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Manuscripts (two copies) should be sent to Dr H.M. Adam, Department of Pharmacology, University of Edinburgh Medical School, 1 George Square, Edinburgh EH8 9JZ, from whom copies of the instructions to authors, published in volume 50 (pages 3-23) of the journal, may also be obtained.

The *British Journal of Pharmacology* is published monthly by Macmillan Journals Ltd, 4 Little Essex Street, London WC2R 3LF.

Annual subscription £26.50 (£32.00 USA & Canada).

(Payment may be made in any currency at the current exchange rate. Orders must be accompanied by remittance. Prices applicable only to subscriptions started before 31st December 1974.)

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INSTRUCTIONS TO AUTHORS

It is the policy of the British Pharmacological Society to publish papers in all fields of pharmacology. Papers should normally be based on new and reliable results obtained experimentally and should constitute a significant contribution to pharmacological knowledge. Papers which reassess pharmacological concepts based on earlier results will also be considered. Papers dealing only with descriptions of new methods are acceptable if new principles are involved.

Contributions that have already been published with essentially the same content or have been accepted in a journal or other freely available printed work will not be considered. This restriction does not apply to results published as abstracts of communications, letters to editors, or as contributions to symposia, provided the results have been published only in an abbreviated form. Papers are accepted only if accompanied by a statement that they have not and will not be published in whole or in part in any other journal.

There are two types of papers; full-length papers and short communications.

Full-length papers

Manuscripts should be typed in duplicate in double spacing on one side of A4 (206 x 294 mm) paper. Papers in recent issues of the *British Journal of Pharmacology* should be consulted for the general lay-out of the paper and also for details. The following subdivisions are used:

1. Title page
2. Abstract
3. Summary
4. Introduction
5. Methods
6. Results
7. Discussion and conclusions
8. Acknowledgements
9. List of references
10. Tables
11. Figures and captions

Title page

There should be a separate title page giving the names and addresses of authors in alphabetical order. It should be made clear which address relates to which author. Authors' present

addresses differing from those at which the work was carried out should be given as a footnote on the title page and referenced at the appropriate place in the author list by superscript numbers. The use of footnotes for any other reason is not allowed. If the address to which proofs should be sent is not that of the first mentioned author, clear instructions should be given in a covering note and not on the title page. The title page should be paginated as page 1 of the paper.

A short running title containing not more than 50 characters and spaces should also be suggested.

Abstract

The abstract of about 100 words suitable for inclusion in an abstracting journal should be typed on a separate sheet and not paginated as part of the paper.

Summary

The summary will be printed at the beginning of the paper. It should not exceed 5% of the length of the paper and should contain a precise account of the problem, the methods, results and the conclusions. It should be arranged in numbered paragraphs which should be concise but not unnecessarily numerous.

Introduction

The introduction should give a concise and clear account of the background of the problem and the rationale of the investigation. Only previous work that has a direct bearing on the present problem should be quoted.

Methods

The methods must be described in sufficient detail to allow the experiments to be interpreted and repeated by the reader, e.g. the method of anaesthesia must be described. Where anaesthetics are not used, or where recovery from anaesthesia takes place, procedures must be as humane as possible, and must be compatible with the laws on animal experimentation in the United Kingdom (Cruelty to Animals Act). When clinical trials or investigations on human subjects are reported, evidence of approval by the local Ethical Committee must be given. Any modification of previously published methods should be described and the reference given. If the methods are commonly used, only a reference to the original source is required. Composition of salt

solutions are best given in mM; if actual weights are preferred, it is important to state whether anhydrous or crystallized salts were used.

Drugs should be listed in a separate paragraph. Their names should be 'approved names' as published previously by the British Pharmacopoeia Commission (1970) and now by the Medicines Commission and in the supplementary lists. If a drug has no 'approved name' its chemical name must be used and the rules set out in the *Handbook for Chemical Society Authors* (London, Chemical Society, 1961) observed, or its structural formula given. Cumbersome chemical names should be suitably abbreviated for later reference in the paper. If a particular proprietary preparation was used, it should be referred to by the trade name (beginning with a capital letter) and the manufacturer should be given in brackets.

The doses of the drugs should be given as unit weight/body weight, e.g. mmol/kg or mg/kg; concentrations should be given in terms of molarity, e.g. nM or μM . Molarity should refer to the active component since, for instance, a 10 μM physostigmine sulphate solution is 20 μM with respect to physostigmine. Alternatively, concentrations may be given as unit weight per unit volume of solution; when the drug is a salt, it should be stated whether the weight refers to the salt or the pharmacologically active base or acid. The nature of the salt and the presence of water of crystallization should always be indicated. It will be generally useful to state the molecular weight of the material.

Results

The description of the experimental results should be succinct but, nevertheless, in sufficient detail to allow the experiments to be repeated by others. Typical single experiments may be presented with a clear statement that n number of similar experiments had similar results. If possible, however, the mean results with confidence limits or with standard errors of the means and the number of observations should be given. The significance should be given as values of probability. Unwarranted numbers of digits should be avoided. Presentations in the form of tables are preferred to graphs which are expensive to print. Data should not be unnecessarily repeated in the text, tables and figures. Conclusions and theoretical considerations *must* not be elaborated in this section.

Discussion

The purpose of the discussion is to present a pertinent interpretation of the results against the

background of existing knowledge. Any assumptions on which conclusions are based must be stated clearly. A mere recapitulation of the results is not acceptable. A review-like treatment, which reduces the impact on the reader, should also be avoided.

Acknowledgements

Acknowledgements should be brief but should include reference to sources of support. Sources of drugs not freely available commercially should be acknowledged.

References

The list of references must be arranged alphabetically according to the surname of the first author. If there are two or more first authors with identical surnames, the names should be arranged according to the first author's initials. Papers with more than one author should follow the paper by the first author alone and should be arranged alphabetically according to the second author's and then the following authors' names. If the sequence of the authors is identical, the references should be arranged according to the date of publications.

In the text, reference to published work should be made by giving the names of the authors and the year of publication, e.g. 'Dale, Hadfield & King (1923) have shown' or 'It has been shown (Dale, Hadfield & King, 1923)'. If a paper with more than two authors is quoted repeatedly, all names should be given the first time but, when repeated, the quotation should be Dale *et al.* (1923) or (Dale *et al.*, 1923). References to 'unpublished observations' or 'personal communications' should be mentioned in the text only, e.g. (XYZ, personal communication) and not included in the list of references. Papers which have been submitted *and accepted* for publication, should be included in the list of references with the names of the periodical and 'in press'. Papers in preparation must not be included in the list of references.

The abbreviations used for the references are those of the most recent edition of the *World List of Scientific Periodicals*. For new periodicals consult the annual editions of *New Periodical Titles of the World List* or the *British Union-Catalogue of Periodicals*. A selected list of abbreviations has been issued by the Biological Council. The AUTHORS' names are followed by the year of publication in brackets. The title of the article is given in full, followed by the *abbreviated title of the periodical*, volume number and first and last page numbers. References to articles in books consist of names of AUTHORS, year of publication,

title of article followed by the *title of the book*, the editors, volume number, if any, and page numbers, the place of publication and the names of the publishers. For example:

DALE, H.H., HADFIELD, C.F. & KING, H. (1923). The anaesthetic action of pure ether. *Lancet*, 1, 424-429.

VON EULER, U.S. (1972). Synthesis, uptake and storage of catecholamines in adrenergic nerves. In *Catecholamines, Handb. exp. Pharmac.* N.S. Vol. 33, ed. Blaschko, H. & Muscholl, E. pp. 186-230. Berlin and Heidelberg: Springer-Verlag.

Failure to adhere strictly to this style of presentation could result in publication delays.

Tables

Each table should be given on a separate page, paginated as part of the paper. Tables should be numbered consecutively with arabic numerals and the number should be followed by a brief descriptive caption, occupying not more than two lines, at the head of the table. The proportions of the text area should be borne in mind when designing the layout of tables. For the sake of clarity, tables should not have more than 85 characters to a line, with spaces between columns counted as four characters. The absolute maximum is 110 characters to a line. Column headings should be marked for setting in italics (underlined in the typescript). Ruled lines should *not* be shown in any table except in those very exceptional cases where clarity of layout cannot be achieved by the use of space alone. Vertically ruled lines must *never* be used. Except in special circumstances, tables should be self-explanatory; the necessary descriptions should be at the bottom of the table. References to individual items should be made by using the following symbols: * † ‡ § ¶.

Figures

These should not be larger than size A4 (206 x 294 mm). Author's names should be given on the back of the figures; the number and the top of the figure (if critical and not obvious) should also be indicated. Original drawings in black ink on white stout paper or faint blue graph paper are preferred but, although most figures will be re-drawn, to conform with the style and conventions of the journal, it is most important that all figures should be prepared with care. Two sets of figures (or one set and one photocopy) should be submitted with each manuscript. All lettering should be clearly indicated, but only on one set of the figures. Good photographic copies of original drawings are also acceptable. Original drawings or

their photographic reproductions must be larger than, but not more than twice as large as their final size in the journal. It is of the greatest importance that the final size of the symbols after reduction must not be smaller than 2 mm in diameter and the lines not less than 0.2 mm broad; the respective values in the original drawings should therefore be about 4 mm and 0.4 mm. Symbols should be chosen from the following set and, as far as possible, should be used in the sequence presented here.

● ■ ▲ ○ □ △ ●

Tracings may be in the form of originals or high quality photographic prints on matt paper. If the tracings are made on lined paper then, wherever possible, the grid should be painted out in white. Photographs and micro-photographs should be printed on glossy paper. The size should be larger than, but not more than twice as large as the final size in the journal. Lettering should be shown on one set only. The originals of ECG's and other records which have a lined background are preferred to photographic copies. Negative prints of kymograph and oscilloscope tracings should be used so that the tracings appear black on white and large black areas are avoided. In all tracings or graphs, both abscissae and ordinates should be calibrated. The proportions of the printed page should be borne in mind when preparing all figures.

Captions should explain the figures in sufficient detail that, in most circumstances, they can be understood without reference to the text. Each figure should be accompanied by a caption typed on a separate sheet of paper and paginated as part of the paper.

Unsatisfactory figures may be returned to the author for revision, or may be the reason for rejection of the paper.

Instructions to printers. The desired type style should be indicated on the manuscript by underlining the appropriate characters according to the following conventions:

<u>~~~~~</u>	bold type	<u>=====</u>	italic capitals
<u>=====</u>	capitals	<u>=====</u>	small capitals
<u>————</u>	italics		

e.g. for list of references: Dale, H.H., Hadfield, C.F. & King, H., or for headings of paper: Introduction, Methods.

Proofs. Once a manuscript has been accepted for publication, any alterations at the proof stage which represent departures from the original manuscript will be at the expense of the author, except in special circumstances.

Short communications

The main purpose of short communications is the rapid publication of new results which may be of importance to other workers in the field. They are therefore accepted as they stand or with minor revision, or they are rejected. If there is material worth publishing, but significant revision is required, the Board may propose publication as a short paper without special priority. Typescripts must be submitted in duplicate in double spacing on one side of size A4 paper and conform in every respect to the format and conventions of the journal as outlined under 'Full-length papers'. Particular attention must be paid to correctness of abbreviations, grammar and spelling. The length, including title, summary and references, must not exceed 1200 words plus one figure or one table. There should be a short summary consisting of a single paragraph, followed by introduction, methods, results, discussion and select references. A brief abstract on a separate sheet should be included.

Abbreviations and symbols

The *British Journal of Pharmacology* now uses the SI symbols for units. The appended list of abbreviations has been reprinted, with permission, from *Units, Symbols and Abbreviations. A guide for biological and medical editors*. Revised reprint, ed. Ellis, G. pp 13-35, London, The Royal Society of Medicine, 1972. Words for which abbreviations are not included should be written in full at first mention in the summary and again in the text and followed by the abbreviation in brackets. In general, abbreviations should be kept to a minimum.

Use of the solidus. Expressions involving more than one solidus, e.g. pmol/sq mm/min, must be avoided, as they can be interpreted in two ways. In general, the use of negative indices, e.g. pmol mm⁻² min⁻¹, will avoid this difficulty, although sometimes rephrasing may be preferable, e.g. 'the average water intake per rat was 3.0 ml/day', rather than 'the average water intake was 3.0 ml/day/rat'.

Prefixes for SI units. The following prefixes

should be used to indicate decimal fractions or multiples of units in place of 10⁻ⁿ or 10ⁿ.

<i>Fraction</i>	<i>Prefix</i>	<i>Symbol</i>
10 ⁻³	milli	m
10 ⁻⁶	micro	μ
10 ⁻⁹	nano	n
10 ⁻¹²	pico	p
10 ⁻¹⁵	femto	f
10 ⁻¹⁸	atto	a
<i>Multiple</i>	<i>Prefix</i>	<i>Symbol</i>
10 ³	kilo	k
10 ⁶	mega	M
10 ⁹	giga	G
10 ¹²	tera	T

Thus, micron = μm; ångström = 0.1 nm. Mixed prefixes are not permissible, thus cmg should be 10 μg and mμg should be ng. The symbols d (10⁻¹) and c (10⁻²) should be restricted to those occasions on which there is a strongly felt need for them (e.g. cm).

The sense of the italicized words in the recommendations is as follows:

<i>use</i>	this is the usage recommended
<i>or</i>	there is at present no firm recommendation. Example: growth hormone <i>or</i> somatotrophin
<i>preferred, preferably</i>	it is hoped that in time the <i>preferred</i> alternative will become universal, but the non-preferred alternative will not cause confusion. Example: nanometre is <i>preferred</i> to ångström
<i>avoid</i>	this should not be used, unless avoidance would cause greater confusion; it particularly applies to imperial units (e.g. inch), which may, however, be needed when quoting measurements made under less strict conditions; it is important to give the SI ('metric') equivalent (approximate conversion factors are given in the list)
<i>not</i>	should never be used, as it will cause confusion

References mentioned in the recommendations are listed on page 23.

absolute	abs.	
absorbance	<i>A</i>	
acceleration	<i>a</i>	
acceleration due to gravity	<i>g</i>	
acid-fast bacillus	a.f.b. <i>or</i> AFB	
activity (physical chemistry)	<i>a</i>	
activity (nuclear physics)	<i>A</i>	
adenosine 5'-phosphate, 5'-pyrophosphate, 5'-triphosphate	AMP, ADP, ATP	
adrenocorticotrophic hormone	ACTH	<i>or</i> corticotrophin; the alternative endings, -tropic and -tropin, are more generally used internationally
alternating current	a.c.	
amino acid		<i>avoid</i> amino-acid, aminoacid, except in compound words, e.g. aminoaciduria; for symbols for individual amino acids <i>see</i> ref. (1)
ampere	A	<i>not</i> amp
analytical standard of reagent purity	A.R.	
anatomical nomenclature		<i>see</i> ref. (2)
ångström	Å	<i>preferably</i> use SI units: 1 Å = 10 ⁻¹ nm
angular velocity or frequency	ω	
anhydrous	anhyd.	
ante meridiem	a.m.	24 h clock <i>preferred</i> ; e.g. 18 h 30 min <i>or</i> 1830, <i>not</i> 18.30 h
anterior	ant.	
antidiuretic hormone	ADH	
approximate(ly)	approx.	
approximately equals	≈	
aqueous	aq.	
area	<i>A</i>	
ascorbic acid		vitamin C <i>preferred</i> for consideration of biological activity
atmosphere (as unit of pressure)	atm	<i>avoid</i> ; give SI equivalent: 1 atm ≈ 101 kPa
atmospheric	atm.	
atomic mass	at. mass	
atomic weight	at. wt.	<i>preferably</i> use relative atomic mass (i.e. referred to the unit which is one twelfth the mass of the atom of ¹² C)
atto- (10 ⁻¹⁸ x)	a	
average	av.	

Avogadro constant	N_A or L	
Bacille Calmette-Guérin bacteria—terminology of	B.C.G.	<i>see</i> ref. (3); use italics for species identification; roman type in general text, especially as adjectives— <i>see</i> ref. (4); for abbreviations of names of species, <i>see</i> ref. (5)
ballistocardiogram (-graph)	b.c.g. or BCG	
bar	bar	<i>preferably</i> use SI units: 1 bar = 100 kPa
basal metabolic rate	b.m.r. or BMR	
billion		<i>do not use</i> : specify whether 10^9 or 10^{12}
biochemical terminology and symbols		<i>see</i> refs (1) and (6)
blood coagulation—terminology		<i>see</i> ref. (7)
blood groups—terminology		<i>see</i> ref. (7)
blood pressure	BP or b.p.	
boiling point	b.p.	
British National Formulary	B.N.F. (with date)	
British Pharmaceutical Codex	B.P.C. (with date)	
British Pharmacopoeia	B.P. (with date)	
British Standard	B.S.	
bulk modulus	K	
calciferol		ergocalciferol is vitamin D_2 , cholecalciferol is vitamin D_3 ; vitamin D is generic descriptor for biological activity
calculated	calc.	
calorie	cal	<i>preferably</i> use joule: 1 cal \approx 4.2 J
candela	cd	
capacitance	C	
cardiovascular system	c.v.s. or CVS	
centi- (10^{-2} ×)	c	
centigrade		<i>use</i> Celsius ($^{\circ}\text{C}$)
centimetre, square centimetre, cubic centimetre	cm , cm^2 , cm^3	ml <i>preferred</i> to cm^3 for general purposes; <i>use</i> cm^3 for results of high precision, or when derived from linear measurements
centimetres of water (pressure)	cmH_2O	<i>use only</i> when measured manometrically; give SI equivalent: 1 $\text{cmH}_2\text{O} \approx$ 98 Pa at s.t.p.

central nervous system	c.n.s. <i>or</i> CNS	
centre of gravity	c.g.	
centrifugal conditions		<i>see</i> ref. (1)
cerebrospinal fluid	c.s.f. <i>or</i> CSF	
change per 10°C rise	Q_{10}	
chemical terminology and symbols		<i>see</i> refs (1), (8) and (18)
chi-squared (statistics)	χ^2	with stated number of degrees of freedom
chorionic gonadotrophin	CG	
clearance	C	e.g. C_{PAH} , C_{urea}
cobalamin derivatives		vitamin B ₁₂ <i>preferred</i> for consideration of biological activity
coefficient	coeff.	
coenzyme A	CoA	
coenzyme I		<i>use</i> NAD etc.; <i>see</i> ref. (1)
coenzyme II		<i>use</i> NADP etc.; <i>see</i> ref. (1)
compare	cf.	
compliance (respiratory)	C	
compound	cpd.	in titles of medicinal preparations, Co. is conventionally used
compressibility	κ	
concentrated	conc.	
concentration, molar (moles per litre)	c	strictly, 'molar' means 'divided by amount of substance'
concentration, molecular	C	
concentration—of substance given as formula	[]	e.g. hydrogen ion concentration: $[\text{H}^+]$
conductance	G	
constant	const.	
corrected	corr.	
correlation coefficient: of hypothetical population of observed sample	ρ r	
coulomb	C	
counts per minute	ct/min	<i>preferred</i> to c.p.m.
critical	crit.	
crystalline	cryst.	
cubic	cu.	but with units, e.g. cubic millimetre: mm^3
curie	Ci	1 Ci = $3.7 \times 10^{10} \text{ s}^{-1}$

cycles per second	Hz	hertz is <i>preferred</i> to c/s
date		22 March 1972 is unambiguous: if only digits are used the ISO recommendation is 1972-03-22 <i>or</i> 19720322
day	d	
deca- (10 x)	da	
decay constant	λ	
deci- (10^{-1} x)	d	e.g. decilitre (100 ml): dl
decibel	dB	
decimal point		typed or printed on the line; in most Continental publications the comma is used as the decimal sign, and should therefore be avoided as a spacer for grouping figures in thousands in English texts
decomposition	decomp.	
degree Celsius (centigrade)	$^{\circ}\text{C}$	
degree Fahrenheit	$^{\circ}\text{F}$	<i>avoid</i> , give Celsius <i>or</i> kelvin equivalent
degree Kelvin (absolute)	$^{\circ}\text{K}$	<i>avoid</i> : the kelvin (K) replaces $^{\circ}\text{K}$ for both temperature interval and thermodynamic temperature
degree (angular)	$^{\circ}$	deg may be used if $^{\circ}$ is unsuitable, for example as a heading to a column in a table
degrees of freedom (statistics)	d.f.	
density	ρ	
deoxycorticosterone acetate	DOCA	
deoxyribonucleic acid	DNA	
dextro- (configuration)	D-	
dextro- (optical rotation)	(+)-	
dextrose		<i>use</i> glucose
dialysate		<i>diffusate preferred</i>
diameter	diam.	
diameter (symbol for quantity)	d	
diameter, inside	i.d.	
diameter, outside	o.d.	
diffusion coefficient	D	
dilute	dil.	
diopetre	D	
diopetre, prism	Δ	
direct current	d.c.	
disease, nomenclature of		there is no universally agreed system, but <i>see</i> ref. (9)

disintegrations per minute	d/min	<i>preferred to d.p.m.</i>
dissociation, degree of	α	
dissociation constant, negative logarithm of	pK	
distilled	dist.	
doses		<i>avoid Latin phrases and abbreviations, such as 'ter in die (t.i.d.)' for 'three times daily'</i>
DPN (H)		<i>use NAD etc.</i>
dry ice		<i>use solid CO₂</i>
dyne	dyn	<i>preferably use SI units: 1 dyn = 10 μN</i>
edition	edn.	
editor(s)	ed.	
effective dose, median	ED ₅₀	
electric current	I	
electrocardiogram	e.c.g. <i>or</i> ECG	
electroconvulsive therapy	e.c.t. <i>or</i> ECT	
electroencephalogram	e.e.g. <i>or</i> EEG	
electromagnetic unit	emu	<i>avoid, use SI units</i>
electromotive force	e.m.f.	
electromyogram	e.m.g. <i>or</i> EMG	
electron spin resonance	e.s.r.	
electronvolt	eV	1 eV \approx 0.16 aJ
electroretinogram	e.r.g. <i>or</i> ERG	
electrostatic unit	esu	<i>avoid, use SI units</i>
energy (heat)	Q	
energy (mechanics)	E	
energy (radiant)	W	
enzyme terminology		<i>see refs (1), (10) and (16)</i>
enzyme units (international)	iu	<i>as micromoles of substrate transformed per minute under specified conditions which must be defined; see katal</i>
equation	eqn.	
equilibrium constant	K	
equivalent (general use)	equiv.	
equivalent (unit of substance)		<i>preferably use mole</i>
erg	erg	<i>preferably use SI units: 1 erg = 0.1 μJ</i>

erythrocyte sedimentation rate	e.s.r. <i>or</i> ESR	
ethanol		<i>not</i> ethyl alcohol
ethylenediaminetetracetic acid	EDTA, <i>or</i> edetic acid (especially in pharmacy)	<i>not</i> Versene, <i>not</i> Sequestrene
experiment	expt.	
experiment(s) (with reference number)	Expt(s).	e.g. 'in Expts. 2 and 3'
experimental	exptl.	
extinction: $\log_{10} (I_0/I)$	<i>E</i>	
extinction coefficient—molar	ϵ	
extracellular fluid	e.c.f. <i>or</i> ECF	
farad	F	
fatty acids, free	FFA	
fatty acids, nonesterified	NEFA	
femto- (10^{-15} x)	f	e.g. femtolitre: fl
figure(s) (with reference number)	Fig.(s)	e.g. Fig. 3
figure (diagram)	fig.	
fluid ounce	fl oz	<i>avoid</i> ; give SI equivalent: 1 fl oz \approx 28 ml
folic acid and derivatives		folacin <i>preferred</i> as generic descriptor for biological activities
follicle-stimulating hormone	FSH	
foot	ft	<i>avoid</i> ; give SI equivalent: 1 ft \approx 0.3 m
freezing point	f.p.	
frequency	<i>f or v</i>	
friction, coefficient of	μ	
gallon (U.K.)	gal	<i>avoid</i> ; give SI equivalent: 1 gal \approx 4.5 litres
gamma: γ (10^{-6} gram)		<i>avoid</i> ; use microgram (μ g)
gas constant, per mole	<i>R</i>	
gas-liquid chromatography	g.l.c.	
gauss	G	<i>preferably</i> use SI unit, the tesla: 1 G = 10^{-4} T
Geiger-Muller	G.M.	
generations (for pedigrees etc.)		<i>use</i> roman numerals: I, II, ... (but F ₁ , F ₂ ...); for individual subjects in each generation <i>use</i> arabic numerals: 1, 2, 3, ...
genus	gen.	

genus, new	gen. nov.	
giga- ($10^9 \times$)	G	
glomerular filtration rate	g.f.r. or GFR	
glucose	Glc or G	<i>not</i> Glu (glutamic acid), if ambiguous, <i>avoid</i> G (also guanosine); <i>avoid</i> dextrose
grain		<i>avoid</i> ; <i>do not</i> abbreviate; give SI equivalent: 1 grain \approx 65 mg
gram	g	gramme is the Continental spelling: gram is now accepted in Britain and is also found in compound words
gram-ion	g-ion	<i>avoid</i> as obsolete; <i>use</i> mole
gram-molecule		<i>avoid</i> ; <i>use</i> mole
gravity, acceleration due to	g	
growth hormone	GH	<i>or</i> somatotrophin, STH
haematological nomenclature		<i>see</i> ref. (7)
haematoxylin and eosin	HE	
haemoglobin	Hb	for abnormal haemoglobin nomenclature, <i>see</i> ref. (7)
half disappearance time	h.d.t.	
half-life	$T_{1/2}$	
half-value layer	h.v.l.	
hecto- ($10^2 \times$)	h	
height	ht.	
height (symbol for quantity)	<i>h</i>	
henry	H	
hertz	Hz	<i>use</i> for frequency of repetition of cyclic phenomena
high frequency	h.f.	
horse power	hp	<i>avoid</i> ; give SI equivalent: 1 hp \approx 746 W, 1 metric horse power \approx 736 W
hour	h	
human chorionic gonadotrophin	HCG	
human serum albumin	HSA	
hundredweight	cwt	<i>avoid</i> ; give SI equivalent: 1 cwt \approx 51 kg
hydrogen-ion concentration	[H ⁺]	
hydrogen-ion activity, negative logarithm of (hydrogen-ion exponent)	pH	plural, pH values
immunoglobulins	IgA, IgD, IgE, IgG, IgM	

impedance	Z	
inch	in	<i>avoid</i> ; give SI equivalent: 1 in = 25.4 mm; do not abbreviate if confusion possible with preposition 'in'
increment	Δ	
inertia, moment of	I	
infrared	i.r.	
inhibitor constant	K_i	
insoluble	insol.	
intelligence quotient	IQ or i.q.	
intensity (sound, light)	I	
international unit	iu	<i>use</i> SI units if possible; iu must be defined
intra-arterial	i.a.	
intracellular fluid	i.c.f. or ICF	
intramuscular	i.m.	
intraperitoneal	i.p.	
intravenous	i.v.	
intravenous pyelogram	i.v.p. or IVP	
ionic strength	I	
isoenzyme		<i>avoid</i> isozyme; the isoenzyme that runs fastest towards the anode on electrophoresis is numbered isoenzyme-1
isotope (atomic mass) labelling		left superscript, e.g. iodine-131 = ^{131}I ; meta-stable states, right superscript e.g. $^{99\text{m}}\text{Tc}$
isotopically labelled compounds		when exact chemical nature of substitution is uncertain or name of substance labelled is descriptive rather than chemical, <i>use</i> e.g.: ^{131}I -labelled albumin, ^{51}Cr -labelled erythrocytes
isotopically substituted compounds		give substituting atom(s) in square brackets before compound, e.g. [^{14}C] urea; <i>see</i> refs (1) and (8)
joule	J	
katal	kat	enzyme unit for transformation of one mole of substrate per second under defined conditions
kelvin	K	replaces $^{\circ}\text{K}$
17-ketosteroid		<i>use</i> 17-oxosteroid (17-OS)
kilo- ($10^3 \times$)	k	e.g. kilogram: kg; K is used in describing computer storage for 1000 or 1024 words or bytes

kilocalorie (medical calorie, Calorie)	kcal	joule is <i>preferred</i> ; if used only for general nutritional purposes, give SI equivalent: 1 kcal \approx 4.2 kJ
kilogram force; kilopond	kgf; kp	<i>preferably</i> use SI units: 1 kgf = 1 kp \approx 9.8 N
kilowatt hour	kW h	<i>preferably</i> use SI unit, the joule: 1 kW h = 3.6 MJ
Krebs cycle		use tricarboxylic cycle
Krebs-Ringer solution		give reference or composition
laevo- (configuration)	L-	
laevo- (optical rotation)	(-)-	
laevulose		use fructose
lambda: λ (10^{-6} litre)		avoid; use microlitre (μ l) or mm ³
length	l	
lethal dose, median	LD ₅₀	
light intensity	I	
lipid		avoid lipide, lipoid
litre	l	1 l = 1 dm ³ (by definition, 'special name for dm ³ '); <i>do not use</i> for results of high precision; <i>do not</i> abbreviate in typing or printing if it could be confused with 1 (numeral one)
logarithm (any base)	log	
logarithm to base e	log _e or ln	
logarithm to base 10	log ₁₀ or lg	
long-acting thyroid stimulator	LATS	
low frequency	l.f.	
lumen (unit of luminous flux)	lm	
luteinizing hormone	LH	
luteotrophin	LTH	
lux	lx	
mass	m	
maximal tubular (reabsorption etc.)	Tm	e.g. Tm _{PAH}
maximum	max.	
mean value of x (statistics)	\bar{x}	
mean value of hypothetical population	μ	
mean value of observed population	m	
mega- (10^6 x)	M	e.g. megaelectronvolt: MeV
megacycles per second	MHz	megahertz is <i>preferred</i> to Mc/s

melanophore-stimulating hormone	MSH	
melting point	m.p.	
menaquinone and derivatives		vitamin K <i>preferred</i> as generic descriptor for biological activities
meta-	<i>m</i> -	
methanol		<i>not</i> methyl alcohol
metre	m	
Michaelis constant	K_m	
micro- (10^{-6} x)	μ	e.g. microgram: μg
microgram	μg	when in prescriptions, write in full
micromicro- (10^{-12} x)		<i>avoid</i> ; use pico-
micron: μ (10^{-6} metre)		<i>avoid</i> ; use micrometre (μm); μ standing alone is the symbol for muon
mile		<i>avoid</i> ; give SI equivalent: 1 statute mile \approx 1.6 km; 1 nautical mile \approx 1.85 km; <i>do not</i> abbreviate
milli- (10^{-3} x)	m	e.g. milligram: mg
milliequivalent	mEq	the symbol is conventional, despite equivalent = equiv.; millimole (mmol) is <i>preferred</i>
millimetres of mercury (pressure)	mmHg	almost exactly equals 1 Torr; use only when conventional, and measurement has been made with a mercury manometer, e.g. for blood pressure; give SI equivalent: 1 mmHg \approx 133 Pa
millimicro- (10^{-9} x)		<i>avoid</i> ; use nano-
millimicron ($\text{m}\mu$)		<i>avoid</i> ; use nanometre (nm)
millimole	mmol	
milliosmole	mosmol	millimole (mmol) may be <i>preferred</i>
minimal inhibitory concentration/dose	m.i.c./m.i.d.	
minimum	min.	
minute (of arc)		
minute (time)	min	
mobility (electrophoresis)	<i>m</i>	
molal		<i>avoid</i> ; use mol/kg
molar (concentration)	M	} <i>preferably</i> use mol/l; molar strictly means 'divided by amount of substance'; the symbol M <i>never</i> means mole (amount of substance)
molar (with chemical formula)	M.	
mole (unit of amount of substance)	mol	replaces gram-molecule, gram-ion, gram-formula, gram-atom, equivalent, etc.
molecular mass	mol. mass	

molecular weight	mol. wt.	<i>preferably</i> use relative molecular mass
month		<i>preferably</i> do not abbreviate
nano- (10^{-9} x)	n	e.g. nanometre: nm
National Physical Laboratory	N.P.L.	
newton	N	
nicotinic acid and derivatives		niacin <i>preferred</i> as generic descriptor for biological activity
non-protein nitrogen	NPN	
normal (concentration)	N }	<i>avoid</i> ; mol/l is <i>preferred</i>
normal (with chemical formula)	N- }	
normal saline		<i>do not use</i> ; isotonic or iso-osmotic saline is acceptable; <i>preferably</i> give composition
normal temperature and pressure		<i>avoid</i> ; use 'standard temperature and pressure', s.t.p.
nuclear magnetic resonance	n.m.r.	
number	no.	but when identifying, <i>use</i> e.g. No. 4
numbers, large and small— expression of		<i>either</i> with powers of ten, <i>or</i> grouped in threes without commas, e.g. one and half million = 1.5×10^6 <i>or</i> 1 500 000; for high or low values of units, use appropriately prefixed unit, e.g. 1.5×10^6 volts = 1.5 MV: the resulting numerical value should be between 0.1 and 1000
number of moles (amount of substance)	<i>n</i>	
number of observations (statistics)	<i>n</i>	
numerical aperture	n.a.	
observed	obs.	
ohm	Ω	
optical density	<i>D</i>	to be used only for non-monochromatic light, or for suspensions
optimum	opt.	
ortho-	<i>o-</i>	
osmole	osmol	mole may be <i>preferred</i>
osmotic pressure	Π	
ounce	oz	<i>avoid</i> ; give SI equivalent: 1 oz \approx 28 g
oxygen consumption	Q_{O_2}	measured as μ l per mg dry mass per hour; Q_{O_2} is acceptable and simpler to print
packed cell volume	p.c.v. <i>or</i> PCV	

page/pages	p./pp.	
para-	p-	
paragraph	para. or ¶	
partial pressure	P	e.g. P_{CO_2} ; PCO_2 is simpler to print and is acceptable
parts per million	parts/ 10^6	<i>preferred</i> to p.p.m.
pascal	Pa	name for newton per square metre
per	/	<i>see</i> solidus
per cent	%	<i>or</i> in full; <i>do not use</i> for /100 ml; <i>avoid</i> for concentrations of solutions
per thousand	/ 10^3	<i>avoid</i> ‰; <i>preferably</i> write in full
periodic acid Schiff reagent	PAS	
petroleum ether		<i>avoid</i> ; <i>use</i> light petroleum; give b.p. range
phonocardiogram	p.c.g. or PCG	
physical terminology and symbols		<i>see</i> refs (11) and (12)
physiological terminology and symbols		<i>see</i> ref. (13)
pico- (10^{-12} x)	p	e.g. picogram, pg; <i>not</i> μg
plasma concentration of	P	usually with subscript, e.g. P_{urea}
poise	P	<i>preferably</i> use SI units: 1 P = 0.1 Pa s
posterior	post.	
post meridiem	p.m.	24 h clock <i>preferred</i> : <i>see</i> under a.m.
post mortem		<i>use</i> adjectivally; <i>use</i> 'necropsy' for the noun
potential difference	p.d.	
pound	lb	<i>avoid</i> ; give SI equivalent: 1 lb \approx 0.45 kg
pound-force	lbf	<i>avoid</i> ; give SI equivalent: 1 lbf \approx 4.4 N
pound-force per square inch	lbf/in ²	<i>avoid</i> ; give SI equivalent: 1 lbf/in ² \approx 6.9 kPa
precipitate (chemistry)	ppt.	
pregnant mare's serum gonadotrophin	PMSG	
preparation	prep.	
pressure	p	
probability (significance level in a statistical test)	P	
prolactin (luteotrophic hormone, lactogenic hormone)	LTH	<i>or</i> mammotrophic hormone, MH
psychological terminology and abbreviations		<i>see</i> ref. (14)
pyridoxine (al)		vitamin B ₆ <i>preferred</i> for consideration of biological activity

radian	rad	
radiation absorbed dose (rad)	rad	1 rad = 0.01 J/kg; if there is possible confusion with rad as symbol for radian, then write in full—this is <i>preferred</i> to using rd
radiation dose equivalent (for protection purposes)	rem	acronym for 'radiation equivalent man'
radius	r	
reaction time (neurophysiology)	r.t. or RT	
recrystallized	recryst.	
red blood corpuscle	r.b.c. or RBC	or erythrocyte
redox potential	E'_0	
refractive index	n	
relative band speed to front (chromatography)	R_F	
relative band speed to reference compound X	R_X	
relative biological effectiveness	r.b.e.	
relative density	d	
relative humidity	r.h.	
relative mobility (electrophoresis)	M, M_X	
relative retention time (gas chromatography)	t_r	
remainder	rem.	
renal plasma flow	r.p.f. or RPF	
resistance	R	
respiratory exchange ratio	R	
respiratory physiology terminology and symbols		see refs (13) and (15)
respiratory quotient	RQ or r.q.	
respiratory system	r.s. or RS	
retinol and derivatives		vitamin A <i>preferred</i> as generic descriptor for consideration of biological activity
revolutions per minute	rev/min	not r.p.m.
riboflavin		use also for consideration of biological activity
ribonucleic acid	RNA	
röntgen	R	
root mean square	r.m.s.	
saturated (-ion)	sat.	

saturation (symbol for quantity)	<i>S</i>	e.g. oxygen saturation: SO_2
second (of arc)	"	
second (unit of time)	<i>s</i>	
section	§	
sedimentation coefficient (ultracentrifugation)	<i>s</i>	
siemens	<i>S</i>	
solidus—per	/	e.g. ml/m^2 or $ml\ m^{-2} = ml\ per\ m^2$; <i>avoid</i> more than one solidus as this leads to mathe- matically ambiguous statements: e.g. <i>not</i> $ml/m^2/h$, <i>but</i> $ml\ m^{-2}\ h^{-1}$ or $ml/m^2\ h.$; central points may be used; e.g. $ml \cdot m^{-2} \cdot h^{-1}$
soluble	sol.	
solution	soln.	
species	sp.	plural spp.
species, new	sp. nov.	
specific	sp.	in physics means 'divided by mass'
specific activity	sp. act.	
specific gravity	sp. gr.	<i>preferably</i> use relative density
specific heat	sp. ht.	
spinal segments		C6, L5, etc.
square (d)	sq.	but with units, e.g. square centimetre: cm^2
standard deviation: (of hypothetical population)	σ	
(of observed sample)	<i>s</i> or <i>s.d.</i>	
standard error (of estimate mean value)	s.e. mean	
standard error (of sampling)	s.e.	<i>not</i> \pm
standard temperature and pressure	s.t.p.	
standard wire gauge	s.w.g.	give SI dimensions
steradian	sr	
stilb	sb	<i>preferably</i> use SI units: $1\ sb = 1\ cd\ cm^{-2} = 10^4\ cd\ m^{-2}$
stokes	St	<i>preferably</i> use SI units: $1\ St = 10^{-4}\ m^2/s$
strain (taxonomy)	str.	
strain, linear	ϵ	
strain, volume	θ	
stress	σ	
Student's <i>t</i> (statistics)	<i>t</i>	with stated number of degrees of freedom
subcutaneous	s.c.	

sum (statistical): of hypothetical population of observed sample	Σ <i>S or Σ</i>	use upright sigma as mathematical operator, e.g. Σx^2
surface tension	σ	
Svedberg unit	S	10^{-13} s
Svedberg flotation unit	S_f	
teeth—symbols for		name in full, e.g. right upper canine, but <i>see</i> ref. (17)
temperature	temp.	
temperature (symbol for quantity)	<i>T</i> (absolute) <i>t</i> (other, customary)	
tension (of gases in liquids; physiology)		<i>use</i> partial pressure, e.g. PCO_2 , PO_2
tera- (10^{12} x)	T	
tesla	T	
thiamin		also <i>preferred</i> to vitamin B ₁ for considera- tion of biological activity
thin layer chromatography	t.l.c.	
thyroid-stimulating hormone	TSH	<i>or</i> thyrotrophin
thyroxine	T ₄	similarly triiodothyronine, T ₃ ; define at first use
time	<i>t</i>	
time, period of cycle	<i>T</i>	
time, rate with (physiology)	•	e.g. \dot{V} , gas volume per unit time
tocopherol		vitamin E <i>preferred</i> for consideration of biological activity
tonne	t	1 t = 1000 kg = 1 Mg
torr	Torr	<i>avoid; use</i> SI units: 1 Torr \approx 1 mmHg \approx 133 Pa
TPN(H)		<i>use</i> NADP etc.
trichloroacetic acid	TCA	
ultraviolet	u.v.	
unit	u	<i>preferred</i> to U, which is conventional; to be used, when unavoidable, for arbitrary units, which must be defined; in atomic physics the symbol u means 'atomic mass unit', the dalton
urinary concentration of	<i>U</i>	usually with subscript
vacuum	vac.	
valency		e.g. divalent [ferrous] iron as ionic charge: Fe ²⁺ as oxidation state: iron(II), Fe ^{II}

vanilmandelic acid	VMA	or 4-hydroxy-3-methoxymandelic acid, HMMA
vapour density	v.d.	
vapour pressure	v.p.	
variance ratio (statistics)	F	with stated number of degrees of freedom
variety (biology)	var.	
velocity	vel.	
velocity (symbol for quantity)	v	
velocity, angular	ω	
veronal (in buffers)		avoid; use barbitone
viscosity, dynamic	η	
viscosity, kinematic	ν	
void volume	V_0	
volt	V	
volume	vol.	
volume (symbol for quantity)	V	
volume, liquid phase (physiology)	Q	
volume by volume	v/v	only for two components; otherwise use 'by vol.'
watt	W	
wavelength	λ	
weber	Wb	
week		preferably do not abbreviate; wk is conven- tional
weight	wt.	often used conventionally, but wrongly, for mass
weight by volume	w/v	preferably use mass/vol.
white blood corpuscle	w.b.c. or WBC	or leucocyte; the alternative spelling leuko- cyte is more generally used internationally
work	W	
yard	yd	avoid; give SI equivalent: 1 yd \approx 0.91 m
year, annus	a	this is the international symbol: yr is con- ventional; preferably avoid abbreviating
Young's modulus	E	

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