# Group Meeting Research

June 15, 2009

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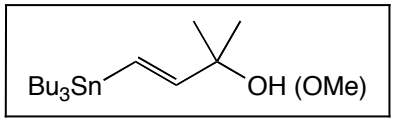
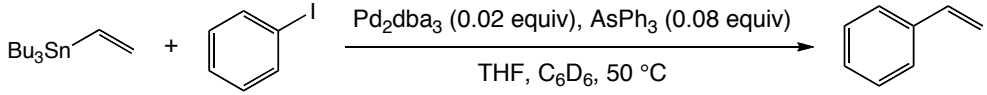
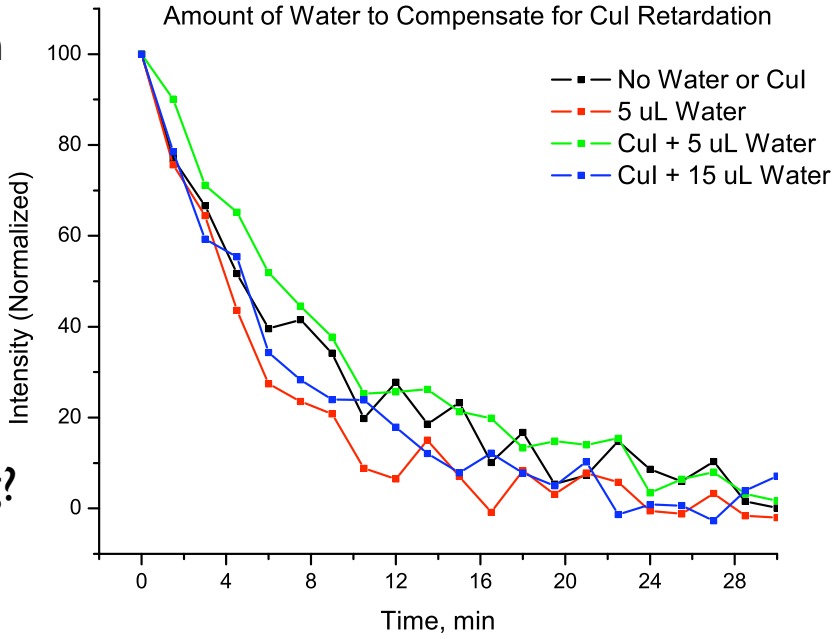
# Final (?) Questions to Answer



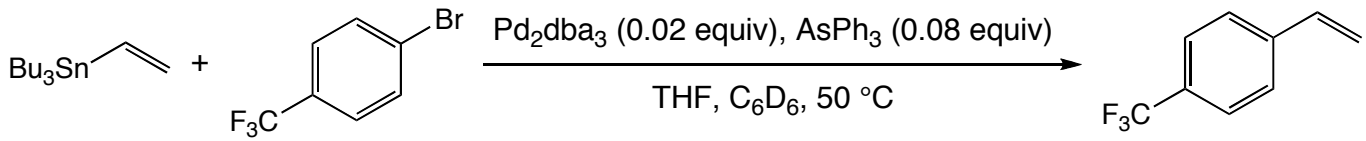

- Does water activate tin substrates without an oxygen?
  - Yes:




- Does this extend to other solvents?
  - Yes, when solvent = NMP (same reaction as above)
- How does CuI effect reactions in THF & NMP with tributylvinyltin?
  - Slows reaction down, as with other stannanes
- Could residual water from CuI purification cause acceleration in Farina's work?
  - How much water provides acceleration Farina saw with CuI?
    - 5 uL (microliter)
  - How much water to compensate for the retardation we see with CuI?
    - >15 uL
- Does CuI shut down a reaction already going?
  - Depends...



# CuI Effect




Set #1:

a. 1 hr

NMR ratios: SM/Prod = 100/23

b. After 10 min, add CuI (0.08 equiv) + 50 more min: 1 hr total

NMR ratios: SM/Prod = 100/15

**Appears to have <u>slowed down</u> the reaction**

Set #2:

a. 55 min

NMR ratios: SM/Prod = 100/25

b. After 25 min, add CuI (0.08 equiv). + 30 more min: 55 min total

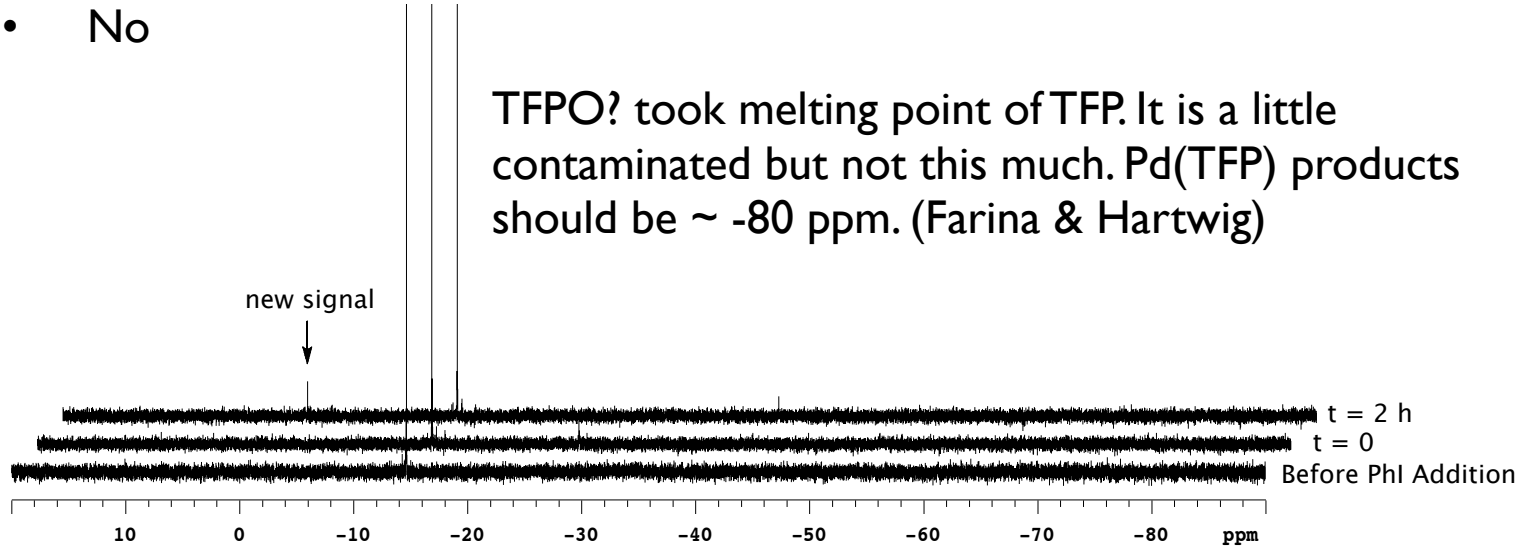
NMR ratios: SM/Prod = 100/26

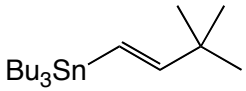
**Appears to have <u>facilitated</u> the reaction**

# Final (?) Questions to Answer

- Are rate similarities for trimethylvinyltin and tributylvinyltin + PhI in Pd/$AsPh_3$ and Pd/TFP due to Pd coordiation (as seen with benzene)?
  - Yes - when put in competition for both Cat/L, Me > Bu
- Regarding the induction period with TFP: Allowed the oxidative addition (OA) to take place for several hours, allowed for new "species" formed (by $^{31}P$ NMR), does this have an effect on the rate? Presumably it could be the $HXPdL_2$ proposed by Hartwig.
  - No

TFPO? took melting point of TFP. It is a little contaminated but not this much. Pd(TFP) products should be ~ -80 ppm. (Farina & Hartwig)




- Is the oxygen necessary to make the OA the RDS with ArBr's?
  - No,  shows increased rate upon increased E+ concentration