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1593 Frontiers in Biotechnology

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1643 Recent Advances in the Polymerase Chain Reaction: H. A. ERLICH, D. GELFAND, J. J. SINSKY
1657 Monoclonal Antibodies in Diagnosis and Therapy: T. A. WALDMANN
1662 Vaccinia Virus: A Tool for Research and Vaccine Development: B. MOSS
1668 Toward a Science of Metabolic Engineering: J. E. BAILEY
COVER Inspired by Leonardo da Vinci’s “Proportions of the Human Figure According to Vitruvius,” the cover image symbolizes that the creativity of scientists is at the center of technological advances. Scientists’ curiosity about biological processes has often led to discoveries that proved useful for biotechnology. One-half of the figure’s appendages are robot-like, showing that technology is an extension of its creator. The figure holds a flask of microorganisms, an antibody, and oligonucleotide primers, representing some of the tools of biotechnology discussed in this issue; the fistful of dollars signifies the entrepreneurial aspect of biotechnology. See pages 1643 to 1681. [Illustration by Julie Cherry]

1675 Network Rigidity and Metabolic Engineering in Metabolite Overproduction: G. STEPHANOPoulos and J. J. VALLINO

Research Article

1682 Class II Aminoacyl Transfer RNA Synthetases: Crystal Structure of Yeast Aspartyl-tRNA Synthetase Complexed with tRNA^Asp: M. RUFF, S. KRISHNASWAMY, M. BOEGLIN, A. POTERSZMAN, A. MITSCHLER et al.

Reports


1693 Identification of Widespread Pollution in the Southern Hemisphere Deduced from Satellite Analyses: J. FISHMAN, K. FAHRUZZAMAN, B. CROS, D. NGANGA

1696 Identity Elements for Specific Aminoacylation of Yeast tRNA^{Asp} by Cognate Aspartyl-tRNA Synthetase: J. PUTZ, J. D. PUGLISI, C. FLORENTZ, R. GIEGE

1700 Prevention of Xenograft Rejection by Masking Donor HLA Class I Antigens: D. FAUSTMAN and C. COE


1705 Requirement of Heparan Sulfate for bFGF-Mediated Fibroblast Growth and Myoblast Differentiation: A. C. RAPRAEGER, A. KRUFKA, B. B. OLWIN

1708 Identification of p53 as a Sequence-Specific DNA-Binding Protein: S. E. KERN, K. W. KINZLER, A. BRUSKIN, D. JAROSZ, P. FRIEDMAN, C. PRIVES, B. VOGELSTEIN


1715 Structural Determinants of Ion Flow Through Recombinant Glutamate Receptor Channels: T. A. VERDOORN, N. BURNASH, H. MONYER, P. H. SEEBURG, B. SAKMAN

1718 Facilitation of the Induction of Long-Term Potentiation by GABA_B Receptors: D. D. MOTT and D. V. LEWIS

Book Reviews

1727 The Invisible Hand, reviewed by L. G. NEUBERG • The Creation of the Anglo-Australian Observatory, R. W. SMITH • The Physics of Musical Instruments, D. E. HALL • Combustion, O. I. SMITH • Books Received

Products & Materials

1731 Transgenic Mice • Organics Removal and Concentration Kit • Configurations Adapter for 3-D Imaging • Primer Design Software • DNA and Protein Sequence Analysis Software Updated • Dot Blotter • Visual Comparison of Chromatograms • Literature