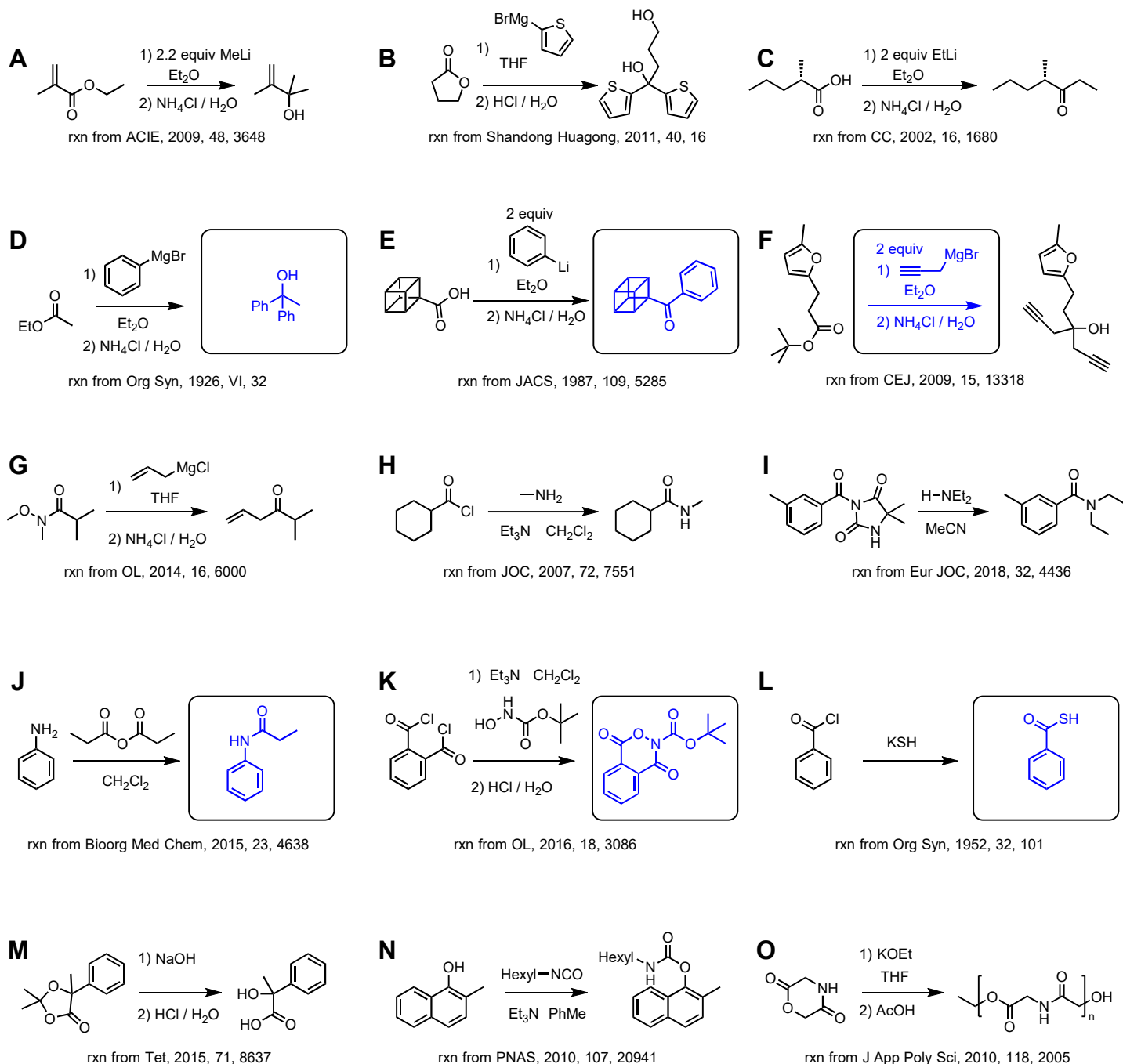


SUBSTITUTION AT C=O

Fill in the empty boxes. And, provide mechanisms for the following transformations, all of which involve nucleophilic attack on a carbonyl or carbonyl-like functional group. Do this on a separate piece of paper of course.



Very Challenging Mechanisms: *RSC Adv.*, 2013, 3, 24997-25009. In this article, the researchers investigated how the reactivity of compound **1** depends on which organolithium it is reacted with. Provide mechanisms for the formation of **A**, **B**, and **C**. Mechanisms for **A** and **B** involve only nucleophilic attack on carbonyls or carbonyl-like groups and subsequent tetrahedral intermediate collapses. The mechanism for **C** has a tricky final step.

