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# INSTRUCTIONS TO AUTHORS

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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 ( $= I/I_0$ );  $\epsilon$ , 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		