xenopus oocytes; embryogenesis; drosophila; differentiation; segregation; activation.

St Johnston D. and Nusslein-volhard C. (1992) The origin of pattern and polarity in the *Drosophila* embryo. *Cell* 68, 201-219.

nf-kappa-b; segmentation gene hunchback; dorsal-ventral pattern; maternal-effect mutations; receptor tyrosine kinase; platelet glycoprotein-ib; female-sterile mutations; DNA-binding subunit; wild-type cytoplasm; faint-little-ball.

Ingham P.W. and Arias A.M. (1992) Boundaries and fields in early embryos. *Cell* 68, 221-235.

segment polarity gene; developing nervous-system; pair-rule genes; drosophila embryo; fushi-tarazu; homeotic genes; chick-embryo; cell lineage; controlling compartment; early embryogenesis.

Horvitz H.R. and Herskowitz I. (1992) Mechanisms of asymmetric cell division—2 bs or not 2 bs, that is the question. *Cell* 68, 237-255.

nematode *Caenorhabditis elegans*; yeast ho gene; *Bacillus subtilis*; *Caulobacter crescentus*; cycle regulation; fission yeast; heterocyst differentiation; Schizosaccharomyces pombe; Saccharomyces cerevisiae.

Jessel T.M. and Melton D.A. (1992) Diffusible factors in vertebrate embryonic induction. *Cell* 68, 257-270.

type-2 astrocyte development; ciliary neurotrophic factor; fibroblast growth-factor; retinoic acid receptor; chick limb bud; tyrosine kinase receptor; early Xenopus embryos; proto-oncogene int-1; activin-a; w-locus.

Greenwald I. and Rubin G.M. (1992) Making a difference—the role of cell-cell interactions in establishing separate identities for equivalent cells. *Cell* 68, 271-281.

epidermal growth-factor; developing *Drosophila reina*; *C. elegans* vulvar induction; *Caenorhabditis elegans*; notch locus; sevenless protein; tyrosine kinase; lateral inhibition; homologous genes; identity.

McGinnis W. and Krumlauf R. (1992) Homeobox genes and axial patterning. *Cell* 68, 283-302.

anterior posterior axis; bithorax complex genes; *Drosophila* head development; homeodomain-DNA complex; homeotic selector gene; central nervous-system; ectopic expression; sex-combs; ultrabithorax proteins; visceral mesoderm.
Compendium of reviews 1992

Hynes R.O. and Lander A.D. (1992) Contact and adhesive specificities in the associations, migrations, and targeting of cells and axons. Cell 68, 303-322.

Millar J.B.A. and Russell P. (1992) The cdc25 M-phase inducer—an unconventional protein phosphatase. Cell 68, 407-410.

Foulkes N.S. and Sassonecorci P. (1992) More is better—activators and repressors from the same gene. Cell 68, 411-414.

Alberts B. and Miakelye R. (1992) Unscrambling the puzzle of biological machines—the importance of the details. Cell 68, 415-420.

Mellman I. and Simons K. (1992) The Golgi complex—in vitro veritas. Cell 68, 829-840.

McKinsey M. (1992) Growth factor signaling—where is the specificity? Cell 69, 995-997.

Miller J.B. (1992) Myoblast diversity in skeletal myogenesis—how much and to what end? Cell 69, 1-3.

Hynes R.O. (1992) Integrins—versatility, modulation, and signaling in cell adhesion. Cell 69, 11-25.

Helenius A. (1992) Unpacking the incoming influenza virus. Cell 69, 577-578.

Helenius A. (1992) Pax in development. Cell 69, 571-575.
Cell Signalling

Iwashita S. and Kobayashi M. (1992) Signal transduction system for growth factor receptors associated with tyrosine kinase activity—epidermal growth factor receptor signalling and its regulation. Cell Signal. 4, 123-132.

dependent protein-kinase; phospholipase-C-γ; 3T3 cells; bronchial epithelial-cells; phorbol tumor promoters; PDGF β-receptor; EGF receptor; pertussis toxin; factor II; phosphorylation state.

Faresse R.V., Ramdaert M.L., Arnold T., Yu B.Z., Ishizuka T., Hoffman J., Vila M. and Cooper D.R. (1992) The role of protein kinase C in insulin action. Cell Signal. 4, 133-143.

Chemical Research in Toxicology

Dedon P.C. and Goldberg I.H. (1992) Free-radical mechanisms involved in the formation of sequence-dependent bistranded DNA lesions by the antitumor antibiotics bleomycin, neocarzinostatin, and calicheamicin. Chem Res Toxicol. 5, 311-332.

double-strand breaks; deoxyribonucleic-acid; mediated degradation; Escherichia coli; iron-bleomycin; activated bleomycin; sugar damage; base release; minor-groove; reversible binding.

Chromosoma

Oostra B.A. and Verkerk A.J.M.H. (1992) The fragile X-syndrome—isoaltation of the FMR-1 gene and characterization of the fragile-X mutation. Chromosoma 101, 381-387.

mental retardation; sites; DNA; inheritance; expression; linkage; fraxa.

Clinical Biochemistry

Kirkland J.L. (1992) The biochemistry of mammalian senescence. Clin. Biochem. 25, 61-75.

human-diploid fibroblasts; differentiated gene-expression; cultured adenocortical-cells; adenyate-cyclase activity; replicative life-span; DNA-polymerases-α; cellular senescence; protein-synthesis; aging mice; superoxide-dismutase.

Critical Reviews In Biochemistry and Molecular Biology

Melber C. and Schmidt G.H. (1992) Identification of fluorescent compounds in certain species of Dysdercus and some of their mutants (Heteroptera, Pyrrhocoridae). Comp. Biochem. Physiol. [B]. 101, 115-133.

liquid-chromatography; butterflies; peridines.

Graur D., Hide W.A., Zharkikh A. and Li W.H. (1992) The biochemical phylogeny of guinea-pigs and gundis, and the paraphyly of the order Rodentia. Comp. Biochem. Physiol. [B]. 101, 495-498.

molecular evolution; primates.

Nabih I. and Elansary A. (1992) Metabolic end-products in parasitic helminths and their intermediate hosts. Comp. Biochem. Physiol. [B]. 101, 499-508.

Oxal Achatina achatina; Schistosoma mansoni; Biomphalaria glabrata; lactate-dehydrogenase; fatty acids; primary sperocytes; invertebrates; anaerobiosis; hemolymph; Fasciola.

Eriksson L.C. and Andersson G.N. (1992) Membrane biochemistry and chemical hepatoocarcinogenesis. Crit. Rev. Biochem. Molec. Biol. 27, 1-55.

epidermal growth-factor; choline-devoid diet; γ-glutamyl transpeptidase; glutathione S-transferase; glutamyltranspeptidase-positive foci; resistant hepatocyte model; rat-tiver carcinogenesis; coenzyme-A reductase; protein kinase C; mammary epithelial-cells.

Strous G.J. and Dekker J. (1992) Mucin-type glycoproteins. Crit. Rev. Biochem. Molec. Biol. 27, 57-92.

ovine submaxillary mucin; gastric mucus glycoprotein; human intestinal mucin; polymorphic epithelial mucin; cell-surface sialomucin; chain binding-protein; density-gradient centrifugation; rough endoplasmic-reticulum; carcinoma-associated mucin; UDP-N-acetylgalactosaminine.

Paulsson M. (1992) Basement membrane proteins—structure, assembly, and cellular interactions. Crit. Rev. Biochem. Molec. Biol. 27, 93-127.

heparan-sulfate-pectoglycan; amino-acid sequence; collagen type-IV; fibroblast growth-factor; parietal yolk-sac; laminin A-chain; vascular endothelial-cells; glomerular epithelial-cells; neurite-promoting factor; high-affinity binding.
Compendium of reviews 1992

So A.G. and Downey K.M. (1992) Eukaryotic DNA replication. Crit. Rev. Biochem. Molec. Biol 27, 129-155.

cell nuclear antigen; simian virus-40 DNA; single-stranded DNA; polymerase-III holoenzyme; large-tumor-antigen; delta- auxiliary protein; large T-antigen; dependent adenosine triphosphatase-b; Drosophila melanogaster embryos; yeast Saccharomyces cerevisiae.

Lu M., Guo Q. and Kallenbach N.R. (1992) Interaction of drugs with branched DNA structures. Crit. Rev. Biochem. Molec. Biol 27, 157-190.

1,10-phenanthroline copper-ion; negatively supercoiled DNA; nucleic-acid junctions; double-stranded DNA; secondary structure specificity; antitumor antibiotic dynamicin; gel-electrophoretic analysis; fluorescence energy-transfer; endonuclease-VII cleaves; genetic recombination.

Gergely J., Sarmay G. and Rajnovolgyi E. (1992) Regulation of antibody production mediated by Fcy receptors, IgG binding factors, and IgG Fe-binding autoantibodies. Crit. Rev. Biochem. Molec. Biol 27, 191-225.

human immunoglobulin G; natural-killer cells; murine T-cells; human B-cells; monoclonal rheumatoid factors; peripheral mononuclear-cells; secondary immune-responses; variable region sequences; A-treated erythrocytes; lymphocytes-B.

Bollen M. and Stalmans W. (1992) The structure, role, and regulation of type-1 protein phosphatases. Crit. Rev. Biochem. Molec. Biol 27, 227-281.

rabbit skeletal-muscle; glycogen-synthase phosphatase; casein kinase II; liver phosphorylase phosphatase; epidermal growth factor; myosin light chain; adenosine 3'-5'-monophosphate-regulated phosphoprotein; bombardment mass-spectrometry; actin microfilament integrity; insulin induces activation.

Current Genetics

Lennon G.G. and Lehrach H. (1992) Gene database for the fission yeast Schizosaccharomyces pombe. Curr. Genetics 21, 1-11.

ribosomal-protein gene; cell-division cycle; transfer-RNA genes; cycloheximide resistant strain; α-tubulin genes; DNA-ligase gene; Saccharomyces cerevisiae; nucleotide-sequence; extrachromosomal-inheritance; Schizosaccharomyces pombe.

Cytogenetics and Cell Genetics

Williamson R., Bowcock A., Kidd K., Pearson P., Schmidtke J., Ceverha P., Chipperfield M., Cooper D.N., Couteille C., Hewitt J., Klingler K., Langley K., Beckmann J., Tolley M. and Maimink B. (1991) Report of the DNA committee and catalogues of cloned and mapped genes, markers formatted for PCR and DNA polymorphisms. Cytogenet. Cell Genet. 58, 1190-1832.

fragment-length-polymorphism; T-cell receptor; amino-acid-sequence; Duchenne muscular dystrophy; cystic fibrosis locus; major histocompatibility complex; human X chromosome; β-globin gene; dinucleotide repeat polymorphism; apolipoprotein-B gene.

Developmental Genetics

Meinke D.W. (1991) Review—embryonic mutants of Arabidopsis thaliana. Dev. Genetics 12, 382-392.

defective kernel mutants; lethal mutants; arrested embryos; capsella embryogenesis; somatic embryogenesis; genetic-analysis; maize; cell; morphogenesis; expression.

Allen S.L. and Orlas E. (1992) Introduction—a tribute to Nannney, David L., an experimental ciliatologist. Dev. Genetics 13, 1-8.

Tetrahymena pyriformis complex; genomic exclusion; thermophilia; strains; evolution; inheritance; malacensis; phylogenies; pigmentation; sequences.

European Journal of Biochemistry

Goldberg A.L. (1992) The mechanism and functions of A1P-dependent proteases in bacterial and animal cells. Eur. J. Biochem. 203, 9-23.

intracellular protein degradation; heat-shock protein; molecular-weight proteins; abnormal proteins; gene-product; ion gene; multicatalytic proteinase; proteolytic system; skeletal-muscle.

Gupta M.N. (1992) Enzyme function in organic solvents. Eur. J. Biochem. 203, 25-32.

low water-content; chymotryptic-catalyzed reactions; col bi- galactosidase; peptide-synthesis; α-chymotrypsin; nucleophile specificity; trans-esterification; bioorganic synthesis; nonaqueous media; concanavalin-A.

Hew C.L. and Yang D.S.C. (1992) Protein interaction with ice. Eur. J. Biochem. 203, 33-42.

antifreeze glycoprotein; Pseudomonas syringae; freezing resistance; nucleation activity; peptide antifreeze; Erwinia herbicola; fish blood; nucleic acid repression; gene.

Gossler A. and Balling R. (1992) The molecular and genetic analysis of mouse development. Eur. J. Biochem. 204, 5-11.

developing excretory system; acid-binding protein; embryonic stem-cells; w-mutant mice; retinoic-acid; paired-box; TGF-β; mesoderm formation; homeotic genes; homeobox genes; genetics; mouse development.

Bode W. and Huber R. (1992) Natural protein proteinase inhibitors and their interaction with proteinases. Eur. J. Biochem. 204, 433-451.

pancreatic trypsin-inhibitor; X-ray crystal structure; nuclear magnetic-resonance; ovomucoid 3rd domain; Streptomyces subtilisin inhibitor; restrained molecular dynamics; thrombin hirudin complex; human leukocyte elastase; strong ligand binding; human α-thrombin.
Vangunsteren W.F. and Mark A.E. (1992) On the interpretation of biochemical data by molecular dynamics computer simulation. *Eur. J. Biochem.* 204, 947-961.
lac repressor headpiece; nuclear magnetic-resonance; hydrogen-bond interactions; free-energy calculations; occurring amino-acids; molten globule state; conformational dynamics; nonbonded interactions; distance restraints; protein-structure.

Smith B.E. and Eady R.R. (1992) Metallocusters of the nitrogenases. *Eur. J. Biochem.* 205, 1-15.
iron-molybdenum cofactor; *Klebsiella pneumoniae* nitrogenase; *Azotobacter vinelandii* nitrogenase; circular dichroism spectroscopy; 2nd alternative nitrogenase; mofe protein nifH-kpl; vanadium nitrogenase; structural genes; nucleotide-sequennce; fmo-cofactor.

Iritani N. (1992) Nutritional and hormonal regulation of lipogenic-enzyme gene expression in rat liver. *Eur. J. Biochem.* 205, 433-442.
fatty-acid synthase; acetyl-CoA carboxylase; post-transcriptional regulation; chick-embryo hepatocytes; messenger RNA levels; malic enzyme; thyroid hormone; posttranscriptional regulation; molecular-cloning.

Gavel Y. and Vonheijne G. (1992) The distribution of charged amino acids in mitochondrial inner-membrane proteins suggests different modes of membrane integration for nuclearly and mitochondrialy encoded proteins. *Eur. J. Biochem.* 205, 1207-1215.
cytochrome-c-oxidase; ADP-ATP-carrier; beef-heart mitochondria; nicotinamide nucleotide transhydrogenase; brown fat mitochondria; different genes cDNA; iron-sulfur protein; *Saccharomyces cerevisiae*; uncoupling protein; *Escherichia coli*.

Evolution

Janson C.H. (1992) Measuring evolutionary constraints—a Markov model for phylogenetic transitions among seed dispersal syndrome. *Evolution* 46, 136-158.
mass extinctions; fossil record; adaptation; morphology; sequences; plants; forest; evolutionary; seeds.

FEBS Letters

Bergelson L.D. (1992) Lipid domain reorganization and receptor events—results obtained with new fluorescent lipid probes. *FEBS Lett.* 297, 212-215.
binding; stimulation; membranes; ricin; cells; reorganization.

Yamato I. (1992) Ordered binding model as a general mechanistic mechanism for secondary active transport systems. *FEBS Lett.* 298, 1-5.
active-transport; *Escherichia coli*-B; site-directed mutagenesis; membrane-vesicles; cytoplasmic membrane; glutamate transport; melibiose transport; substrate-binding; lactose permease; symport carrier; galactoside transport.

Kamp D.W., Graceffs P., Pryor W.A. and Weitzman S.A. (1992) The role of free radicals in asbestos-induced diseases. *Free Radical Biol. Med.* 12, 293-315.
tracheal epithelial-cells; superoxide anion production; induced lipid-peroxidation; electron-spin-resonance; phase cigarette-smoke; human polymorphomacular leukocytes; human α-1-proteinase inhibitor; interstitial pulmonary fibrosis; reactive oxygen metabolites; pleural mesothelial cells.

Sugiyama M. (1992) Role of physiological antioxidants in chromium(VI)-induced cellular injury. *Free Radical Biol. Med.* 12, 397-407.
single-strand breaks; hexavalent chromium compounds; sister-chromatid exchanges; electron-paramagnetic-res; cultured mammalian-cells; Chinese hamster cells; vitamin E protects; ascorbic-acid; DNA lesions; chromosomal-aberrations.
Compendium of reviews 1992

Youn Y.K., Lalonde C. and Demling R. (1992) Oxidants and the pathophysiology of burn and smoke inhalation injury. Free Radical Biol. Med. 12, 409-415.

persistent free-radicals; anti-inflammatory drugs; thermal-injury; lipid-peroxidation; xanthine-oxidase; bacterial translocation; perfusor polymers; natural-history; carbon-monoxide; cigarette-smoke.

Reif D.W. (1992) Ferritin as a source of iron for oxidative damage. Free Radical Biol. Med. 12, 417-427.
catalyzed lipid-peroxidation; superoxide anion; nitro oxide; activated macrophages; possible mechanism; xanthine-oxidase; free-radicals; L-arginine; electron-transport; alloxan toxicity.

Lesnfsky E.J. (1992) Reduction of infarct size by cell-permeable oxygen metabolite scavengers. Free Radical Biol. Med. 12, 429-446.
infarct size; myocardial reperfusion injury; free-radical generation; superoxide-dependent formation; coronary-artery occlusion; hydrogen-peroxide; lipid-peroxidation; hydroxyl radicals; ischemia-reperfusion; xanthine-oxidase; rat hearts.

Vandervliet A. and Basl A. (1992) Role of reactive oxygen species in intestinal diseases. Free Radical Biol. Med. 12, 499-513.
platelet-activating factor; inflammatory bowel-disease; free-radical generation; ischemia-reperfusion injury; increased microvascular permeability; cat small-intestine; rat small-intestine; xanthine-oxidase; endobelial-cells; mucosal damage.

Schoenberg M.H., Buchler M. and Beger H.G. (1992) The role of oxygen radicals in experimental acute pancreatitis. Free Radical Biol. Med. 12, 515-522.
hemorrhagic-pancreatitis; superoxide-dismutase; xanthine-oxidase; rat; pathogenesis; antioxidants; allopurinol; peroxide; catalase; disease.

Free Radical Research Communications

Haas A. and Goebel W. (1992) Microbial strategies to prevent oxygen-dependent killing by phagocytes. Free Radical Res. Commun. 16, 137-157.
manganese superoxide-dismutase; Escherichia coli K-12; Listeria monocytogenes; hydrogen-peroxide; oxidative stress; Salmonella typhimurium; Staphylococcus aureus; nucleotide-sequence; human-neutrophils; Mycobacterium tuberculosis.

Genes & Development

Rossant J. and Hopkins N. (1992) Of fin and fur—mutational analysis of vertebrate embryonic development. Gene Dev. 6, 1-13.
mediated enhancer detection; germ-line transmission; Escherichia coli lacZ; insertional mutagenesis; Drosophila melanogaster; larval cuticle; zygotic loci; int-1 protooncogene; zebrafish embryos; regulated genes.

Genes, Chromosomes and Cancer

Defromentel C.C. and Soussi T. (1992) TP53 tumor suppressor gene—a model for investigating human mutagenesis. Gene Chromosome. Cancer 4, 1-15.
p53 nuclear oncoprotein; lung-cancer; nucleotide-sequence; breast-cancer; mutant p53; cell-lines; T-antigen; mutations; frequent; deletions.

Genetic Analysis—Techniques and Applications

Jacobson K.B., Arlinghaus H.F., Buchanan M.V., Chen C.H., Glish G.L., Hettich R.L. and McLuckey S.A. (1991) Applications of mass spectrometry to DNA sequencing. Genet. Anal-Tech. Appl. 8, 223-229.
electrospray ionization; laser ablation; proteins.

Genetics

MacKay T.F.C., Lyman R.F. and Jackson M.S. (1992) Effects of p-element insertions on quantitative traits in Drosophila melanogaster. Genetics 130, 315-332.
motion-selection balance; long-term selection; large replicate populations; controlling bristle score; enzyme-activity variation; achaete-scute complex; m hybrid dysgenesis; transposable element; stabilizing selection; artificial selection.

Perkins D.D. (1992) Neurospora—the organism behind the molecular revolution. Genetics 130, 687-701.
heterokaryon incompatibility genes; mutant sensitive mutants; mitochondrial-DNA; mating-type; natural-populations; ribosomal-RNA; plasmid DNA; chromosome rearrangements; recombination nodules; transposable element; organisms.

Genome

Lapitan N.L.V. (1992) Organization and evolution of higher plant nuclear genomes. Genome 35, 171-181.
repeated DNA-sequences; fragment length polymorphisms; ribosomal-RNA genes; controlling element activator; α-satellite DNA; rye Secale cereale; Arabidopsis thaliana; Zea mays; transposable elements; molecular analysis.
Genomics

Sobell J.L., Heston L.L. and Sommer S.S. (1992) Delineation of genetic predisposition to multifactorial disease—a general approach on the threshold of feasibility. Genomics 12, 1-6.

Glycobiology

Troy F.A. (1992) Polysialylation—from bacteria to brains. Glycobiology, 2, 5-23.

Varki A. (1992) Diversity in the sialic acids. Glycobiology, 2, 25-40.

Harvey D.J. (1992) The role of mass spectrometry in glycobiology. Glycoconjugate J. 9, 1-12.

Modlin R.L., Lewis J., Uyemura K. and Tigelaar R.E. (1992) Lymphocytes bearing gamma-delta antigen receptor.

Stanley P. (1992) Glycosylation engineering. Glycobiology, 2, 99-107.

Aquino D.A. and Brosnan C.F. (1992) Heat-shock proteins and immunopathology—an overview. Heat-Shock Proteins and Gamma-Delta T Cells 53, 1-16.

Aquino D.A. and Selmaj K. (1992) Heat-shock proteins and gamma-delta T cell responses in the central nervous system. Heat-Shock Proteins and Gamma-Delta T Cells 53, 86-101.

Aquino D.A. and Selmaj K. (1992) Heat-shock proteins and gamma-delta T cell responses in the central nervous system. Heat-Shock Proteins and Gamma-Delta T Cells 53, 102-120.

Experientia 48, 215-219.
**Hemoglobin**

Carver M.F.H. and Huisman T.H.J. (1992) Policies of the International Hemoglobin Information Center, Laboratory of Protein Chemistry, Department of Biochemistry and Molecular Biology, Medical College of Georgia, Augusta, GA. *Hemoglobin* 16, R5.

- protein; chemistry; hemoglobin; information; molecular-biology; high-oxygen-affinity; delta-chain variant; performance; liquid-chromatography; amino-acid substitution; 2,3-diphosphoglycerate binding-site; electrophoretically silent variant; haemoglobin haemolytic anaemia; slightly unstable hemoglobin; abnormal human-hemoglobin; globin structural mutant.

**Heredity**

Chapman C.G.D. and Kimber G. (1992) Developments in the meiotic analysis of hybrids. (1) Review of theory and optimization in triploids. *Heredity* 68, 97-103.

- induced autotetraploids; meiosis; behavior;

**Human Genetics**

Madan K. and Menko F.H. (1992) Intrachromosomal insertions—a case report and a review. *Hum. Genet.* 89, 1-9.

- paracentric inversion; mental-retardation; dup(3q) syndrome; duplication; deletion; translocation; family; chromosome-3p; anomalies; carriers.

Vogel F. (1992) Risk calculations for hereditary effects of ionizing radiation in humans. *Hum. Genet.* 89, 127-146.

- mouse secondary spermatocytes; partially genetic diseases; high background-radiation; Sellafield nuclear plant; marker X syndrome; West Cumbria; non-disjunction; female mice; chromosome aberrations; newborn children.

**Indian Journal of Biochemistry and Biophysics**

Singh R. (1992) Carbon source for starch biosynthesis in amyloplasts of plant storage tissues. *Indian J. Biochem. Biophys.* 29, 1-8.

**Insect Biochemistry and Molecular Biology**

English L. and Slatin S.L. (1992) Mode of action of delta-endotoxins from *Bacillus thuringiensis*—a comparison with other bacterial toxins. *Insect Biochem. Molec. Biol.* 22, 1-7.

- planar lipid bilyeans; brush-border membrane; cation-selective channels; heliothis-virescens; adenylate-cyclase; tobacco budworm; anthrax toxin; mechanism; proteins; midgut.

**International Journal of Biochemistry**

Han K.K. and Martinage A. (1992) Post-translational chemical modification(s) of proteins. *Int. J. Biochem.* 24, 19-28.

- tyrosine sulfation; N-methylasparagine; ADP-ribosylation; histone H2b; ubiquitin; identification; kinases; phosphorylation; glycoproteins; peptides.

Anthony C. (1992) The structure of bacterial quinoprotein dehydrogenases. *Int. J. Biochem.* 24, 29-39.

- D-glucose dehydrogenase; *Methylobacterium extorquens* amn; pyrrolo-quinoline quinone; electron-transport chain; *aerobic acid bacteria*; *Acinetobacter acoelicus*; alcohol-dehydrogenase; methanol dehydrogenase; nucleotide-sequence; Escherichia-coli.

Ohkuma S. and Yanagi K. (1992) *Vicia graminea* lectin- or *Vicia-unijuga* lectin-binding (Vgu) glycoproteins as new oncofetal antigens. *Int. J. Biochem.* 24, 41-46.

- T-active glycoproteins; biochemical-characterization; precursor glycoproteins; carbohydrate antigens; cyst fluids; N lectin; carcinomas; sialoglycopeptides; erythrocytes; leaves.

Nikandrov V.N. (1992) On the plasminogen-activating function of streptokinase. *Int. J. Biochem.* 24, 47-53.

- complex; radicals; forms.

Schorer H.C., Suhadolnik R.J., Pfeiferer W., Charubala R. and Muller W.E.G. (1992) (2'-5')Oligoadenylate and intracellular immunity against retrovirus infection. *Int. J. Biochem.* 24, 55-63.

- human-immunodeficiency-virus; trans-activator gene; double-stranded-RNA; HIV-1 reverse-transcriptase; interferon-treated cells; sids-related complex; messenger-RNA; tat protein; HTLV III; nuclear matrix.

Pfanner N. and Weinzierl A. (1992) Mechanisms of mitochondrial protein import. *Int. J. Biochem.* 24, 65-69.

- precursor proteins; identification; receptor.

Winberg J.O. and McKinley-McKee J.S. (1992) Kinetic interpretations of active site topologies and residue exchanges in *Drosophila* alcohol dehydrogenases. *Int. J. Biochem.* 24, 169-181.

- small autosomal region; biochemical-properties; alcoholdehydrogenase; structural gene; short-chain; molecular-properties; messenger-RNA; enzyme; purification.

Almas B., Pryme I.F., Vedeler A. and Hesketh J.E. (1992) Insulin—signal transmission and short-term effects on the cytoskeleton and protein synthesis. *Int. J. Biochem.* 24, 183-191.

- tyrosine kinase-activity; epidermal growth-factor; receptor kinase; ribosomal protein-s6; endothelial-cells; adenylate-cyclase; 3t3 fibroblasts; hepatoma-cells; ß-subunit; kb-cells.
Hesketh J.E. and Whitelaw P.F. (1992) The role of cellular oncogenes in myogenesis and muscle cell hypertrophy. *Int. J. Biochem.* 24, 193-203.

Colacicchi S., Ferrari M. and Sogtig A. (1992) *In vivo* electron paramagnetic resonance spectroscopy imaging - first experiences, problems, and perspectives. *Int. J. Biochem.* 24, 205-214.

Seyer R., Richoux J.P. and Aumelas A. (1992) Probing angiotensin receptors. *Int. J. Biochem.* 24, 360-377.

Joffe M., Savage N. and Silove M. (1992) The biochemistry of malignant hyperthermia - recent concepts. *Int. J. Biochem.* 24, 379-386.
International Journal of Peptide and Protein Research

Konopiktsa D., Rosinski G. and Sobotka W. (1992) Insect peptide hormones, an overview of the present literature. *Int. J. Pept. Protein Res.* 39, 1-11.

amino-acid-sequence; bombardment mass-spectrometry; pigment-concentrating hormone; locust adipokinetic hormone; *Periplaneta americana* L; akh-1pc family; corpora cardiaca; *Leucophaea maderae*, corpus cardiacum; *Manduca sexta*.

Interleukins—Molecular Biology and Immunology

Dinarello C.A. (1992) The biology of interleukin-1. *Interleukins—Molecular Biology and Immunology* 51, 1-32.

tumor necrosis factor; colony-stimulating factor; smooth-muscle cells; human-immunodeficiency-virus; vascular endothelial cells; blood mononuclear cells; recombinant human interleukin 1; human monocyte interleukin 1; hepatic protein-synthesis; autocrine growth-factor.

Dower S.K., Sims J.E., Cerretti D.P. and Bird T.A. (1992) The interleukin-1 system—receptors, ligands and signals. *Interleukins—Molecular Biology and Immunology* 51, 33-64.

tumor necrosis factor, protein kinase C, growth-factor-receptor; nf-kappa-b, factor increase phosphorylation; prostaglandin E production; hematoid synovial-cells; high-affinity receptors; GTP-binding protein; human T-cells.

Ihle J.N. (1992) Interleukin-3 and hematopoiesis. *Interleukins—Molecular Biology and Immunology* 51, 65-106.
colony-stimulating factor; human granulocyte-macrophage; protein kinase-c; recombinant human interleukin-3; cell growth-factor; murine bone-marrow; express functional receptors; acute lymphocytic-leukemia; GTPase-activating protein; factor-independent growth.

Beckmann M.P., Cosman D., Fanslow W., Maliszewski C.R. and Lyman S.D. (1992) The interleukin-4 receptor—structure, function, and signal transduction. *Interleukins—Molecular Biology and Immunology* 51, 107-134.
cell-stimulatory factor; resting B-cells; factor-l interleukin-4; human lymphocytes-B; cyclic adenosine-monophosphate; IgGl induction factor; T-cell; high-affinity; recombinant interleukin-4; expression cloning.

McKenzie A.N.J. and Sanderson C.J. (1992) Interleukin-5. *Interleukins—Molecular Biology and Immunology* 51, 135-152.
eosinophil differentiation factor; cell-replacing factor; colony-stimulating factor; recombinant human interleukin-5; hematopoietic stem-cells; enhances IgA production; murine lymphocytes-B; human-bone marrow; growth factor-II; messenger RNA.

Hirano T. (1992) The biology of interleukin-6. *Interleukins—Molecular Biology and Immunology* 51, 153-180.
stimulatory factor-ii; tumor-necrosis-factor; B-cell differentiation; recombinant human interleukin-6; autocrine growth-factor; acute-phase proteins; c-reactive protein; multipotential hematopoietic progenitors; factor inducing differentiation; rat c-2-macroglobulin gene.

Taga T., Hibi M., Murakami M., Saito M., Yawata H., Narazaki M., Saito M., Yawata H., Narazaki M., Hirano T. and Kishimoto T. (1992) Interleukin-6 receptor and signals. *Interleukins—Molecular Biology and Immunology* 51, 181-204.
stimulatory factor-ii; growth-factor receptors; expression clonning; β-chain; molecular-cloning; immunoglobulin superfamily; erythropoietin receptor; prolactin receptor; binding domain; gene family.

Kunisada T., Ogawa M., Hayashi S.I., Era T. and Nishikawa S.I. (1992) Interleukin-7 and B-lymphopoiesis. *Interleukins—Molecular Biology and Immunology* 51, 205-235.
cell-growth factor; hematopoietic stem-cells; murine leukemia-virus; immunoglobulin gene rearrangement; severe combined immunodeficiency; bone-marrow culture; long-term culture; transformation-associated antigen; combined immune-deficiency; receptor tyrosine kinase.

Matsushima K., Baldwin E.T. and Mukaida N. (1992) Interleukin-8 and mcaf—novel leukocyte recruitment and activating cytokines. *Interleukins—Molecular Biology and Immunology* 51, 236-265.
neutrophil chemotactic factor; tumor-necrosis-factor; monocyte chemoattractant protein-1; blood mononuclear leukocytes; growth stimulatory activity; nf-kappa-b; acute-phase response; amino-acid-sequence; DNA-binding subunit; endothelial-cells.

Riegel J.S., Corthesy B., Flanagan W.M. and Crabtree G.R. (1992) Regulation of the interleukin-2 gene. *Interleukins—Molecular Biology and Immunology* 51, 266-298.

T-cell activation; nf-kappa-b; human lymphocytes-T; A-binding protein; severe combined immunodeficiency; T3-antigen receptor complex; peptidyl-prolyl isomerase; transcription factor sp-1; cytoplasmic free calcium; serum response element.

Akira S., Isshiki H., Nakajima T., Kinoshita S., Nishio Y., Hashimoto S., Natsuka S. and Kishimoto T. (1992) A nuclear factor for the II-6 gene (NF-IL6). *Interleukins—Molecular Biology and Immunology* 51, 299-322.

enhancer binding-protein; hepatocyte-stimulating factor; tumor-necrosis-factor; transcription factor; interleukin-6 gene; acute phase; kappa-b; human-fibroblasts; albumin gene; factor-II.

Journal of the American College of Nutrition

Simon J.A. (1992) Vitamin-C and cardiovascular disease—a review. *J. Am. Coll. Nutr.* 11, 107-125.
ascorbic-acid deficiency; ischemic-heart-disease; low-density-lipoprotein; eastern Finnish men; diabetes mellitus; guinea-pigs; blood-pressure; oral-contraceptives; experimental atherosclerosis; plasma-cholesterol.
Journal of Bioenergetics and Biomembranes

Mauella C.A., Furie M. and Colombini M. (1992) Toward the molecular structure of the mitochondrial channel, VDAC. *J. Bioenerg. Biomembrane* 24, 7-19.

outer-membrane channel; *Neurospora crassa* mitochondria; hexokinase-binding protein; voltage-dependent channel; rat liver mitochondria; synthetic polyanion; electron-microscopy; pore protein; sequence; arrays; molecular-structure.

Depinto V. and Palmieri F. (1992) Transmembrane arrangement of mitochondrial porin or voltage-dependent anion channel (VDAC). *J. Bioenerg. Biomembrane* 24, 21-26.

hexokinase-binding protein; rat liver mitochondria; outer membrane; *Neurospora crassa*; ion channel; purification; cloning; pores; cDNA.

Benz R. and Brdiczka D. (1992) The cation-selective substrate of the mitochondrial outer membrane pore—single-channel conductance and influence on intermembrane and peripheral kinases. *J. Bioenerg. Biomembrane* 24, 33-39.

rat liver mitochondria; hexokinase-binding protein; contact sites; synthetic polyanion; creatine-kinase; inhibition; transport; state; brain.

Arora K.K., Parry D.M. and Pedersen P.L. (1992) Hexokinase receptors—preferential enzyme binding in normal cells to nonmitochondrial sites and in transformed cells to mitochondrial sites. *J. Bioenerg. Biomembrane* 24, 47-53.

rat brain hexokinase; amino-acid-sequence; intracellular-localization; terminal sequence; tumor-cells; membrane; glucose; particulate; form; phosphorylation.

McEnery M.W. (1992) The mitochondrial benzodiazepine receptor—evidence for association with the voltage-dependent anion channel (VDAC). *J. Bioenerg. Biomembrane* 24, 63-69.

membrane contact sites; rat liver mitochondria; central nervous-system; binding-sites; heart mitochondria; endogenous ligands; calcium-channel; creatine-kinase; cyclosporin-a; localization.

Thinnes F.P. (1992) Evidence for extra-mitochondrial localization of the VDAC/porin channel in eucaryotic cells. *J. Bioenerg. Biomembrane* 24, 71-75.

dependent anion channel; outer-membrane; chloride channels; *Escherichia coli*; cystic-fibrosis; conductance; protein; identification; hexokinase; state.

Beavis A.D. (1992) Properties of the inner membrane anion channel in intact mitochondria. *J. Bioenerg. Biomembrane* 24, 77-90.

rat liver mitochondria; heart mitochondria; plant mitochondria; k+ flux; dibutylichloromethyl chloride; tripheyltin compounds; conducting channel; light-scattering; binding-sites.

Moran O. and Sorgato M.C. (1992) High-conductance pathways in mitochondrial membranes. *J. Bioenerg. Biomembrane* 24, 91-98.

contact sites; outer-membrane; brain mitochondria; eukaryotic cells; lipid bilayers; porin pores; ion channel; transport; phosphorylation; reconstitution.

Kimally K.W., Antonenko Y.N. and Zorov D.B. (1992) Modulation of inner mitochondrial membrane channel activity. *J. Bioenerg. Biomembrane* 24, 99-110.

anion channel; contact sites; selective channels; brain mitochondria; ion channel; conductance; protein; Ca2+; mitoplasts; cations.

Zheng L. and Herzfeld J. (1992) NMR studies of retinal proteins. *J. Bioenerg. Biomembrane* 24, 139-146.

solid-state 13C; dark-adapted bacteriorhodopsin; Schiff-base; labeled bacteriorhodopsin; membrane-proteins; chromatophore; dynamics; conformation; spectroscopy.

Rothschild K.J. (1992) FTIR difference spectroscopy of bacteriorhodopsin—toward a molecular model. *J. Bioenerg. Biomembrane* 24, 147-167.

resonance Raman-spectroscopy; carboxyl protonation changes; hydrogen-deuterium exchange; oriented purple membrane; retinal Schiff-base; to-blue transition; vibrational spectroscopy; low-temperature; neutron-diffraction; difference spectroscopy.

Lanyi J.K. (1992) Proton transfer and energy coupling in the bacteriorhodopsin photocycle. *J. Bioenerg. Biomembrane* 24, 169-179.

resonance Raman-spectra; solid-state 13C; purple membrane; *Halobacterium halobium*; chromatophore structure; photochemical cycle; Schiff-base; retinal chromatophore; absorption-spectra; aspartic acid-96.

Oesterhelt D., Tittor J. and Bamberg E. (1992) A unifying concept for ion translocation by retinal proteins 1. *Bioenerg. Biomembrane* 24, 181-191.

chloride pump halorhodopsin; internal proton donor; light-induced-changes; halo-opsin gene; Schiff-base; neutron-diffraction; aspartic acid-96; *Halobacterium halobium*; infrared-spectroscopy; wavelength regulation.

Spudich J.L. and Bogomolni R.A. (1992) Sensory rhodopsin-I—receptor activation and signal relay. *J. Bioenerg. Biomembrane* 24, 193-200.

resonance Raman-spectroscopy; *Halobacterium halobium*; color discrimination; retinal chromatophore; protein-interaction; *Escherichia coli*; bacteriorhodopsin; transduction; phototaxis; bacteria.

Lewis J.W. and Kliger D.S. (1992) Photointermediates of visual pigments. *J. Bioenerg. Biomembrane* 24, 201-210.

resonance Raman-spectra; low-temperature; difference spectroscopy; laser photolysis; metarhodopsin-I; rhodopsin; isorhodopsin; bathorhodopsin; photochemistry; photoproducts.

Oprian D.D. (1992) The ligand-binding domain of rhodopsin and other G-protein-linked receptors. *J. Bioenerg. Biomembrane* 24, 211-217.

β-adrenergic-receptor; resonance Raman-spectroscopy; human thyrotropin receptor, Schiff-base counterion; amino-acid-sequence; bovine rhodopsin; photoreceptor cell; *Drosophila melanogaster*; cysteine residue-110; molecular-cloning.
Compendium of reviews 1992

1871

Hurley J.B. (1992) Signal transduction enzymes of vertebrate photoreceptors. J. Bioenerg. Biomembrane 24, 219-226.

Journal of Biological Chemistry

Khorana H.G. (1992) Rhodopsin, photoreceptor of the rod cell—an emerging pattern for structure and function. J. Biol Chem 267, 1-4.

Shiff-base counterion; bovine rhodopsin; cysteine residue-110; molecular mechanism; visual excitation; outer segment; protein; light; transducin; binding; rods; rhodopsin; photoreceptors.

Pugh B.F. and Tjian R. (1992) Diverse transcriptional functions of the multienzyme eukaryotic TFID complex J. Biol Chem 267, 679-682.

RNA polymerase-II; TATA-box factor; binding-protein; Saccharomyces cerevisiae; accurate transcription; Schizosaccharomyces pombe; preinitiation complex; promoter interactions; multiple factors; initiation site.

Miller R.J. (1992) Voltage-sensitive Ca" channels. J. Biol Chem 267, 1403-1406.

Ca"; channels; purified calcium channels; skeletal-muscle; functional expression; xenopus oocytes; Ca" channels; messenger-RNA; subunit; brain; currents; neurons.

Carafoli E. (1992) The Ca"+ pump of the plasma membrane. J. Biol Chem 267, 2115-2118.

calmodulin-binding domain; dependent protein-kinase; amino-acid-sequence; human-erythrocyte-membrane; ion motive ATPases; light chain kinase; cell calcium-pump; human red-cells; Ca"+ pump; Ca"+ pumping ATPase.

Yanholde K.E., L&r D.E. and Robert C. (1992) What happens to nucleosomes during transcription? J. Biol Chem 267, 2837-2840.

organomercurial-agarose columns; active mammalian nucleosomes; RNA polymerase-II; core particle; histone hyperacetylation; chromatin structure; affinity-chromatography; contrasting behavior; yeast nucleosomes; 2 modes.

Noiva R. and Lemarz W.J. (1992) Protein disulfide isomerase—a multifunctional protein resident in the lumen of the endoplasmic reticulum. J. Biol Chem 267, 3553-3556.

resid; site binding-protein; luminal e-proteins; rat-liver; prolyl 4-hydroxylase; nucleotide-sequence; molecular-cloning; peptide binding; glycosylation; thioredoxin; secretion.

Piatigorsky J. (1992) Innovation associated with changes in gene regulation. J. Biol Chem 267, 4277-4280.

α-α-crystallin; tissue-specific expression; chicken β-1-crystallin gene; vertebrate lens crystallins; non-lenticular tissues; X ray-analysis; γ-crystallin; transgenic mice; B-crystallin; eye lens; gene-regulation.

Sen G.C. and Lengyl P. (1992) The interferon system—a bird’s eye view of its biochemistry. J. Biol Chem 267, 5017-5020.

IFN-γ-receptor cDNA; protein-kinase; human-cells; molecular-cloning; expression; genes; ifn; α; activation; purification.

Shabb J.B. and Corbin J.D. (1992) Cyclic nucleotide-binding domains in proteins having diverse functions. J. Biol Chem 267, 5723-5726.

gene activator protein; AMP receptor protein; Dictyostellium discoideum cells; I regulatory subunit; rod outer segments; cAMP-binding; Escherichia coli; α; predicted structures; gated channel.

Stiles G.L. (1992) Adenosine receptors. J. Biol Chem 267, 6451-6454.

dedentylate cyclase system; chronic caffeine ingestion; rat cerebral-cortex; binding subunit; photoaffinity crosslinking; A1; purification; desensitization; identification; A1-adenosine.

Valort A., Benfenati F. and Greengard P. (1992) Structure and function of the synapsins. J. Biol Chem 267, 7195-7198.

dependent protein-kinase; terminal-specific phosphoprotein; small synaptic vesicles; squid giant synapse; neurotransmitter release; nerve-terminals; mammalian brain; neuromuscular-junction; phosphorylation sites; membrane fractions.

Heinecke J.W. and Shapiro B.M. (1992) The respiratory burst oxidase of fertilization—a physiological target for regulation by protein kinase C. J. Biol Chem 267, 7959-7962.

sea-urchin eggs; treated mouse eggs; intracellular pH; inositol 1,4,5-trisphosphate; ovoperoxidase activity; binding-protein; cross-linking; activation; calcium; ionophore.

Bennett V. (1992) Adaptors between diverse plasma membrane proteins and the cytoplasm. J. Biol Chem 267, 8703-8706.

human-erythrocyte ankyrin; cell-cycle control; DNA-binding subunit; nf-kappa-b; anion-exchanger; brain ankyrin; hereditary spherocytosis; distinct sites; α-actinin; C elegans.

Yanagishita M. and Hascall V.C. (1992) Cell surface heparan sulfate proteoglycans. J. Biol Chem 267, 9451-9454.

ovarian granulosa-cells; growth-factor-β; intracellular degradation; transport; culture; nuclei; glycosaminoglycans; antithrombin; hepatocytes; metabolism.

Kajagopal K.V. and Johnson J.L. (1992) The perin molybdenum cofactors. J. Biol Chem 267, 10199-10202.

molybdopterin guanine dinucleotide; assimilatory nitrate reductase; carbon-monoxide dehydrogenase; xanthine oxidase; Escherichia coli; sulfite oxidase; Pseudomonas carboxydoflava; Neurospora mutant; biosynthesis; complementation.

Folkman J. and Shing Y. (1992) Angiogenesis. J. Biol Chem 267, 10931-10934.

fibroblast growth-factor; endothelial-cell mitogen; vascular-permeability factor; tumor necrosis factor; bovine brain; extracellular-matrix; fact; ο; neovascularization in vivo; DNA-synthesis; acidic FGF.
Journal of Carbohydrate Chemistry

Ovodov Y.S., Gurskikova R.P., Tomshieh S.V., Komandrova N.A., Zubkova V.A., Kalmykova E.N. and Isakov V.V. (1992) Chemical and immunochemical studies on lipopolysaccharides of some Yersinia species—a review of some recent investigations. J. Carbohydr. Chem. 11, 21-35.

O-specific polysaccharide; *E. coli* O-4,32 lipopolysaccharide; branched-chain sugar; side-chains; pseudotuberculosis; antigens.

Journal of Lipid Research

Segrest J.P., Jones M.K., Deloof H., Brouillette C.G., Venkatachalapathy Y.V. and Anantharamaiah G.M. (1992) The amphipathic helix in the exchangeable apolipoproteins—a review of secondary structure and function. J. Lipid Res 33, 141-166.

Downing D.T. (1992) Lipid and protein structures in the permeability barrier of mammalian epidermis—review. J. Lipid Res 33, 301-313.

Lange Y. (1992) Tracking cell cholesterol with cholesterol oxidase—review. J. Lipid Res 33, 315-319.

Dallongeville J., Lussier-Cacan S. and Davignon J. (1992) Modulation of plasma triglyceride levels by apoE phenotype—a meta-analysis—review. J. Lipid Res 33, 447-454.

Hofmann A.F. and Mysels K.J. (1992) Bile acid solubility and precipitation in vitro and in vivo—the role of conjugation, pH, and Ca²⁺ ions. J. Lipid Res 33, 617-626.

Journal of Muscle Research and Cell Motility

Williams A.J. (1992) Ion conduction and discrimination in the sarcoplasmic reticulumryanodine receptor/calcium-release channel. J. Muscle Res Cell Motil. 13, 7-26.

Miki M., Odonoghue S.I. and Dosremedios C.G. (1992) Structure of actin observed by fluorescence resonance energy transfer spectroscopy. J. Muscle Res Cell Motil. 13, 132-145.

Journal of Nutrition

Lane H.W. (1992) Energy requirements for space flight. J. Nutr. 122, 13-18.

Patel M.S. and Hiremagalur B.K. (1992) Artificial-rearing technique—its usefulness in nutrition research. J. Nutr. 122, 412-419.

Schulz A.R. (1992) Nutrient-response—a long random walk through metabolic pathways. J. Nutr. Biochem. 3, 98-103.
Sardesai V.M. (1992) Nutritional role of polyunsaturated fatty acids. *J. Nutr. Biochem.* 3, 154-166.

- α-linolenic acid; coronary heart-disease; arachidonic-acid; cholesterol levels; lipid-metabolism; young rat; deficiency; plasma; brain; requirements.

**Journal of Photochemistry and Photobiology B—Biology**

Ronto G., Toth K., Gaspar S. and Csik G. (1992) Phage nucleoprotein-psoralen interaction—quantitative characterization of dark and photo-reactions. *J. Photochem. Photobiol. B-Biol.* 12, 9-27.

- deoxyribonucleic acid photo-reactivation; protein interaction; DNA photoducts; action spectra; bacteriophage-T7; 8-methoxypsoralen; furocoumarins; derivatives; photochemotherapy; thylpsoralen; dark.

Pieron O. and Fissi A. (1992) Synthetic photochromic polypeptides—possible models for photoregulation in biology. *J. Photochem. Photobiol. B Biol.* 12, 125-140.

- azobenzene-containing poly(l-lysine); containing poly(l-glutamic acid); photoreponsive polymers; conformational-changes; side-chains; photocontrol; phytochrome; solubility; systems; light.

Sama T. (1992) Properties and function of the ocular melanin—a photosPhysiological view. *J. Photochem. Photobiol. B Biol.* 12, 215-258.

- retinal-pigment epithelium; electron-spin-resonance; photoinduced oxygen-consumption; tyrosinate-catalyzed oxidation; synthetic dopa-melanin; ion binding-sites; macular degeneration; light-damage; hydrogen-peroxide; free-radicals.

Matyas L. (1992) Fluorescence resonance energy transfer measurements on cell surfaces—a spectroscopic tool for determining protein interactions. *J. Photochem. Photobiol. B Biol.* 12, 322-337.

- fluorescence; resonances; energy-transfer; chromatin granule membranes; two-dimensional systems; phospholipid-vesicles; sarcoplasmic-reticulum; physical association; lectin receptors; flow-cytometry; 2 dimensions; tac peptide; kinase-c.

Pepe I.M. and Cugnoli C. (1992) Retinal photosenserase—role in invertebrate visual cells. *J. Photochem. Photobiol. B Biol.* 13, 5-17.

- honeybee retina; binding protein; pigment-epithelium; rhodopsin; retinochrome; squid; photomcepmrs; mgeneratiot dark; metaretinocbtnme.

Girotti A.W. (1992) Photosensitized oxidation of cholesterol in biological systems—reaction pathways, cytotoxic effects and defense mechanisms. *J. Photochem. Photobiol. B Biol.* 13, 105-118.

- single molecular-oxygen; lipid-peroxidation; glutathione-peroxidase; cell-membranes; erythocyte-membranes; photodynamic-action; sterol metabolism; product analysis; fatty-acids; hydroperoxides.

**Japanese Journal of Genetics**

Matsuura E.T. (1991) Selective transmission of mitochondrial DNA in *Drosophila*. *Jpn. J. Genet.* 66, 683-700.

- transmission; somatic-cell hybrids; thymine-rich region; maternal inheritance; nucleotide-sequence; gene organization; D-loop; heteroplasmy; melanogaster; evolution; genome.

**Lipids**

Schaich K.M. (1992) Metals and lipid oxidation—contemporary issues. *Lipids* 27, 209-218.

- oxidation; unsaturated fatty-acids; electron-spin resonance; hydrogen-peroxide; linoleic-acid; free-radicals; pulse-oxidation; amino-acids; catalyzed autoxidation; butyl hydroperoxide; transition-metals.

**Mammalian Genome**

Watson M.L., Deustachio P., Mock B.A., Steinberg A.D., Oakey R.J., Howard T.A., Rochelle J.M. and Seldin M.F. (1992) A linkage map of mouse chromosome-l using an interspecific cross segregating for the gld andacity mutation. *Mamm. Genome* 2, 158-171.

- marie-tooth neuropathy; syndrome type-ii; genetic constitution; conserved linkage; X-chromosome; Duffy locus; transition protein-1; alkaline-phosphatase; nucleotide-sequence; molecular-cloning; linkage map.

Herman G.E., Nadeau J.H. and Hardies S.C. (1992) Dispersed repetitive elements in mouse genome analysis. *Mamm. Genome* 2, 207-214.

- polymerase chain-reaction; L1 repeat family; rapid isolation; human-chromosomes; *Mus musculus*; linkage map; DNA probe; sequences; long; evolution.

**Microbial Reviews**

Ziometz R.S. and Lowry C.V. (1992) Regulation of gene expression by oxygen in *Saccharomyces cerevisiae*. *Microbiol. Rev.* 56, 1-11.

- cytochrome-c oxidase; upstream activation site; mitochondrial messenger-rna; yeast hapl activator; ribosomal-protein genes; sex determining region; DNA-binding motif; nuclear gene; glucose repression; cycl1 gene.

Winans S.C. (1992) Two-way chemical signaling in *Agrobacterium—plant interactions*. *Microbiol. Rev.* 56, 12-31.

- tumefaciens Ti-plasmid; vir gene-expression; single-stranded-DNA; crown-gall tumors; octopine synthase enhancer; transgenic tobacco plants; root-inducing plasmid; rhizogenes strain 44; opine-like compound; virulence genes.
Dowling J.N., Saha A.K. and Glew R.H. (1992) Virulence factors of the family Legionellaceae. Microbiol. Rev. 56, 32-60.

Legionnaires disease bacterium; Pittsburgh pneumonia agent; tissue-destructive proteases; major secretory protein; Pseudomonas aeruginosa elastase; outer-membrane proteins; human-monocytes inhibit; tumor necrosis factor; guinea-pig intracellular multiplication.

Lai M.M.C. (1992) RNA recombination in animal and plant viruses. Microbiol. Rev. 56, 61-79.

foot and mouth-disease virus; mouse hepatitis-virus; intertypic poliovirus recombinants; defective interfering particles; vesicular stomatitis-virus; avian coronavirus-ibv; turnip crinkle virus; genetic-recombination; murine coronavirus; crossover regions.

Schantz E.J. and Johnson E.A. (1992) Properties and use of botulinum toxin and other microbial neurotoxins in medicine. Microbiol. Rev. 56. 80-99.

complete nucleotide-sequence; rat neuromuscular-junction; Clostridium botulinum; tetanus toxin; fragment-c; Escherichia coli; a neurotoxin; light-chains; spasmodytotic; monoclonal-antibodies; medicine.

Botsford J.L. and Harman J.G. (1992) Cyclic AMP in prokaryotes. Microbiol. Rev. 56, 100-122.

Escherichia coli K12; perussis adenylate-cyclase; cAMP receptor protein; catabolite-activator protein; L-asparaginase-II; sugar phosphotransferase system; site-directed muagenesis; calmodulin-like activity; gene-regulatory protein; calcium-binding protein.

Matthews K.S. (1992) DNA looping. Microbiol. Rev. 56, 123-136.

galactose operon; Escherichia coli lac repressor; araC protein; operator interaction; lactose repressor; arabinoose operon; gene-regulation; RNA-polymerase; binding-sites.

Nishimura A., Akiyama K., Kohara Y. and Horiiuchi K. (1992) Correlation of a subset of the PLC plasmids to the physical map of Escherichia coli K12. Microbiol. Rev. 56, 137-151.

hybrid plasmids; restriction map; carrying genes; DNA-sequences; ma genes; chromosome; genome; construction; subset.

Webster R.G., Bean W.J., Gorman O.T., Chambers T.M. and Kawaoka Y. (1992) Evolution and ecology of influenza-A viruses. Microbiol. Rev. 56. 152-179.

complete nucleotide-sequence; san-in district; Hong Kong influenza; avian influenza; B virus; hemagglutinin genes; nucleoprotein gene; swine influenza; C virus; migratory waterfowl.

Lipke P.N. and Kurjan J. (1992) Sexual agglutination in budding yeasts—structure, function, and regulation of adhesion glycoproteins. Microbiol. Rev. 56, 180-194.

cell-cell recognition; a-mating-type; cerevisiae a-cells; Saccharomyces cerevisiae; Hansenula wingii; glycosyl-phophatidylinositol; ascosporogenous yeasts; molecular-cloning; division arrest; surface protein.

Silver S. and Walderhaug M. (1992) Gene regulation of plasmid-determined and chromosome-determined inorganic ion transport in bacteria. Microbiol. Rev. 56, 195-228.

Escherichia coli K12; arsenical resistance operon; Gram-negative bacteria; pmo28-encoded nickel resistance; iron-dictate transport; syringae pv tomato; nucleotide-sequence; alcaligenes-europhus; Staphylococcus aureus; phosphate regulon.

Nishimura A., Akiyama K., Kohara Y. and Horiiuchi K. (1992) Correlation of a subset of the PLC plasmids to the physical map of Escherichia coli K12. Microbiol. Rev. 56, 137-151.

hybrid plasmids; restriction map; carrying genes; DNA-sequences; ma genes; chromosome; genome; construction; subset.

Webster R.G., Bean W.J., Gorman O.T., Chambers T.M. and Kawaoka Y. (1992) Evolution and ecology of influenza-A viruses. Microbiol. Rev. 56. 152-179.

complete nucleotide-sequence; san-in district; Hong Kong influenza; avian influenza; B virus; hemagglutinin gene; nucleoprotein gene; swine influenza; C virus; migratory waterfowl.

Lipke P.N. and Kurjan J. (1992) Sexual agglutination in budding yeasts—structure, function, and regulation of adhesion glycoproteins. Microbiol. Rev. 56, 180-194.

cell-cell recognition; a-mating-type; cerevisiae a-cells; Saccharomyces cerevisiae; Hansenula wingii; glycosyl-phophatidylinositol; ascosporogenous yeasts; molecular-cloning; division arrest; surface protein.

Silver S. and Walderhaug M. (1992) Gene regulation of plasmid-determined and chromosome-determined inorganic ion transport in bacteria. Microbiol. Rev. 56, 195-228.

Escherichia coli K12; arsenical resistance operon; Gram-negative bacteria; pmo28-encoded nickel resistance; iron-dictate transport; syringae pv tomato; nucleotide-sequence; alcaligenes-europhus; Staphylococcus aureus; phosphate regulon.

Osawa S., Jukes T.H., Watanabe K. and Muto A. (1992) Recent evidence for evolution of the genetic code. Microbiol. Rev. 56, 229-264.

complete nucleotide-sequence; transfer-RNA genes; mitochondrial-transfer-RNA; Neurospora crassa mitochondria; directional mutation pressure; transfer ribonucleic-acid; isoleucine transfer-ma; coli transfer-ma; Escherichia coli; Mycoplasma capricolum.

Molecular Biology Reports

Volkenstein M.V. (1991) Structure and dynamics of proteins. Mol. Biol-Engl. Tr. 25, 690-724.

pancreatic trypsin-inhibitor; nuclear magnetic-resonance; amino-acid-sequences; globular-proteins; crystal-structure; helical protein; enzyme-activity; evolution; conformation; principles.

Molecular Biology—English Translation

Volkenstein M.V. (1991) Structure and dynamics of proteins. Mol. Biol-Engl. Tr. 25, 690-724.

pancreatic trypsin-inhibitor; nuclear magnetic-resonance; amino-acid-sequences; globular-proteins; crystal-structure; helical protein; enzyme-activity; evolution; conformation; principles.

Molecular and Cellular Biochemistry

Mao J., Regelson W. and Kalimi M. (1992) Molecular mechanism of RU-486 action—a review. Mol. Cell Biochem. 109, 1-8.

mammary-tumor virus; glucocorticoid receptor; progesterone-receptor; intact-cells; antiprogestrone; phosphorylation; binding; gene; activation; expression.

Barker P.A. and Murphy R.A. (1992) The nerve growth factor receptor—a multicomponent system that mediates the actions of the neurotrophin family of proteins. Mol. Cell Biochem. 110, 1-15.

nerve growth; factor receptor; wheat-germ-agglutinin; rat spinal-cord, sympathetic-ganglia membranes; high-affinity receptors; human-melanoma cells; human NGF receptor; pc12 cells; messenger-RNA; sensory neurons; phaeochromocytoma cells.
Molecular Cell Biology

Guo Z.S. and Depamphilis M.L. (1992) Specific transcription factors stimulate simian virus 40 and polyomavirus origins of DNA replication. *Mol. Cell Biol.* 12, 2514-2524.

Molecular Microbiology

Lohman T.M. (1992) *Escherichia coli* DNA helicases—mechanisms of DNA unwinding. *Mol. Microbiol.* 6, 5-14.

Trumbly R.J. (1992) Glucose repression in the yeast *Saccharomyces cerevisiae*. *Mol. Microbiol.* 6, 15-21.

Bischoff D.S. and Ordal G.W. (1992) Z-DNA as a probe for localized supercoiling in vivo. *Mol. Microbiol.* 6, 23-28.

Stone M.J. and Williams D.H. (1992) On the evolution of functional secondary metabolites (natural products). *Mol. Microbiol.* 6, 29-34.

Young D.B., Kaufmann S.H.E., Hermans P.W.M. and Thole J.E.R. (1992) Mycobacterial protein antigens—a compilation. *Mol. Microbiol.* 6, 133-145.

Weinstein B. and Solomon F. (1992) Microtubule assembly and phage morphogenesis—new results and classical paradigms. *Mol. Microbiol.* 6, 419-423.

March P.E. (1992) Membrane-associated GTPases in bacteria. *Mol. Microbiol.* 6, 1253-1257.

Drlica K. (1992) Control of bacterial DNA supercoiling. *Mol. Microbiol.* 6, 425-433.

Nikaido H. (1992) Porins and specific channels of bacterial outer membranes. *Mol. Microbiol.* 6, 435-442.

Okane D.J. and Prasher D.C. (1992) Evolutionary origins of bacterial bioluminescence. *Mol. Microbiol.* 6, 443-449.

Drita V.J. (1992) Co-ordinate expression of virulence genes by toxR in *Vibrio cholerae*. *Mol. Microbiol.* 6, 451-458.

Setlow P. (1992) DNA in dormant spores of *Bacillus* species is in an A-like conformation. *Mol. Microbiol.* 6, 563-567.

Rahmouni A.R. (1992) Z-DNA as a probe for localized supercoiling *in vivo*. *Mol. Microbiol.* 6, 569-572.

Weijland A., Harmark K., Cool R.H., Anborg P.H. and Parmeggiani A. (1992) Elongation factor-Tu—a molecular switch in protein biosynthesis. *Mol. Microbiol.* 6, 683-688.

Errington J. and Illing N. (1992) Establishment of cell-specific transcription during sporulation in *Bacillus subtilis*. *Mol. Microbiol.* 6, 689-695.
Dicker L.B. and Seetharam S. (1992) What is known about the structure and function of the Escherichia coli protein firA? Mol. Microbiol. 6, 817-823. 
RNA-polymerase; Salmonella typhimurium; promoter selectivity; DNA, gene, sequence, biosynthesis, sensitivity, identity, cloning.

Samson L. (1992) The suicidal DNA repair methyltransferases of microbes. Mol. Microbiol. 6, 825-831. 
non-enzymatic methylation; ada protein; Escherichia coli; adaptive response; alkylating-agents; S-adenosylmethionine; gene-product; O-6-methylguanine; expression; identification.

Nickerson K.W. and Aspedon A. (1992) Detergent-shock response in enteric bacteria. Mol. Microbiol. 6, 957-961. 
sodium dodecyl-sulfate; Escherichia coli; Enterobacter cloacae; periplasmic space; cloning; growth.

Chakerian A.E. and Matthews K.S. (1992) Effect of lac repressor oligomerization on regulatory outcome. Mol. Microbiol. 6, 963-968. 
operator DNA complex; Escherichia coli; sequence context; binding; protein; operon; spectroscopy; inducer; common. 

Raleigh E.A. (1992) Organization and function of the mcBC genes of Escherichia coli K-12. Mol. Microbiol. 6, 1079-1086. 
restriction-modification enzymes; nucleotide-sequence; modification system; DNA-binding; rglb loci; specificity; cloning; 5-methylcytosine; identification.

Miller W.T. and Schimmel P. (1992) A metal-binding motif implicated in RNA recognition by an aminocyl-transfer RNA synthetase and by a retroviral gene product. Mol. Microbiol. 6, 1259-1262. 
murine leukemia-virus; nucleocapsid protein; Escherichia coli; zinc metalloprotein; major determinant; sequence; domain; fingers; ions; identification.

Mutagenesis

Obe G., Johannes C. and Schultefrohlinde D. (1992) DNA double-strand breaks induced by sparsely ionizing radiation and endonucleases as critical lesions for cell death, chromosomal aberrations, mutations and oncogenic transformation. Mutagenesis 7, 3-12. 
hamster ovary cells; peripheral lymphocytes in vitro; Aah; restriction endonucleases; cho cells; aqueous-solution; Neurospora endonuclease; BamHI; X-rays; enzymatic restriction.

Mutation Research

Windle B.E. and Wahl G.M. (1992) Molecular dissection of mammalian gene amplification—new mechanistic insights revealed by analyses of very early events. Mutat. Res 276, 199-224. 
Chinese hamster ovary; dihydrololate reductase gene; homogeneously staining regions; sister chromatid exchange; ribosomal-RNA genes; human cell-lines; amplified N-myc; Saccharomyces cerevisiae; methotrexate resistance; DNA amplification.

Nature

Gething M.J. and Sambrook J. (1992) Protein folding in the cell. Nature 355, 33-45. 
chain binding-protein; immunoglobulin heavy-chain; ribulose bisphosphate carboxylase; glucose-regulated proteins; Escherichia coli DNA; purified precursor protein; cis-trans-isomerase; endoplasmic-reticulum; disulfide-isomerase; Saccharomyces cerevisiae.

Chyba C. and Sagan C. (1992) Endogenous production, exogenous delivery and impact-shock synthesis of organic molecules—an inventory for the origins of life. Nature 355, 125-132. 
Cretaceous-Tertiary boundary; earth primitive atmosphere; extraterrestrial amino-acids; chemical evolution; prebiotic synthesis; bolide impacts; solar-system; carbon; UV; photochemistry.

Felsenfeld G. (1992) Chromatin as an essential part of the transcriptional mechanism. Nature 355, 219-224. 
β-globin gene; dominant control region; RNA polymerase II; locus activation region; higher-order structure; silent mating loci; Saccharomyces cerevisiae; hypersensitive sites; preinitiation complexes; positioned nucleosomes.

Rothman J.E. and Orci L. (1992) Molecular dissection of the secretory pathway. Nature 355, 409-415. 
GTP-binding-protein; asparagine-linked oligosaccharides; dependent retrograde transport; sensitive fusion protein; brefeldin-A suggests; ER recycling pathway; cell-free system; acyl-coenzyme-A; endoplasmic-reticulum; Golgi stack.

Novacek M.J. (1992) Mammalian phylogeny—shaking the tree. Nature 356, 121-125. 
eutherian mammals; primates; classification; systematics; sequence; evolutionary; whales; phylogeny.

Losick R. and Stragier P. (1992) Crisscross regulation of cell-type-specific gene expression during development in B. subtilis. Nature 355, 601-604. 
duplicated sporulation genes; sigma-factor sigma-29; Bacillus subtilis; transcription factor; RNA-polymerase; endospore formation; spatial control; spore coat; protein; identification.

Babcock G.T. and Wikstrom M. (1992) Oxygen activation and the conservation of energy in cell respiration. Nature 356, 301-309. 
cytochrome-c oxidase; electron paramagnetic resonance; stretching Raman band; proton pump; Escherichia coli; Paracoccus denitrificans; ambient temperature; hydrogen peroxide; dioxygen reaction; binuclear center.

Raff M.C. (1992) Social controls on cell survival and cell death. Nature 356, 397-400. 
nerve growth-factor; mitochondrial-membrane protein; factor deprivation; liver hyperplasia; programmed death; rat-liver; c-kit; apoptosis; deletion; bel-2.

Goldberg A.L. and Rock K.L. (1992) Proteolysis, proteasomes and antigen presentation. Nature 357, 375-379. 
major histocompatibility complex; molecular-weight protease; multicatalytic protease complex; rat-liver; skeletal-muscle; dependent proteolysis; rabbit reticulocytes, 26S complex, T-cells, ubiquitin.
Compendium of reviews 1992

Miller A.D. (1992) Human gene therapy comes of age. Nature 357, 455-460.
retroviral vectors; cells; expression; virus; immunity; potent; in vivo; model.

Nucleic Acid Research

Faisst S. and Meyer S. (1992) Compilation of vertebrate-encoded transcription factors. Nucleic Acids. Res 20, 3-26.

Nucelic Acid Research

Perigaud C., Gosselin G. and Imbach J.L. (1992) Nucleoside analogues as chemotherapeutic agents—a review. Nucleos. Nucleot. 11, 903-945.

Nucleosides and Nucleotides

Nutrition Research

Hamburger R.N. (1992) General strategies for prevention of atopic disease—a review of the current state of knowledge. Nutr. Res 12, 101-107.

allergy; children; infants.

Nutrition Reviews

Lane H.W. (1992) Nutrition in space—evidence from the United States and the USSR. Nutr. Rev. 50, 3-6.

McCully K.S. (1992) Homocystinuria, arteriosclerosis, methylmalonic aciduria, and methyltransferase deficiency—a key case revisited. Nutr. Rev. 50, 7-12.

Christensen H.N. (1992) Amino acid nutrition across the placenta. Nutr. Rev. 50, 13-15.

transport; metabolism.

Baker D.H. and Wood R.J. (1992) Cellular antioxidant status and human immunodeficiency virus replication. Nutr. Rev. 50, 15-18.

replication; tumor necrosis factor; HIV; glutathione; cysteine; infectivity; mechanisms; deficiency; expression; gene; rats; antioxidants.

Franceschi R.T. (1992) Retinoic acid—morphogen or more mysteries? Nutr. Rev. 50, 19-20.

chick limb bud.

Anonymous (1992) Brain neurochemistry and macronutrient selection—a role for serotonin feedback. Nutr. Rev. 50, 21-22.

serotonin; amino-acid ratios; plasma tryptophan; protein; carbohydrate; appetite.

Anonymous (1992) Folate supplements prevent recurrence of neural tube defects. Nutr. Rev. 50, 22-24.

Anonymous (1992) FDA dietary supplement task force. Nutr. Rev. 50, 25.

Rush D. and Rosenberg I.H. (1992) Folate supplements and neural tube defects. Nutr. Rev. 50, 25-26.

Wood R.J. and Sarfaty, L. C. (1992) Gastric acidity, atrophic gastritis, and calcium absorption. Nutr. Rev. 50, 33-40.

dietary calcium; glucose; polymers; women; pH.

Field J.O. and Russell R.M. (1992) Nutrition mission to Iraq for UNICEF. Nutr. Rev. 50, 41-46.

Christensen H.H. (1992) A retrovirus uses a cationic amino acid transporter as a cell surface receptor. Nutr. Rev. 50, 47-48.

Odell B.L. (1992) Zinc plays both structural and catalytic roles in metalloproteins. Nutr. Rev. 50, 48-50.

Anonymous (1992) Position of double bond of trans isomers of linoleic acid affects fatty acid desaturation and elongation. Nutr. Rev. 50, 54-56.

Anonymous (1992) Retinoic acid, bound to its nuclear receptor, enhances the expression of the gene for phosphoenolpyruvate carboxykinase. Nutr. Rev. 50, 50-52.
Anonymous (1992) Preventing wintertime bone loss—effects of vitamin-D supplementation in healthy postmenopausal women. *Nutr. Rev.* 50, 52-54.

Anonymous (1992) Transplacental nutrient transfer and intrauterine growth retardation. *Nutr. Rev.* 50, 56-57.

Frenchechi R.T. (1992) The role of ascorbic acid in mesenchymal differentiation. *Nutr. Rev.* 50, 65-70.

Anonymous (1992) Estimating body fat in lean and obese women. *Nutr. Rev.* 50, 80-81.

Goldberg J.P. (1992) Nutrition and health communication—the message and the media over 1/2 a century. *Nutr. Rev.* 50, 71-77.

Anonymous (1992) Sweet foods and calorie consumption at meals. *Nutr. Rev.* 50, 83-85.

Anonymous (1992) Vitamin-E supplementation enhances immune response in the elderly. *Nutr. Rev.* 50, 85-87.

Young V.R. (1992) Energy requirements in the elderly. *Nutr. Rev.* 50, 95-101.

Bennish M.L. and Ronsmans C. (1992) Health and nutritional consequences of the 1991 Bangladesh cyclone. *Nutr. Rev.* 50, 102-105.

Dwyer J.T. (1992) Unproven nutritional remedies and cancer. *Nutr. Rev.* 50, 106-109.

Broquist H.P. (1992) Buthionine sulfoximine, an experimental tool to induce glutathione deficiency—elucidation of glutathione and ascorbate in their role as antioxidants. *Nutr. Rev.* 50, 110-111.

Anonymous (1992) Choline—a conditionally essential nutrient for humans. *Nutr. Rev.* 50, 112-114.

Anonymous (1992) Gender differences in immune competence during copper deficiency. *Nutr. Rev.* 50, 114-116.

Anonymous (1992) Interspecies differences in folate metabolism. *Nutr. Rev.* 50, 116-118.

Nutrition

Silk D.B.A. and Grimble G.K. (1992) Relevance of physiology of nutrient absorption to formulation of enteral diets. *Nutrition* 8, 1-12.

Rose D.P. (1992) Dietary fiber, phytoestrogens, and breast cancer. *Nutrition* 8, 47-51.

Guggenheim K.Y. (1992) First lines of physiology—prospective overview. *Nutrition* 8, 65-66.

Vellas B., Baumgartner R.N., Wayne S.J., Conceicao J., Lafont C., Alberede J.L. and Garry P.J. (1992) Relationship between malnutrition and falls in the elderly. *Nutrition* 8, 105-108.
Compendium of Reviews 1992

Oncogene
Cooper C.S. (1992) Mini review—the met oncogene—from detection by transfection to transmembrane receptor for hepatocyte growth factor. Oncogene 7, 3-7.

protein tyrosine kinase; cystic-fibrosis locus; human cell-line; molecular-cloning; scatter factor; mung-hos; activation; gene; rearrangement; expression.

Plant Cell
Verma D.P.S. (1992) Signals in root nodule organogenesis and endocytosis of Rhizobium. Plant Cell 4, 373-382.
peribacteroid membrane; glycine-max; soybean nodules; cell-division; M-phase; gene; protein; compartment; nodulation; expression.

Photochemistry and Photobiology
Henderson B.W. and Dougherty T.J. (1992) How does photodynamic therapy work? Photochem. Photobiol. 55, 145-157.
Chinese hamster cells; hematoporphyrin derivative photoisomerization; light dose dependence; photofrin II; porphyrin photosensitization; skin photosensitivity; biological-activities; singlet oxygen; chloroaluminate phthalocyanine; sulfonated phthalocyanine.

Plasmid
Silver S. (1992) Plasmid-determined metal resistance mechanisms—range and overview. Plasmid 27, 1-3.

Process Biochemistry International
Groot W.J., Vanderlans R.G.J.M. and Luyben K.C.A.M. (1992) Technologies for butanol recovery integrated with fermentations. Process. Biochem. 27, 61-75.
fluidized-bed reactor; lift loop reactor; isopropanol batch fermentation; Clostridium acetobutylicum; extractive fermentation; ethanol fermentation; product recovery; whey permeate; IBE process; economic-evaluation.

Pandey A. (1992) Recent process developments in solid-state fermentation. Process. Biochem. 27, 109-117.
sugar-beet pulp; β-glucosidase production; Trichoderma viride Ts; controlled gas environments; Bacillus licheniformis m27; steamed rice grains; water activity; Aspergillus niger; substrate fermentations; wheat straw.

Sudhakaran V.K., Deshpande B.S., Ambedkar S.S. and Shewale J.G. (1992) Molecular aspects of penicillin and cephalosporin acylases. Process. Biochem. 27, 131-143.
complete nucleotide-sequence; Escherichia coli ATCC11105; Kluyvera citrophila; Pseudomonas strain; Bacillus sphaericus; ampicillin acylase; common precursor; Proteus retigeri; pro-sequence; 2 subunits.

Palmer G.H. (1992) Sorghum—food, beverage and brewing potentials. Process. Biochem. 27, 145-153.

Progress in Biophysics and Molecular Biology
Lowe D.J. (1992) ENDOR and EPR of metalloproteins. Prog. Biophys. Mol. Biol 57, 1-22.
nuclear double-resonance; electron-paramagnetic resonance; cytochrome-c peroxidase; molybdenum-iron proteins; nitrogenase mofE protein; sulfite reductase; free-radical site; Klebsiella pneumoniae; Azotobacter vinelandii; hyperfine interactions.

Urry D.W. (1992) Free energy transduction in polypeptides and proteins based on inverse temperature transitions. Prog. Biophys. Mol. Biol 57, 23-57.
entropic elastic processes; sequential polypeptides; synthetic polypeptides; fiber formation; NMR relaxation; messenger-RNA; polypeptidease: coacervation: tropocollagen: dynamics.

Wallace B.A. (1992) Crystallographic studies of a transmembrane ion channel, gramicidin-A. Prog. Biophys. Mol. Biol 57, 59-69.
nuclear magnetic-resonance; phospholipid-vesicles; bilayer membranes; crystal-structure; energy-transfer; cesium complex; conformation; conductance; diffraction; binding.

Welch G.R. (1992) An analogical field construct in cellular biophysics—history and present status. Prog. Biophys. Mol. Biol 57, 71-128.
nonstationary electric-fields; sequential metabolic enzymes; free-energy; biological-systems; protein fluctuations; aqueous cytoplasm; dielectric theory; living systems; thermodynamics; mechanisms.

Martel P. (1992) Biophysical aspects of neutron scattering from vibrational modes of proteins. Prog. Biophys. Mol. Biol 57, 129-179.
pancreatic trypsin-inhibitor; low-frequency vibrations; time-of-flight; liquid glass-transition; hinge-bending mode; biological functions; globular protein; temperature-dependence; allosteric transition; supercooled liquids.
Dulhunty A.F. (1992) The voltage-activation of contraction in skeletal muscle. *Prog. Biophys. Mol. Biol* 57, 181-223.
calcium-release channel; sarcoplasmic-reticulum membranes; transverse tubule membranes; purified tyramine receptor; junctional foot protein; fast-twitch muscle; intramembrane charge movement; extensor digitorum longus; cardiac Purkinje-fibers; Ca\(^2\) release.

**Progress in Lipid Research**

Cinti D.L., Cook L., Nagi M.N. and Suneja S.K. (1992) The fatty acid chain elongation system of mammalian endoplasmic reticulum. *Prog. Lipid Res* 31, 1-51.
rat-liver microsomes; swine cerebral microsomes; acyl-coenzyme A; very-long-chain; mouse-brain microsomes; enoyl-CoA hydratase; peroxisomal bifunctional protein; cultured skin fibroblasts; lipid-lowering agents; \(\beta\)-oxidation system.

Hetherington A.M. and Drobak B.K. (1992) Inositol-containing lipids in higher plants. *Prog. Lipid Res* 31, 53-63.
phosphophoinositide phospholipase-c; activated protein-kinase; plasma-membrane; signal transduction; phosphatidylinositol monophosphate; endoplasmic-reticulum; guanine-nucleotides; H\(^-\)ATPase; oat roots; cells.

Snyder F., Lee T.C. and Blank M.L. (1992) The role of transacylases in the metabolism of arachidonate and platelet activating factor. *Prog. Lipid Res* 31, 65-86.
lysolecithin-lysolecithin acyltransferase; rabbit alveolar macrophages; myocardial lysophospholipase-transacylase; aortic endothelial-cells; cultured neuro-blastoma; heart-muscle microsomes; precursor fatty-acids; rat-brain microsomes; guinea-pig heart; fish oil diet.

Kays K. (1992) Chemistry and biochemistry of taurine lipids. *Prog. Lipid Res* 31, 87-108.
*Tetrahymena pyriformis* NT fatty-acid; lipid-composition; temperature-acclimation; membrane; cells; identification; thermophila; sphingolipids; biosynthesis.

**Progress in Nucleic Acid Research and Molecular Biology**

Carlson D.M., Zhou J. and Wright P.S. (1992) Molecular structure and transcriptional regulation of the salivary gland proline-rich protein multigene families. *Progress in Nucleic Acid Research and Molecular Biology* 41, 1-22.
human-parotid saliva; isoproterenol-treated rats; unusual growth-inhibition; cyclic-AMP; glycoprotein-synthesis; submandibular glands; nucleotide-sequence; repeat sequences; serous cells; gene; molecular-structure.

Schulman L.H. (1992) Recognition of transfer RNAs by aminoseryl-transfer RNA synthetases. *Progress in Nucleic Acid Research and Molecular Biology* 41, 23-87.
tyrosyl-transfer-RNA; formylmethionine transfer-RNA; phenylalanine transfer-RNA; transfer ribonucleic-acid; anticondon loop size; post-transcriptional modification; causes missense suppression; site-directed mutagenesis; simple structural feature; coli transfer RNA-2-Gin.

Raue H.A. and Planta R.J. (1992) Ribosome biogenesis in yeast. *Progress in Nucleic Acid Research and Molecular Biology* 41, 89-129.
RNA-polymerase-ii; *Escherichia coli* ribosomes; autonomously replicating sequences; upstream activation sites; DNA-binding protein; small nuclear-RNA; external transcribed spacer; Saccharomyces cerevisiae; Xenopus laevis; messenger-RNA.

Chastain M. and Tampa I. (1992) Structural elements in RNA. *Progress in Nucleic Acid Research and Molecular Biology* 41, 131-177.
nuclear magnetic-resonance; 16S ribosomal-RNA; yeast phenylalanine transfer-RNA; transcription factor-III; higher-order structure; restrained molecular-dynamics; fluorescence energy-transfer; site-directed mutagenesis; single-base mismatches.

Keene J.D. and Query C.C. (1992) Nuclear RNA-binding proteins. *Progress in Nucleic Acid Research and Molecular Biology* 41, 179-202.
helix-stabilizing protein; ribonucleoprotein consensus sequence; drosophila sex determination; phenylalanine transfer-RNA; amino-acid sequence; messenger-RNA; u1 RNA; nmp protein; *Escherichia coli*; rev protein.

Hamlin J.L., Leu T.H., Vaughn J.P., Ma C. and Dijkwel P.A. (1992) Amplification of DNA sequences in mammalian cells. *Progress in Nucleic Acid Research and Molecular Biology* 41, 203-239.
Chinese hamster ovary; dihydrofolate reductase gene; factor receptor gene; resistant mouse cells; human-breast carcinomas; homogeneously staining regions; double minute chromosomes; multiple-drug resistance; human-colon carcinomas; c-myc amplification.

Sutcliffe J.G. and Travis G.H. (1992) Molecular-biology approaches to genetic defects of the mammalian nervous system. *Progress in Nucleic Acid Research and Molecular Biology* 41, 241-258.
rds mutant mice; myelin basic-protein; cystic-fibrosis gene; subtractive cDNA cloning; degeneration slow rds; messenger-RNA; retinal degeneration; outer segments; rat-brain; mouse; genetics.

Bloemendal H. and Dejong W.W. (1992) Lens proteins and their genes. *Progress in Nucleic Acid Research and Molecular Biology* 41, 259-281.
\(\alpha\)-\(\alpha\)-crystallin; heat-shock proteins; tissue-specific expression; frog *Rana temporaria*; complete nucleotide-sequence; non-lenticular tissues; recombinant DNA clone; \(\beta\)-crystallin; \(\gamma\)-crystallin; \(\delta\)-crystallin.
Quarterly Reviews of Biophysics

Kuhlbrandt W. (1992) Two-dimensional crystallization of membrane proteins. *Q. Rev. Biophys.* 25, 1-49.

chlorophyll-a, B-protein; two-dimensional crystals; photosynthetic reaction center; cryo-electron microscopy; cytochrome-c reductase; outer membranes; 3-dimensional structure; purple membrane; *Rhodopsseudomonas viridis*; *Escherichia coli*.

Nordén B., Kubista M. and Kurucsey T. (1992) Linear dichroism spectroscopy of nucleic acids. *Q. Rev. Biophys.* 25, 51-170.

transition-moment directions; transient electric dichroism; single-stranded-DNA; magnetic circular-dichroism; fiber X-ray; polarized light spectroscopy; benz[a]pyrene diol epoxide; field gel electrophoresis; angle neutron scattering; stretched polymer sheets; linear dichroism.

Theoretical and Applied Genetcs

Hormaza J.I. and Herrero M. (1992) Pollen selection. *Theor. Appl. Genet.* 83, 663-672.

heat-shock promoters; *Zea mays* I; *Mimulus guttatus Scrophulariaceae; Silene dioica Caryophyllaceae; Lycopersicon esculentum Mill*; gametophytic gene-expression; *Brassica napus* I; tube growth; metal tolerance; messenger-RNAs.

Trends in Biochemical Sciences

Morse R.H. (1992) Transcribed chromatin. *Trends Biochem. Sci.* 17, 23-26.

RNA polymerase II; nucleosome structure; reversible changes; c-fos; DNA; *in vivo*; *in vitro*; initiation; genes; dissolution.

Hopkins C.R. (1992) Selective membrane protein trafficking—vectorial flow and filter. *Trends Biochem. Sci.* 17, 27-32.

mannose 6-phosphate receptor; epidermal growth-factor; cytoplasmic domain; transferrin receptor; epithelial-cells; plasma membrane; endocytosis; localization; internalization; transport.

Abeijon C. and Hirschberg C.B. (1992) Topography of glycosylation reactions in the endoplasmic reticulum. *Trends Biochem. Sci.* 17, 32-36.

hamster ovary cells; phosphate N-acetylglucosamine-1-phosphate transferase; N-glycosylation; protein glycosylation; yeast gene; mannose synthase; lipid synthesis; membrane; glycoproteins; biosynthesis.

Collins S., Caron M.G. and Lefkowitz R.J. (1992) From ligand binding to gene expression—new insights into the regulation of O-protein-coupled receptors. *Trends Biochem. Sci.* 17, 37-39.

induced up-regulation; β-2-adrenergic receptor; distinct pathways; down-regulation; messenger-RNA; phosphorylation; cAMP; desensitization; transcription; gonadotropin.

McGrane M.M., Yun J.S., Patel Y.M. and Hanson R.W. (1992) Metabolic control of gene expression—*in vivo* studies with transgenic mice. *Trends Biochem. Sci.* 17, 40-44.

phosphoenolpyruvate carboxykinase GTP; diet-induced hypercholesterolemia; promoter-regulatory region; tissue-specific expression; enhancer-binding-protein; pyruvate-kinase gene; rat-liver; messenger-RNA; 6-phosphofructo-2-kinase fructose 2,6-bisphosphate; transcriptional regulation.

Barber J. and Andersson B. (1992) Too much of a good thing—light can be bad for photosynthesis. *Trends Biochem. Sci.* 17, 61-66.

reaction center; photosystem II; D1-protein degradation; protein-synthesis; photoinhibition; membrane; chloroplasts; inhibition; enzyme.

Browner M.F. and Fletterick R.J. (1992) Phospholipase—a biological transducer. *Trends Biochem. Sci.* 17, 66-71.

muscle glycogen-phosphorylase; α-glucan phosphorylase; complete cDNA sequence; rabbit muscle; human-liver; regulatory sites; t-stat; glucose; cloning; purification.

Hilton D.J. (1992) LIF—lots of interesting functions. *Trends Biochem. Sci.* 17, 72-76.

leukemia-inhibitory factor; hepatocyte-stimulating factors; stem-cells; differentiation; murine; gene; mice.

Hedges P. and Scott J. (1992) Apolipoprotein-B messenger RNA editing—a new tier for the control of gene expression. *Trends Biochem. Sci.* 17, 77-81.

unwinding activity; stop codon; rat liver; sequence; cells; nucleoside; anticodon; deaminase; inosine.

Sandermann H. (1992) Plant metabolism of xenobiotics. *Trends Biochem. Sci.* 17, 82-84.

cell-suspension cultures; S-transferase isozymes; sequence-analysis; glutathione; cytochrome-p-450; glucoside; acid; malonyltransferases; identification; purification.

Higaki J.N., Fletterick R.J. and Craik C.S. (1992) Engineered metalloregulation in enzymes. *Trends Biochem. Sci.* 17, 100-104.

ion affinity-chromatography; metal-ions; recombinant proteins; corine deaminase; dicysteine bond; actinase-ain; tropomin C; histidine; purification; derivatives.

Vincent J.B., Crowder M.W. and Averill B.A. (1992) Hydrolysis of phosphate monoesters—a biological problem with multiple chemical solutions. *Trends Biochem. Sci.* 17, 105-110.

alkaline-phosphatase; acid phosphatases; stereochemistry.

Blank V., Kourilsky P. and Israel A. (1992) NF-kappaB and related proteins—rel/dorsal homologies meet ankyrin-like repeats. *Trends Biochem. Sci.* 17, 135-140.

cell-cycle control; DNA-binding subunit; class I genes; product; expression; oncogene; contains; cloning; notch; kb11.

Krieger M. (1992) Molecular flypaper and atherosclerosis—structure of the macrophage scavenger receptor. *Trends Biochem. Sci.* 17, 141-146.

low-density-lipoprotein; mouse peritoneal-macrophages; coiled coils; identification; cholesterol; metabolism; expression; protein; binding.
Lenard J. (1992) Mammalian hormones in microbial cells. *Trends Biochem. Sci.* 17, 147-150.

Wall-less strain; estradiol-binding proteins; *Neurospora crassa*; *Paracoccidioides brasiliensis*; *Tetrahymena pyriformis*; insulin; metabolism; gonadotropin; receptor; glycos.

Simin I. (1992) Herbicide binding in the bacterial photosynthetic reaction center. *Trends Biochem. Sci.* 17, 150-154.

Photosystem II; *Rhodopseudomonas viridis*; thylakoid membrane; purple bacterium; protein; plastoquinone; competition; resistance; inhibitors.

Jenne D.E. and Tschopp J. (1992) Clusterin—the intriguing guises of a widely expressed glycoprotein. *Trends Biochem. Sci.* 17, 154-159.

Monoclonal-antibody hist-19; rat ventral prostate; ret estiis fluid; sulfated glycoprotein-2; Sertoli cells; chromaffin granules; serum protein-40,40; structural-analysis; molecular-cloning; apolipoprotein-I.

Moras D. (1992) Structural and functional relationships between aminocyl-transfer RNA synthetases. *Trends Biochem. Sci.* 17, 159-164.

*Escherichia coli*; 3-dimensional structure; ATP; mechanisms; resolution; homology; protein; tyrosyl; site; aminocyl-transfer-RNA.

Darr S.C., Brown J.W. and Pace N.R. (1992) The varieties of ribonuclease P. *Science.* 258, 976-983.

Czech M.P., Clancy BM., Pessino A., Woon C.W. and Harrison S.A. (1992) Complex regulation of simple sugar transport in insulin-responsive cells. *Trends Biochem. Sci.* 17, 197-201.

Sugar-transport; rat adipose-cells; glucose transporters; 3T3-L1 adipocytes; hexose-transport; stimulation; surface; translocation; membrane; phosphorylation; isoforms.

**Trends in Genetics**

Wright A.F. (1992) New insights into genetic eye disease. *Trends Genet.* 8, 85-91.

Dominant *retinitis pigmentosa*; retinal degeneration; photoreceptor cells; molecular-genetics; rhodopsin gene; Rd mouse; choroeroiderias; deletions; deafness; Xqa21.

Prendergast G.C. and Ziff E.B. (1992) A new bind for myc. *Trends Genet.* 8, 91-96.

DNA-binding; activates transcription; protein; dimerization; motif; myod; transformation; preferences; contains; dimer.

Rosen V. and Thies R.S. (1992) The BMP proteins in bone formation and repair. *Trends Genet.* 8, 97-102.

Growth-factor-β; Tgf-β; Xenopus; identification; induction; family; bovine; gene.

Grandbastien M.A. (1992) Retroelements in higher plants. *Trends Genet.* 8, 103-108.

Transposable element; Arabidopsis thaliana; Lilium henryi; DNA-sequence; pea major; family; retrotransposon; evolution; genome; maize.

Hake S. (1992) Unraveling the knots in plant development. *Trends Genet.* 8, 109-114.

Dominant morphological mutant; transcription factors; maize; gene; protein; homeodomain; morphogenesis; antennapedia; transposon; mutations.

Andres A.J. and Thummel C.S. (1992) Hormones, puffs and flies—the molecular control of metamorphosis by cecdysone. *Trends Genet.* 8, 132-138.

Imaginal disc morphogenesis; sequential gene activation; larval salivary-gland; Drosophila melanogaster; alcohol-dehydrogenase; poltene chromosomes; ecdysteroid titers; regulated gene; *Manduca sexta*; expression.

Vulliamy T., Mason P. and Luzzatto L. (1992) The molecular basis of glucose 6-phosphate dehydrogenase deficiency. *Trends Genet.* 8, 138-143.

*Plasmodium falciparum*; nucleotide-sequence; point mutations; red-cells; gene; expression; cDNA; malaria; cloning; enzyme.

Buckingham M. (1992) Making muscle in mammals. *Trends Genet.* 8, 144-149.

Skeletal-muscle; neural control; mouse embryo; myod family; expression; gene; embryogenesis; myogenin; member; onset.

Kuwabara P.E. and Kimble J. (1992) Molecular genetics of sex determination in *C. elegans*. *Trends Genet.* 8, 164-168.

Post-embryonic development; cycle control proteins; dosage compensation; cell lineages; *Drosophila*; spermatogenesis; hemaphrodite; mutations; tra-1.

Riggs A.D. and Pfeifer G.P. (1992) X-chromosome inactivation and cell memory. *Trends Genet.* 8, 169-174.

Position-effect variegation; DNA methylation; gene-expression; CpG island; replication; chromatin; in vitro; inheritance; *Drosophil*; heterochromatin.

Banerji F. (1992) *Usilago maydis*, the delightful blight. *Trends Genet.* 8, 174-180.

Conjugation tube formation; *Saccharomyces cerevisiae*; *Tremella mesenterica*; DNA; gene; homeodomain; proteins; allele; binding; locus.
Hamel P.A., Gallie B.L. and Phillips R.A. (1992) The retinoblastoma protein and cell cycle regulation. *Trends Genet.* 8, 180-185.

large-T-antigen; SV40 large-T; susceptibility gene; rbl gene; binding; product; mutations; identification; expression; differentiation.

Campuzano S. and Modolell J. (1992) Patterning of the *Drosophila* nervous system—the achaete-scute gene complex. *Trends Genet.* 8, 202-208.

sensory organ development; lateral inhibition; neurogenesis; expression; embryos; extramacrochaetae; protein; locus; DNA.

Klar A.J.S. (1992) Developmental choices in mating-type interconversion in fission yeast. *Trends Genet.* 8, 208-213.

mating-type; yeast; interconversion; fission; fission yeast; *Schizosaccharomyces pombe*; cell lineage; DNA strands; homolog; cassettes; asymmetry; pattern; directionality; transposition; recombination.

Frank S.A. (1992) Models of plant-pathogen coevolution. *Trends Genet.* 8, 213-219.

*Ustilago violacea*; rust fungus; resistance; population; selection; dynamics; disease; gene; reproduction; evolution.

**Tumor Biology**

Chammas R. and Brentani R. (1991) Integrins and metastases—an overview. *Tumor Biol* 12, 309-320.

murine melanoma-cells; reconstituted basement-membrane; fibronectin-receptor complex; laminin-binding-protein; tumor-cells; surface galactosyltransferase; adhesion molecules; breast-cancer; carbohydrate chains; leukocyte integrins.