BIOTRANS
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Reaction development via synthetic aminoacids in LmrR

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PURPOSE OF THE ABSTRACT
Artificial metalloenzymes (ARMs), that is, designed enzymes containing a synthetic metal co-factor within a protein framework, has emerged as a promising area of research for the discovery and development of new synthetic transformations. Recently, the group of Roelfes have successfully exploited the use of the lactococcal multidrug resistant regulator (LmrR) as the host protein in a set of different type of reactions in a selective manner, i.e., Diels-Alder reaction, Friedel-Crafts alkylation and conjugate additions, by the introduction of both non-canonical aminoacids and synthetic transition metal complexes.[1] Intrigued in continuing expanding the synthetic utility of LmrR, here we will present our results on the incorporation via stop codon suppression methodology of synthetic aminoacids bearing a cyclic secondary amine to perform, i.e., enamine catalysis.

FIGURES

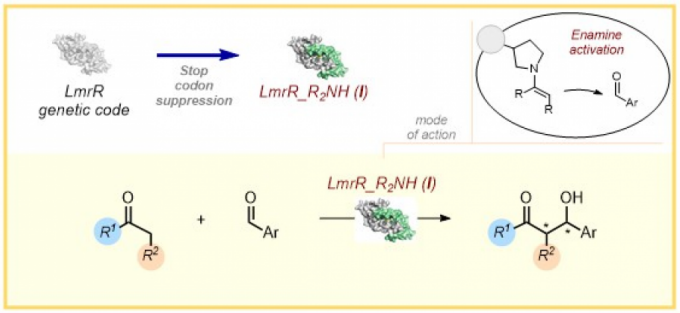

FIGURE 1

Scheme 1.

Expression and validation of LmrR_R2NH (I) for enamine formation

FIGURE 2

KEYWORDS

Biocatalysis | Artificial enzyme | Non-canonical aminoacid | new-to-nature reactions

BIBLIOGRAPHY

[1] Roelfes, G. Acc. Chem. Res. 2019, 52, 545.