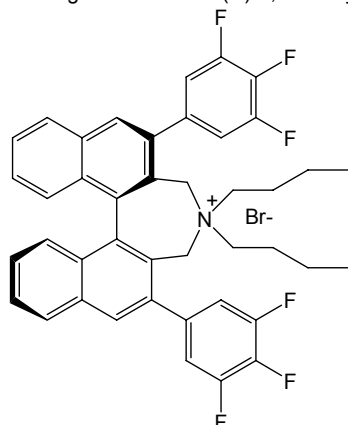


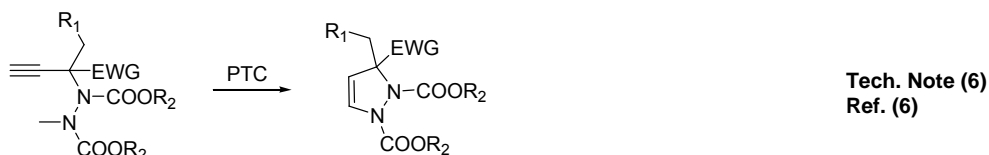
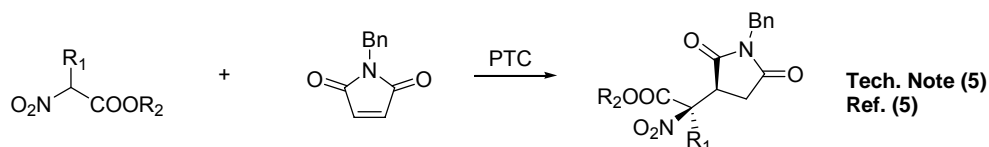
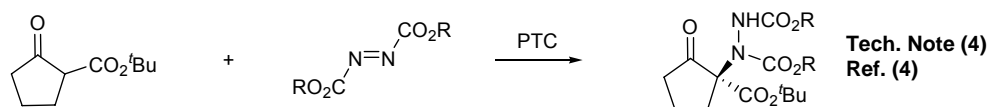
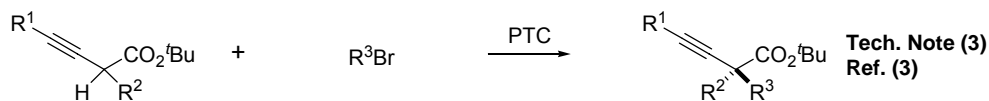
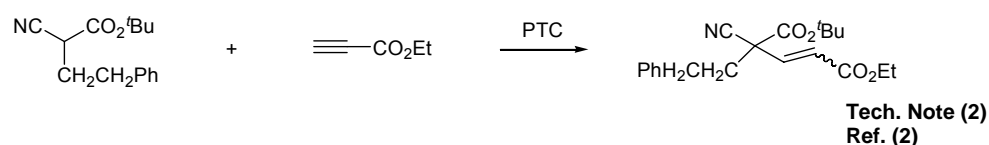
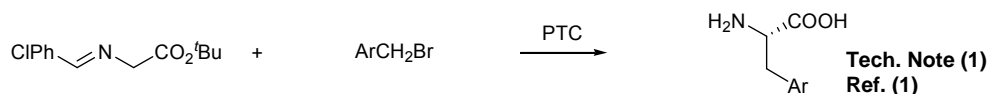
Catalog # 07-0380 (R)-4,4-Dibutyl-2,6-bis(3,4,5-trifluorophenyl)-4,5-dihydro-3H-dinaphtho[7,6,1,2-cde]azepinium bromide



Note: Sold in collaboration with Nagase for research purposes only. US Patent 6,340,753.

## Technical Notes:

1. 2nd Generation Maruoka chiral phase transfer catalyst, for enantioselective alkylation of  $\alpha$ -amino acid derivatives, that is easily recovered for recycle by extraction with fluoruous solvent.
2. Catalyst for asymmetric conjugate addition of  $\alpha$ -substituted- $\alpha$ -cyanoacetates to  $\alpha,\beta$ -unsaturated acetylenic esters.
3. Phase transfer catalyzed enantioselective  $\alpha$ -alkylation.
4. Asymmetric amination of  $\beta$ -keto esters.
5. Diastereo- and enantioselective conjugate addition of  $\alpha$ -substituted nitroacetates to maleimides.
6. Cyclization of  $\beta$ -alkynyl hydrazines.



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