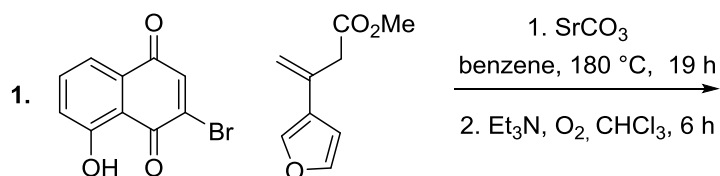
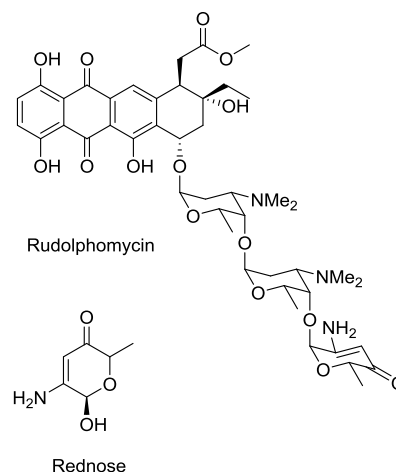


## Christmas Chemistry Conundrums -11/12/18

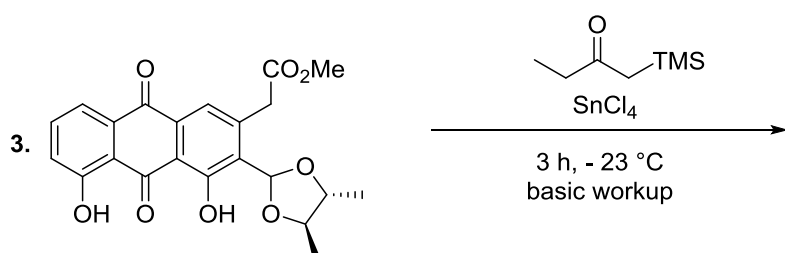
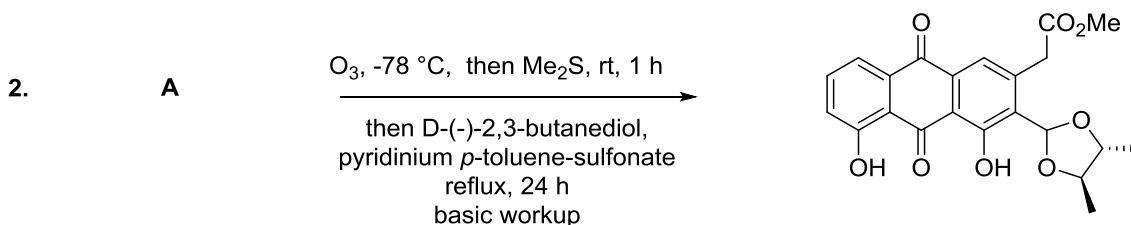
Oh no! Rudolph is sick! His nose has lost its shine! Help Santa synthesise some medicine for Rudolph to get his nose back to normal in time for Christmas.

Rudolphomycin is a reindeer medicine extracted from Holly and Mistletoe\*, it contains a sugar called rednose. Santa has worked out some of the synthesis but needs help with the mechanism for some of the steps. Please provide mechanisms and intermediates for the following steps:

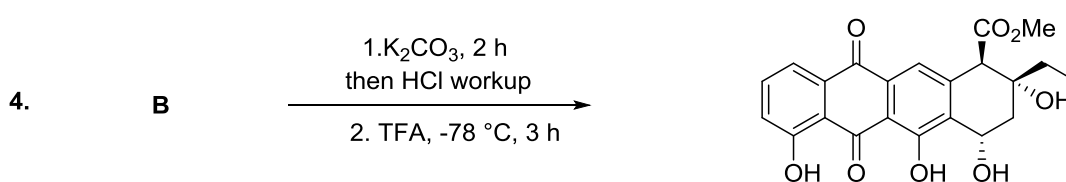


**A**

feel free to propose a mechanism for the  $\text{O}_2$  bit but don't worry about it

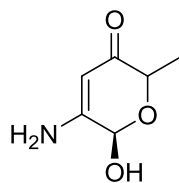


**B**



\*This may not be 100% accurate. It may be an anti-tumor compound derived from bohemiac acid.

Great Work! Rudolph's medicine is nearly complete! We just need to synthesise the special reindeer sugar Rednose to attach to the end of our molecule! Please suggest a retrosynthesis of Rednose:



Rednose

Congratulations! You've finished helping Santa making Rudolphomycin, and Rudolph is feeling much better!

In fact, Santa enjoyed synthesising Rudolphomycin so much, he's decided to set up a business selling it on Sigma! Let's just hope, the price is right...

