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Nomenclature errors

There are a dozen phosphoribosyltransferases (EC 2.4.2.7 to 2.4.2.22) which are named as acceptor phosphoribosyltransferases or donor pyrophosphorylases. With the exception of xanthine phosphoribosyltransferase (in which the classification is based on xanthine as acceptor; why?), all the enzymes are classified on the basis of pyrophosphate as acceptor. There is one more name which does not fit into this general pattern. The enzyme catalyses the committed step in purine nucleotide biosynthesis and is named as amidophosphoribosyltransferase (EC 2.4.2.14). The more objectional name for this enzyme is glutamine:phosphoribosylpyrophosphate (PRPP) amidotransferase or phosphoribosyldiphosphate 5-amidotransferase, which

appears in the column captioned 'other names' [1] and which was adopted by the Hartman group [2] for convenience. This name was probably coined to convey two changes brought about by the enzyme, i.e. phosphoribosyl transfer and amidation. This violates rule 14B for systematic nomenclature which states that in case of a reaction involving two changes, the name is based on one change and the other one is to be indicated in parentheses. Moreover, the name wrongly implies amide group transfer, as given in Stryer's book [3]. Actually, it is the amino portion of the amide group in glutamine which displaces the pyrophosphate group in PRPP. In analogy with other enzymes in this subgroup, the enzyme should be named as glutamine phosphoribosyltransferase (deamidating).

For fumarase and aconitase, the correct names fumarate hydratase and aconitate hydratase have been adopted. Similarly, enolase (EC 4.2.1.11) should be called enol hydratase (rule 25A) since the name enolase suggests that the enzyme catalyses hydrolysis of the substrate enol.

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