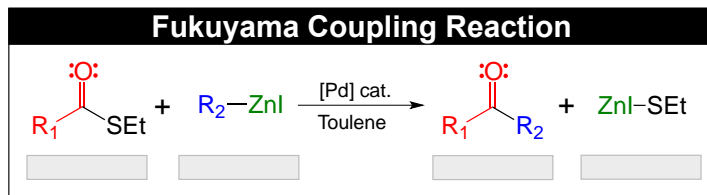
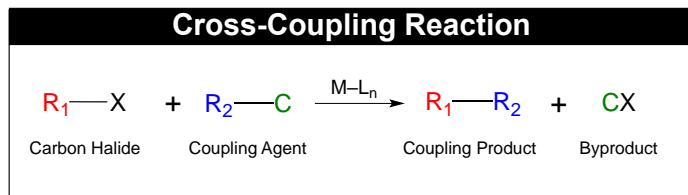


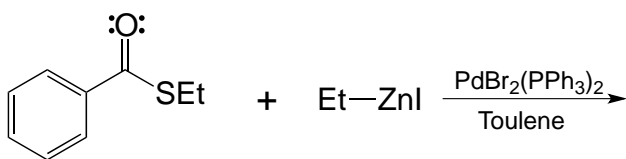
CONCEPT: FUKUYAMA COUPLING

- The Fukuyama Coupling reaction involves the coupling between a thioester and an organozinc halide with a Pd catalyst.
 - The reaction creates a _____ product.



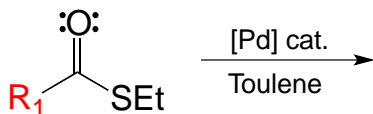
- The R_1 group of the thioester is represented by a(n) *vinyl* or *aryl* group.
- The R_2 group of the organozinc halide is represented by a(n) _____ group.
- The Cl group = _____.

EXAMPLE: Determine the product from the following Fukuyama Coupling Reaction.

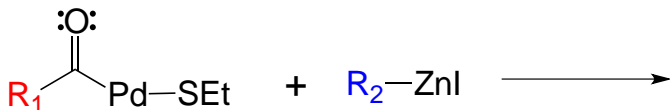


Coupling Mechanism

- Unlike the Grignard Reagent, the organozinc halide stops at the ketone instead of proceeding to a _____ alcohol.
- 1) **Oxidative Addition:** Involves the addition of the thioester to the Pd complex.



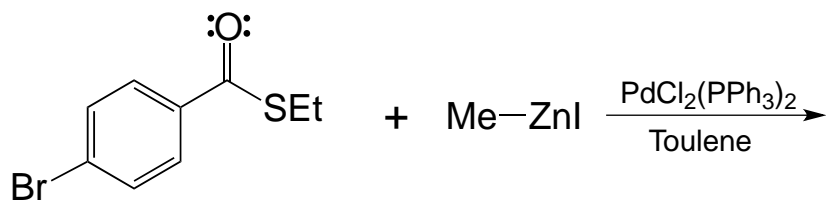
- 2) **Transmetalation:** The R_2 group of the organozinc compound transfers from Zn to the Pd complex.



- 3) **Reductive Elimination:** This step forms the coupling product.

CONCEPT: FUKUYAMA COUPLING

PRACTICE: Determine the product from the following Fukuyama Reaction.



PRACTICE: Determine compounds **A**, **B**, and **C** from the following reaction sequence.

