Subject area: __*ORG*__

A Straightforward Sequential Approach for the Enantioselective Synthesis of Optically Active α-Arylmethanol-1,2,3-Triazoles

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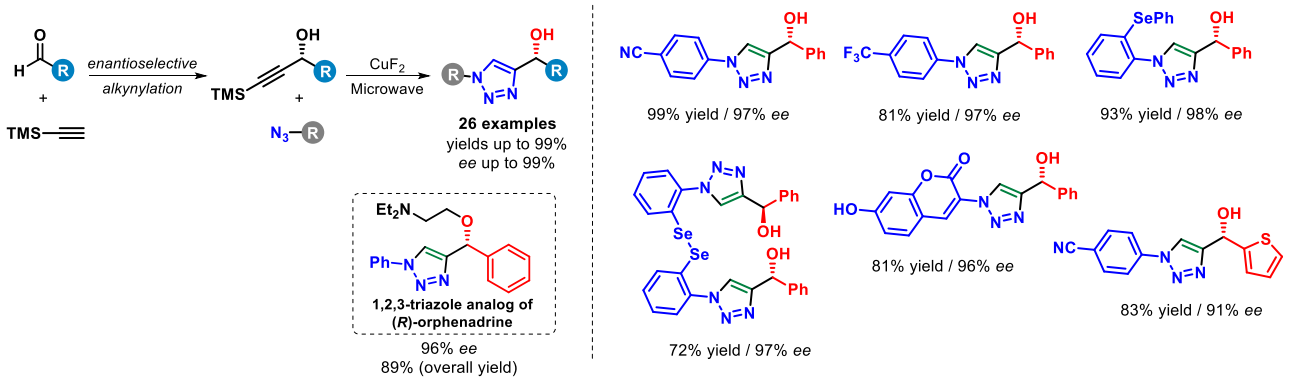
Keywords: *di(hetero)arylmethanols, 1,2,3-triazoles, propargylic alcohols.*

Highlights

Click here! Chiral arylmethanols bearing 1,2,3-triazoles are achieved using a straightforward sequential approach.

Abstract

Optically active di(hetero)arylmethanols are highly privileged scaffolds used as building blocks in organic synthesis; they have been used as precursors for the preparation of a number of biologically active compounds, namely local anesthetics, antiarrhythmics, antidepressants, diuretics, laxatives, and anticholinergics.[1] Consequently, the investigation for straightforward efficient strategies to access diverse heteroarylmethanols is of great importance. In this context, heteroarylmethanols containing a triazole ring are of particular interest owing to their biological activity.[2] As a matter of fact, a myriad of bioactive molecules bearing a 1,2,3-triazole ring incorporated into their structure have already been synthesized.[3] Although there are elegant methods for the synthesis of triazole-containing heteroarylmethanols, the introduction of chiral substituents at the C-4 position of 1,4-disubstitued-1,2,3-triazoles still remains a challenge. We describe herein an efficent and straightforward synthetic route for the preparation of optically active α-arylmethanol-1,2,3-triazoles through a two-step sequential approach requiring the enantioselective alkynylation of aldehydes with ethynyltrimethylsilane to give the corresponding enantioenriched trimethylsilylpropargylic alcohol, which was desilylated in situ and then employed in CuAAC in the presence of several azides (Scheme 1).



Scheme 1

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