Nomenclature, Style and Units

1. Nomenclature

Names should be given in full in the title of the paper and at their first occurrence in the summary and in the main body of the text.

1.1 Nomenclature of micro-organisms

The correct name of the organism, conforming with international rules of nomenclature, must be used; if desired, synonyms may be added in parentheses when the name is first mentioned. Names of prokaryotes must conform with the current International Code of Nomenclature of Prokaryotes. Names of algae and fungi must conform with the current International Code of Nomenclature for algae, fungi, and plants. Names of protozoa must conform with the current International Code of Zoological Nomenclature.
Only those names of prokaryotes that were either included in the *Approved Lists of Bacterial Names* or later validly published in the *International Journal of Systematic and Evolutionary Microbiology* (formerly the *International Journal of Systematic Bacteriology*) have standing in nomenclature. Non-validly published names must be printed in Times New Roman type font, enclosed in quotation marks and an appropriate statement concerning the nomenclatural status of the name should be made in the text (for an example, see *Int J Syst Bacteriol* **30**, 547–556, 1980). For further information on the nomenclature of prokaryotes, please refer to:

- List of Prokaryotic Names with Standing in Nomenclature
- Bergey's Manual of Systematic Bacteriology
- Prokaryotic Nomenclature Up-to-Date
- *International Journal of Systematic and Evolutionary Microbiology*

1.1.1 Nomenclature of unicellular eukaryotes

Use only correct names of taxa. Although an organism may have a number of correct names, depending on its taxonomic placement, use one particular name consistently; if there are objections to its use, cite this name as a synonym. Taxa above the rank of genus must be written in times New Roman type font (i.e. not italic). In all taxonomic matters, such as those exemplified for the bacteria, the relevant Code of nomenclature should be followed. For yeasts, authors should use the nomenclature employed in *The Yeasts: a Taxonomic Study*, 4th edn (1998) (Edited by C. P. Kurtzman & J. W. Fell. Amsterdam: Elsevier), and in *Yeasts: Characteristics and Identification*, 3rd edn (2000) (Cambridge: Cambridge University Press). If an author disagrees with this nomenclature, the first use of a scientific name in the text and in the Summary should be followed by the name, in parentheses, as given in *The Yeasts*.

1.1.2 Vernacular names

Generic names are singular Latin nouns and do not take a plural form. Authors should avoid the use of a generic name alone when the reference is to the members of the genus. Thus, 'The strains (species or cultures) of *Salmonella* are…' not 'The *Salmonella* are…'. The latter implies more than one generic name *Salmonella*.
Many micro-organisms are known by their vernacular (common) names as well as by their scientific names. The vernacular name for an organism may vary from language to language or from place to place, even within the same country. There are no rules governing the use of vernacular names. It is

often convenient to use vernacular names coined from the generic names. In these forms, the initial capital letters are dropped and italics are not used. For plural forms of vernacular names, Latin or other plural endings are used, depending primarily on euphony. Thus, the vernacular singular for a member of the genus *Spirillum* is spirillum, and the plural generally used in the English language is spirilla (Latin plural), not spirillums (English plural). Occasionally, more than one common name arises from a generic name, such as treponema (plural treponemata or treponemas) and treponeme (plural treponemes) from *Treponema.*

1.2 Nomenclature of viruses

Where appropriate, a precise strain designation should be included. Names should follow the standard nomenclature set out by the International Committee on Taxonomy of Viruses. This web page also includes the standard abbreviations for viruses. For further information on the nomenclature of new viruses, please refer to:

- Code of Virus Classification and Nomenclature
- How to write virus names
- Taxonomy is taxing (adapted with permission from M. H. V. van Regenmortel).

1.3 Chemical and biochemical nomenclature

Authors should follow the recommendations of IUPAC for chemical nomenclature, and those of the Nomenclature Committee of IUBMB and the IUPAC–IUBMB Joint Commission on Biochemical Nomenclature for biochemical nomenclature (see http://www.chem.qmul.ac.uk/iupac/jcbn).

1.4 Enzyme nomenclature

The system published in Enzyme Nomenclature (http://www.chem.qmul.ac.uk/iubmb/enzyme) should be followed. Enzyme Commission numbers should be given where appropriate.

For restriction enzymes, use e.g. EcoRI, HindIII, etc.

1.5 Genetic nomenclature

Particular care should be taken to distinguish between genes (e.g. *gag*) and the proteins that they encode (e.g. Gag, $p15^{gag}$).

For bacterial gene names, use e.g. *gyrA* **not** *gyr*A; *arg-1* **not** *arg1* or *arg*1, etc.

The following proposals should be adhered to wherever possible.

Bacteria: Demerec, M. *et al.* (1966) *Genetics* **54**, 61–76 [also *J Gen Microbiol* (1968), **50**, 1–14].
Plasmids: Novick, R. P. *et al.* (1976) *Bacteriol Rev* **40**, 168–189.
Saccharomyces cerevisiae: Sherman, F. (1981) In *The Molecular Biology of the Yeast Saccharomyces*. I. Life Cycle and Inheritance, pp. 639–640 (edited by J. N. Strathern *et al.* New York: Cold Spring Harbor Laboratory).
Aspergillus nidulans: Clutterbuck, A. J. (1973) *Genet Res* **21**, 291–296.
Neurospora crassa: *Neurospora Newsl* (1978), **25**, 29.

1.6 Immunology nomenclature

Immunological terms such as interleukin, interferon, etc. should, at first mention, be defined in full, followed by the appropriate abbreviation (note, in particular, the use of hyphens):

Alpha interferon (IFN-α)
Interleukin-1 (IL-1)
Tumour necrosis factor alpha (TNF-α)

1.7 Nomenclature on transposons and insertion sequences

Insertion sequences should be named as given in the **IS finder Database**. For submission criteria for reporting new insertion sequences, please refer to our Information for Authors.
For further information on the nomenclature of transposons, please refer to the following:

- Nomenclature of transposable elements in prokaryotes Campbell et al. (1979)
- Revised Nomenclature for Transposable Genetic Elements, Robert et al. (2008)

2. Style

2.1 Abbreviations of scientific names

Although names of genera and higher categories may stand alone to refer to the taxa with which they are associated, specific and subspecific epithets may not. A generic name followed by a specific

epithet should be spelled out the first time it is used in the text; subsequently, it may be abbreviated to its capitalized initial letter if the context makes the meaning clear. In lists of names of species of the same genus, the genus name may be abbreviated after its first use for subsequent species in the list. If there are several generic names in the text with the same initial letter, the names should be spelled out at each occurrence.

2.2 Standard abbreviations

As a general rule, if the abbreviation is used fewer than three times in the text, it should be removed. Abbreviations must be listed on title page, and defined at first mention in both Summary and main text. For example, 'cells were cultured in Dulbecco's modified Eagle's medium (DMEM).'
The following should **not** be defined:
1D, 2D, 3D; aa; ACES; ADA; ADP, cAMP, ATP, etc.; AIDS; BES; Bicine; bp; BSA; CAPS; CCD; CDS; c.f.u.; CHAPS; CHES; CIE; CLSM; CM-cellulose; CoA; c.p.m.; Da; DAPI; DEAE-cellulose; DIG; DMSO; DNA, cDNA, CCC DNA, dsDNA, ssDNA, DNase; DNP; d.p.m., d.p.s.; DTT; ED_{50}; EC_{50}; EDTA, EGTA; ELISA; EMS; e.o.p.; EPR or ESR; FACS; FAD; FBS; FCS; FISH; FITC; FMN; FPLC; GC or GLC; GSH, GSSG; HEPES; HEPPS; HPLC; IC_{50}; i.d.; IEF; IgG, IgM, etc.; IPTG; IR; kb, kbp; LD_{50}; LPS; LSU; mAb; MES; MIC; MLST; m.o.i.; MOPS; MS; NAD, NADP; NMR; nt; NTG; ONPG; ORF; PAGE; PBS; PCR; PEG; PFGE; p.f.u.; P_i, PP_i; PIPES; PMSF; ppGpp, pppGpp; p.p.m.; p.s.i.; PVDF; Py-GC, Py-MS; RAPD; RBS; RFLP; RNA, mRNA, rRNA, tRNA, RNase; r.p.m.; RT-PCR; SDS, SDS-PAGE; SNP; SSU; TCA; TES; TLC; TNF-α, -β etc; Tricine; Tris; UPGMA; UV; X-Gal.
Please find a list of abbreviations for *Journal of General Virology* here.

2.3 Presentation of nucleotide and amino acid sequences

In the absence of a detailed discussion of specific structural features, the nucleotide sequence or proposed secondary structure should not be presented. Such papers should be accompanied by substantial additional experimentation to characterize the gene(s) and products(s) concerned, and by substantial computer analysis. DNA sequences from double-stranded genomes will not normally be published unless the two strands have been sequenced independently.

Figures whose principal function is to present primary sequence data will not be published, since the data can be accessed through the databases. To merit publication, sequence figures must be justified by the additional annotation they present; they should normally be limited to regions of particular interest. Sequence alignments of nucleic acids and proteins may be presented using the supplementary data facility.
When making comparisons between nucleotide or amino acid sequences, it is important to use the correct terminology. 'Homology' has a precise biological meaning of 'having a common evolutionary origin'. When a percentage comparison is made, the terms 'identity' or 'similarity', as appropriate, must be used.
For authors submitting papers containing new sequence data, please refer to our Information for Authors for submission requirements.

2.4 Patent strains

Authors must inform the Editors, and must indicate in the paper, whenever strains under study are involved in a patent process. Strains other than the type strain should carry the superscript 'PP' if a patent is pending and 'P' if a patent has been issued for a type or any other strain.

2.5 Type strains for Prokaryotes

All type strains must be indicated at each occurrence in the text, tables and figures by a superscript capital T.

3. Units

3.1 General points

SI units should be used, but some other units in common scientific usage are permitted. If non-SI units are used, the equivalent in SI units should also be given at the first mention, e.g. 1 p.s.i. (6.9 kPa).
For **compound units** (e.g. micrograms per millilitre), use µg ml-1 not µg/ml; use 10 µg ampicillin ml-1 not 10 µg ml-1 ampicillin.
Give **concentrations** as g l-1, etc., or molarity, M, **not** normality, N. The term '%' should be defined as 'w/v', 'v/v' or 'w/w' if this is necessary to avoid ambiguity.
For **radioactivity**, the preferred unit is becquerels (Bq); if given in curies (Ci), the equivalent in Bq **must** be given (1 Ci = 3.7×10^{10} Bq); radioactivity values may also be expressed as d.p.s. (1 d.p.s. = 1 Bq) c.p.m or d.p.m.

3.2 Molecular mass

Mr_r (relative molecular mass) should be used rather than 'molecular weight'. 'Molecular mass' should be used if values are quoted in daltons (Da) (e.g. molecular mass 20 kDa). Either Mr_r or molecular mass may be used, but they should not be mixed in any one paper. In table headings and figure axes, for values >1000 use kDa or $10^{-3}\times M_r$.

3.3 Absorbance, optical density and attenuance

The term absorbance, A, should be used for the quantity $\log(I_0/I)$ in UV and visible absorption spectrophotometry of samples in which there is negligible scattering or reflection of light. If scattering is considerable, as in spectrophotometric measurements of microbial biomass, the term optical density, OD (or attenuance, D), should be used; the path length of the cell or cuvette, and the make and model of the spectrophotometer, should be specified, because optical design dramatically influences such measurements. If a sample is diluted prior to measuring optical density, the dilution and the diluent should be stated. Readings obtained with instruments designed for turbid samples, such as nephelometers or Klett meters, should be reported in appropriate units. Whenever A, OD or D is used, the wavelength (in nm) of the incident light must be specified with subscript numbers (e.g. A_{280}, OD_{600}).