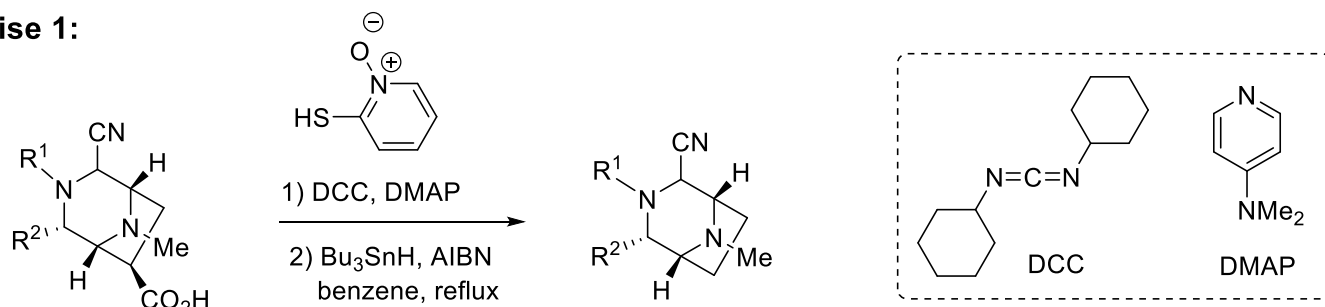


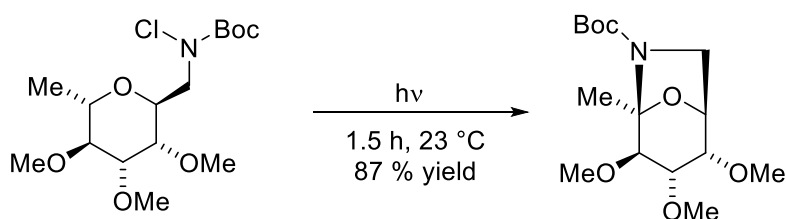
SR 2024 - Exercise Series 3: Radicals, Photochemistry & Umpolung

Exercise 1:



The depicted transformation is an example of the **Barton decarboxylation**.
Illustrate with the relevant intermediates how the reaction is proceeding.

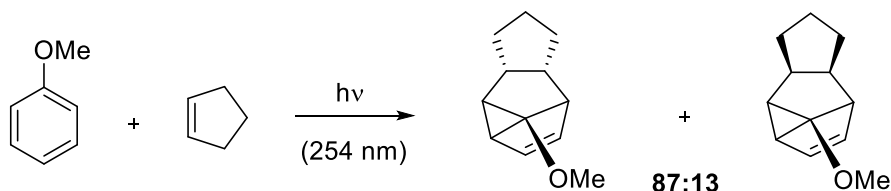
Exercise 2:



The depicted transformation is an example of the **Hofmann-Löffler-Freytag** radical chain reaction.
Illustrate with the relevant intermediates how the reaction is proceeding.

Hint: take relative radical stabilities, ring sizes for TS, and geometrical constraints all into account.

Exercise 3:

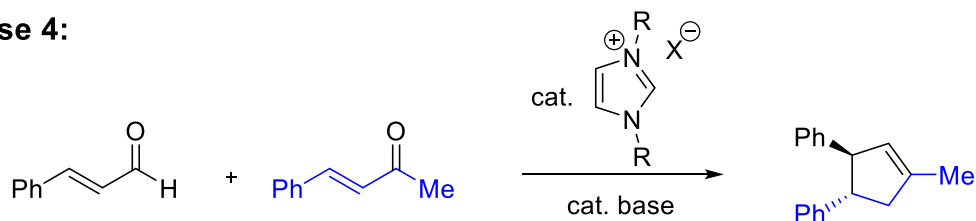


How is the following transformation proceeding?

Rationalize the reaction outcome by showing the important intermediates.

Give arguments to support both the observed regioselectivity, and diastereoselectivity.

Exercise 4:



The depicted transformation is an example of a **NHC-catalyzed Umpolung** process.

Rationalize the reaction outcome by showing the important intermediates.

Hint: consider R a sterically encumbered group.