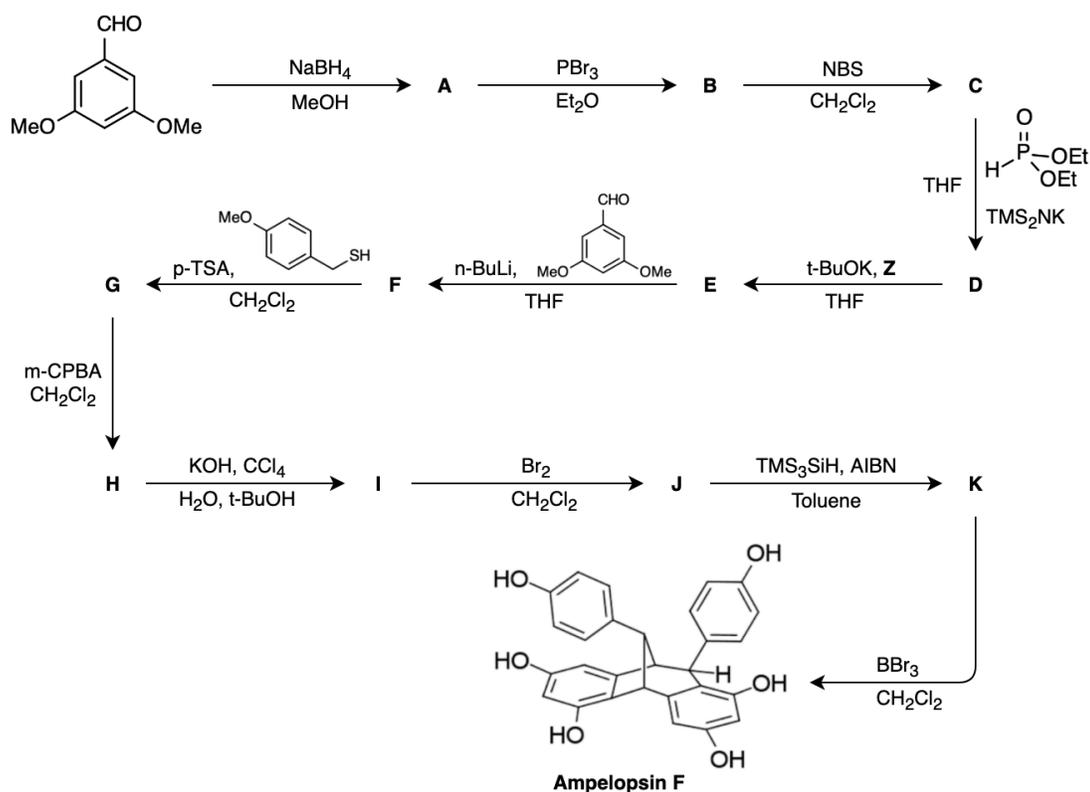


Ampelopsin F (CODS-CT Team Round Part 2 #4)

Reagent **Z** is an organic compound with molecular formula $C_8H_8O_2$. ^{13}C NMR suggests that there are 6 different ^{13}C NMR environments. Additionally, **Z** reacts completely with 1 equivalent of $LiAlH_4$ and can also react with some amount of CrO_3 in H_2SO_4 . The product of the reaction of **Z** with BBr_3 can be further reacted with more CrO_3 in H_2SO_4 (more than the stoichiometric equivalent for direct oxidation of **Z** detailed above).

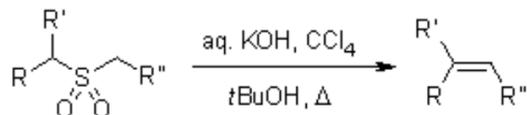
Following is a synthetic scheme to create an interesting organic molecule. It employs reagent **Z**:



1. Give structures for reagent **Z** and all unknowns in the scheme above.

Hints:

- Compound **C** is tetra-substituted.
- The transformation from **F** to **G** is a cyclization which produces a 5 membered ring.
- The transformation from **H** to **I** is known as the "Ramberg-Backlund reaction."



- The transformation from **I** to **J** is a cyclization.