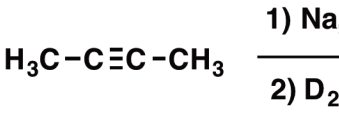
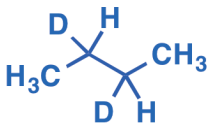
Alkyne Exam Preparation Pack

Answer Key

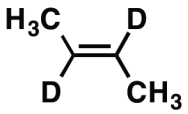
Multiple-Choice #1: What is the major product of this reaction?

Link to answer video
http://bit.ly/Alkynes-MOC-1

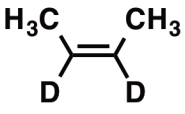




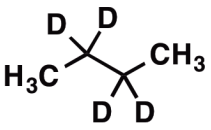
A



B



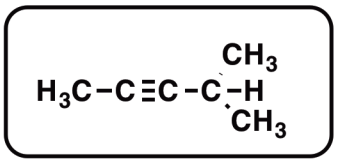
C

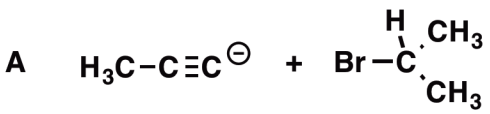


D

Multiple-Choice #2: Pick the best reaction conditions that will synthesize this alkyne

http://bit.ly/Alkynes-MOC-2

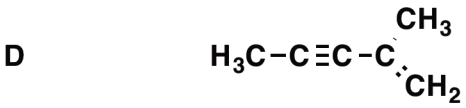




A elimination

B SN2 works well!

C No SN2

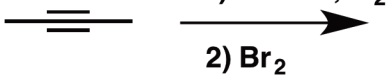


D will reduce alkyne

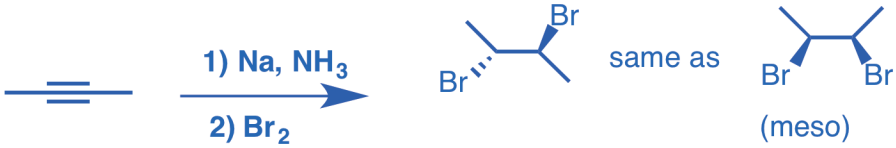
Multiple-Choice #3: Which set(s) of conditions produces a meso product from 2-butyne?

http://bit.ly/Alkynes-MOC-3

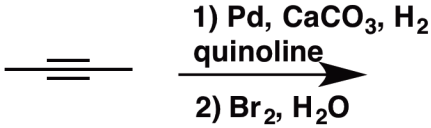
A



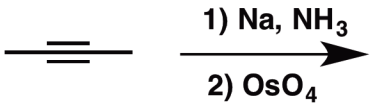
B



C



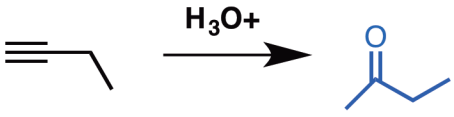
D



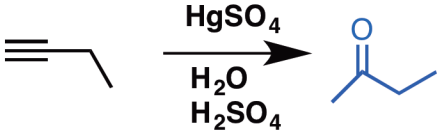
Multiple-Choice #4: Which of the following reactions does NOT give a ketone as a product ?

http://bit.ly/Alkynes-MOC-4

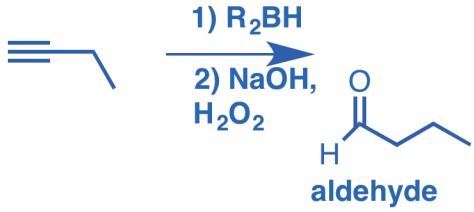
A



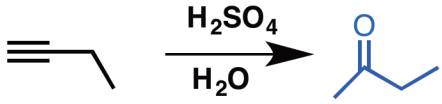
B



C

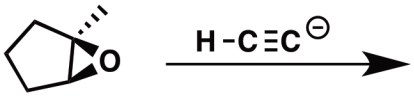


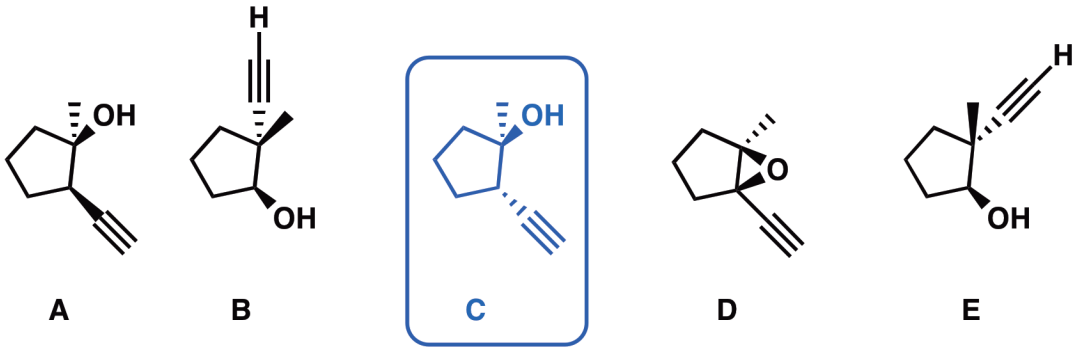
D



Multiple-Choice #5: [Assuming you have covered epoxides] , choose the major product

http://bit.ly/Alkynes-MOC-5

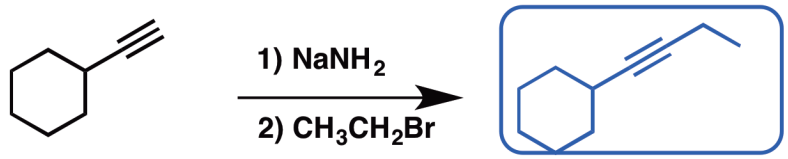


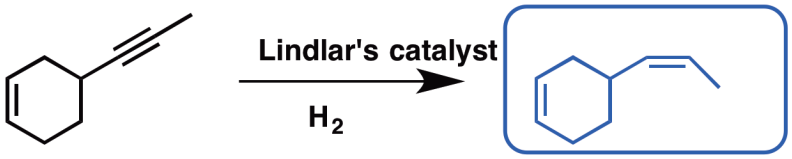


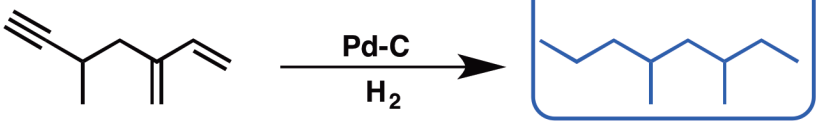
A B C D E

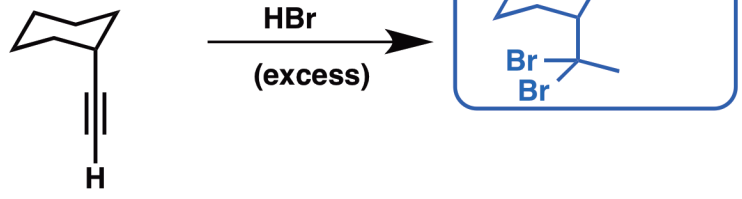
Fill In The Blanks #1:

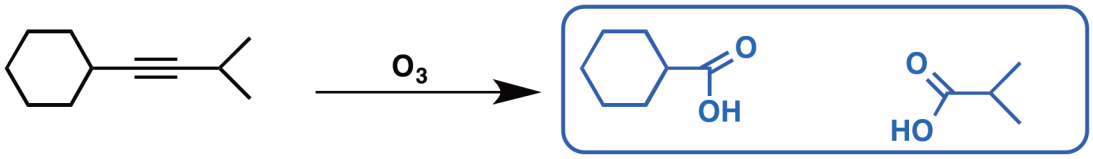
http://bit.ly/Alkynes-MOC-6





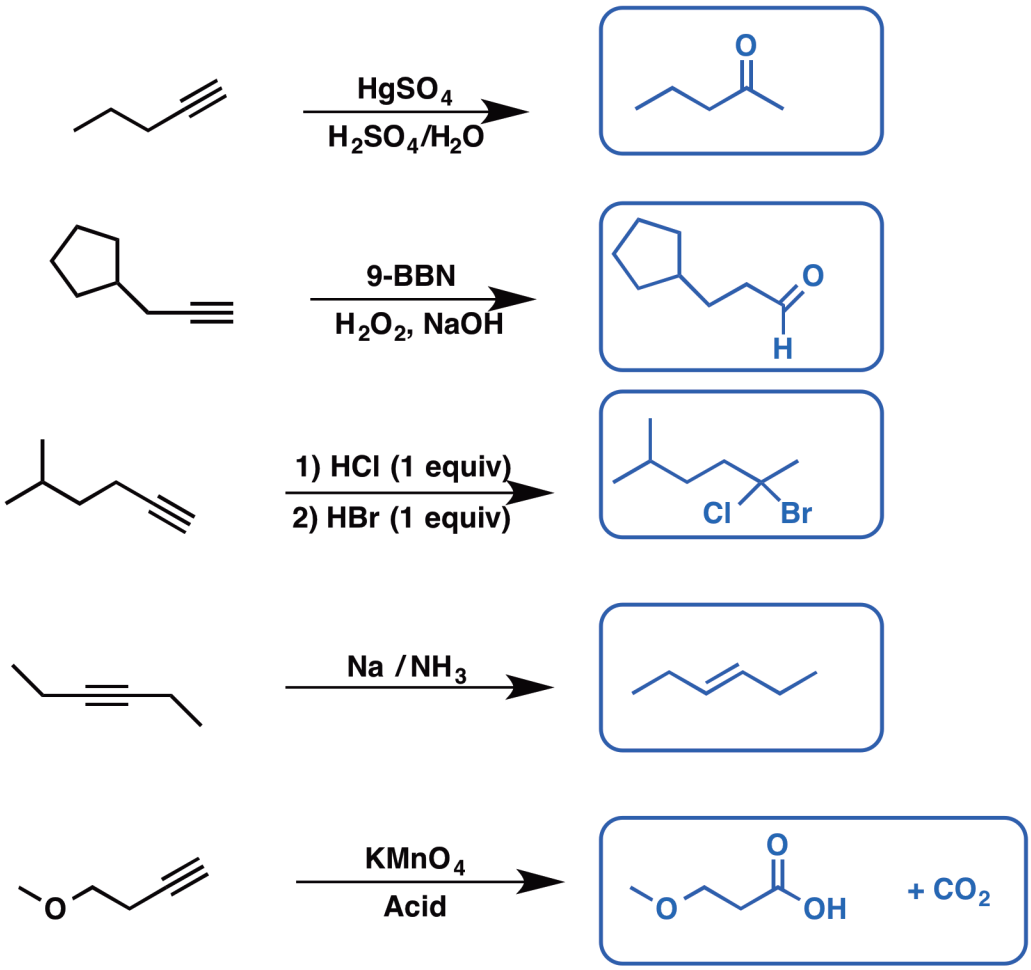






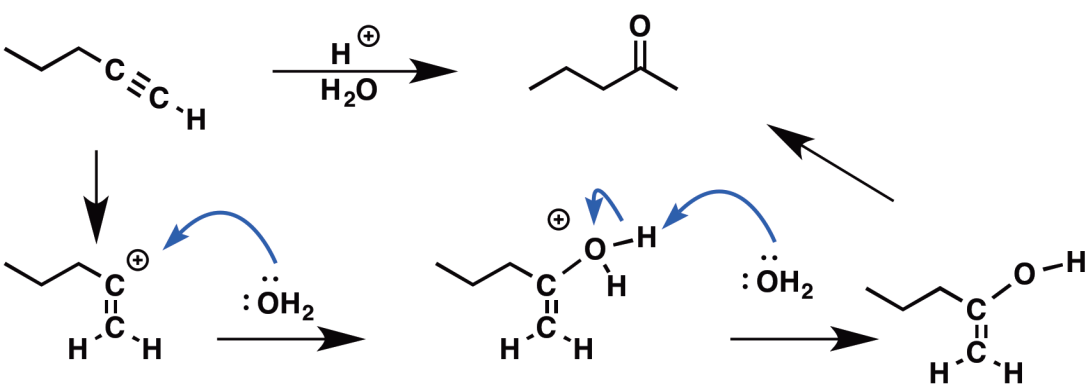
Fill In The Blanks #2:

http://bit.ly/Alkynes-MOC-7



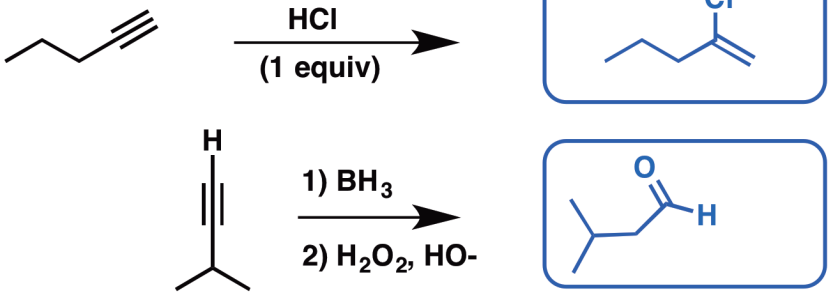
Mechanism#1. Draw a mechanism for the following reaction

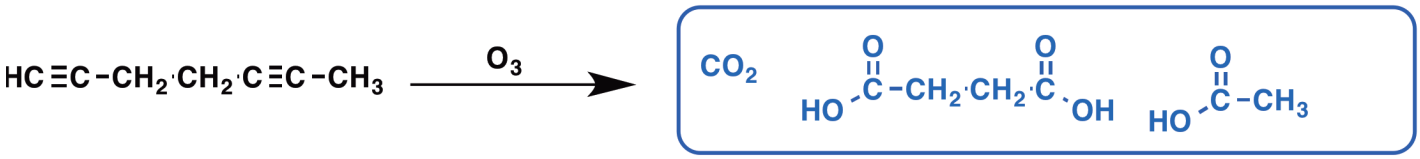
http://bit.ly/Alkynes-MOC-8

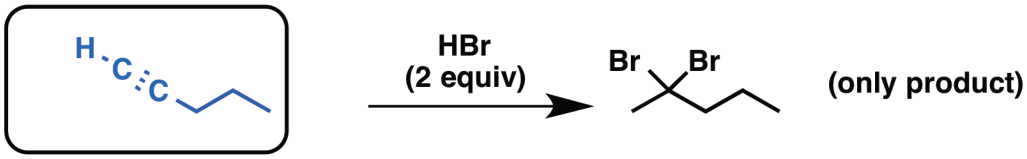


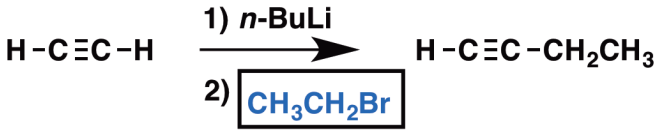
Fill In The Blanks #3:

http://bit.ly/Alkynes-MOC-9



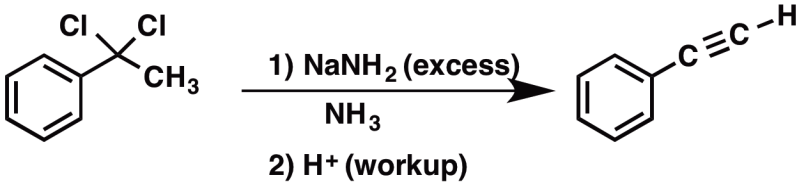






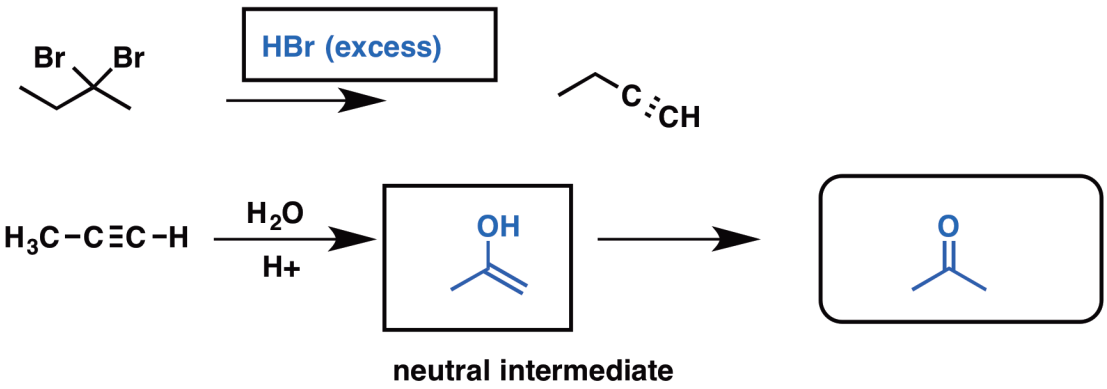
Mechanism problem #2:

http://bit.ly/Alkynes-MOC-10

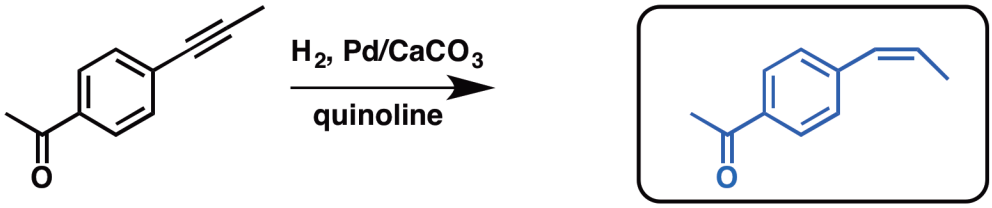


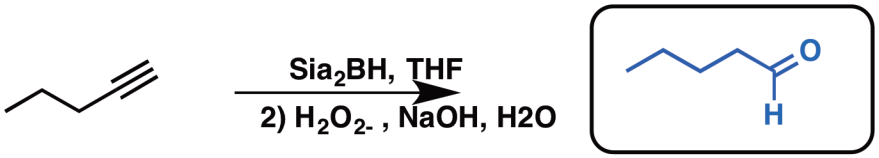
Fill In The Blanks #4:

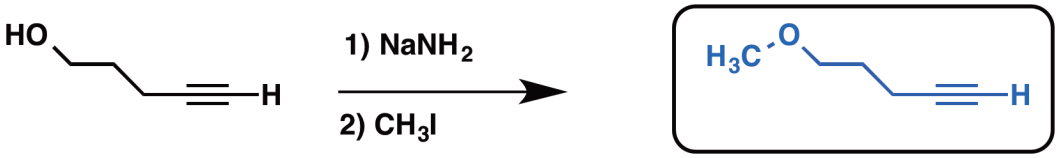
http://bit.ly/Alkynes-MOC-11

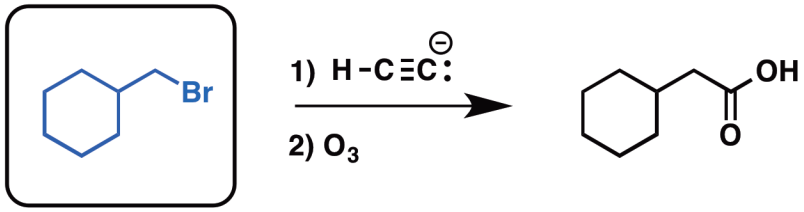


neutral intermediate



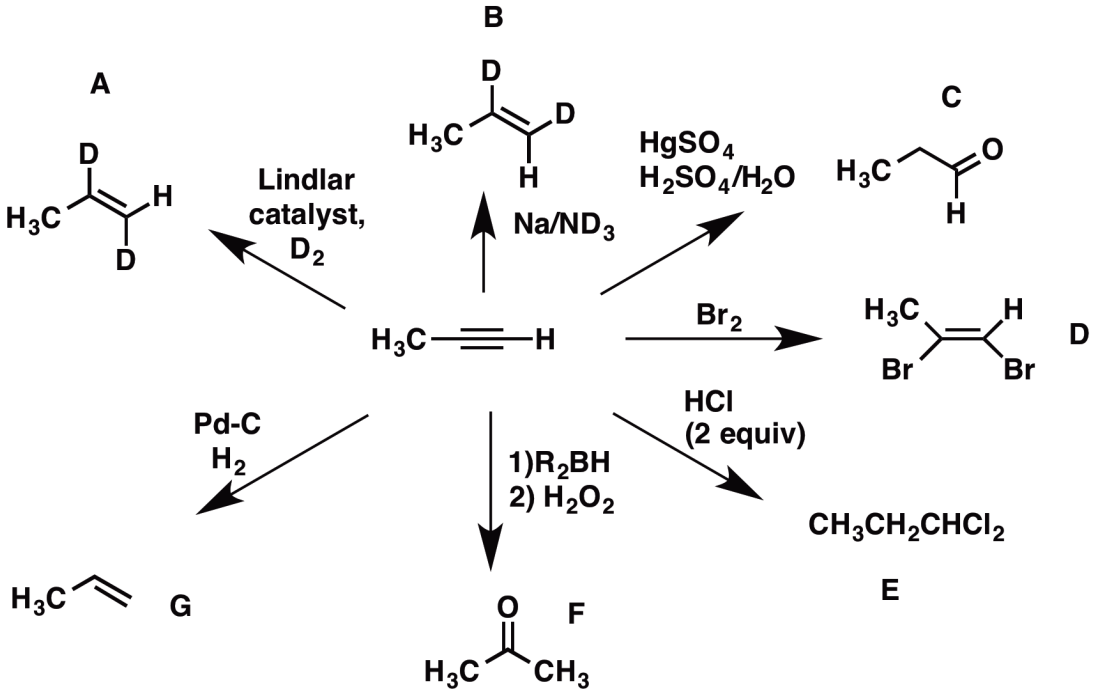


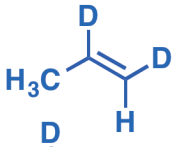
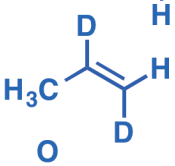
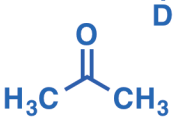
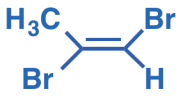
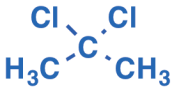
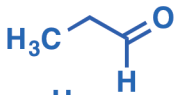
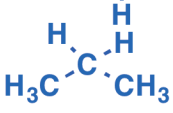




Corrections below:

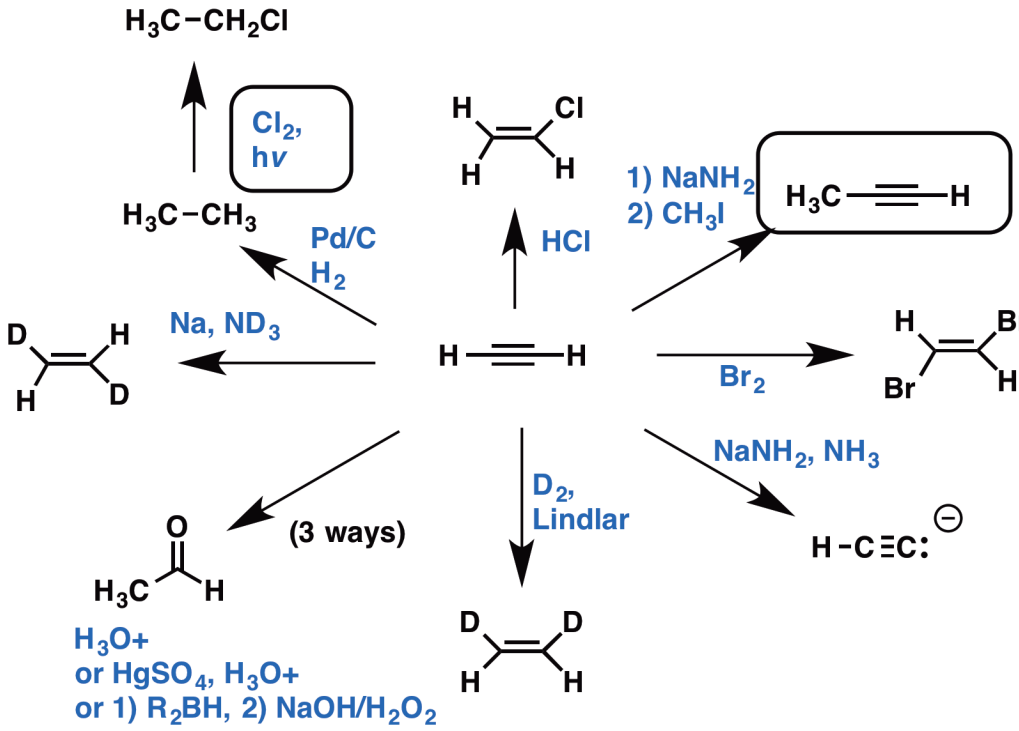
http://bit.ly/Alkynes-MOC-12



REACTION	1) Correct Product	2) Correct Reagent
A		Na, ND_3
B		Lindlar catalyst, D_2
C		1)R_2BH 2) H_2O_2
D		No reagent exists!
E		No reagent exists!
F		$HgSO_4$ H_2SO_4/H_2O
G		Lindlar catalyst, H_2

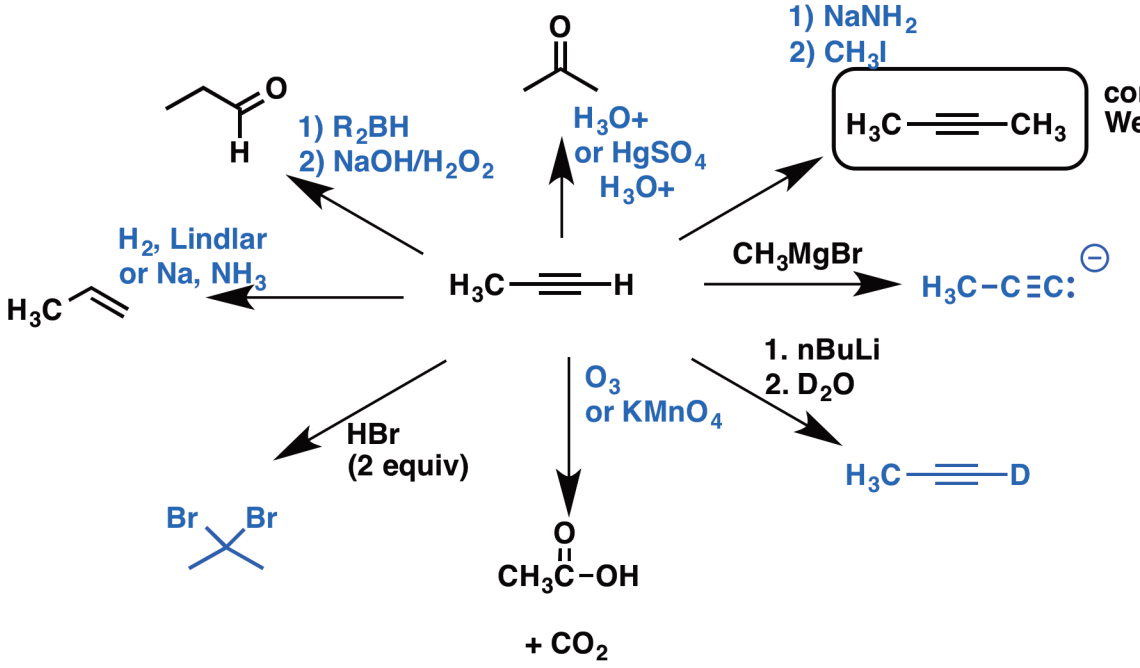
WEB OF REACTIONS: Question #1

http://bit.ly/Alkynes-MOC-13



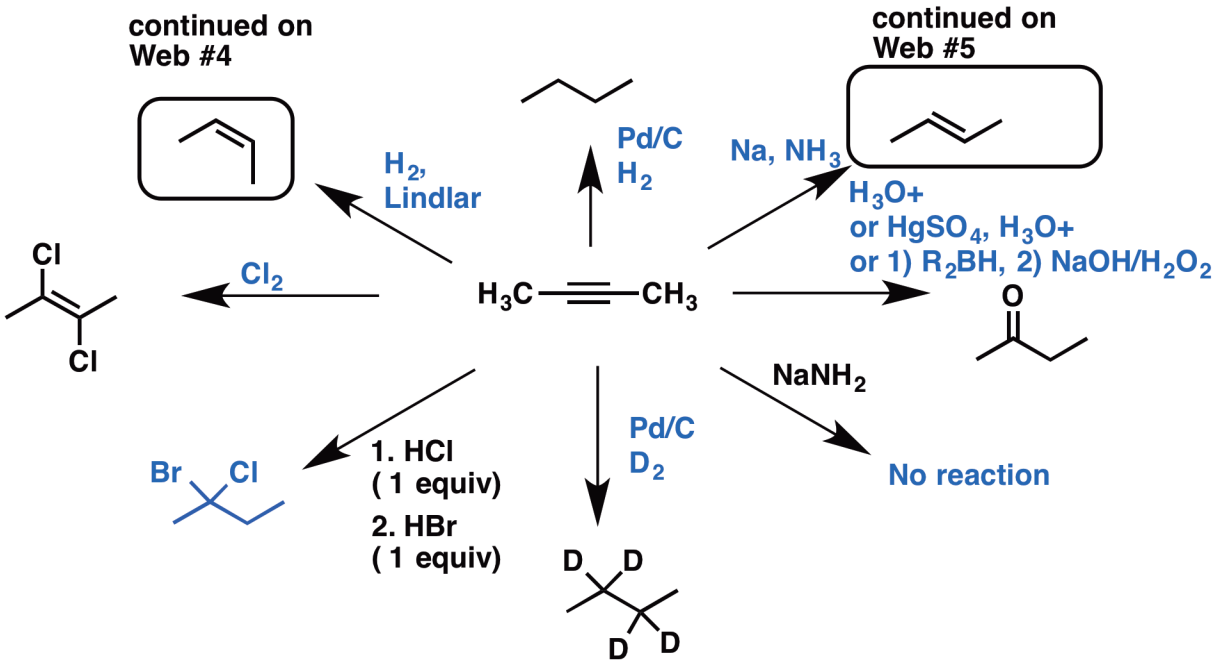
WEB OF REACTIONS: Question #2

http://bit.ly/Alkynes-MOC-14



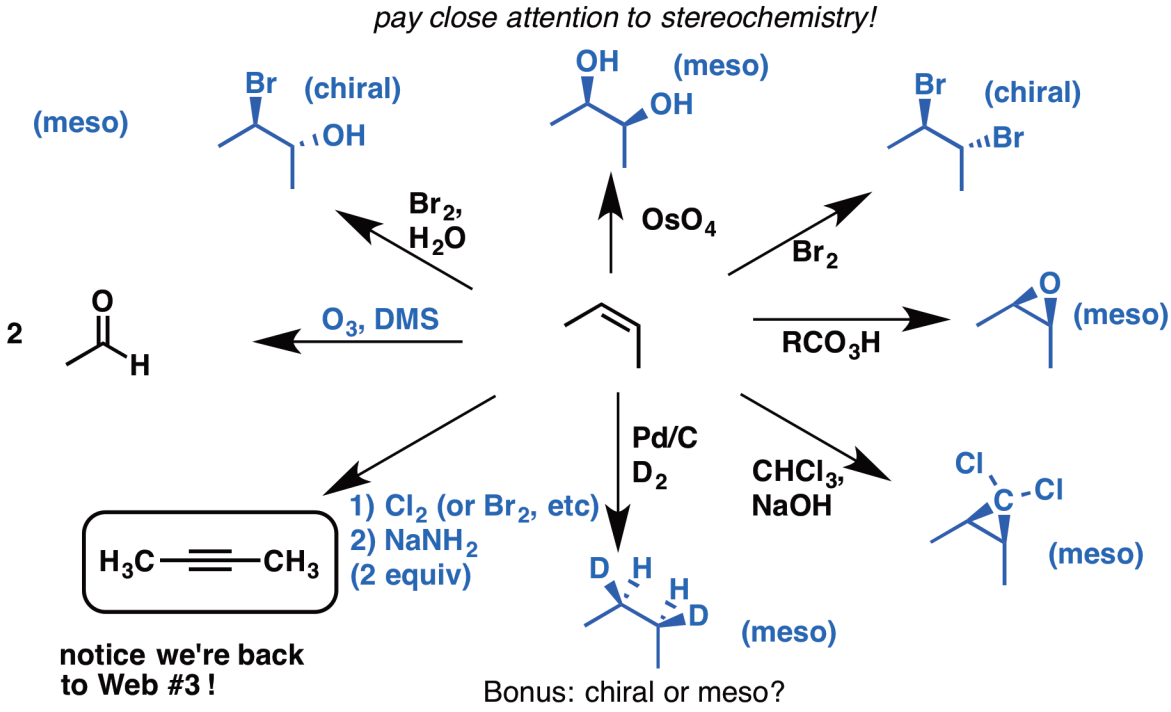
WEB OF REACTIONS: Question #3

http://bit.ly/Alkynes-MOC-15



WEB OF REACTIONS: Question #4

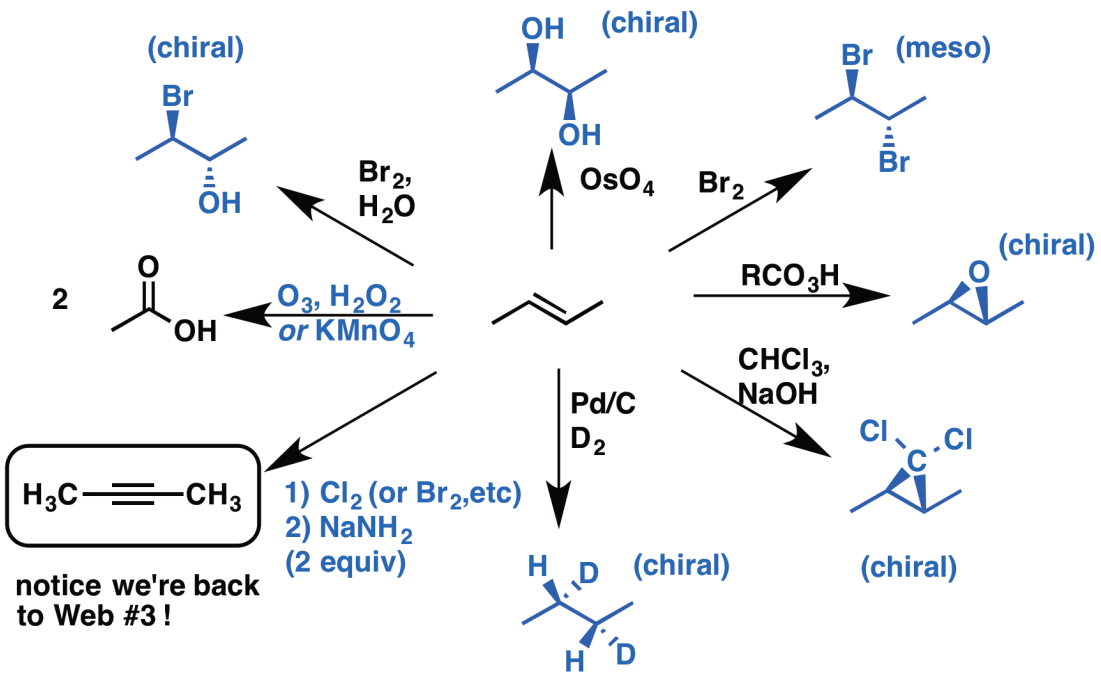
http://bit.ly/Alkynes-MOC-16



WEB OF REACTIONS: Question #5

http://bit.ly/Alkynes-MOC-17

pay close attention to stereochemistry!

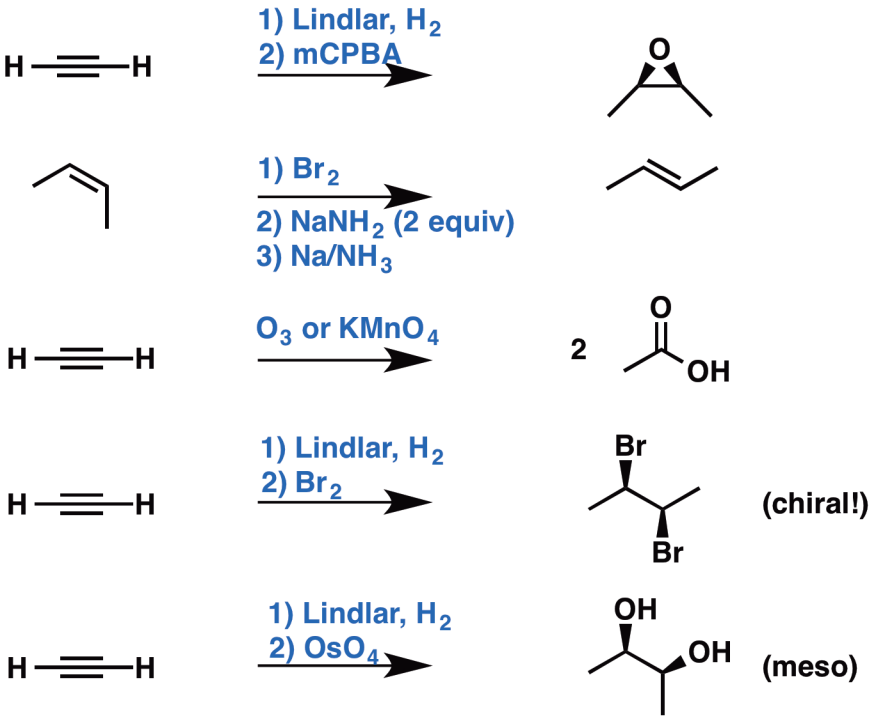


Bonus: chiral or meso?

Once you're done the Web Of Reactions...

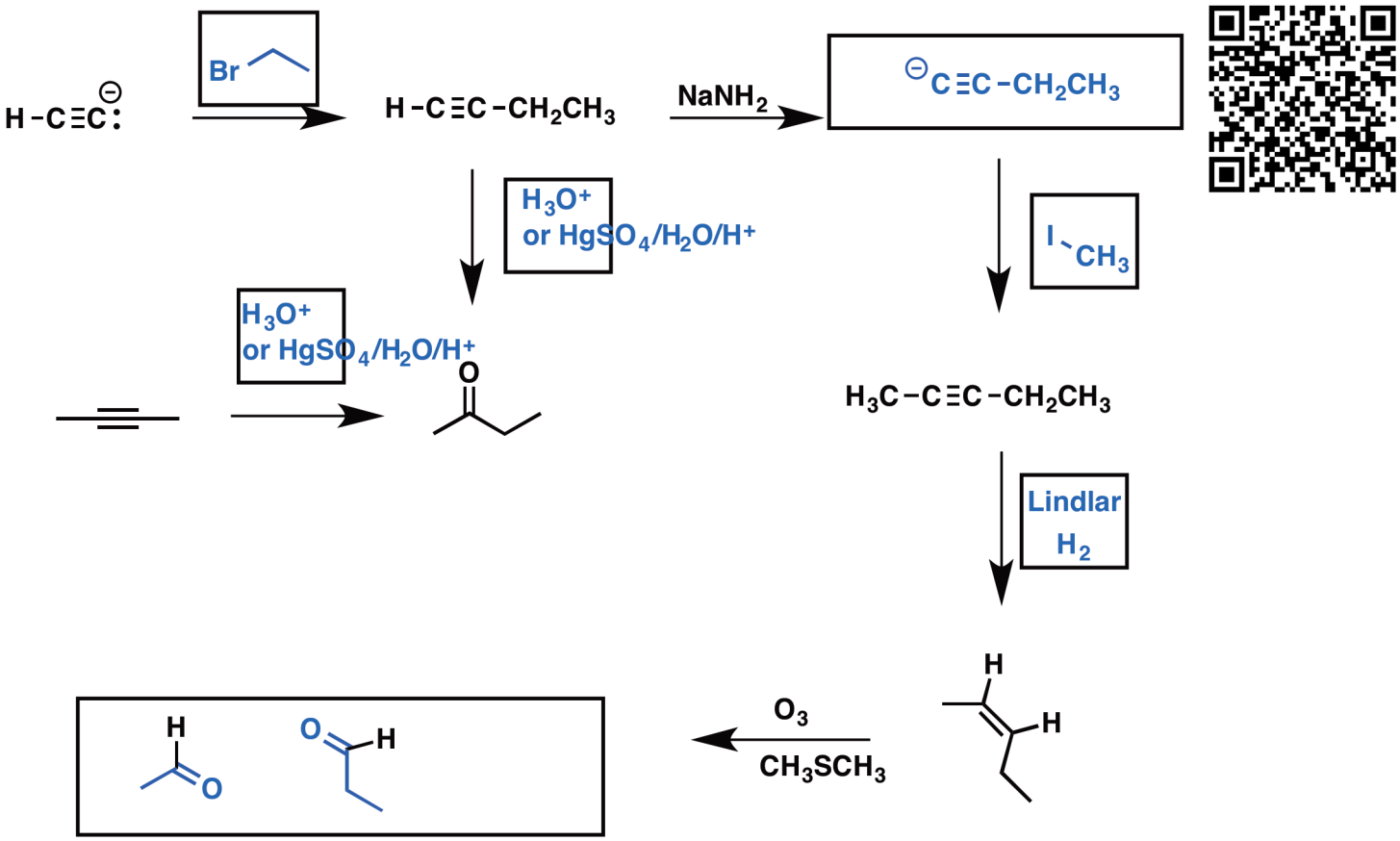
http://bit.ly/Alkynes-MOC-18

Outline the following syntheses: if you are successful, you are ready for synthesis!



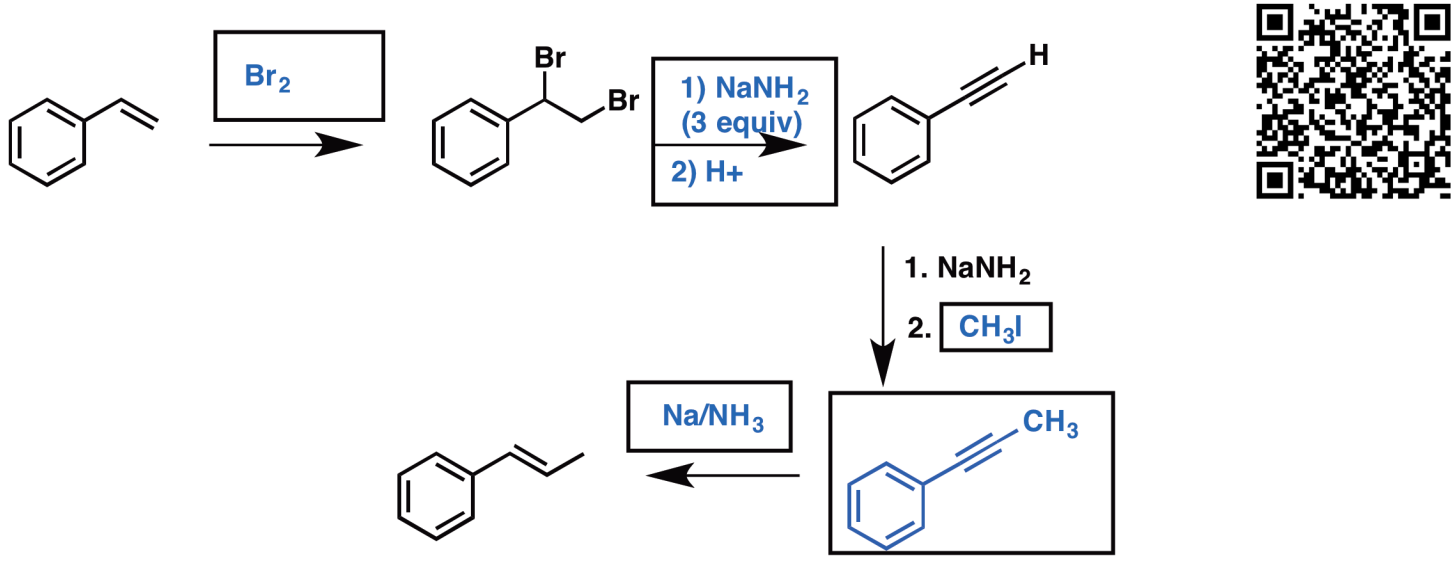
Road Map #1

http://bit.ly/Alkynes-MOC-19



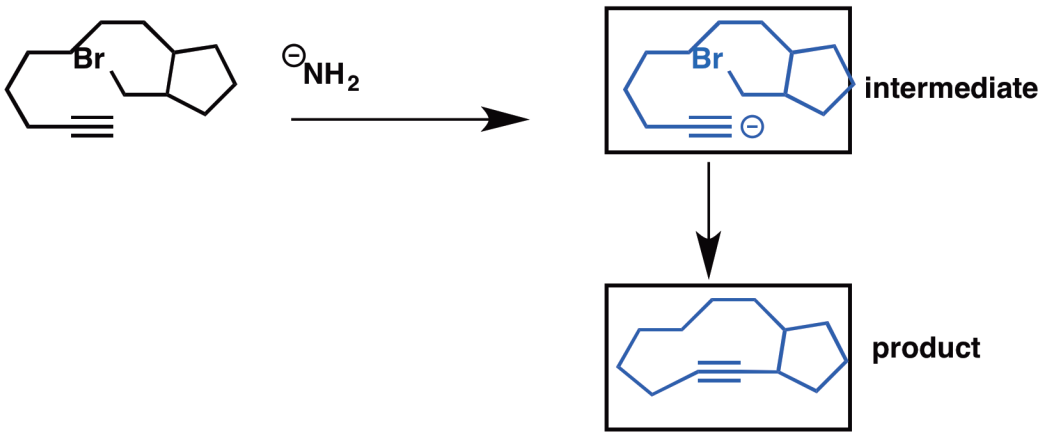
Road Map #2

http://bit.ly/Alkynes-MOC-20



Mini Roadmap #1

http://bit.ly/Alkynes-MOC-21



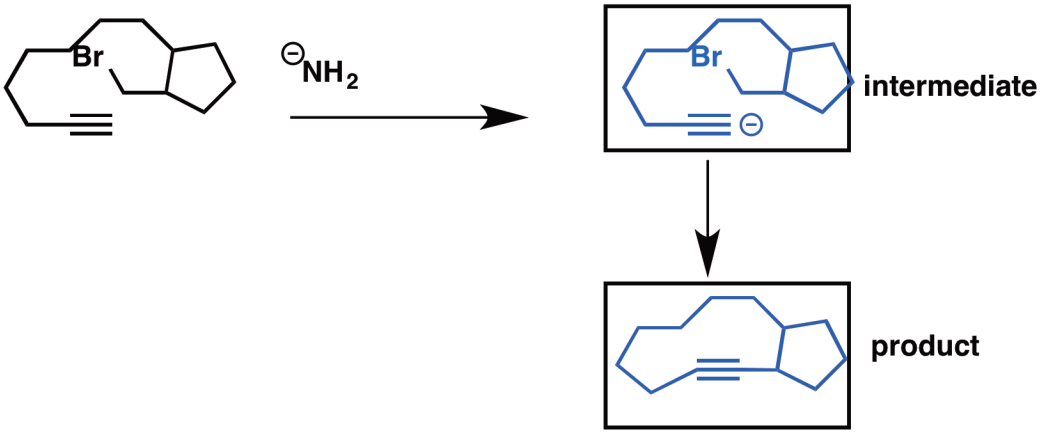
Mini Roadmap #2

Synthesis

Show how you would perform the following transformations:

http://bit.ly/Alkynes-MOC-22

a)



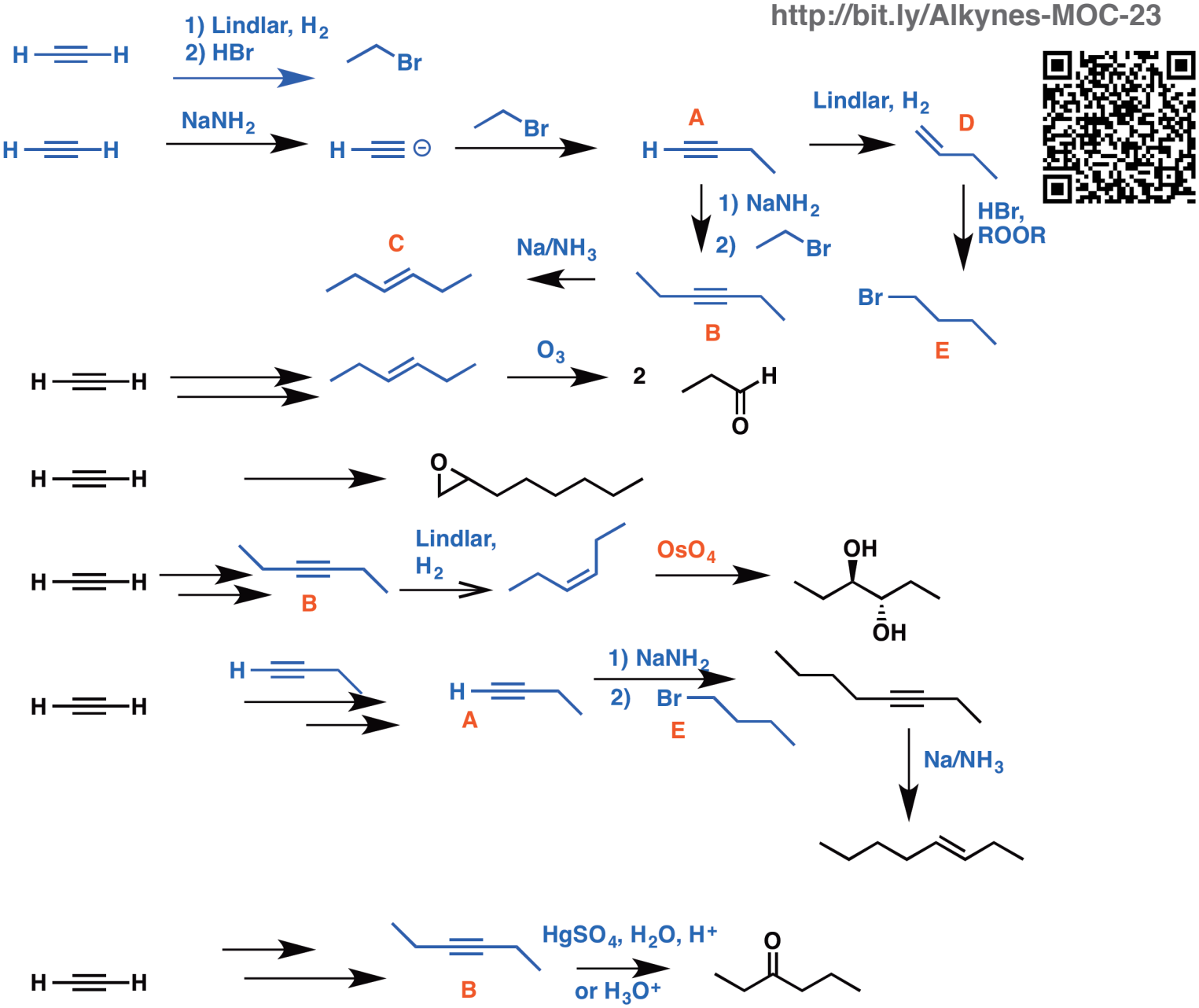
b)

Show a reaction that would make this in one step from an acetylide and an alkyl halide

c)

Starting from acetylene as the carbon source and any reagents of your choice, how would you make each of the following molecules?

http://bit.ly/Alkynes-MOC-23



http://bit.ly/Alkynes-MOC-24

http://bit.ly/Alkynes-MOC-26

http://bit.ly/Alkynes-MOC-25

http://bit.ly/Alkynes-MOC-27