Preparation of Manuscripts

(Revised January 2003)

General Guidelines for Manuscript Preparation

Manuscripts must be prepared with a typewriter or word processor and be printed double-spaced. Abstracts, footnotes, references, tables, and figure captions must also be double-spaced (to allow for editorial markings). One copy of the final version must be printed on one side only, for production use. Pages must be numbered. Authors should consult recent issues of the Journal and the Journal Web site available via http://pubs.acs.org/oprd as a guide to proper format. Information on a starndard list of abbreviations for ACS journals may be found in *The ACS Style Guide* (1997), available from Oxford University Press, Order Department, 201 Evans Road, Cary, NC 27513. Any author who is not fully fluent in idiomatic English is urged to gain assistance with manuscript preparation from a fluent colleague, as manuscripts with grammar deficiencies are sometimes handicapped during the scientific review process. Authors who submit a hardcopy manuscript are asked to also supply an electronic version with their submission to speed up the review process.

Copyright Status Form. A properly completed Copyright Status Form, with original signature, must be provided for each submitted manuscript. A form is available from the Web site. For mailed submissions, the form must be included with the manuscript package. For Web submissions, the form must be faxed to the Editor or Associate Editor. **The original signed Copyright Status Form must also be mailed to the Editor or Associate Editor**, depending on to whom the manuscript was submitted.

Web Submission. Directions and an overview of the electronic submission process are available at pubs.acs.org/oprd (select "submit manuscript"). The manuscript submission site employs state-of-the-art security mechanisms to ensure privacy for all electronically submitted manuscripts. These same security mechanisms are utilized throughout the peer review process, permitting access to only those editors and reviewers who are assigned a particular manuscript. Authors electing to submit via the Web will also submit their final accepted manuscripts via the Web (i.e., the disk copy and media description form required for hardcopy submissions are not required for Web submissions).

Manuscript templates are available for some word processing programs. Use of the template will facilitate the peer review process.

Web Galleys. Authors have the option of receiving galley proofs in hardcopy or via a secure Web site. If submitting via the Web, authors indicate their preference on the Web manuscript submission form. If submitting in hardcopy, authors should indicate their preference for Web galleys in the cover letter accompanying their submission or their final accepted manuscript. If the Web galley option is desired, please supply the e-mail address to which the Web galley should be sent.

Titles, Authors, and Abstracts. Titles are of great importance for current awareness and for information retrieval. Words should be chosen carefully to provide information on the contents and to function as "points of entry" for retrieval purposes. Be consistent in author designation; supply given name, middle initial, and last name for complete identification. An asterisk, rather than a footnote, should be used to designate the name of the author to whom correspondence should be sent. The corresponding author's mailing address, phone number, fax number, and e-mail address should be included.

All manuscripts must be accompanied by an abstract, which should state briefly the purpose of the research (if this is not contained in the title), the principal results, and major conclusions. Reference to structural formulas or tables in the text, by number, may not be made in the abstract. For a typical paper, an 80−200-word abstract is usually adequate. If the manuscript is accepted for publication, the abstract will be published in *Chemical Abstracts*. Abstracts should therefore be submitted on a separate sheet for direct transmittal to *Chemical Abstracts* by this Journal. Abstracts for Full Papers, Technical Notes, Lecture Transcripts, Reviews, and Technology Reports are also printed in the Journal.

Table of Contents Graphic. A graphic entry for the Table of Contents (TOC) must be supplied with each manuscript. This small graphic, in conjunction with the manuscript title, should give the reader a visual graphic impression of the general kind of chemistry described in the paper. It is not an Abstract, should not be detailed, and is *not* intended to summarize the results. **A TOC graphic supplied by the author can be no wider than 12.0 cm and no taller than 4.6 cm.** Structures in this TOC graphic should be constructed with the bond length, font type, and font size specified under 'Structures', and text should be limited to the labeling of compounds, reaction arrows, and diagrams. The liberal use of "R" and "X" groups and the standard abbreviations listed at the end of these Guidelines is encouraged.

Contents of Manuscripts. It is important that authors discuss not only the results presented but also the implications for the chemical process (e.g., safety, cost reduction, environmental issues, etc.) should the product be manufactured on a large scale. All sections of the paper should be presented in a concise manner, but this should not minimize discussion of relevant issues. It is essential that sufficient background information placing the work in context is given, stating the purpose and objectives of the work. A brief review of prior work is required with sufficient documentation of the literature to enable the reader to find key information; the use of important review articles or books is therefore recommended.

The Discussion and Experimental Sections of Full Papers and Notes should be clearly distinguished with a separate center heading for the latter; other center headings should be used sparingly. Tabulation of experimental results is encouraged whenever it leads to a more effective presentation or economical use of space. The presentation of experimental details in the text of the Discussion section should be kept

to a minimum. Avoid the reiteration of information that is made obvious in a table or scheme.

Nomenclature should conform with British or American usage. Insofar as is practical, authors should use a systematic name, either *Chemical Abstracts* or IUPAC, for each title compound in the Experimental Section. It is also acceptable to use "semisystematic names" for certain specialized classes of compounds, such as steroids, peptides, carbohydrates, and cyclophanes. In such a case, the name should conform to the generally accepted nomenclature conventions for the compound class. If the structures of the compounds in a manuscript are sufficiently complex that determination of their systematic names is impractical, or the names are unduly long, they should be referred to in some unambiguous manner, such as "ketone **23**" or "amino acid **14a**". The latter usage is also particularly convenient in the narrative.

Chemical Abstracts (*CA*) nomenclature rules are described in Appendix IV of the *Chemical Abstracts Index Guide*. For CA nomenclature advice, consult the Manager of Nomenclature Services, Chemical Abstracts Service, P.O. Box 3012, Columbus, OH 43210-0012. A name generation service is available for a fee through CAS Client Services, 2540 Olentangy River Road, P.O. Box 3343, Columbus, OH 43210-0334; telephone: (614) 447-3870; fax: (614) 447-3747; or e-mail: answers@cas.org.

Abbreviations. Authors are encouraged to make use of abbreviations and acronyms if it will result in a significant saving of space. A list of standard abbreviations and acronyms appears at the end of this Guide. If additional abbreviations or acronyms are employed, they should be defined the first time they are used.

The Experimental Section of Full Papers and Notes

Authors should use a general Experimental Section to provide sources of commercial and known compounds. Here, procedures and conditions (such as solvent removal, drying, and chromatography methods) common to all or most of the succeeding experimental descriptions can be given.

Clear, unambiguous expression in individual experimental descriptions is vital. Authors are encouraged to use the briefest style possible, consistent with clarity. Complete descriptions of apparatus and routine procedures should be avoided unless precise adherence to a protocol is essential to the success of the experiment being described. The title of an experiment should give the *full name and structure number* of the product prepared, when appropriate, but this compound should be identified thereafter by structure number. Abbreviations or chemical formulas for simple chemicals are encouraged, as well as the use of a structure number rather than a lengthy chemical name to identify a starting material. Standard abbreviations should be used throughout the Experimental Section, without periods.

If a procedure is used more than once, the manuscript should include only one representative, detailed description of the procedure. Analogous ones should be abbreviated to include only significant differences (reaction times, molar ratios, purification methods), along with the product characterization data.

Special attention should be called to hazardous compounds or operations, and appropriate handling procedures should be offered.

Characterization. For all known compounds, the source of the material or references to the utilised literature preparation method and published characterization data must be provided. Spectral data should be presented only if it augments or updates the previously published data.

For all new compounds that appear as title compounds in the Experimental Section of Full Papers and Notes, adequate evidence to establish both *identity* and *degree of purity* must be provided. This can be presented in the body of the manuscript, in which case it will appear in the printed version of the Journal. Alternatively, it can appear as Supporting Information; see the Supporting Information section below. In general, only enough data should be presented in the actual Experimental Section to allow another worker to identify the same compound by comparison.

Full lists of infrared absorptions and mass spectral fragmentations should not be presented in the printed version of the Journal. List only those infrared absorptions that are diagnostic for important functional groups and only those mass spectral fragments that are diagnostic for a particular skeleton. Authors may supply high-resolution mass spectral (HRMS) data as an additional criterion of compound identity. Additional spectral and characterization data may be presented as Supporting Information.

Optical rotations should be reported in the form $[\alpha]^{\mathrm{temp}}_{\lambda} = (\pm)$value ($c$ x, solv), where λ is the wavelength of light used for the determination, often the sodium D line, temp is the temperature at which the determination was made, x is the concentration in g/100 mL, and solv is the solvent used for the measurement. Note that $[\alpha]$ is expressed without units; the actual units, deg mL/(g dm), are understood.

Evidence of the degree of purity of each new compound should be presented—ideally this will include elemental analysis, but it is recognised that this may not always be appropriate, and other methods (e.g., spectroscopic, chromatographic) may be used, provided that the results are justified by the data. Information such as detailed NMR or MS data can be included in Supporting Information (see later).

References and Footnotes

Avoid unnecessarily long reference lists by selecting citations judiciously and citing reviews when possible. Literature citations and explanatory notes must be numbered in one consecutive series by order of mention in the text, with numbers as unparenthesized superscripts. The following are examples of the appropriate style for use in citations. For journals: Laird, T. *Spec. Chem.* **1992**, *12*, 324. For books: Lipton, S.; Lynch, J. *Handbook of Health Hazard Control in the Chemical Process Industry*; Wiley: New York, 1994. In literature references, journal abbreviations should be those used by *Chemical Abstracts* [see *Chemical Abstracts Service Source Index (CASSI)* 1907−1999 Cumulative].

Experience has shown that a high percentage of cited references contain errors (e.g., misspelled or omitted author names or incorrect volume number, page number, or year). In no case should citations be copied from another source without checking the original reference for accuracy and appropriate content. Because subscribers to the Web edition of the Journal are now able to click on the "CAS" tag following each reference to retrieve the corresponding abstract at Chemical Abstracts Service, reference accuracy is critical.

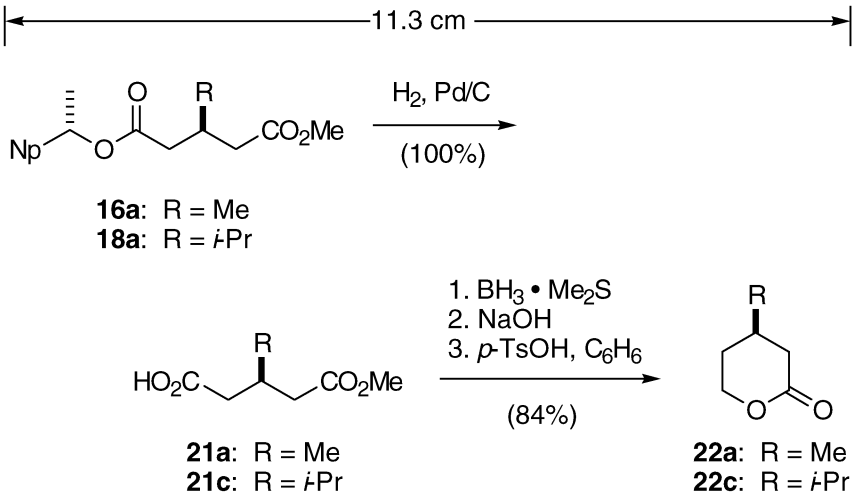

Figure 1. **Example of a scheme prepared with ChemDraw using the specified preferences. This author-supplied drawing will be reduced to 75% of its present size for publication in the one-column format. Note that, for the one-column format, the scheme supplied can be no greater than 11.3 cm in width. Schemes involving two or more steps can be presented as several lines of structures, as in the above example, to achieve the dimensions of the one-column format.**

Artwork

General Considerations. Remove all color from graphics, except for those graphics that you would like to have considered for publication in color (see Color section below for details).

For papers submitted via the Web, insert your illustrations into the word processing file following the Web instructions for manuscript preparation. See http://pubs.acs.org/oprd for additional guidance.

For papers submitted in hardcopy, artwork may be submitted as separate graphics files ("File Preparation for Hardcopy Submissions" later in this document) or as hardcopy originals. Please note that even if graphics files are submitted, good quality, hardcopy original figures are still required.

Quality. Whether you submit via the Web or in hardcopy, the quality of the illustrations in your paper depends on the quality of the artwork originals you provided. Figures cannot be modified or enhanced by the journal production staff. Whenever possible, the graphics files furnished by authors with Web submissions (and on disks with revised conventional submissions of accepted manuscripts) are used in production of the Journal. Hardcopy graphics furnished with conventional submissions are digitized during journal production. Contrast is important. Use dark black ink. Hardcopy graphics should be printed on a high-resolution laser printer on smooth, opaque white paper.

Layout. In preparing structures for direct photoreproduction, layout is critical. Equations, schemes, and blocks of structures are presented in the Journal in either one-column or two-column format. The one-column format should be used whenever possible because this permits much greater flexibility in page layout. Authors are advised that structural material labeled as a "Scheme" is placed at the top of a page, as is all two-column material. All structural material that should immediately follow certain text must be designed to fit the one-column format, and its location in the text must be indicated on the manuscript. Structures, arrows, and compound designators should be arranged so as to make maximum use of the width afforded by the one-column or two-column format.

Content. Abbreviations such as Me for CH_3, Et for C_2H_5, and Ph (but not ϕ) for C_6H_5 are acceptable. Make liberal use of "R and X groups" in equations, schemes, and structure blocks to avoid the repetition of similar structures. Do not repeat a structure; the number alone of an earlier structure can be used if a compound occurs several times. Schemes are numbered with Arabic numerals. Within schemes, structures should be numbered with boldface Arabic numerals, consecutively from left to right, top to bottom, regardless of the order in which the compounds are discussed in the text. Schemes should be footnoted in the manner described below for tables. It is not necessary to give reagents and conditions in complete detail, since this detail is contained in the Experimental Section. Where needed, numbers such as NMR chemical shifts may be included directly on structural formulas.

Color. Color reproduction, if approved by the Editor, will be provided at no cost to the author. Color illustrations should only be submitted if essential for clarity of communication. Color is generally unnnecessary in graphs. *Do not submit color prints to be printed in black and white.* For manuscripts containing color, a surcharge of $100 per 100 reprints will be added to the standard cost of reprints.

All color artwork must be provided in hardcopy at the actual size it should appear in the journal. This applies for both hardcopy and Web submission. Authors should indicate in their cover letter the figures, schemes, etc. that they would like to have reproduced in color.

Structures. The Journal's Editor would like to achieve as much uniformity as possible in the printed chemical structures. Therefore, the bond length, line thickness, and bold bond thickness of camera-ready structures should be *0.508 cm, 0.021 cm*, and *0.071 cm*, respectively, and *10-pt Helvetica* font should be used. All atom labels and text should be in the "plain" style (lightface) with the exception of compound numbers, which should be boldface. An example of this format is shown in Figure 1.

Structures should be produced with the use of a drawing program such as ChemDraw. Structure drawing preferences (preset in the ACS Stylesheet in ChemDraw) are as follows:

(1) As drawing settings, select

chain angle	120°
bond spacing	18% of width
fixed length	14.4 pt (0.508 cm, 0.2 in.)
bold width	2.0 pt (0.071 cm, 0.0278 in.)
line width	0.6 pt (0.021 cm, 0.0084 in.)
margin width	1.6 pt (0.056 cm, 0.0222 in.)
hash spacing	2.5 pt (0.088 cm, 0.0347 in.)

(2) As text settings, select

font	Arial/Helvetica
size	10 pt

(3) Under the preferences, choose

units	points
tolerances	3 pixels

(4) Under page setup choose:

Paper: US Letter

Scale: 100%

Authors using other drawing packages should, insofar as is possible, modify their program's parameters so that they reflect the above guidelines.

Tables

These should be numbered consecutively with Arabic numerals and should be grouped at the end of the paper. Footnotes in tables should be given designations and be cited in the table by the italic superscript letters. The sequence of letters should proceed by line rather than by column. If a footnote is cited both in the text and in a table, insert a lettered footnote in the table to refer to the numbered footnote in the text. Each table should be provided with a descriptive heading, which, together with the individual column headings, should make the table, as nearly as possible, self-explanatory. In setting up tabulations, authors are requested to keep in mind the type area of the journal page (17.8 × 25.4 cm) and the column width (8.5 cm) and to make tables conform to the limitations of these dimensions. Arrangements that leave many columns partially filled or that contain much blank space should be avoided.

Figures

Authors are encouraged to supply production-ready figures, in the form of laser prints, photographs, or professional ink drawings on high-quality, smooth, opaque white paper. Photocopies not suitable for reproduction can be used for duplicate manuscript copies. Figures should be constructed in keeping with the column width, line width, and font size specified above (see Structures). All illustrations should be numbered as "Figures", with Arabic numerals. Blocks of chemical structures should not be designated as "Figures". Each figure must be identified on the back with author, title, and figure number. The figure number (Arabic) must be typed on a separate sheet, together with the caption. Color reproduction, if approved by the Editor, will be provided at no cost to the author. Color illustrations should only be submitted if essential for clarity of communication.

Spectra

Reproductions of spectra, or the relevant segments thereof, will be published only if concise numerical summaries are inadequate for the purposes of the paper. Papers dealing primarily with interpretation of spectra, and those in which band shape or fine structure needs to be illustrated, might qualify for this exception. When presentation of spectra is deemed essential, only the pertinent sections (prepared as described for "Figures") should be presented. If an author wishes to publish reproductions of spectra as adjuncts to the characterization of compounds, they can be included as Supporting Information in the World Wide Web edition of the Journal.

Supporting Information

General Considerations. The World Wide Web edition of this Journal can accommodate almost any type of supplementary data (e.g., reproductions of spectra, experimental procedures, tabulated spectral data, expanded discussion of peripheral findings, calculational data). A Supporting Information Available statement that describes the material should be placed at the end of the printed manuscript text. Supporting Information should be clear and of high contrast (*suitable for direct scanning*) and submitted in quadruplicate on 8.5- × 11-in. paper. All pages of Supporting Information should be numbered consecutively. Captions or legends for figures, spectra, etc. must appear *directly on the figure*. Relevant compounds reported in Supporting Information are indexed for *Chemical Abstracts* and assigned Registry Numbers, even if they are not mentioned in the published paper. The Supporting Information is available free of charge via the Internet at http://pubs.acs.org; see a current masthead for more information.

Web Submission. Supporting Information for manuscripts submitted via the Web must be submitted along with the manuscript. A list of acceptable electronic file types for Supporting Information is given on the Web submission site (pubs.acs.org/oprd; select "submit manuscript"). All Supporting Information files of the same type should be submitted as a single file (rather than submitted as a series of files containing individual images or structures). For example, all Supporting Information available as PDF files should be contained in one PDF file, and all CIFs should be submitted as a single file. Where possible, Supporting Information should be consolidated into a single word processing file with graphics embedded (e.g., using the manuscript template). If Supporting Information is available only in hardcopy, it should be forwarded without delay to the Editor in the UK or the Associate Editor in the U.S. This material should be labeled clearly with the manuscript number assigned to the Web submission.

File Preparation for Hardcopy Submission

Authors who submit a manuscript by the hardcopy route will be asked to submit electronic files of the final accepted version in addition to the diskette submitted for review. Submissions not in electronic form may face a delay in publication. Manuscripts prepared with the software packages listed below will be used for production, provided that the following guidelines are adhered to. Failure to adhere to the following instructions may prevent all or part of the material supplied on disk from being used in production.

Three hardcopies of the manuscript are required for review. Another diskette with the final version should accompany the final accepted version of the manuscript. The version on the diskette must *exactly* match the final version accepted in hardcopy.

When preparing a manuscript, use the document mode or its equivalent in the word-processing program; i.e., do not save files in "Text Only" (ASCII) mode. If a non-Western version of the word-processing software was used to prepare the manuscript, save the file in rich-text format (RTF). Do not include any page-layout instructions such as placement information for graphics in the file. The text should be left justified, and automatic end-of-line hyphenation should be turned off. Use carriage returns only to end headings and paragraphs, not to break lines of text. Do not insert spaces before punctuation. References must conform to the format printed in the Journal. Ensure that all characters are correctly represented throughout the manuscript: for example, 1 (one) and l (ell), 0 (zero) and O (oh), x (ex) and × (times sign). Check the final copy carefully for consistent notation and correct spelling. The Editorial Office conversion program will faithfully translate any errors to the typeset copy. Check the disk with an up-to-date virus detection program. The presence of a virus may delay the publication of the manuscript. Label the disk with the manuscript number and the corresponding author name. Provide the platform, version of software used, and filenames on the Diskette Description Form.

All text (including the title page, abstract, all sections of the body of the paper, figure captions, scheme and chart titles, and footnotes and references) and tabular material should be in *one* file, with the complete text first followed by the tabular material. It is best to use the fonts "Times" and "Symbol". Other fonts, particularly those that do not come bundled with the system software, may not translate properly. Ensure that all special characters (e.g., Greek characters, math symbols, etc.) are present in the body of the text as characters and not as graphic representations. Consult the documentation for the specific software package being used on how to detect the presence of graphics in the files, and replace them with the appropriate text characters. Tables may be created using a word processor's text mode or table format feature.The table format feature is preferred. Ensure that each data entry is in its own table cell. If the text mode is used, separate columns with a single tab and use a line feed (return) at the end of each row.

If you are able to provide graphics in electronic form, please save each graphic in a separate file in TIFF. Black and white line art should be saved at 1200 dots per inch (dpi), grayscale at 600 dpi, and color at 300 dpi. Color should be saved in CMYK mode. Consult the documentation in your graphics application for more information on how to save your files in this format. The filename for each graphic should be descriptive of the content graphic, for example, figure1 for Figure 1, scheme1 for Scheme 1, etc.

As additional features become available, these instructions will be updated on the ACS fileserver. Publication information can be found at http://pubs.acs.org: select "journals & magazines", select this Journal's title, select "info for authors", and then select the link "Author Instructions for *Organic Process Research & Development*".

Currently Acceptable Word-Processing Packages. Macintosh: WordPerfect 3.5, Microsoft Word, up to Word 2001, and FrameMaker 5.5 (.mif files).

IBM and compatibles: WordPerfect, up to version 9.0, Microsoft Word for Windows 8.0, Microsoft Word, up to Word 2000, and FrameMaker 5.5 (.mif files).

TeX users should follow the guidelines given at http://pubs.acs.org/instruct/texguide.html.

Proofs and Reprints

Correspondence regarding accepted papers and proofs should be directed to Journal Publications, American Chemical Society, 2540 Olentangy River Road, P.O. Box 3330, Columbus, OH 43210. Page proofs will be sent to the author who submitted the paper. Contributors residing outside the United States may authorize a colleague in the United States to correct proofs, but in this case they should bear in mind that reprint orders and page charge authorizations are handled at the time the proofs are returned. Please return your reprint order form, along with the purchase order or check, using the enclosed envelope addressed to Cadmus Professional Communications. Reprints will be shipped within two weeks after the printed journal date. There is a surcharge of $100 for 100 reprints if color is present. Corresponding authors will receive 50 free electronic reprints via an Electronic Reprint URL.

Corrections

If errors of consequence are detected in a published paper, the author should send a correction to the Editor, T. Laird, for publication in the Additions & Corrections section.

The most recent version of this Guide for Authors is available at http://pubs.acs.org.

Table 1. **List of standard abbreviations**

α	observed optical rotation in degrees
[α]	specific rotation [expressed without units; the actual units, deg mL/(g dm), are understood]
Ac	acetyl
acac	acetylacetonate, acetylacetonato
ADP	adenosine 5′-diphosphate
AIBN	2,2′-azobisisobutyronitrile
AMP	adenosine 5′-monophosphate
anhyd	anhydrous
AO	atomic orbital
Ar	aryl
atm	atmosphere(s)
ATP	adenosine 5′-triphosphate
ATPase	adenosinetriphosphatase
9-BBN	9-borabicyclo[3.3.1]nonyl
9-BBN-H	9-borabicyclo[3.3.1]nonane
Bn	benzyl
bpy	2,2′-bipyridyl
BOC, Boc	*tert*-butoxycarbonyl
bp	boiling point
br	broad (spectral)
Bu	butyl
s-Bu	*sec*-butyl
t-Bu	*tert*-butyl
°C	degrees Celsius
calcd	calculated
cAMP	adenosine cyclic 3′,5′-phosphate
CAN	ceric ammonium nitrate
CBZ, Cbz	benzyloxycarbonyl
CD	circular dichroism
CI	chemical ionisation (in mass spectrometry), configuration interaction (in MO theory)
CIDNP	chemically induced dynamic nuclear polarisation
cm	centimetre(s)
CNDO	complete neglect of differential overlap
concd	concentrated
COSY	correlation spectroscopy
COT, cot	cyclooctatetraene
Cp	cyclopentadienyl
δ	chemical shift in parts per million downfield from tetramethylsilane
d	doublet (spectral), day(s)
DABCO	1,4-diazabicyclo[2.2.2]octane
DBN	1,5-diazabicyclo[4.3.0]non-5-ene
DBU	1,8-diazabicyclo[5.4.0]undec-7-ene
DCC	*N*,*N*′-dicyclohexylcarbodiimide
DDQ	2,3-dichloro-5,6-dicyano-1,4-benzoquinone
DEAD	diethyl azodicarboxylate
DEPT	distortionless enhancement by polarisation transfer
DIBALH	diisobutylaluminium hydride
DMAP	4-(dimethylamino)pyridine
DME	1,2-dimethoxyethane
DMF	dimethylformamide
DMSO	dimethyl sulphoxide
DNA	deoxyribonucleic acid
E1	unimolecular elimination
E2	bimolecular elimination
ED_{50}	dose that is effective in 50% of test subjects
EDTA	ethylenediaminetetraacetic acid
ee	enantiomeric excess
EI	electron impact (in mass spectrometry)
ESR	electron spin resonance
Et	ethyl
FAB	fast atom bombardment (in mass spectrometry)
FD	field desorption (in mass spectrometry)
FID	flame ionisation detection
FT	Fourier transform
g	gram(s)
GC	gas chromatography
GTP	guanosine 5′-triphosphate
h	hour(s)
HMO	Hückel molecular orbital
HMPA	hexamethylphosphoric triamide
HOMO	highest occupied molecular orbital
HPLC	high-performance liquid chromatography
HRMS	high-resolution mass spectrum
Hz	hertz
ICR	ion cyclotron resonance
INDO	incomplete neglect of differential overlap
IP	ionisation potential
IR	infrared
J	coupling constant (in NMR)
k	kilo
L	litre(s)
LCAO	linear combination of atomic orbitals
LDA	lithium diisopropylamide
LFER	linear free energy relationship
LHMDS	lithium hexamethyldisilazane [lithium bis(trimethylsilyl)amide]
LTMP	lithium 2,2,6,6-tetramethylpiperidide
LUMO	lowest unoccupied molecular orbital
μ	micro
m	multiplet (spectral), metre(s), milli
M	moles per litre
m-CPBA	*m*-chloroperoxybenzoic acid
Me	methyl
MEM	(2-methoxyethoxy)methyl
Mes	2,4,6-trimethylphenyl (mesityl) (not methylsulphonyl)
MHz	megahertz
min	minute(s)
MINDO	modified intermediate neglect of differential overlap
mM	millimoles per litre
MO	molecular orbital
mol	mole(s)
MOM	methoxymethyl
mp	melting point
mRNA	messenger RNA
Ms	methylsulphonyl (mesyl)
MS	mass spectrometry
m/*z*	mass to charge ratio (in mass spectrometry)
NAD	nicotinamide adenine dinucleotide
NADH	reduced NAD
NBS	*N*-bromosuccinimide
NCS	*N*-chlorosuccinimide
NMR	nuclear magnetic resonance
NOE	nuclear Overhauser effect
NOESY	nuclear Overhauser effect spectroscopy
Nu	nucleophile
OD	optical density
ORD	optical rotary dispersion
ot	oven temperature (in Kugelrohr distillations)
PCC	pyridinium chlorochromate
PDC	pyridinium dichromate
PE	photoelectron
Ph	phenyl
PPA	poly(phosphoric acid)
ppm	parts per million (in NMR)
PPTS	pyridinium *p*-toluenesulphonate
Pr	propyl
i-Pr	isopropyl
q	quartet (spectral)
R_f	retention factor (in chromatography)
rRNA	ribosomal RNA
rt	room temperature
s	singlet (NMR), second(s)
SET	single electron transfer
S_N1	unimolecular nucleophilic substitution
S_N2	bimolecular nucleophilic substitution
S_N'	nucleophilic substitution with allylic rearrangement
t	triplet (spectral)
TBDMS	*tert*-butyldimethylsilyl
TCNE	tetracyanoethylene
Tf	(trifluoromethyl)sulphonyl (triflyl)
TFA	trifluoroacetic acid
TFAA	trifluoroacetic anhydride
THF	tetrahydrofuran
THP	tetrahydropyran
TIPS	triisopropylsilyl
TLC	thin layer chromatography
TMEDA	*N*,*N*,*N*′,*N*′-tetramethyl-1,2-ethylenediamine
TMS	trimethylsilyl, tetramethylsilane
Torr	1 mmHg, 1/760 atm
Tr	triphenylmethyl (trityl)
tRNA	transfer RNA
Ts	*p*-tolylsulphonyl (tosyl)
TS	transition state
t_R	retention time (in chromatography)
UV	ultraviolet