

STEROID NOMENCLATURE

I. Systematic names

These must conform to the IUPAC-IUB 1967 Revised Tentative Rules for Steroid Nomenclature [*J. steroid Biochem.* 1 (1970) 143-175].

II. Trivial names

The following are examples of trivial names which may be used without reference to their systematic names:

| | |
|------------------------------|---|
| Aetiocholanolone* | 3 α -Hydroxy-5 β -androstan-17-one |
| Aldosterone | 18,11-Hemiacetal of 11 β ,21-dihydroxy-3,20-dioxo-4-pregnen-18-al |
| Androsterone | 3 α -Hydroxy-5 α -androstan-17-one |
| Cholesterol | 5-Cholesten-3 β -ol |
| Cholic acid | 3 α ,7 α ,12 α -Trihydroxy-5 β -cholan-24-oic acid |
| Corticosterone | 11 β ,21-Dihydroxy-4-pregnene-3,20-dione |
| Cortisol | 11 β ,17,21-Trihydroxy-4-pregnene-3,20-dione |
| Cortisone | 17,21-Dihydroxy-4-pregnene-3,11,20-trione |
| Dehydroepiandrosterone (DHA) | 3 β -Hydroxy-5-androsten-17-one |
| Deoxycorticosterone (DOC) | 21-Hydroxy-4-pregnene-3,20-dione |
| Ergosterol | 5,7,22-Ergostatrien-3 β -ol |
| Oestradiol-17 β * | 1,3,5(10)-Oestratriene-3,17 β -diol* |
| Oestriol* | 1,3,5(10)-Oestratriene-3,16 α -17 β -triol* |
| Oestrone* | 3-Hydroxy-1,3,5(10)-oestratrien-17-one* |
| Progesterone | 4-Pregnene-3,20-dione |
| Testosterone | 17 β -Hydroxy-4-androsten-3-one |

*The diphthongs æ and œ may be replaced by the letter e.

Trivial names may be prefixed to denote their derivatives or stereoisomers. In addition to prefixes used in systematic nomenclature (hydroxy, oxo, etc.) the following are frequently used: "epi" (inversion of a substituent), "dehydro" (removal of two hydrogen atoms from two adjacent carbon atoms or from a carbinol grouping) and "deoxy" (replacement of a hydroxy group by a hydrogen atom). "Dihydro", "tetrahydro", etc. may be used to indicate addition of hydrogen in double bonds but not to carbonyl groups. Names so derived should indicate the site and when necessary the steric outcome of the structural change defined by the prefix. Examples of correctly derived names are: 11-oxoetiocholanolone, 6 β -hydroxycortisone, epitestosterone, 11-epicortisol (not epicortisol), 7-dehydrocholesterol, 11-dehydrocorticosterone, 11-deoxycortisol, and 22-dihydroergosterol.

With a few generally accepted exceptions such as deoxycorticosterone (11-deoxycorticosterone), deoxycholic acid (7-deoxycholic acid) and dehydroepiandrosterone (5-dehydroepiandrosterone) trivial names should be unambiguous.

The prefix "allo" (change from 5 β to 5 α configuration) and the symbol Δ^x (unsaturation at position x) may not be used.

The following are examples of trivial names not generally accepted but frequently used in specialized publications:

| | |
|----------------------------------|---|
| Androstenedione | 4-Androstene-3,17-dione |
| 20 α -Cortol | 5 β -Pregnane-3 α ,11 β ,17,20 α ,21-pentol |
| 20 β -Cortol | 5 β -Pregnane-3 α ,11 β ,17,20 β ,21-pentol |
| 20 α -Cortolone | 3 α -17,20 α ,21-Tetrahydroxy-5 β -pregnan-11-one |
| 20 β -Cortolone | 3 α -17,20 β ,21-Tetrahydroxy-5 β -pregnan-11-one |
| Dihydrotestosterone | 17 β -Hydroxy-5 α -androstan-3-one |
| Pregnanediol | 5 β -Pregnane-3 α ,20 α -diol |
| Pregnanetriol | 5 β -Pregnane-3 α ,17,20 α -triol |
| Pregnenolone | 3 β -Hydroxy-5-pregnen-20-one |
| Tetrahydroaldosterone* | 18,11-Hemiacetal of 3 α ,11 β ,21-trihydroxy-20-oxo-5 β -pregnan-18-al |
| Tetrahydrocortisol* | 3 α ,11 β ,17,21-Tetrahydroxy-5 β -pregnan-20-one |
| Tetrahydrocortisone* | 3 α ,17,21-Trihydroxy-5 β -pregnane-11,20-dione |
| 20 α -Dihydroprogesterone | 20 α -Hydroxy-4-pregnen-3-one |

*In this instance, "Tetrahydro" indicates addition of hydrogen to a double bond and a carbonyl group.

Such names may not be used in the title nor in the summary. They may be used in the text when their meaning is clearly defined by the subject-matter (e.g. pregnenolone as an intermediate in the biosynthesis of progesterone or pregnanediol estimated in the urine). Otherwise, they should be used in the same manner as less familiar trivial names (see below).

Less familiar trivial names are acceptable only when their use leads to a substantial saving of space, i.e. when they are much shorter than their systematic names and when they are frequently referred to. Their systematic names should be given at their first mention when only one or a few such trivial names are used. Otherwise, their systematic names should be listed in a footnote or tabulated in the text.

No trivial name may designate an impossible structure (e.g. 20-hydroxyprogesterone).

III. Abbreviations

The use of abbreviations should be largely confined to tables and figures. Commonly used abbreviations such as DHA (dehydroepiandrosterone) or DOC (deoxycorticosterone) are acceptable in the text. Less common abbreviations may be used in the text only when this leads to a substantial saving of space without loss of clarity. All abbreviations must be defined in the text, in a footnote to the text, a footnote to a table, or in the legend to a figure, as appropriate.

OTHER ABBREVIATIONS AND SYMBOLS

The *Journal of Steroid Biochemistry* will in general use the recommended SI symbols for units [Système International d'Unités; see *Symbols, Signs and Abbreviations, Recommended for British Scientific Publications* (1969), London, The Royal Society]. The symbol for the plural of a unit is the same as that for the singular: thus "centimetres" is "cm" not "cms". The principles given in the Tentative Rules of the IUPAC-IUB Commission on Biochemical Nomenclature [see *Biochem. J.* **101** (1966) 1] will be followed for abbreviations. Abbreviations of names of compounds except those listed below must be defined together in a footnote.

| | |
|--------------------------------|---|
| ACTH | Adrenocorticotrophin (or tropin) |
| ADP, CDP, GDP IDP, UPD, XDP | The 5'-pyrophosphates of adenosine, cytidine, guanosine, inosine, uridine, xanthosine |
| AMP etc. | Adenosine 5'-monophosphate, etc. |
| ATP etc. | Adenosine 5'-triphosphate, etc. |
| CoA and acetyl-CoA | Coenzyme A and its acyl derivatives |
| DEAE-cellulose | Diethylaminoethyl cellulose |
| DNA | Deoxyribonucleic acid |
| EDTA | Ethylenediaminetetra-acetate |
| FAD | Flavin-adenine dinucleotide |
| FSH | Follicle-stimulating hormone |
| GH | Growth hormone |
| HCG | Chlorionic gonadotrophin (or tropin), human |
| LH | Luteinizing hormone |
| LtH | Luteotrophic (or tropic) hormone |
| NAD ⁺ , NADH | Nicotinamide-adenine dinucleotide (oxidized and reduced forms) |
| NADP ⁺ , NADPH | Nicotinamide-adenine dinucleotide phosphate (oxidized and reduced forms) |
| P _i | Inorganic orthophosphate |
| PTH | Parathyroid hormone |
| RNA | Ribonucleic acid |
| rRNA, mRNA, rRNA, tRNA | Nuclear, messenger, ribosomal and transfer ribonucleic acid species |
| Tris | 2-Amino-2-hydroxymethylpropane-1,3-diol |

Other accepted abbreviations which need not be defined:

| | |
|---|---------------------------------------|
| acceleration due to gravity | <i>g</i> |
| approximately | approx. (not c. or ca.) |
| aqueous | aq. |
| centimetre | cm |
| compare | cf. |
| concentration | conc. |
| counts/minute | cpm |
| crystalline | cryst. |
| curie (3.7 × 10 ¹⁰ d.p.s.) | Ci |
| diffusion coefficient | <i>D</i> |
| diffusion coefficient, correlated to 20° in water, at zero concentration | <i>D</i> _{20,w} ⁰ |
| dilute | dil. |
| disintegrations/minute | dpm |
| disintegrations/second | dps |
| equilibrium constant | <i>K</i> |
| gas-liquid chromatography | GLC |
| gram(me) | g |
| gram(me)-molecule | mol |
| hour | h |
| infrared | i.r. |
| kilogram(me) | kg |
| litre | l |
| logarithm (base 10) | log |
| logarithm (base e) | ln |
| maximum | max. |
| median effective dose | ED ₅₀ |
| median lethal dose | LD ₅₀ |
| melting point | m.p. |
| Michaelis constant | <i>K_m</i> |
| microgram(me) | μg |

| | |
|---|--|
| micromolar (concentration) | μM |
| micromole | μmol (not μM) |
| millilitre | ml |
| millimicron (10^{-9} m) | nm (not $m\mu$) |
| millimolar (concentration) | mM or mmol/l |
| millimolar (amount) | mmol (not mM) |
| minimum | min. |
| minute (60 s) | min |
| molar (conc.) | M or mol/l |
| mole | mol |
| nanogram(me) | ng |
| nuclear magnetic resonance | NMR |
| per | / |
| per cent | % |
| picogram(me) | pg |
| precipitate | ppt. |
| preparation | prep. |
| probability that an event is due to chance | P |
| recrystallized | recryst. |
| relative band or spot speed in chromatography | R_f ; plural R_f values |
| revolutions/minute | rev./min (or rpm) |
| second (time) | s |
| sedimentation coefficient | s |
| soluble | sol. |
| solution | soln |
| solvent systems | e.g. benzene-hexane-water (4:2:1, by vol.) benzene-water (2:1, v/v) |
| specific activity | SA or sp.act. |
| standard deviation | SD |
| standard error of the mean | SEM |
| Svedberg unit of sedimentation coefficient (10^{-3} s) | S |
| thin-layer chromatography | TLC |
| time (symbol) | t |
| ultraviolet | u.v. |
| uncorrected | uncorr. |
| wavelength | λ |
| wave number (unit) | cm^{-1} |
| weight | wt |
| weight in volume | w/v |

Symbols for amino acids

The symbols [see *Biochem. J.* **102** (1967) 23] are to be used only when presenting polymers, and need not be defined.

Symbols for nucleotides

These symbols [see *Biochem J.* **101** (1966) 1] need not be defined.

Symbols for sugars

The symbols [see *Biochem. J.* **101** (1966) 1] are to be used only when representing polymers, and need not be defined.

Enzymes

The recommendations of *Enzyme Nomenclature* (Edited by Marcel Florkin and Elmer H. Stotz, *Comprehensive Biology*, Vol. 13, Elsevier, 1965) are to be followed as far as possible and the EC numbers should be quoted as suggested on p. 42 of that publication.

Isotopically labeled compounds

Symbols for the isotope introduced are placed in square brackets in front of the name, e.g. [4-¹⁴C]testosterone, the figure 4 indicating the position of the isotope in the compound.