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Biocatalytic approaches applied to the synthesis of nucleoside prodrugs

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Abstract

Nucleosides are valuable bioactive molecules, which display antiviral and antitumor activities. Diverse types of prodrugs are designed to enhance their therapeutic efficacy, however this strategy faces the troublesome selectivity issues of nucleoside chemistry. In this context, the aim of this review is to give an overview of the opportunities provided by biocatalytic procedures in the preparation of nucleoside prodrugs. The potential of biocatalysis in this research area will be presented through examples covering the different types of nucleoside prodrugs: nucleoside analogues as prodrugs, nucleoside lipophilic prodrugs and nucleoside hydrophilic prodrugs.

Keywords: biocatalysis, nucleosides, nucleotides, prodrugs, chemoenzymatic synthesis

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