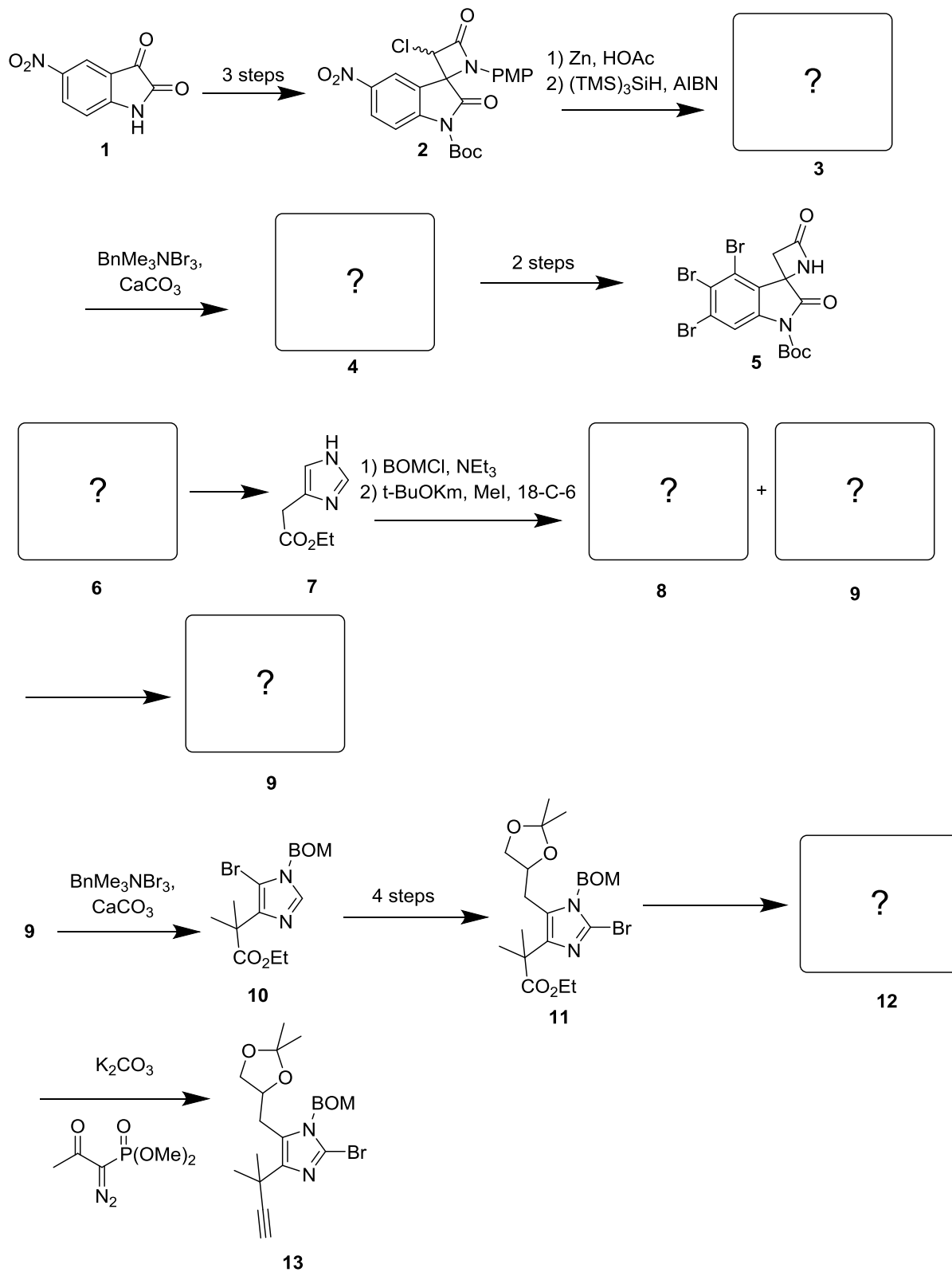
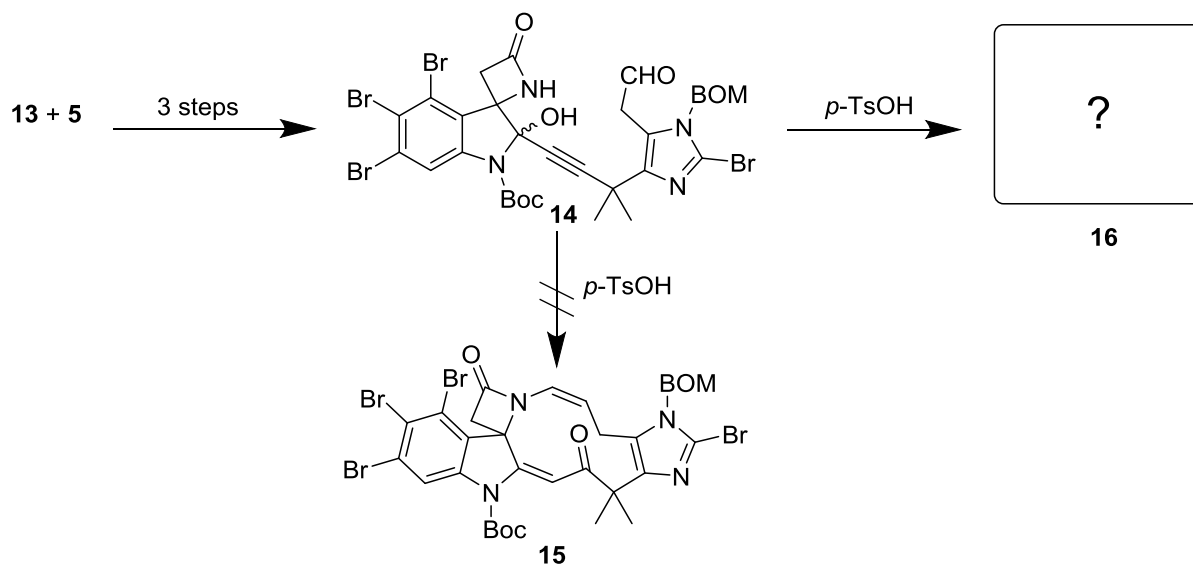


Spivey Group Problem Sheet June/July 2018

In 2006 Weinreb et al. reported an attempted synthesis of the marine alkaloid Chartelline A. Please fill in any gaps in the scheme below and provide plausible mechanism for every step.





Provide an explanation for why the final step produces the undesired product **16** rather than the desired intermediate **15**.

Cascade reactions can be incredibly useful in total synthesis the following are three such examples, please provide a plausible mechanism for each transformation including a proposed structure for each of the key intermediates.

