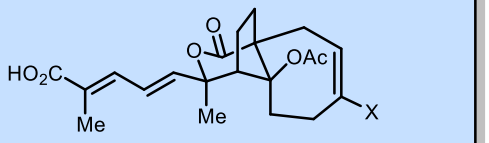
SOTW: (–)-Pseudolaric Acid B

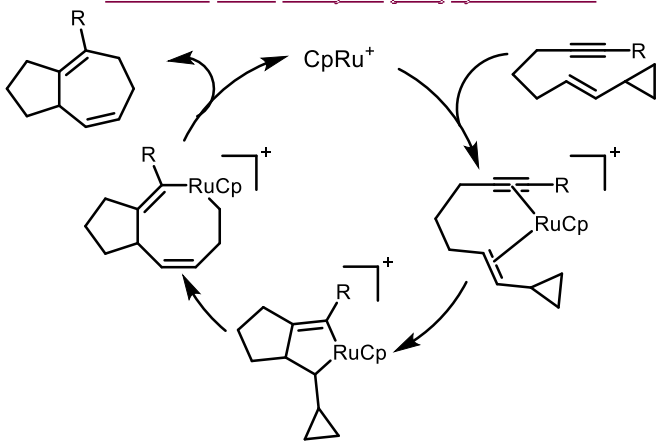


X = Me, pseudolaric acid A
X = CO_2Me, pseudolaric acid B

Pseudolarix kaempferi Gordon

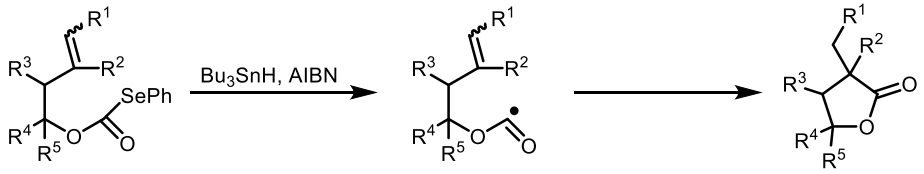
-Pseudolaric acids are diterpene acids isolated from the bark of *Pseudolarix kaempferi Gordon*.
-The extract of the root bark is a Chinese herbal medicine called *tujinpi* and is used against fungal infections of the skin and nails.
-Pseudolaric acid B has a much higher activity than other pseudolaric acids.
-It is a potent antifungal, antifertility and cytotoxic agent. It inhibits angiogenesis in tumor cells, induces apoptosis in human melanoma cells and inhibits the polymerization of tubulin in multidrug-resistant cancer cell lines.
-Two total syntheses of pseudolaric acid A have been reported (Chiu, *Angew. Chem. Int. Ed.* **2006**, *45*, 6197 and Yang, *Org. Lett.* **2011**, *13*, 2630) while the only synthesis of pseudolaric acid B was reported by Trost (*J. Am. Chem. Soc.* **2007**, *129*, 14556, article: *J. Am. Chem. Soc.* **2008**, *130*, 16424).

Transition metal catalyzed [5+2] cycloaddition:



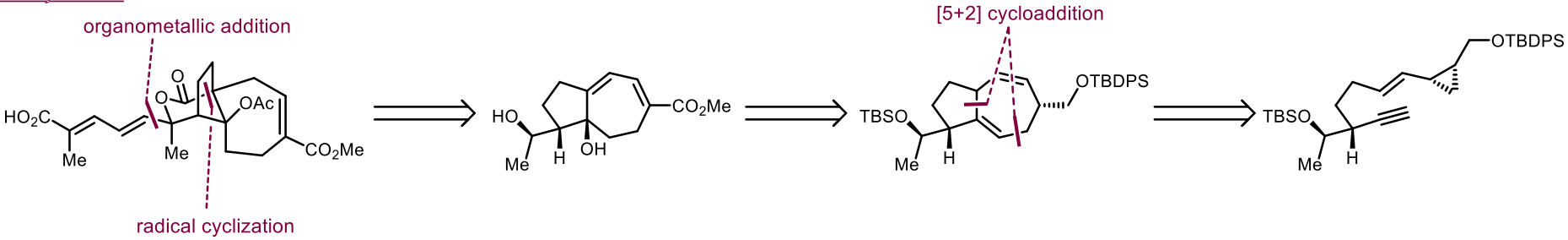
Rh - Wender, *J. Am. Chem. Soc.* **1995**, *117*, 4720-4721
Ru - Trost, *J. Am. Chem. Soc.* **2000**, *122*, 2379-2380

Radial cyclization of selenocarbonates:



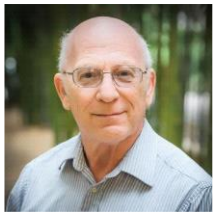
Bachi, *J. Org. Chem.* **1992**, *57*, 4696
First report by Corey: *J. Am. Chem. Soc.* **1987**, *109*, 6187

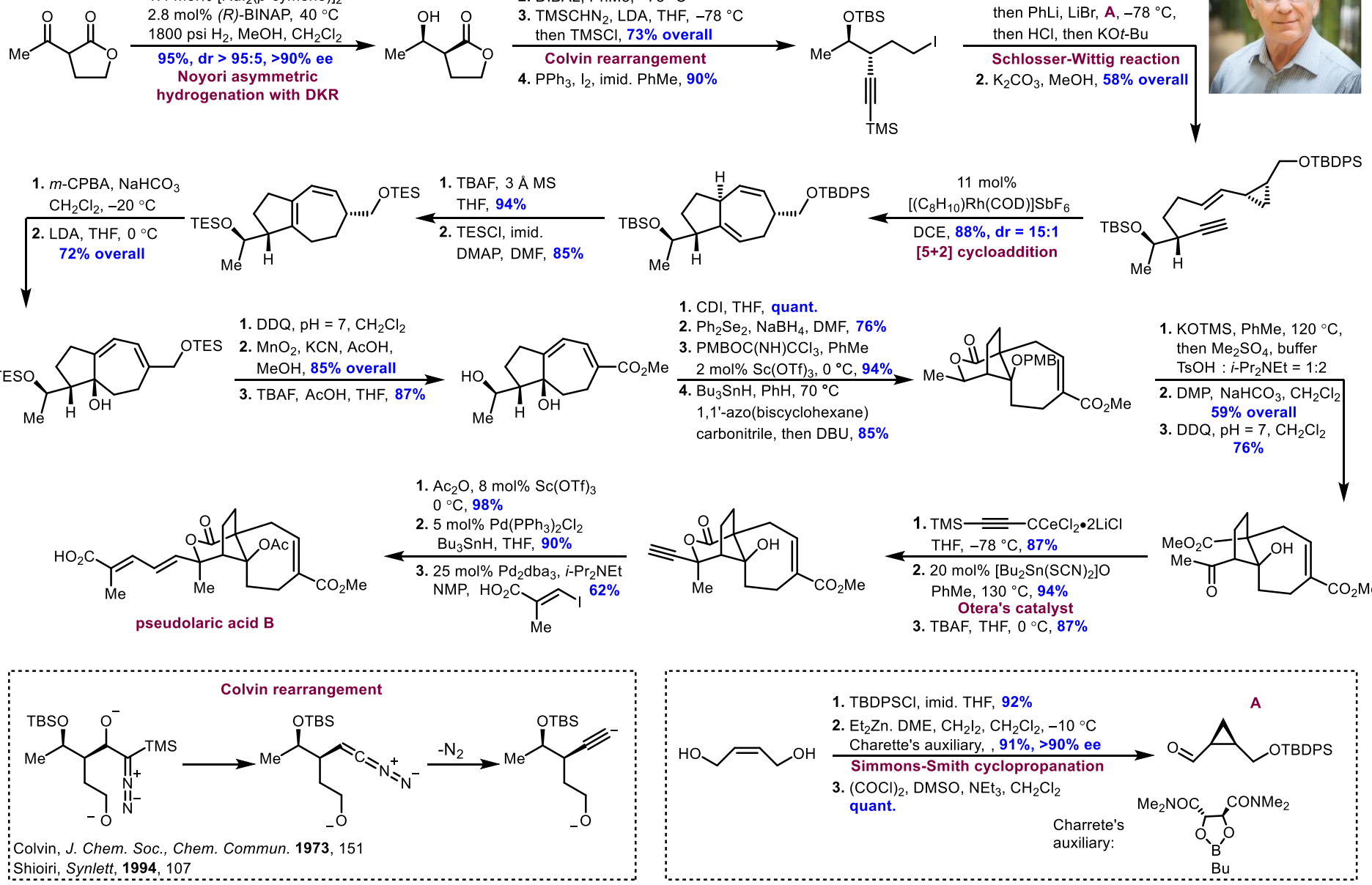
Retrosynthesis:



SOTW: (–)-Pseudolaric Acid B

Forward synthesis:





Colvin rearrangement

Colvin, *J. Chem. Soc., Chem. Commun.* **1973**, 151
Shioiri, *Synlett*, **1994**, 107