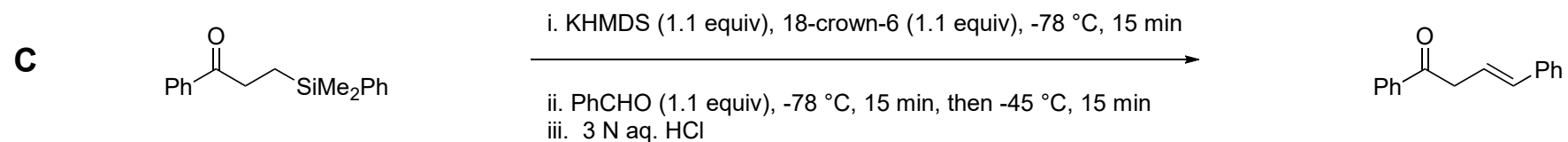
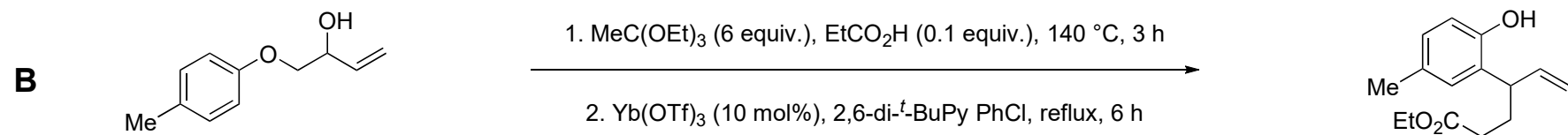
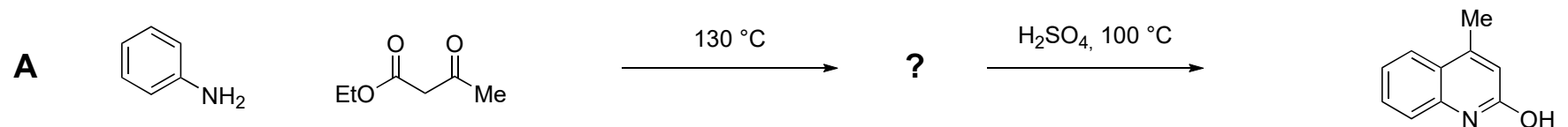


**Provide a reasonable mechanism for the following transformations. Rationalize the stereochemistry when necessary.**



**D** *The following equation shows the reactants and products in a one-pot tandem sequence that involves four successive C-C bond-forming steps catalyzed by Pd (steps 1, 2 and 4) and Ru (step 3). Given that ArI is only needed for step 4, predict the intermediates formed during each step.*

