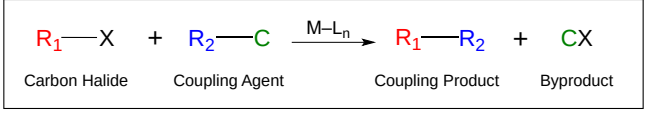
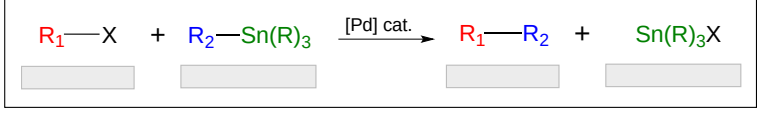
CONCEPT: STILLE REACTION

- In the Stille reaction, an organostannane compound reacts with a carbon halide in order to form a new C—C bond.
  - □ The reaction creates conjugated compounds composed of alkenes, _____ or _____ compounds.

Cross-Coupling Reaction



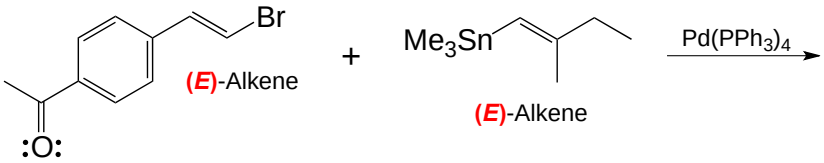
Stille Reaction



  - □ The **R_1** group of the carbon halide is represented by a(n) *vinyl*, *aryl* + _____ group.
  - □ The **R_2** group of the organostannane is represented by a(n) *vinyl*, *aryl* + _____ group.
  - □ The **C** = $Sn(R)_3$ with the R group of the organostannane is represented by a(n) _____ group.
  - □ The **X** group of the carbon halide is represented by a Cl, Br, I or OTf group.

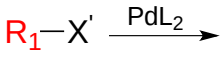
- When creating conjugated dienes, the reaction is observed to be _____ with retention of configurations.

PRACTICE: Determine the product from the following Stille Reaction.

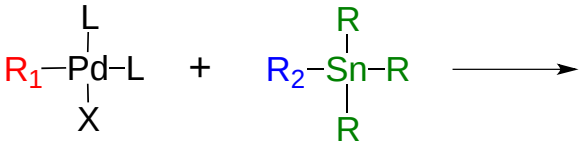


Coupling Mechanism

1) **Oxidative Addition**: Involves the addition of the carbon halide to the transition metal complex.



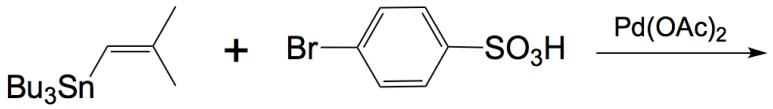
2) **Transmetallation**: The R_2 group transfers from the organostannane to the Pd metal complex.



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

CONCEPT: STILLE REACTION

PRACTICE: Determine the product from the following Stille Reaction.



PRACTICE: Determine the product from the following Stille Reaction.