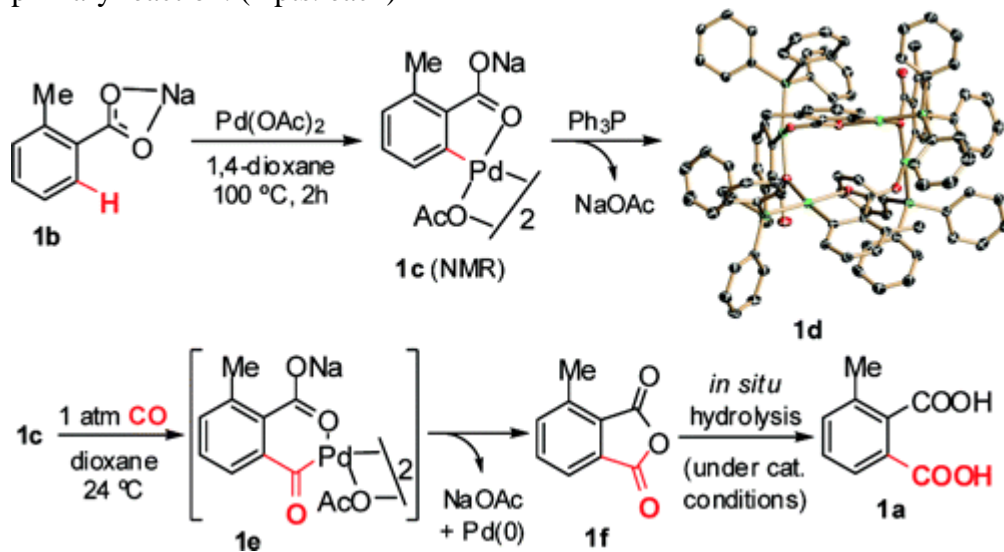


Problem Set #5

Due: Nov. 4, 2008

1. Identify the following reactions by their type, i.e. oxidative addition, reductive elimination, etc. Note: some reactions will not show a ligand substitution or association step that must occur prior to the primary reaction. (2 pts. each)



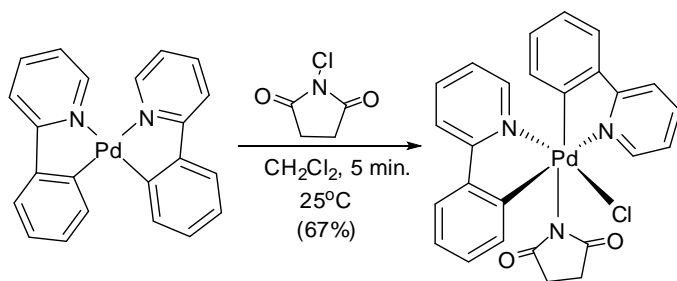
J. Q. Yu et al. *JACS* **2008**, *130*(43), 14082.

a) The reaction taking **1b** to **1c**. oxidative addition

b) The reaction taking **1c** to **1e**. 1,1-insertion

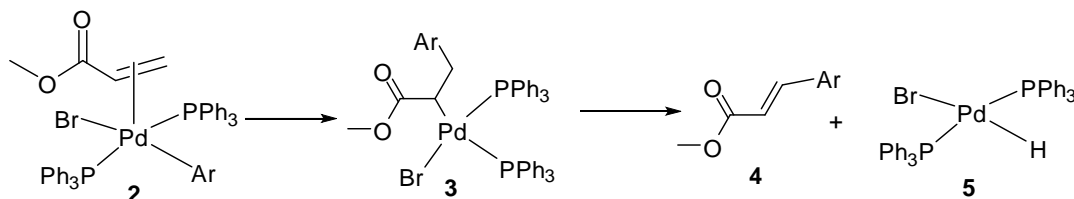
c) The reaction taking **1e** to **1f**. reductive elimination

d)



M. S. Sanford et al. *JACS* **2007**, *129*(49), 15142-3.

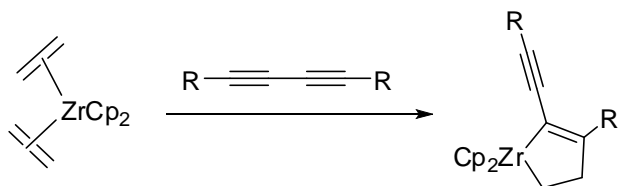
oxidative addition



Heck reaction

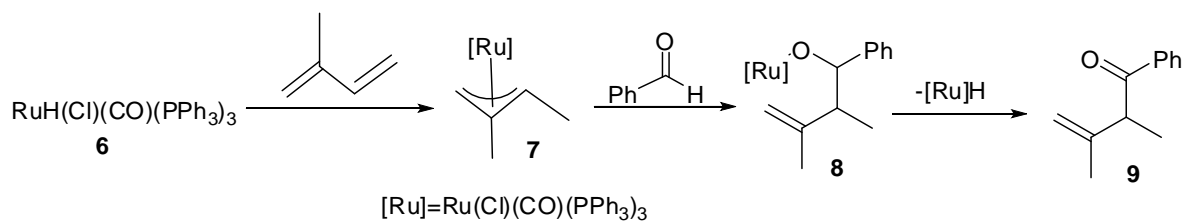
e) The reaction taking **2** to **3**. 1,2-insertion

f) The reaction taking **3** to **4** and **5**. beta-hydride elimination



E. Negishi, T. Takahashi et al. *Tet.* **1997**, *53*(27), 9123-34.

g) oxidative coupling



I. Ryu et al. *JACS* **2008**, *130*(43), 14094.

h) The reaction taking **6** to **7**. 1,2-insertion (and increase in coordination from η^1 -allyl to η^3 -allyl)

i) The reaction taking **8** to **9**. beta-hydride elimination

2. Propose a mechanism for the following conversion. Draw all intermediates leading to the final structure. (2 pts.)

