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Recommendations for the naming of photochemical reaction centres and light-harvesting pigment-protein complexes from purple photosynthetic bacteria

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In July 1983 a 'workshop' on 'The Molecular Structure and Function of Light-Harvesting Pigment-Protein Complexes and Photosynthetic Reaction Centres' was held in Zürich. As a result of discussion during this 'workshop' a set of simple guidelines for the nomenclature of photochemical reaction centres and antenna complexes of purple photosynthetic bacteria was drawn up and generally agreed upon. We would like to present these recommendations here.

(1) The term RC should be used as a standard abbreviation for the reaction centre, with 'H' (heavy), 'M' (medium) and 'L' (light) being used to designate its three protein subunits [1]. RCs from *Rhodospirillum rubrum* [2] appear to contain only two protein subunits. It will require further work to clarify their relationship to the more standard, three polypeptide RCs before they can be classified. Until this work is done these RC polypeptides are probably best referred to by ref-

erence to their apparent molecular weights as determined on SDS-polyacrylamide gels, e.g. in this case as the 33 kDa and 25 kDa subunits. Some RCs, such as those from *Rhodospirillum rubrum* [3], also contain a fourth protein subunit, which has been shown to be a c-type cytochrome. Normal cytochrome nomenclature should be used in this case.

(2) The prefix 'P' followed by some numbers denotes an RC pigment. The numbers refer to that pigment's long-wavelength absorption maximum, at room temperature, in nanometers, e.g., P-870, the RC pigment(s) which absorbs maximally at 870 nm.

(3) Light-harvesting (or antenna) bacteriochlorophyll-protein complexes should be called 'B' followed by the number(s) of the maximum (maxima) of their room temperature, near infrared bacteriochlorophyll absorption band(s) in nanometers, and then - (hyphen) complex, e.g., B890-complex or B800–850-complex. The use of -complex is made specifically to designate the 'holo-complex'.

(4) The antenna polypeptides should be called

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by Greek letters, following the near infrared wavelength maximum (maxima) and then - (hyphen) apoprotein, e.g., B890- α -apoprotein and B890- β -apoprotein for the two polypeptides from the B890-complex from *Rhodospirillum rubrum* [4]. The α -apoprotein is representative of the family of antenna polypeptides with a single conserved histidine residue [5] and is usually smaller than the β -apoprotein, which is representative of the family of antenna polypeptides with two conserved histidine residues. Some antenna apoproteins contain additional histidine residues, e.g., B870- α -apoprotein from *Rhodopseudomonas capsulata* [6], but these extra histidine residues occur at non-conserved sites. Additional, non-pigment-binding polypeptides, when they are found to occur, should be called by other Greek letters followed by - (hyphen) polypeptide, e.g., the 14 kDa polypeptide from the B800-850-complex from *Rps. capsulata* [7] would be called B800-850- γ -polypeptide. Note the use of -polypeptide rather than -apoprotein for the non-pigment-binding subunits. As with the RC subunits, when antenna apoproteins are first described and before there are the sequence data to assign them as either type α or β , they should be denoted by their apparent molecular weights as

determined by SDS-polyacrylamide gel electrophoresis.

(5) All terms such as LH1, LH2, LHP1 and LHP2, etc., should be avoided, since they have no information content and are particularly confusing for the non-specialist. We hope that these recommendations will prove useful but we are fully aware that they may need to be reviewed in the future in the light of further developments in this field.

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