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## CONTENTS OF VOLUME 123

---

No. 1, January, 1998

	PAGE
<b>JB Reviews</b>	
New Types of Clotting Factors and Defense Molecules Found in Horseshoe Crab Hemolymph: Their Structures and Functions	S. Iwanaga, S. Kawabata, and T. Muta 1
Metalloid Resistance Mechanisms in Prokaryotes	C. Xu, T. Zhou, M. Kuroda, and B.P. Rosen 16
<b>Rapid Communication</b>	
Long-Range Effect of Mutation of Calcium Binding Aspartates on the Catalytic Activity of Alkaline Protease from <i>Pseudomonas aeruginosa</i>	Y. Miyajima, Y. Hata, J. Fukushima, S. Kawamoto, K. Okuda, Y. Shibano, and K. Morihara 24
<b>Regular Papers</b>	
Defect in an Intrahepatic Degradation of Apolipoprotein B in Suncus: An Animal Model of Hypobetalipoproteinemia	Y.-Q. Liang, M. Kinoshita, T. Muto, Y. Fujimaki, N. Matsuki, H. Saito, M. Yamanaka, and T. Teramoto 28
Nonadditive Effects of Double Mutations at the Flexible Loops, Glycine-67 and Glycine-121, of <i>Escherichia coli</i> Dihydrofolate Reductase on Its Stability and Function	E. Ohmae, K. Iriyama, S. Ichihara, and K. Gekko 33
Aluminum Taken Up by Transferrin-Independent Iron Uptake Affects the Iron Metabolism in Rat Cortical Cells	S. Oshiro, M. Kawahara, S. Mika, K. Muramoto, K. Kobayashi, R. Ishige, K. Nozawa, M. Hori, C. Yung, S. Kitajima, and Y. Kuroda 42
Cloning and Expression of Human Adenylate Kinase 2 Isozymes: Differential Expression of Adenylate Kinase 1 and 2 in Human Muscle Tissues	Y. Lee, J.W. Kim, S.M. Lee, H.J. Kim, K.S. Lee, C. Park, and I.S. Choe 47
Interaction of Glucagon with Dimyristoylphosphatidylcholine in Vesicular and Discoidal Complexes	K.-S. Ryu, H.-S. Han, and H. Kim 55
Solution Structure of CINC/Gro Investigated by Heteronuclear NMR	H. Hanzawa, H. Haruyama, K. Konishi, K. Watanabe, and S. Tsurufuji 62
Role of the Kringle Domain in Plasminogen Activation with Staphylokinase	K. Arai, S. Madoiwa, J. Mimuro, S. Asakura, M. Matsuda, T. Sako, and Y. Sakata 71
Stability of the C-Terminal $\alpha$ -Helical Domain of Bacteriorhodopsin That Protrudes from the Membrane Surface, as Studied by High-Resolution Solid-State $^{13}\text{C}$ NMR	S. Yamaguchi, S. Tuzi, T. Seki, M. Tanio, R. Needleman, J.K. Lanyi, A. Naito, and H. Saitô 78
High Pressure Induces G2 Arrest in Murine Erythroleukemia Cells	M. Matsumoto, T. Yamaguchi, Y. Fukumaki, R. Yasunaga, and S. Terada 87
Cloning and Expression of a Marine Bacterial $\beta$ -Galactoside $\alpha$ 2,6-Sialyltransferase Gene from <i>Photobacterium damsela</i> JT0160	T. Yamamoto, M. Nakashizuka, and I. Terada 94
Integrin-Associated Protein (IAP, Also Termed CD47) Is Involved in Stroma-Supported Erythropoiesis	T. Furusawa, N. Yanai, T. Hara, A. Miyajima, and M. Obinata 101
Inhibition of Pancreatic Elastase by Sulfated Lipids in the Intestinal Mucosa	N. Ito, Y. Iwamori, K. Hanaoka, and M. Iwamori 107

	PAGE
A Two-Dimensional <sup>1</sup> H Detected <sup>13</sup> C NMR Investigation of Pyruvate Metabolism in <i>Halobacterium salinarium</i>	A. Majumdar and H.M. Sonawat 115
Ku Antigen Binds to <i>Alu</i> Family DNA	T. Tsuchiya, Y. Saëgusa, T. Taira, T. Mimori, S.M.M. Iguchi-Arigo, and H. Arigo 120
Mechanism of Mitochondrial Import of Adenylate Kinase Isozymes	M. Nobumoto, M. Yamada, S. Song, S. Inouye, and A. Nakazawa 128
Calcium Ion-Dependent Reactivation of a <i>Pseudomonas</i> Lipase by Its Specific Modulating Protein, LipB	H. Shibata, H. Kato, and J. Oda 136
Modulation of Platelet Activating Factor-Induced Glycogenolysis in the Perfused Rat Liver after Administration of Endotoxin <i>In Vivo</i>	K. Kimura, M. Moriyama, M. Nishisako, Y. Kannan, M. Shiota, K. Sakurada, M. Musashi, and T. Sugano 142
Small-Angle X-Ray Scattering and Computer-Aided Molecular Modeling Studies of 20 kDa Fragment of Porcine Amelogenin: Does Amelogenin Adopt an Elongated Bundle Structure?	N. Matsushima, Y. Izumi, and T. Aoba 150
Expression of a Synthetic Gene for Initiation Factor 4E-Binding Protein 1 in <i>Escherichia coli</i> and Its Interaction with eIF-4E and eIF-4E·m <sup>7</sup> GTP Complex	N. Nishi, S. Morino, K. Tomoo, T. Youtani, and T. Ishida 157
Expression and Characterization of Dog CYP2D15 Using Baculovirus Expression System	T. Tasaki, A. Nakamura, S. Itoh, K. Ohashi, Y. Yamamoto, M. Masuda, H. Iwata, A. Kazusaka, T. Kamataki, and S. Fujita 162
Fluorescein 5'-Isothiocyanate-Modified Na <sup>+</sup> ,K <sup>+</sup> -ATPase, at Lys-501 of the $\alpha$ -Chain, Accepts ATP Independent of Pyridoxal 5'-Diphospho-5'-Adenosine Modification at Lys-480	T. Tsuda, S. Kaya, H. Funatsu, Y. Hayashi, and K. Taniguchi 169
Identification of Minimal oriP of Epstein-Barr Virus Required for DNA Replication	M. Shirakata and K. Hirai 175
Specificities and Rates of Binding of Anti-(6-4) Photoproduct Antibody Fragments to Synthetic Thymine Photoproducts	H. Kobayashi, H. Morioka, T. Torizawa, K. Kato, I. Shimada, O. Nikaido, and E. Ohtsuka 182
Purification and Some Properties of a Hepatic NADPH-Dependent Reductase That Specifically Acts on 1,5-Anhydro-D-Fructose	M. Sakuma, S. Kametani, and H. Akanuma 189
<b>Correction</b>	194

### No. 2, February, 1998

#### JB Review

Proteasomes: Structure and Biology	K. Tanaka 195
------------------------------------	---------------

#### Regular Papers

ATP-Mediated Activation of Ca <sup>2+</sup> -Independent Phospholipase A <sub>2</sub> in Secretory Granular Membranes from Rat Parotid Gland	M. Mizuno-Kamiya, Y. Kameyama, K. Yashiro, and A. Fujita 205
Protective Effect of Linoleic Acid on IFN $\gamma$ -Induced Cellular Injury in Primary Culture Hepatocytes	J.F. Liang and T. Akaike 213
Purification and Some Characteristics of Phosphatase of a Psychrophile	H. Tsuruta, S.T. Tsuneta, Y. Ishida, K. Watanabe, T. Uno, and Y. Aizono 219
Suppression of Thermotolerance Development through Cycloheximide-Induced Negative Control of Stress Protein Gene Expression	H. Akagawa, A. Ishii, and S. Mizuno 226

	PAGE
Hypotonically Loaded Rat Erythrocytes Deliver Encapsulated Substances into Peritoneal Macrophages	233
	F.J. Alvarez, J.A. Jordán, A. Herráez, J.C. Díez, and M.C. Tejedor
Disaccharide Analysis of Heparin and Heparan Sulfate Using Deaminative Cleavage with Nitrous Acid and Subsequent Labeling with Paranitrophenyl Hydrazine	240
	Y. Kariya, J. Herrmann, K. Suzuki, T. Isomura, and M. Ishihara
Purification and Characterization of a Puromycin-Hydrolyzing Enzyme from Blastocidin S-Producing <i>Streptomyces morookaensis</i>	247
	M. Nishimura, H. Matsuo, A. Nakamura, and M. Sugiyama
L-Kynurenine 3-Monooxygenase from Mitochondrial Outer Membrane of Pig Liver: Purification, Some Properties, and Monoclonal Antibodies Directed to the Enzyme	253
	T. Uemura and K. Hirai
Quantification of Sphingosine Derivatives in Human Platelets: Inducible Formation of Free Sphingosine	263
	N. Hisano, Y. Yatomi, M.A. Fujino, Y. Igarashi, S. Kume, and Y. Ozaki
Temperature Effects on the Structural and Functional Properties of GPI-Anchored and Anchor-Less Bull Seminal Plasma Ecto-5'-Nucleotidase	269
	C. Fini, M. Coli, A. Floridi, S.D'Auria, M. Staiano, R. Nucci, and M. Rossi
Conversion of Neopullulanase- $\alpha$ -Amylase from <i>Thermoactinomyces vulgaris</i> R-47 into an Amylopullulanase-Type Enzyme	275
	A. Ibuka, T. Tonozuka, H. Matsuzawa, and H. Sakai
Characterization of Heparinase from an Oral Bacterium <i>Prevotella heparinolytica</i>	283
	M. Watanabe, H. Tsuda, S. Yamada, Y. Shibata, T. Nakamura, and K. Sugahara
Differential Scanning Calorimetric Studies on the Thermal Unfolding of <i>Pseudomonas cepacia</i> Lipase in the Absence and Presence of Alcohols	289
	A. Tanaka
ATPase Associated with Ribosomal 30S-5SRNP Particles and 40S Subunits of Rat Liver	294
	K. Ogata, R. Ohno, K. Terao, K. Iwasaki, and Y. Endo
Biochemical and Functional Properties of Lysine-Specific Cysteine Proteinase (Lys-Gingipain) as a Virulence Factor of <i>Porphyromonas gingivalis</i> in Periodontal Disease	305
	N. Abe, T. Kadowaki, K. Okamoto, K. Nakayama, M. Ohishi, and K. Yamamoto
Detection of a Local Interaction of Hen Lysozyme under Highly Denaturing Conditions Using Chemically $^{13}\text{C}$ -Enriched Methionine Resonance	313
	Y. Abe, T. Ueda, K. Kawano, Y. Tanaka, and T. Imoto
Coexistence of Both Oleosin Isoforms on the Surface of Seed Oil Bodies and Their Individual Stabilization to the Organelles	318
	J.T.C. Tzen, R.L.C. Chuang, J.C.F. Chen, and L.S.H. Wu
$\text{Ca}^{2+}$ -Induced Distance Change between Points on Actin and Troponin in Skeletal Muscle Thin Filaments Estimated by Fluorescence Energy Transfer Spectroscopy	324
	M. Miki, T. Kobayashi, H. Kimura, A. Hagiwara, H. Hai, and Y. Maéda
Identification and Characterization of Porcine NP-190, a Novel Protein That Is Specifically Expressed in the Axonal Membrane during the Embryonic Period	332
	S.-C. Ho, S. Wakatsuki, M. Arioka, M. Yamasaki, and K. Kitamoto
Midkine Counteracts the Activin Signal in Mesoderm Induction and Promotes Neural Formation	339
	C. Yokota, S. Takahashi, A. Eisaki, M. Asashima, S. Akhter, T. Muramatsu, and K. Kadomatsu
Thiolase Involved in Bile Acid Formation	347
	M. Bun-ya, M. Maebuchi, T. Kamiryo, T. Kurosawa, M. Sato, M. Tohma, L.L. Jiang, and T. Hashimoto
Overexpression of Aldehyde Reductase Protects PC12 Cells from the Cytotoxicity of Methylglyoxal or 3-Deoxyglucosone	353
	K. Suzuki, Y.H. Koh, H. Mizuno, R. Hamaoka, and N. Taniguchi
Genomic Structures and Chromosomal Location of p91, a Novel Murine Regulatory Receptor Family	358
	Y. Yamashita, D. Fukuta, A. Tsuji, A. Nagabukuro, Y. Matsuda, Y. Nishikawa, Y. Ohyama, H. Ohmori, M. Ono, and T. Takai

## No. 3, March, 1998

**JB Review**

- Structure and Function of Bacterial Cytochrome *c* Oxidase S. Iwata 369

**Rapid Communication**

- Ablation of Nrf2 Function Does Not Increase the Erythroid or Megakaryocytic Cell Lineage Dysfunction Caused by p45 NF-E2 Gene Disruption T. Kuroha, S. Takahashi, T. Komeno, K. Itoh, T. Nagasawa, and M. Yamamoto 376

**Regular Papers**

- Properties of the Proteolytically Generated Catalytic Domain (42 kDa Kinase) of Epidermal Growth Factor Receptor: Comparison with Holoenzyme P. Borowski, L. Kornetzky, and R. Laufs 380
- Genomic Cloning of 18 kDa Oleosin and Detection of Triacylglycerols and Oleosin Isoforms in Maturing Rice and Postgerminative Seedlings L.S.H. Wu, L.-D. Wang, P.-W. Chen, L.-J. Chen, and J.T.C. Tzen 386
- Detection, Localization, and Sequence Analyses of Mitochondrial Regulatory Region RNAs in Several Mammalian Species N. Nakamichi, D.D. Rhoads, J.-I. Hayashi, Y. Kagawa, and T. Matsumura 392
- Developmental Profiles of Phosphorylated and Unphosphorylated CREBs in Murine Calvarial MC3T3-E1 Cells M.K. Sakamoto, K. Suzuki, S. Takiya, Y. Yoshimura, T. Imai, A. Matsumoto, and S. Nakamura 399
- Evidence for a Novel ATP-Dependent Protease from the Rat Liver Mitochondrial Intermembrane Space: Purification and Characterization N. Sitte, W. Dubiel, and P.-M. Kloetzel 408
- New Imidazoles as Probes of the Active Site Topology and Potent Inhibitors of  $\beta$ -Glucosidase Y.-K. Li, H.-S. Hsu, L.-F. Chang, and G. Chen 416
- MS-430, a Synthetic Pyrimidine Derivative, Influences the Intracellular Signal Transduction Pathway Leading to Neuronal Differentiation of PC12h Cells T. Ikeuchi, A. Nakatani, M. Yamada, N. Itokazu, A. Awaya, and H. Hatanaka 423
- Nitric Oxide Mediates Interleukin-1-Induced Gene Expression of Matrix Metalloproteinases and Basic Fibroblast Growth Factor in Cultured Rabbit Articular Chondrocytes K. Sasaki, T. Hattori, T. Fujisawa, K. Takahashi, H. Inoue, and M. Takigawa 431
- Expression of Human  $\alpha$ -Lactalbumin in Transgenic Tobacco K. Takase and K. Hagiwara 440
- The Conformational Change Induced by FAD in Covalently Flavinylated 6-Hydroxy-D-Nicotine Oxidase Does Not Require (8 $\alpha$ )FAD-(N<sub>3</sub>)-Histidyl Bond Formation M. Stoltz and R. Brandsch 445
- RecA Protein Has Extremely High Cooperativity for Substrate in Its ATPase Activity T. Mikawa, R. Masui, and S. Kuramitsu 450
- Characterization and Developmental Regulation of Proteoglycan-Type Protein Tyrosine Phosphatase  $\zeta$ /RPTP $\beta$  Isoforms T. Nishiwaki, N. Maeda, and M. Noda 458
- A Streptavidin-Based Neoglycoprotein Carrying More Than 140 GT1b Oligosaccharides: Quantitative Estimation of the Binding Specificity of Murine Sialoadhesin Expressed on CHO Cells Y. Hashimoto, M. Suzuki, P.R. Crocker, and A. Suzuki 468
- Molecular Cloning and Expression of an Amine Sulfotransferase cDNA: A New Gene Family of Cytosolic Sulfotransferases in Mammals K. Yoshinari, K. Nagata, M. Ogino, K. Fujita, T. Shiraga, K. Iwasaki, T. Hata, and Y. Yamazoe 479
- Further Characterization of Equine Brain Gangliosides: The Presence of GM3 Having N-Glycolyl Neuraminic Acid in the Central Nervous System T. Mikami, M. Kashiwagi, K. Tsuchihashi, T. Daino, T. Akino, and S. Gasa 487

	PAGE
Antibody against Single-Stranded DNA Useful for Detecting Apoptotic Cells Recognizes Hexadeoxynucleotides with Various Base Sequences	Y. Kawarada, N. Miura, and T. Sugiyama 492
Cloning and Characterization of a cDNA Encoding a Novel Heterogeneous Nuclear Ribonucleoprotein-Like Protein and Its Expression in Myeloid Leukemia Cells	N. Tsuchiya, D. Kamei, A. Takano, T. Matsui, and M. Yamada 499
Chemo-Enzymatic Synthesis of Galactosylmaltooligosaccharidonolactone as a Substrate Analogue Inhibitor for Mammalian $\alpha$ -Amylase	M. Takada, K. Ogawa, S. Saito, T. Murata, and T. Usui 508
Oxidative Refolding of Bovine Pancreatic RNases A and B Promoted by Asn-Glycans	I. Nishimura, M. Uchida, Y. Inohana, K. Setoh, K. Daba, S. Nishimura, and H. Yamaguchi 516
Purification and Characterization of a [3Fe-4S][4Fe-4S] Type Ferredoxin from Hyperthermophilic Archaeon <i>Pyrobaculum islandicum</i>	Y. Nakajima, T. Fujiwara, and Y. Fukumori 521
<i>Trans</i> -Activation of the <i>Tetrahymena</i> Ribozyme by Its P2-2.1 Domains	Y. Ikawa, H. Shiraishi, and T. Inoue 528
Metabolism of 4-Hydroxynonenal, a Cytotoxic Lipid Peroxidation Product, in Thymocytes as an Effective Secondary Antioxidative Defense Mechanism	W.G. Siems, A.M. Pimenov, H. Esterbauer, and T. Grune 534
cDNA Cloning of Mouse Prolyl Endopeptidase and Its Involvement in DNA Synthesis by Swiss 3T3 Cells	T. Ishino, S. Ohtsuki, K. Homma, and S. Natori 540
Caldecrin Is a Novel-Type Serine Protease Expressed in Pancreas, but Its Homologue, Elastase IV, Is an Artifact during Cloning Derived from Caldecrin Gene	I. Yoshino-Yasuda, K. Kobayashi, M. Akiyama, H. Itoh, A. Tomomura, and T. Saheki 546

#### No. 4, April, 1998

#### JB Review

His-Asp Phosphotransfer Signal Transduction	T. Mizuno 555
---	---------------

#### Rapid Communications

Guanidine Hydrochloride-Induced Changes of the E2 Inner Core of the <i>Bacillus stearothermophilus</i> Pyruvate Dehydrogenase Complex	Y. Hiromasa, Y. Aso, K. Mayanagi, Y. Inoue, T. Fujisawa, K. Meno, and T. Ueki 564
Crystallization and Preliminary X-Ray Diffraction Studies of a Rice Cysteine Proteinase Inhibitor, Oryzacystatin-I	N. Kudo, M. Nishiyama, H. Sasaki, K. Abe, S. Arai, and M. Tanokura 568

#### Regular Papers

Actin-Depolymerizing Effect of Dimeric Macrolides, Bistheonellide A and Swinholide A	S. Saito, S. Watabe, H. Ozaki, M. Kobayashi, T. Suzuki, H. Kobayashi, N. Fusetani, and H. Karaki 571
Cellular Distribution of a GPI-Anchored Complement Regulatory Protein CD59: Homodimerization on the Surface of HeLa and CD59-Transfected CHO Cells	M. Hatanaka, T. Seya, S. Miyagawa, M. Matsumoto, T. Hara, K. Tanaka, and A. Shimizu 579
Analysis of Matrix Protein Components of the Dermis-Like Structure Formed in a Long-Term Culture of Human Fibroblasts: Type VI Collagen Is a Major Component	N. Hazeki, M. Yamato, Y. Imamura, T. Sasaki, K. Nakazato, K. Yamamoto, H. Konomi, and T. Hayashi 587
Hypocholesterolemic Effects of the LDL Receptor Gene Transcriptional Upregulator CP-230821	T. Shimokawa, S. Goto, M. Ida, M. Goto, S. Nishijima, and T. Kodama 596
D-Erythrulose Reductase Can Also Reduce Diacetyl: Further Purification and Characterization of D-Erythrulose Reductase from Chicken Liver	M. Maeda, S. Hosomi, T. Mizoguchi, and T. Nishihara 602

	PAGE
A New <i>Tetrahymena</i> Actin-Binding Protein Is Localized in the Division Furrow	A. Watanabe, Y. Kurasawa, Y. Watanabe, and O. Numata 607
Direct Observation of a Central Bare Zone in a Native Thick Filament Isolated from the Anterior Byssus Retractor Muscle of <i>Mytilus edulis</i> Using Fluorescent ATP Analogue	K. Oiwa, T. Yamaga, and A. Yamada 614
Crystal Structure of Human Secretory Phospholipase A <sub>2</sub> -IIA Complex with the Potent Indolizine Inhibitor 120-1032	K. Kitadokoro, S. Hagishita, T. Sato, M. Ohtani, and K. Miki 619
Depolarization-Induced Tyrosine Phosphorylation of p130 <sup>cas</sup>	S. Kobayashi, N. Okumura, M. Okada, and K. Nagai 624
Disintegration of Lysosomes Mediated by GTP $\gamma$ S-Treated Cytosol: Possible Involvement of Phospholipases	Y. Sai, T. Matsuda, K. Arai, and S. Ohkuma 630
ARF-Induced Lysosomal Lysis <i>In Vitro</i>	K. Arai, T. Matsuda, Y. Sai, and S. Ohkuma 637
Hydrogen Evolution by Direct Electron Transfer from Photosystem I to Hydrogenases	H. McTavish 644
Purification and Characterization of Myonase from X-Chromosome Linked Muscular Dystrophic Mouse Skeletal Muscle	S. Hori, S. Ohtani, C. Hori, and K. Nokihara 650
Functional Involvement of mSos in Interleukin-3 and Thrombin Stimulation of the Ras, Mitogen-Activated Protein Kinase Pathway in BaF3 Murine Hematopoietic Cells	K. Tago, Y. Kaziro, and T. Satoh 659
Crystal Structure of Eucaryotic E3, Lipoamide Dehydrogenase from Yeast	T. Toyoda, K. Suzuki, T. Sekiguchi, L.J. Reed, and A. Takenaka 668
Purification, Primary Structure, and Antimicrobial Activities of Bovine Apolipoprotein A-II	M. Motizuki, T. Itoh, M. Yamada, S. Shimamura, and K. Tsurugi 675
Effect of Glycerol on the Affinity of DnaA Protein for ATP in the Presence of Cardiolipin	M. Hase, Y. Ishikawa, K. Sekimizu, T. Tsuchiya, and T. Mizushima 680
Comparison of <i>In Vivo</i> Activities of 5'-Connected and 3'-Connected <i>cis</i> -Acting Ribozymes: Selection of Intracellularly Active Ribozymes Using the Gene for Dihydrofolate Reductase (DHFR) as a Selective Marker in <i>Escherichia coli</i>	M. Hamada, S. Fujita, H. Kise, Y. Jigami, and K. Taira 684
Functional Expression and Enzymatic Properties of Two <i>Sitophilus zeamais</i> Cysteine Proteinases Showing Different Autolytic Processing Profiles <i>In Vitro</i>	I. Matsumoto, K. Abe, S. Arai, and Y. Emori 693
Bovine Spleen Cathepsin A: Characterization and Comparison with the Protective Protein	H. Matsuzaki, H. Ueno, R. Hayashi, and T.-H. Liao 701
Comparison of Survival-Promoting Effects of Brain-Derived Neurotrophic Factor and Neurotrophin-3 on PC12h Cells Stably Expressing TrkB Receptor	A. Nakatani, M. Yamada, A. Asada, M. Okada, T. Ikeuchi, and H. Hatanaka 707
Synthesis of Artificial Glycoconjugate Polymers Starting from Enzymatically Synthesized Oligosaccharides and Their Interactions with Lectins	A. Tsuchida, S. Akimoto, T. Usui, and K. Kobayashi 715
Identification of the Protein Import Components of the Rat Mitochondrial Inner Membrane, rTIM17, rTIM23, and rTIM44	N. Ishihara and K. Mihara 722
Tumor Necrosis Factor- $\alpha$ Regulates the Gene Expression of Macrophage Migration Inhibitory Factor through Tyrosine Kinase-Dependent Pathway in 3T3-L1 Adipocytes	J. Hirokawa, S. Sakaue, Y. Furuya, J. Ishii, A. Hasegawa, S. Tagami, Y. Kawakami, M. Sakai, S. Nishi, and J. Nishihira 733



	PAGE
Molecular Cloning, Expression, and Enzymatic Characterization of Rabbit Hydroxysteroid Sulfotransferase AST-RB2 (ST2A8)	740
Regio- and Stereoselectivity in Propranolol Metabolism by Dog Liver Microsomes and the Expressed Dog CYP2D15	747
Fluorescence Microscopic Demonstration of Cathepsin K Activity as the Major Lysosomal Cysteine Proteinase in Osteoclasts	752
Presence of Conserved Domains in the C-Terminus of MARCKS, a Major <i>In Vivo</i> Substrate of Protein Kinase C: Application of Ion Trap Mass Spectrometry to the Elucidation of Protein Structures	760

### No. 5, May, 1998

#### JB Reviews

Organization and Expression of Basement Membrane Collagen IV Genes and Their Roles in Human Disorders	767
Nucleotide Sugar Transporters: Elucidation of Their Molecular Identity and Its Implication for Future Studies	777

#### Rapid Communication

Identification of a Major PAF Acetylhydrolase in Human Serum/Plasma as a 43 kDa Glycoprotein Containing About 9 kDa Asparagine-Conjugated Sugar Chain(s)	786
--	-----

#### Regular Papers

Interaction and Orientation of an $\alpha$ -Aminoisobutyric Acid- and Tryptophan-Containing Short Helical Peptide Pore-Former in Phospholipid Vesicles, as Revealed by Fluorescence Spectroscopy	790
Interaction of Amphotericin B with Cholesterol in Monolayers, Aqueous Solutions, and Phospholipid Bilayers	798
Regulation of Tissue-Type Plasminogen Activator (tPA) and Type-1 Plasminogen Activator Inhibitor (PAI-1) Gene Expression in Rat Hepatocytes in Primary Culture	806
High Glucose-Induced Abnormal Epidermal Growth Factor Signaling	813
Effects of <i>cis</i> -Diamminedichloroplatinum(II) on <i>Escherichia coli</i> and Bacteriophage Systems	821
Temperature Dependency of Thermodynamic Parameters in Interactions between Hen Egg-White Lysozyme (HEL) and Anti-HEL Antibodies	827
Characterization of Fv Fragments Expressed on Phage Surface	832
Effects of Point Mutations at the Flexible Loop Alanine-145 of <i>Escherichia coli</i> Dihydrofolate Reductase on Its Stability and Function	839
Effect of Salts on the Solubility of Thermolysin: A Remarkable Increase in the Solubility as Well as the Activity by the Addition of Salts without Aggregation or Dispersion of Thermolysin	847
Effect of <i>B. subtilis</i> rRNA <sup>TRP</sup> on Readthrough Rate at an Opal UGA Codon	853

	PAGE
Enzymatic Synthesis of <sup>14</sup> C-Glycosphingolipids by Reverse Hydrolysis Reaction of Sphingolipid Ceramide <i>N</i> -Deacylase: Detection of Endoglycoceramidase Activity in a Seaflower	S. Mitsutake, K. Kita, T. Nakagawa, and M. Ito 859
Increased Serum Midkine Levels during Hemodialysis Using Heparin in Chronic Renal Failure	K. Fujisawa, Y. Matsumoto, H. Muramatsu, T. Shinzato, K. Hiramatsu, K. Horie, Z. Cai, H. Oka, I. Amano, T. Muramatsu, and K. Maeda 864
Identification of Lipid Inhibitor of Mammalian Phospholipase D	K. Kawabe, T. Kodaki, K. Katayama, S. Okamura, M. Mori, and S. Yamashita 870
Cloning and Characterization of Three Isoforms of OS-9 cDNA and Expression of the OS-9 Gene in Various Human Tumor Cell Lines	Y. Kimura, M. Nakazawa, and M. Yamada 876
Human Dis3p, Which Binds to Either GTP- or GDP-Ran, Complements <i>Saccharomyces cerevisiae</i> <i>dis3</i>	T. Shiomi, K. Fukushima, N. Suzuki, N. Nakashima, E. Noguchi, and T. Nishimoto 883
Cloning and Expression of the Gene Encoding Flavodoxin from <i>Desulfovibrio vulgaris</i> (Miyazaki F)	M. Kitamura, T. Sagara, M. Taniguchi, M. Ashida, K. Ezoe, K. Kohno, S. Kojima, K. Ozawa, H. Akutsu, I. Kumagai, and T. Nakaya 891
Purification and Characterization of a Membrane-Associated Ganglioside Sialidase from Bovine Brain	K. Hata, T. Wada, A. Hasegawa, M. Kiso, and T. Miyagi 899
Substrate Specificity and Some Other Enzymatic Properties of Dihydroceramide Desaturase (Ceramide Synthase) in Fetal Rat Skin	T. Mikami, M. Kashiwagi, K. Tsuchihashi, T. Akino, and S. Gasa 906
Functional Expression of the Human UDP-Galactose Transporters in the Yeast <i>Saccharomyces cerevisiae</i>	G.-H. Sun-Wada, S. Yoshioka, N. Ishida, and M. Kawakita 912
Validation of Malondialdehyde and 4-Hydroxy-2- <i>trans</i> -Nonenal Measurement in Plasma by NICI-GC-MS	S. Rauli, M.D. Puppo, F. Magni, and M.G. Kienle 918
Identification of the Catalytic Triad Residues of Porcine Liver Acylamino Acid-Releasing Enzyme	M. Mitta, M. Miyagi, I. Kato, and S. Tsunasawa 924
An Assay Method for Glycogen Debranching Enzyme Using New Fluorogenic Substrates and Its Application to Detection of the Enzyme in Mouse Brain	K. Omichi and S. Hase 932
Diversity of Capsular Polysaccharide Synthesis Gene Clusters in <i>Streptococcus pneumoniae</i>	M.A.B. Kolkman, B.A.M. van der Zeijst, and P.J.M. Nuijten 937
Actin-Binding Specificity of Marine Macrolide Toxins, Mycalolide B and Kabiramide D	S. Wada, S. Matsunaga, S. Saito, N. Fusetani, and S. Watabe 946
Isomerization of 11- <i>cis</i> -Retinol to All- <i>trans</i> -Retinol in Bovine Rod Outer Segments	T. Shimizu, S. Ishiguro, and M. Tamai 953
The Mechanism by Which Proteolysis Enhances the Ligand-Binding Activity of Guinea Pig Type II Fc Receptor for IgG (FcγRIIB)	Y. Isashi, T. Yamashita, S. Nagasawa, K. Tanaka, M. Murakami, and T. Uede 959
Defective Intracellular Transport of Tissue-Nonspecific Alkaline Phosphatase with an Ala <sup>162</sup> →Thr Mutation Associated with Lethal Hypophosphatasia	H. Shibata, M. Fukushi, A. Igarashi, Y. Misumi, Y. Ikehara, Y. Ohashi, and K. Oda 968
Structure and Distribution of <i>N</i> -Glycans on the S <sub>7</sub> -Allele Styler Self-Incompatibility Ribonuclease of <i>Nicotiana glauca</i>	D. Oxley, S.L.A. Munro, D.J. Craik, and A. Bacic 978
Enhancer-Dependent, Locus-Wide Regulation of the Imprinted Mouse Insulin-Like Growth Factor II Gene	N. Hatano, P. Eversole-Cire, A.C. Ferguson-Smith, P.A. Jones, M.A. Surani, and H. Sasaki 984

## No. 6, June, 1998

## JB Reviews

Regulation and Function of DNA Methylation in Vertebrates	S. Tajima and I. Suetake	993
Sequence-Function Relationships of Prokaryotic and Eukaryotic Galactosyltransferases	C. Breton, E. Bettler, D.H. Joziassse, R.A. Geremia, and A. Imberty	1000
Mitochondria-Targeting Sequence, a Multi-Role Sorting Sequence Recognized at All Steps of Protein Import into Mitochondria	T. Omura	1010

## Regular Papers

Efficient Induction of Hepatocyte Spheroids in a Suspension Culture Using a Water-Soluble Synthetic Polymer as an Artificial Matrix	K. Yamada, M. Kamihira, R. Hamamoto, and S. Iijima	1017
VIP Induces the Translocation and Degradation of the $\alpha$ Subunit of $G_s$ Protein in Rat Pituitary $GH_4C_1$ Cells	Y. Yajima, Y. Akita, T. Saito, and S. Kawashima	1024
Existence of Two Isoforms of Extracellular Signal-Regulated Kinase in Fish	H. Hashimoto, Y. Yokoyama, Y. Matsuo, H. Toyohara, M. Kohno, and M. Sakaguchi	1031
Recognition of Allylic Substrates in <i>Sulfolobus acidocaldarius</i> Geranylgeranyl Diphosphate Synthase: Analysis Using Mutated Enzymes and Artificial Allylic Substrates	S. Ohnuma, H. Hemmi, T. Koyama, K. Ogura, and T. Nishino	1036
Enhancement of Retroviral Gene Transduction on a Dish Coated with a Cocktail of Two Different Polypeptides: One Exhibiting Binding Activity toward Target Cells, and the Other toward Retroviral Vectors	K. Asada, T. Uemori, T. Ueno, K. Hashino, N. Koyama, A. Kawamura, and I. Kato	1041
Two Distinct Upstream Regions Are Involved in Expression of the Catalase Gene in <i>Schizosaccharomyces pombe</i> in Response to Oxidative Stress	C.W. Nakagawa, K. Yamada, and N. Mutoh	1048
Molecular Characterization of the Mouse <i>mtp rd</i> Gene, a Homologue of Human <i>TPRD</i> : Unique Gene Expression Suggesting Its Critical Role in the Pathophysiology of Down Syndrome	F. Tsukahara, I. Urakawa, M. Hattori, M. Hirai, K. Ohba, T. Yoshioka, Y. Sakaki, and T. Muraki	1055
The Roles of Individual Cysteine Residues of Sendai Virus Fusion Protein in Intracellular Transport	H. Segawa, M. Kato, T. Yamashita, and H. Taira	1064
Induction of Apoptosis by Phosphatidylserine	K. Uchida, K. Emoto, D.L. Daleke, K. Inoue, and M. Umeda	1073
Intracellular Localization of Migration Inhibitory Factor-Related Protein (MRP) and Detection of Cell Surface MRP Binding Sites on Human Leukemia Cell Lines	T. Koike, K. Kondo, T. Makita, K. Kajiyama, T. Yoshida, and M. Morikawa	1079
Identification of Genes Affecting Lycopene Formation in <i>Escherichia coli</i> Transformed with Carotenoid Biosynthetic Genes: Candidates for Early Genes in Isoprenoid Biosynthesis	H. Hemmi, S. Ohnuma, K. Nagaoka, and T. Nishino	1088
Chemical Modification of L-Phenylalanine Oxidase from <i>Pseudomonas</i> sp. P-501 by Phenylglyoxal. Identification of One Essential Arginyl Residue	E.B. Mukouyama, T. Hirose, and H. Suzuki	1097
Fluorescence Resonance Energy Transfer between Points on Tropomyosin and Actin in Skeletal Muscle Thin Filaments: Does Tropomyosin Move?	M. Miki, T. Miura, K.-I. Sano, H. Kimura, H. Kondo, H. Ishida, and Y. Maéda	1104
Properties, Sequence, and Synthesis in <i>Escherichia coli</i> of 1-Aminocyclopropane-1-Carboxylate Deaminase from <i>Hansenula saturnus</i>	R. Minami, K. Uchiyama, T. Murakami, J. Kawai, K. Mikami, T. Yamada, D. Yokoi, H. Ito, H. Matsui, and M. Honma	1112

	PAGE
Changes of Gene Expression by Lysophosphatidylcholine in Vascular Endothelial Cells: 12 Up-Regulated Distinct Genes Including 5 Cell Growth-Related, 3 Thrombosis-Related, and 4 Others	N. Sato, K. Kokame, K. Shimokado, H. Kato, and T. Miyata 1119
Clusters of Basic Amino Acids in Midkine: Roles in Neurite-Promoting Activity and Plasminogen Activator-Enhancing Activity	S. Akhter, K. Ichihara-Tanaka, S. Kojima, H. Muramatsu, T. Inui, T. Kimura, N. Kaneda, A.H. Talukder, K. Kadomatsu, F. Inagaki, and T. Muramatsu 1127
Cyanocysteine-Mediated Molecular Dissection of Dihydrofolate Reductase: Occurrence of Intra- and Inter-Molecular Reactions Forming a Peptide Bond	T. Takenawa, Y. Oda, Y. Ishihama, and M. Iwakura 1137
Contribution of Tryptophan Residues to the Structural Changes in Perfringolysin O during Interaction with Liposomal Membranes	M. Nakamura, N. Sekino-Suzuki, K. Mitsui, and Y. Ohno-Iwashita 1145
Properties of Glutamate Racemase from <i>Bacillus subtilis</i> IFO 3336 Producing Poly- $\gamma$ -Glutamate	M. Ashiuchi, K. Tani, K. Soda, and H. Misono 1156
Development-Dependent Expression of Complex-Type Sugar Chains Specific to Mouse Brain	S. Nakakita, S. Natsuka, K. Ikenaka, and S. Hase 1164
Flagellin-Containing Membrane Vesicles Excreted from <i>Vibrio alginolyticus</i> Mutants Lacking a Polar-Flagellar Filament	N. Nishioka, M. Furuno, I. Kawagishi, and M. Homma 1169
Functional Interactions between Nuclear Receptors Recognizing a Common Sequence Element, the Direct Repeat Motif Spaced by One Nucleotide (DR-1)	C. Nishiyama, R. Hi, S. Osada, and T. Osumi 1174
Diversity of the Troponin C Genes during Chordate Evolution	H.J. Yuasa, J.A. Cox, and T. Takagi 1180
Multiple DNA Elements for Sterol Regulatory Element-Binding Protein and NF- $\kappa$ B Are Responsible for Sterol-Regulated Transcription of the Genes for Human 3-Hydroxy-3-Methylglutaryl Coenzyme A Synthase and Squalene Synthase	J. Inoue, R. Sato, and M. Maeda 1191
Evidence for Involvement of Two Isoforms of Syk Protein-Tyrosine Kinase in Signal Transduction through the High Affinity IgE Receptor on Rat Basophilic Leukemia Cells	T. Yamashita, L. Kairiyama, M. Araki, and S. Nagasawa 1199
Glycolaldehyde-Modified Low Density Lipoprotein Leads Macrophages to Foam Cells <i>via</i> the Macrophage Scavenger Receptor	Y. Jinnouchi, H. Sano, R. Nagai, H. Hakamata, T. Kodama, H. Suzuki, M. Yoshida, S. Ueda, and S. Horiuchi 1208
<b>Corrections</b>	1218

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#### V. PREPARATION OF TABLES

1. Tables should be drawn on separate sheets and numbered consecutively in Roman numerals. For aid in designing tables in acceptable style, refer to current issues of the Journal.
2. Each table should have an explanatory title and sufficient experimental detail, usually in a paragraph immediately following the title, to be intelligible without reference to the text (unless the procedure is given in the Experimental Procedures section, or under another table or figure).
3. Indicate units of measure clearly.
4. Footnotes to tables should be kept to a minimum and should be indicated by superscript lower cases, at the bottom of the table.

#### VI. PREPARATION OF ILLUSTRATIONS

1. Each figure (Scheme, Diagram) should be given on a separate sheet numbered with an Arabic numeral (Fig. 1, Fig. 2, *etc.*).

Figures will be reduced to fit into the type area of the printed page (17.5 × 23.5 cm).

2. Identify all figures in the margin or on the back, with the author's name and figure number and indicate TOP.
3. Each figure should be accompanied by a title and an explanatory legend (Legends to Figures). There should be sufficient experimental detail in the legend to make the figure intelligible without reference to the text (unless the same material has been given with a previous figure, or in the Experimental Procedures section).
4. Legends to Figures should be typed double-spaced, in numerical order, on a separate page.
5. Photographs should be glossy and as high in contrast as possible. Triplicate copies for referees should be of the same quality as the original.
6. Indicate the magnification of photomicrographs in the legend or include a bar indicating the scale in the figure.
7. Flow diagrams and amino acid or nucleotide sequences should always be presented as direct photographic reproduction.

#### VII. CHEMICAL AND MATHEMATICAL FORMULAE

1. Refer in the text to simple chemical compounds by their formulae when these can be printed in simple horizontal lines of type. Do not use structural formulae in the running text.
2. Ionic charge should be shown as a superscript following the chemical symbol, e.g. Fe<sup>3+</sup>, SO<sub>4</sub><sup>2-</sup>.
3. Prepare large structural formulae and long mathematical equations in a form suitable for direct photographic reproduction and include them as a Diagram at the end of the paper.
4. **Isotopically Labeled Compounds**—The symbol for an isotope is shown in square brackets directly before the name (word), as in [<sup>14</sup>C]urea, [ $\alpha$ -<sup>14</sup>C]leucine, DL-[methyl-<sup>14</sup>C]methionine. When more than one position in a substance is labeled with the same isotope and the positions are not indicated, the number of labeled atoms should be indicated as a right-hand subscript; as in [<sup>14</sup>C<sub>2</sub>]glycolic acid. The symbol *U* indicates uniform, e.g. [*U*-<sup>14</sup>C]-glucose (where the <sup>14</sup>C is uniformly distributed among all six positions). The isotopic prefix precedes that part of the name to which it refers, as in sodium [<sup>14</sup>C]formate, thiamine [ $\beta$ -<sup>32</sup>P]-diphosphate. Terms such as <sup>131</sup>I-labeled albumin should not be contracted to [<sup>131</sup>I]albumin. When isotopes of more than one element are introduced, their symbols should be arranged in alphabetical order: e.g. L-[3-<sup>14</sup>C, 2,3-<sup>2</sup>H, <sup>15</sup>N]serine. The symbols <sup>2</sup>H and <sup>3</sup>H or D and T may be used for deuterium and tritium, respectively.

For simple molecules, the labeling is indicated by writing the chemical formulae with the prefix superscripts attached to the correct atomic symbols in the formulae: e.g. <sup>14</sup>CO<sub>2</sub>, H<sub>2</sub><sup>18</sup>O, <sup>2</sup>H<sub>2</sub>O. Square brackets should not be used for them, or when the isotopic symbol is attached to a word that is not a specific chemical name, abbreviation or symbol: e.g. <sup>131</sup>I-labeled, <sup>14</sup>C-sugar, <sup>14</sup>C-steroids, <sup>32</sup>PO<sub>4</sub><sup>3-</sup>, but [<sup>32</sup>P]phosphate.

5. **Spectrophotometric Data**—Beer's law may be stated as

$$A = -\log T = \epsilon lc$$

Where *A* is the absorbance; *T*, the transmittance (= *I*/*I*<sub>0</sub>);  $\epsilon$ , the molar absorption coefficient; *c*, the concentration of the absorbing substances in moles per liter; and *l*, the length of the optical path in centimeters. Under these conditions  $\epsilon$  has the dimensions liter·mol<sup>-1</sup>·cm<sup>-1</sup> or more briefly M<sup>-1</sup>·cm<sup>-1</sup> (not cm<sup>2</sup>·mol<sup>-1</sup>). Do not use "O.D." and "E."

#### VIII. TERMINOLOGY AND ABBREVIATIONS

1. Abbreviations with specific meanings may be used for convenience for complex chemical substances, particularly in equations, tables, or figures. Avoid using abbreviations in titles and summaries except the standard ones listed in Table II of Section VIII-8.
2. Use abbreviations and symbols sparingly in the text. In chemical equations, which traditionally depend upon symbols, an abbreviation or symbol may be used for a term that appears in full in the neighboring text. Trivial names are usually sufficiently short not to require abbreviations.
3. An abbreviated name or symbol in a column heading in a table, figure, or photograph must either be taken from the "accepted"

list given in Section VIII-8 or formulated in accordance with the principles of Section VIII-6.

4. For spelling of chemical names consult current issues of the Journal. For chemical terms follow essentially the usages and rules recommended by International Scientific Union, especially Nomenclature Committee of IUBMB (NC-IUBMB, IUBMB: International Union of Biochemistry and Molecular Biology) and IUPAC-IUBMB Joint Commission on Biochemical Nomenclature (JCBN, IUPAC: International Union of Pure and Applied Chemistry): see the recommendations listed below.\* The recommendations published before 1992 may also be found in *Biochemical Nomenclature and Related Documents* (1978), available from The Biochemical Society, 7 Warwick Court, London WC1R 5DP, U.K. and in *Biochemical Nomenclature and Related Documents. A Compendium*, 2nd edn (Liébecq, C., ed.), Portland Press Ltd, London (1992). (see *Eur. J. Biochem.* **213**, 1-3 (1993)).

#### A. Recommendations published before 1978

##### General

- (1) Nomenclature of organic chemistry. Section E: Stereochemistry (1974), *Eur. J. Biochem.* **18**, 151-170 (1971) —The definitive rules may be found in *Pure Appl. Chem.* **45**, 11-30 (1976).
- (2) Nomenclature of organic chemistry. Section F: Natural products and related compounds (1976), *Eur. J. Biochem.* **86**, 1-8 (1978).
- (3) Nomenclature of organic chemistry. Section H: Isotopically modified compounds (1977), *Eur. J. Biochem.* **86**, 9-25 (1978)—Amendments in *Eur. J. Biochem.* **102**, 315-316 (1979) and the final version in *Pure Appl. Chem.* **51**, 353-380 (1979).
- (4) Recommendations for measurement and presentation of biochemical equilibrium data (1976), *Eur. J. Biochem.* **72**, 1-7 (1977).
- (5) Abbreviations and symbols for chemical names of special interest in biological chemistry (1965), *J. Biol. Chem.* **241**, 527-533 (1966).
- (6) Abbreviations and symbols: a compilation (1976), *Eur. J. Biochem.* **74**, 1-6 (1977).
- (7) Citation of bibliographic references in biochemical journals (1971), *Eur. J. Biochem.* **37**, 201-202 (1973).

##### Amino acids, peptides, and proteins

- (8) Nomenclature of  $\alpha$ -amino acids (1974), *Eur. J. Biochem.* **53**, 1-14 (1975)—Corrections in *Eur. J. Biochem.* **58**, 1 (1975).
- (9) Symbols for amino-acid derivatives and peptides (1971), *Eur. J. Biochem.* **27**, 201-207 (1972).
- (10) Rules for naming synthetic modifications of natural peptides (1966), *Eur. J. Biochem.* **1**, 379-381 (1967).
- (11) Abbreviated nomenclature of synthetic polypeptides (polymerized amino acids) (1971), *Eur. J. Biochem.* **26**, 301-304 (1972).
- (12) A one-letter notation for amino-acid sequences (1968), *Eur. J. Biochem.* **5**, 151-153 (1968).
- (13) Abbreviations and symbols for the description of the conformation of polypeptide chains (1969), *Eur. J. Biochem.* **17**, 193-201 (1970).
- (14) Nomenclature of peptide hormones (1974), *Eur. J. Biochem.* **55**, 485-486 (1975).
- (15) Recommendations for the nomenclature of human immunoglobulins, *Eur. J. Biochem.* **45**, 5-6 (1974).
- (16) Protein data bank. A computer-based archival file for macromolecular structures (1977), *Eur. J. Biochem.* **80**, 319-324 (1977).

##### Nucleotides and nucleic acids

- (17) Abbreviations and symbols for nucleic acids, polynucleotides and their constituents (1970), *Eur. J. Biochem.* **15**, 203-208 (1970)—Corrections in *Eur. J. Biochem.* **25**, 1 (1972).

\*In this list mainly *Eur. J. Biochem.* is cited, but most of these documents have also been published in other journals, e.g. *J. Biol. Chem.*, *Biochemistry*, *Biochem. J.*, *Biochim. Biophys. Acta*, *Arch. Biochem. Biophys.*, etc.

**Lipids and related compounds**

- (18) Nomenclature of lipids (1976), *Eur. J. Biochem.* **79**, 11-21 (1971).
- (19) Nomenclature of steroid (1967), *Eur. J. Biochem.* **10**, 1-19 (1969)—Amendments (1971) and corrections in *Eur. J. Biochem.* **25**, 1-3 (1972), and definitive rules in *Pure Appl. Chem.* **31**, 285-322 (1972).
- (20) Nomenclature of quinones with isoprenoid side chains (1973), *Eur. J. Biochem.* **53**, 15-18 (1975).
- (21) Tentative rules for the nomenclature of carotenoids (1970), *Eur. J. Biochem.* **25**, 397-408 (1972)—Amendments (1974) in *Eur. J. Biochem.* **57**, 317-318 (1975) and definitive rules in *Pure Appl. Chem.* **41**, 407-431 (1975).
- (22) Nomenclature of tocopherols and related compounds (1973), *Eur. J. Biochem.* **46**, 217-219 (1974).

**Carbohydrates and related compounds**

- (23) Tentative rules for carbohydrate nomenclature. Part 1 (1969), *Eur. J. Biochem.* **21**, 455-477 (1971)—Correction in *Eur. J. Biochem.* **25**, 4 (1972).
- (24) Nomenclature of cyclitols (1973), *Eur. J. Biochem.* **57**, 1-7 (1975).

**Phosphorus-containing compounds**

- (25) Nomenclature of phosphorus-containing compounds of biochemical importance (1976), *Eur. J. Biochem.* **79**, 1-9 (1977).

**Miscellaneous**

- (26) Trivial names of miscellaneous compounds of importance in biochemistry (vitamins, coenzymes, and related compounds) (1965), *Eur. J. Biochem.* **2**, 1-2 (1967).
- (27) Nomenclature and symbols for folic acids and related compounds (1965), *Eur. J. Biochem.* **2**, 5-6 (1967).
- (28) Nomenclature for vitamins B-6 and related compounds (1973), *Eur. J. Biochem.* **40**, 325-327 (1973).
- (29) Nomenclature of corrinoids (1973), *Eur. J. Biochem.* **45**, 7-12 (1974).

**B. Recommendations and reports published after 1978****Newsletters from NC-IUBMB and JCBN**

- (30) Newsletter 1980, *Eur. J. Biochem.* **104**, 321-322 (1980).
- (31) Newsletter 1981, *Eur. J. Biochem.* **114**, 1-4 (1981).
- (32) Newsletter 1982, *Eur. J. Biochem.* **122**, 437-438 (1982).
- (33) Newsletter 1983, *Eur. J. Biochem.* **131**, 1-3 (1983).
- (34) Newsletter 1984, *Eur. J. Biochem.* **138**, 5-7 (1984).
- (35) Newsletter 1985, *Eur. J. Biochem.* **146**, 237-239 (1985).
- (36) Newsletter 1986, *Eur. J. Biochem.* **154**, 485-487 (1986).

**General**

- (37) *Biochemical Nomenclature and Related Documents. A Compendium* 2nd edn. Portland Press Ltd, see also *Eur. J. Biochem.* **213**, 1-3 (1993).
- (38) Recommendations for the presentation of thermodynamic and related data in biology (1985), *Eur. J. Biochem.* **153**, 429-434 (1985).

**Amino acids, peptides, and proteins**

- (39) Nomenclature of iron-sulfur proteins (1978), *Eur. J. Biochem.* **93**, 427-430 (1979)—Erratum in *Eur. J. Biochem.* **102**, 315 (1979).
- (40) Nomenclature and symbolism for amino acids and peptides (1983), *Eur. J. Biochem.* **138**, 9-37 (1984)—In this version, (8), (9), (10), and (12) above are combined and revised. Erratum in *Eur. J. Biochem.* **152**, 1 (1985).

**Nucleotides and nucleic acids**

- (41) Abbreviations and symbols for the description of conformations of polynucleotide chains (1982), *Eur. J. Biochem.* **131**, 9-15 (1983).
- (42) Nomenclature for incompletely specified bases in nucleic acid sequences (1984), *Eur. J. Biochem.* **150**, 1-5 (1985).
- (43) A nomenclature of junctions and branchpoints in nucleic acids. Recommendations 1994. *Eur. J. Biochem.* **230**, 1-2 (1995).

**Lipids and related compounds**

- (44) Nomenclature of tocopherols and related compounds (1981), *Eur. J. Biochem.* **123**, 473-475 (1982).
- (45) Nomenclature of vitamin D (1981), *Eur. J. Biochem.* **124**, 223-227 (1982).
- (46) Nomenclature of retinoids (1981), *Eur. J. Biochem.* **129**, 1-

6 (1982).

**Carbohydrates and related compounds**

- (47) Conformational nomenclature for five and six-membered ring forms of monosaccharides and their derivatives (1980), *Eur. J. Biochem.* **111**, 295-298 (1980).
- (48) Nomenclature of unsaturated monosaccharides (1980), *Eur. J. Biochem.* **119**, 1-3 (1981)—Corrections in *Eur. J. Biochem.* **125**, 1 (1982).
- (49) Nomenclature of branched-chain monosaccharides (1980), *Eur. J. Biochem.* **119**, 5-8 (1981)—Corrections in *Eur. J. Biochem.* **125**, 1 (1982).
- (50) Abbreviated terminology of oligosaccharide chains (1980), *Eur. J. Biochem.* **126**, 433-437 (1982).
- (51) Polysaccharide nomenclature (1980), *Eur. J. Biochem.* **126**, 439-441 (1982).
- (52) Symbols for specifying the conformation of polysaccharide chains (1981), *Eur. J. Biochem.* **131**, 5-7 (1983).

**Miscellaneous**

- (53) Nomenclature of tetrapyrroles (1978), *Eur. J. Biochem.* **108**, 1-30 (1980).
5. **Enzymes**—Where one or more enzymes figure prominently in a manuscript, authors should use the recommended (trivial) name or systematic name given by Nomenclature Committee of IUBMB and IUPAC-IUBMB Commission on Biochemical Nomenclature: see the recommendations listed below.
- (54) *Enzyme Nomenclature, Recommendations (1984)*, Academic Press, New York.
- (55) *Enzyme Nomenclature, Recommendations (1992)*, Academic Press, Inc., see also *Eur. J. Biochem.* **213**, 1-3 (1993).  
—Supplement *Eur. J. Biochem.* **223**, 1-5 (1994).  
—Supplement 2 *Eur. J. Biochem.* **232**, 1-6 (1995).  
—Supplement 3 *Eur. J. Biochem.* **237**, 1-5 (1996).
- (56) Nomenclature of multiple forms of enzymes, *Eur. J. Biochem.* **82**, 1-3 (1978).
- (57) Units of enzyme activity (1978), *Eur. J. Biochem.* **97**, 319-320 (1979)—Erratum in *Eur. J. Biochem.* **104**, 1 (1980).
- (58) Symbolism and terminology in enzyme kinetics (1981), *Eur. J. Biochem.* **128**, 281-291 (1982).

For P450 superfamily, authors should use the nomenclature system recommended by the following literature.

- (59) P450 superfamily: update on new sequences, gene mapping, accession numbers and nomenclature, *Pharmacogenetics* **6**, 1-42 (1996).

When an enzyme is the main subject of a paper, its source, trivial name, systematic name (or the reaction that it catalyzes) and code number (preceded by "EC") should be included.

6. **Non-Standard Abbreviations**—Use of abbreviations other than the standard ones listed in VIII-7 and VIII-8 should be kept to a minimum. Such abbreviations should be introduced only when absolutely necessary, as in tables, figures, and other illustrations where space is particularly limited. Abbreviations are usually not needed in the text of a paper where repeated use of long names can be avoided by judicious use of pronouns, or by paraphrasing with words such as "the substrate," "the inhibitor," "the methyl derivative," etc. **All non-standard abbreviations used in the text should be defined in alphabetical order in a single footnote on the title page.**

7. **Abbreviations of Units of Measurement and Physical and Chemical Quantities**—These abbreviations listed in Table I may be used without definition.

**TABLE I**

(1) Prefixes to the names of units					
tera	10 <sup>12</sup>	T	milli	10 <sup>-3</sup>	m
giga	10 <sup>9</sup>	G	micro	10 <sup>-6</sup>	μ
mega	10 <sup>6</sup>	M	nano	10 <sup>-9</sup>	n
kilo	10 <sup>3</sup>	k	pico	10 <sup>-12</sup>	p
deci	10 <sup>-1</sup>	deci (not d)	femto	10 <sup>-15</sup>	f
centi	10 <sup>-2</sup>	c <sup>(1)</sup>	atto	10 <sup>-18</sup>	a
(2) Units of Concentration <sup>2)</sup>					
molar (moles/liter)			M		
millimolar (millimoles/liter)			mM (not 10 <sup>-3</sup> M)		
micromolar (micromoles/liter)			μM (or 10 <sup>-6</sup> M)		



nanomolar (nanomoles/liter)	nM (or $\times 10^{-9}$ M)
picomolar (picomoles/liter)	pM (or $\times 10^{-12}$ M)
(3) Units of Length	
meter	m
centimeter	cm
millimeter	mm
micrometer (not micron)	$\mu\text{m}$ (not $\mu$ )
nanometer	nm (not $m\mu$ )
Ångstrom (0.1 nm)	Å
(4) Units of Area and Volume	
square centimeter	$\text{cm}^2$
cubic centimeter	$\text{cm}^3$
liter	l (in tables only)
milliliter	ml
microliter	$\mu\text{l}$ (not $\lambda$ )
(5) Units of Mass	
gram	g (kg, mg, $\mu\text{g}$ [not $\gamma$ ], ng, pg)
dalton <sup>3)</sup>	Da
(6) Units of Time	
hour	h
minute	min
second	s
	year yr
	month mo
	week wk
	day d
(7) Units of Radioactivity	
becquerel	Bq (= 1 dps or 60 dpm)
counts per minute	cpm
curie(s)	Ci (= $3.7 \times 10^{10}$ Bq)
disintegrations per minute	dpm
(8) Other Units	
mole	mol (mmol, $\mu\text{mol}$ , nmol, pmol)
degree Celsius	$^{\circ}\text{C}$
degree absolute (kelvin)	K
joule	J
kilojoule	kJ
calorie	cal
kilocalorie	kcal
parts per billion	ppb
parts per million	ppm
cycles per second (hertz)	Hz (not cps)
equivalent	eq
ampere	A (mA)
ohm	$\Omega$
volt	V
gauss	G
pascal	Pa
revolutions per minute	rpm
Svedberg unit of sedimentation coefficient ( $10^{-13}$ s)	S
(9) Physical and Chemical Quantities	
absorbance	A
equilibrium constant	K
rate constant	k
maximum velocity	$V_{\text{max}}$
Michaelis constant	$K_m$
equilibrium dissociation con- stant	$K_d$
isoelectric point	pI
molecular weight <sup>3)</sup>	$M_r$
retardation factor	$R_f$
acceleration of gravity	g
specific rotation	$[\alpha]_d^t$
partial specific volume	$\bar{v}$
diffusion constant	D
sedimentation coefficient	s
density	$\rho$
sedimentation coefficient in water at 20°C, extrapolated to zero concentration	$S_{20,w}^0$
Gibbs energy change	$\Delta G$
entropy change	$\Delta S$

enthalpy change	$\Delta H$
melting temperature	$T_m$
(10) Other Terms	
logarithm	log
logarithm (natural)	ln
standard deviation of a series	SD
standard error of mean of series	SE

<sup>1)</sup> to be avoided where possible (except for cm).

<sup>2)</sup> Terms such as milligram percent (mg%) should not be used. Weight concentrations should be given as g/ml, g/100 ml, etc.

<sup>3)</sup> Molecular weight is dimensionless. Only molecular mass is expressed by daltons.

**8. Accepted Abbreviations and Symbols**—Authors may use, without definition, the abbreviations given in Table II and the symbols and abbreviations for amino acid or nucleotide residues in polymers or sequences. Define other abbreviations in a single footnote on the title page.

TABLE II

(1) General	
Adenosine 3':5'-cyclic monophosphate	cAMP
Adenosine 5'-mono-, di-, and triphosphates <sup>1)</sup>	AMP, ADP, and ATP
Adenosine triphosphatase	ATPase
Base pair(s)	bp
Bovine serum albumin	BSA
O-(Carboxymethyl)	CM-
Circular dichroism	CD
Coenzyme A and its acyl derivatives	CoA (or CoASH) and acyl-CoA
Complementary DNA	cDNA
Cyclic AMP	cAMP
Cyclic GMP	cGMP
Cytidine diphosphate choline, etc.	CDP-choline, etc.
Cytidine 5'-mono-, di-, and triphosphates	CMP, CDP, and CTP
Deoxyribonuclease	DNase
Deoxyribonucleic acid	DNA
O-(Diethylaminoethyl)	DEAE-
Dithiothreitol	DTT
Electron paramagnetic resonance	EPR
Electron spin resonance	ESR
Ethylenediaminetetraacetic acid	EDTA
[Ethylenebis(oxyethylenitrilo)]- tetraacetic acid	EGTA
Flavin-adenine dinucleotide and its fully reduced form	FAD and FADH <sub>2</sub>
Flavin mononucleotide and its fully reduced form	FMN and FMNH <sub>2</sub>
Fourier transform	FT
Gas chromatography-mass spectrom- etry	GC-MS
Gas liquid chromatography	GLC
Glutathione and its oxidized form	GSH and GSSG
Guanosine 3':5'-cyclic monophosphate	cGMP
Guanosine 5'-mono-, di-, and triphosphates	GMP, GDP, and GTP
Guanosine triphosphatase	GTPase
Hemoglobin	Hb
Heterogenous nuclear RNA	hnRNA
High performance (pressure) liquid chromatography	HPLC
4-(2-Hydroxyethyl)-1-piperazineethane- sulfonic acid	HEPES
Immunoglobulin	Ig (IgG, IgM, etc.)
Infrared	IR
Inorganic orthophosphate	P <sub>i</sub>
Inorganic pyrophosphate	PP <sub>i</sub>
Inosine 5'-mono-, di-, and triphosphates	IMP, IDP, and ITP
Kilobases	kb
Kilobase pairs	kbp
Lethal dose, 50%	LD <sub>50</sub>

Messenger RNA	mRNA	Guanosine	G
Nicotinamide adenine dinucleotide and its reduced form	NAD <sup>+</sup> and NADH <sup>2)</sup>	Inosine	I
Nicotinamide adenine dinucleotide phosphate and its reduced form	NADP <sup>+</sup> and NADPH <sup>2)</sup>	6-Mercaptopurine ribonucleoside (6-thioinosine)	M or sI
Nuclear magnetic resonance	NMR	'a nucleoside'	Nuc or N
Nuclear RNA	nRNA	Pseudouridine	ψ or Q <sup>a</sup>
Optical rotatory dispersion	ORD	'a purine nucleoside'	R
Phosphoric acid residue	P- or -P	'a pyrimidine nucleoside'	Y
Pseudouridine and pseudouridine mononucleotide	ψ and ψMP	Thiouridine	S or sU
Polyacrylamide gel electrophoresis	PAGE	Thymidine (2'-deoxyribosylthymine)	dT
Poly(adenylic acid), polyadenylate <sup>3)</sup>	Poly(A) <sup>3)</sup>	Uridine	U
Polymerase chain reaction	PCR	Xanthosine	X
Restriction fragment length polymorphism	RFLP	Phosphoric residue	-P or p
Ribonuclease	RNase	<sup>1)</sup> The various isomers of adenosine monophosphate may be written 2'-AMP, 3'-AMP, or 5'-AMP (in case of possible ambiguity). A similar procedure may be applied to other nucleoside or deoxyribonucleoside monophosphates.	
Ribonucleic acid	RNA	<sup>2)</sup> NAD(P) <sup>+</sup> and NAD(P)H indicate either NAD <sup>+</sup> or NADP <sup>+</sup> and either NADH or NADPH, respectively.	
Ribosomal RNA	rRNA	<sup>3)</sup> Similarly abbreviate oligo- and polynucleotides composed of repeating sequences or of unknown sequence of given purine or pyrimidine bases, e.g. oligothymidylate, oligo(dT); alternating copolymer of A and U, poly(A-U); random copolymer of A and U, poly(A,U).	
Ribosylthymine 5'-mono-, di-, and triphosphates	TMP, TDP, and TTP	<sup>4)</sup> The d prefix may be used to represent the corresponding deoxyribonucleoside phosphates, e.g. dADP.	
Sodium dodecyl sulfate	SDS	<b>9. Names of Animals, Plants, and Microorganisms</b> —The scientific names are Latin binomials and should be given in full in the title and summary and on first mention in the text (e.g. <i>Escherichia coli</i> ). Subsequently, the generic name may be contracted (usually to the first letter), e.g., <i>E. coli</i> . The strain of laboratory animals and if possible the source should be stated.	
Thin layer chromatography	TLC	<b>10.</b> The cytochromes should be designated by a small italicized letter, e.g. cytochrome <i>a</i> , <i>b</i> <sub>2</sub> , <i>c</i> <sub>1</sub> , etc.	
Thymidine (2'-deoxyribosylthymine) 5'-mono-, di-, and triphosphates	dTMP, dTDP, and dTTP <sup>4)</sup>	<b>IX. COPYRIGHT</b>	
Transfer RNA	tRNA	The Journal is copyrighted by the Japanese Biochemical Society. Requests for any reproduction or translation of this journal should be made in duplicate to the Managing Editor of the Journal,	
Tris(hydroxymethyl)aminomethane	Tris	The Japanese Biochemical Society Ishikawa Building-3f 25-16, Hongo 5-chome, Bunkyo-ku Tokyo 113-0033, Japan	
Ultraviolet	UV	and should include a statement of intended use as well as explicit specifications of the material to be reproduced.	
Uridine diphosphate glucose, etc.	UDP-glucose, etc.	Authors are advised to consult "Notes to Contributors" appearing in every issue of the Journal in which any revisions of "Instructions to Authors" will be announced.	
Uridine 5'-mono-, di-, and triphosphates	UMP, UDP, and UTP	<b>X. CHARGES TO AUTHORS</b>	
(2) Amino acids		A page charge (currently ¥600 and ¥6000 per printed page of a Regular Paper and a Rapid Communication, respectively, and subject to change) is levied to help publication costs. Under exceptional circumstances, when no source of grant or other support exists, the authors may apply, at the time of submission, for a grant-in-aid to the Editor-in-Chief.	
Alanine	Ala (A)		
Arginine	Arg (R)		
Asparagine	Asn (N)		
Aspartic acid	Asp (D)		
Aspartic acid or asparagine	Asx (B)		
Cysteine	Cys (C)		
Glutamic acid	Glu (E)		
Glutamine	Gln (Q)		
Glutamic acid or glutamine	Glx (Z)		
Glycine	Gly (G)		
Histidine	His (H)		
Isoleucine	Ile (I)		
Leucine	Leu (L)		
Lysine	Lys (K)		
Methionine	Met (M)		
Phenylalanine	Phe (F)		
Proline	Pro (P)		
Serine	Ser (S)		
Threonine	Thr (T)		
Tryptophan	Trp (W)		
Tyrosine	Tyr (Y)		
Valine	Val (V)		
(3) Nucleic acids			
Adenosine	A		
Bromouridine	BrUrd or B		
Cytidine	C		
Dihydrouridine	D or hU		