

## Synthesis and application of 2-substituted 1,1-diphenyl-2,4-dihydro-1H-benzo[d][1,3]oxaphosphinin-1-ium

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In the presence of  $\text{Ph}_3\text{PBr}_2$  or  $\text{Ph}_3\text{PHBF}_4$ , 2-substituted 1,1-diphenyl-2,4-dihydro-1H-benzo[d][1,3]oxaphosphinin-1-ium can be synthesized from (2-(diphenylphosphino)phenyl)methanol and an aldehyde in 36-89% yields. These phosphonium salts are bench-stable solids and undergo Wittig olefination with another aldehyde under basic condition ( $\text{K}_2\text{CO}_3$  or  $t\text{-BuOK}$ ) to form benzylic vinyl ethers, which are readily hydrolyzed to 1,2-disubstituted ethanones under acidic condition. Therefore, the overall reaction provides a facile route to couple two aldehydes to form 1,2-disubstituted ethanones.

