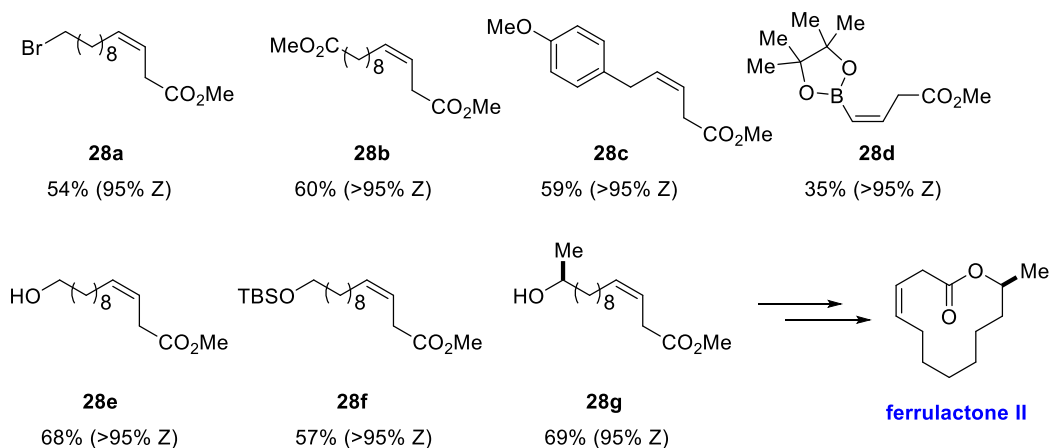
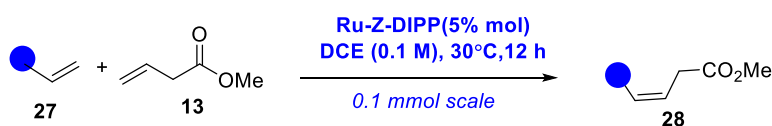
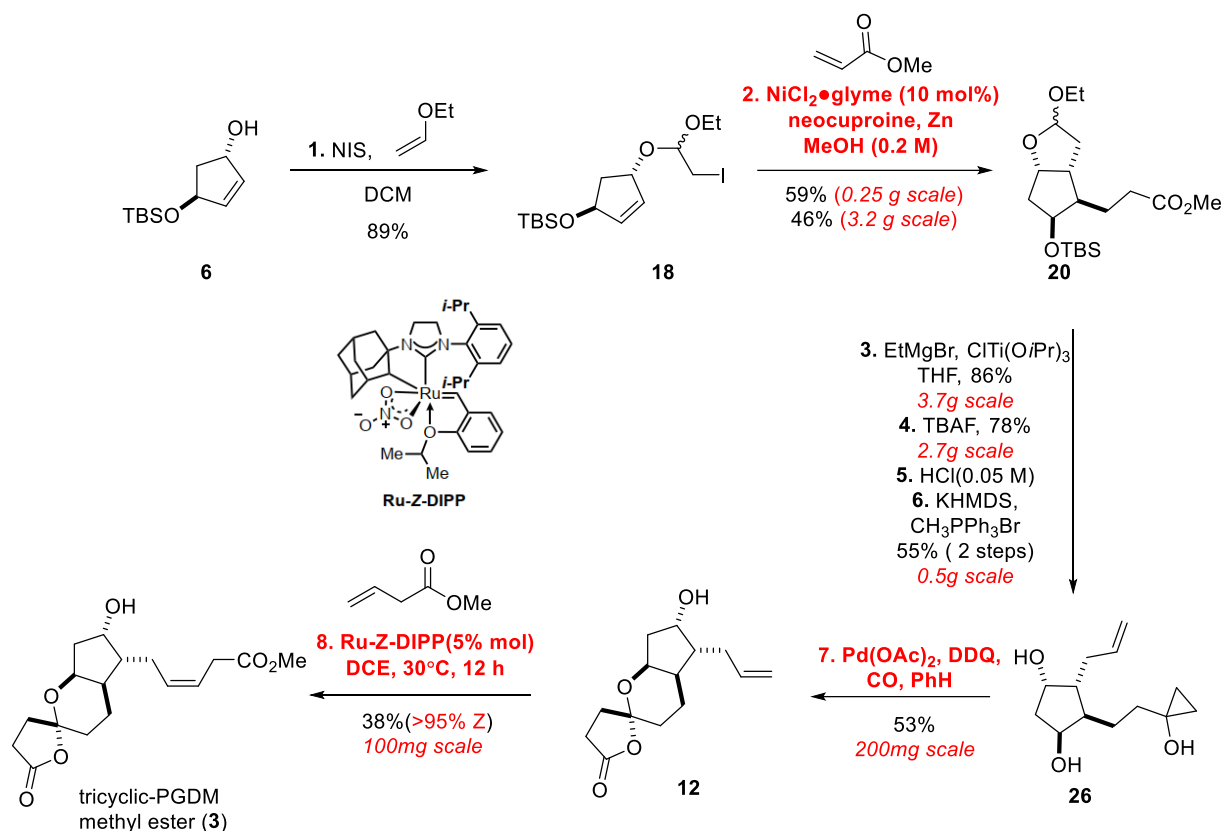




Key Steps:

- Ni-catalyzed Ueno-Stork-type dicarbofunctionalization
- Pd-catalyzed bicyclic lactones formation
- Z-selective cross metathesis to construct (Z)- β,γ -unsaturated esters

Significance:

- A concise synthesis of tricyclic-PGDM methyl ester
- A general cross-metathesis protocol for (Z)- β,γ -unsaturated esters was established.