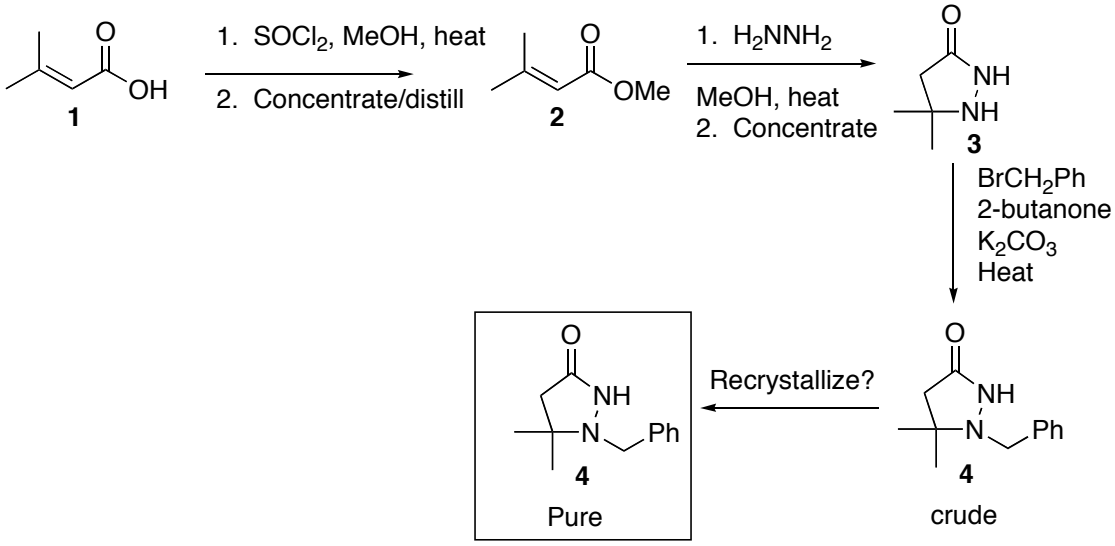
Bromoacetic acid	VWR	LCX03016G0050	50g	11.28
Methyl 2-Bromopropionate	VWR	LCX11560G0025	25g	14.87
3,3-Dimethylacrylic Acid	VWR	AAA16865-22	100g	29.50
Hydrazine Hydrate	VWR	AA16651-36	500g	63.50
Thionyl Chloride (Stockroom might have already?)	ACROS	38266 2500	250 mL	14.16
Tert-Butyl hydroperoxide Solution, 5.5 M in decane	Aldrich	19997-25mL	25mL	28.0
Tris(triphenylphophine) Ruthenium(II) dichloride	Aldrich	223662-1g	1g	41.70
Ruthenium (III) Chloride	Aldrich	208523-2G	2g	65.90

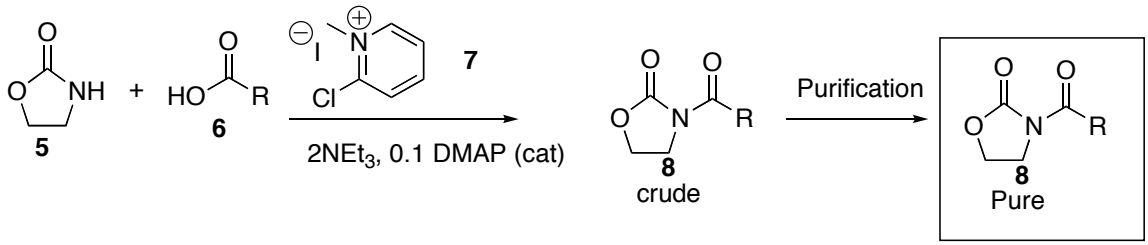
Project 1: Mass scaleup Synthesis of Pyrazolidinone Chiral Relay Template



Notes:

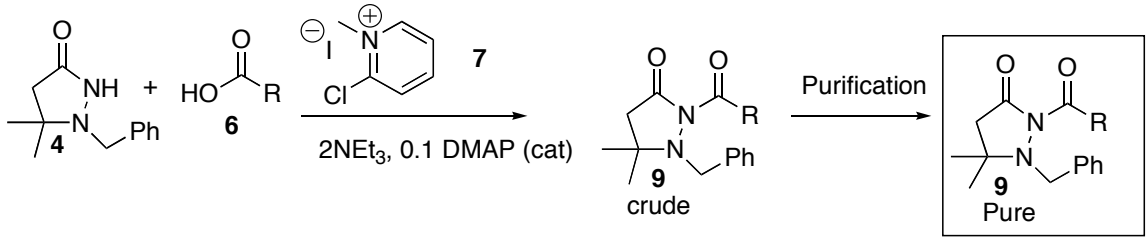
- I'd like to have a large scale synthesis of lots of pyrazolidinone **4**.
- This has been made before, beginning with commercial **2**.
- However, **2** is expensive, $200/25g.
- Dimethylacrylic acid **1** is cheap, so we could make a really large batch of **4**.
- The process may be fairly straightforward. A key for a good multistep synthesis is not needing lots of tricky purification steps. In this case, I think it's possible that apart from sep-funnel type stuff, we might need only purify at the end, and the crude **2** and **3** could be carried on without good purification?

Project 2: Mukaiyama Reagent for the direct coupling of Carboxylic Acids and Oxazolidinones



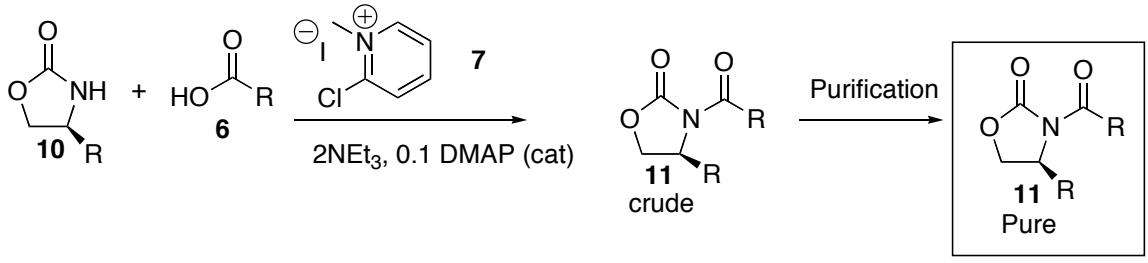
Issues/Factors to Screen:
Range of acids
Purification
DMAP required?
Solvent
Dryness (Molecular Sieves?)
Time
Temp
Yields

Project 3: Mukayama Reagent for the direct Coupling of Carboxylic Acids and Pyrazolidinones

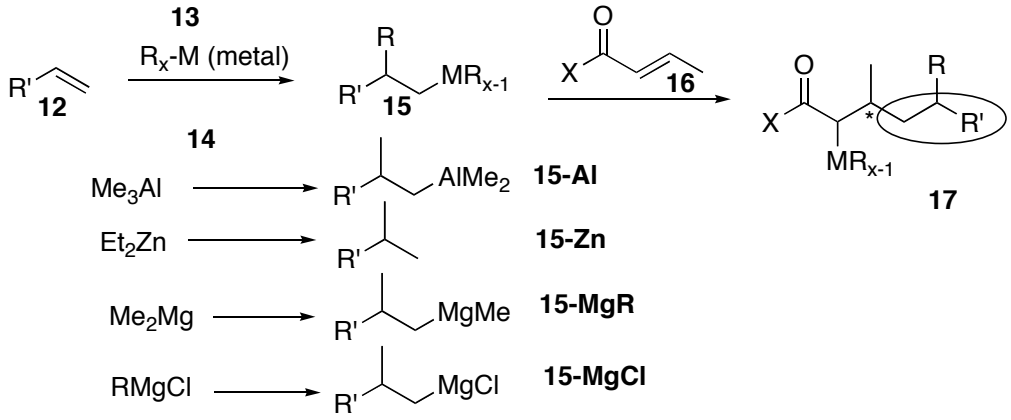


Issues:
Some similar questions as for project 2
But this one should be harder because **4** is more crowded and thus less reactive than **5**. And **4** may be more prone to competing O-acylation?
Purification might be considerably simpler.
Access to substrates **9** would be really nice, if efficient.

Project 4: Mukayama reagent for Direct Coupling of Carboxylic Acids with Chiral Oxazolidinones



Project 5: Carbometallation of Alkenes. Conjugate Addition.



Notes:
This is a wide-open project, but I don't have experience doing these.
I don't know how reactive the organometallics produced (**15**) would be towards the reaction **15** → **17**
If some of them work decent, there are some very neat reactions that I think we could do.
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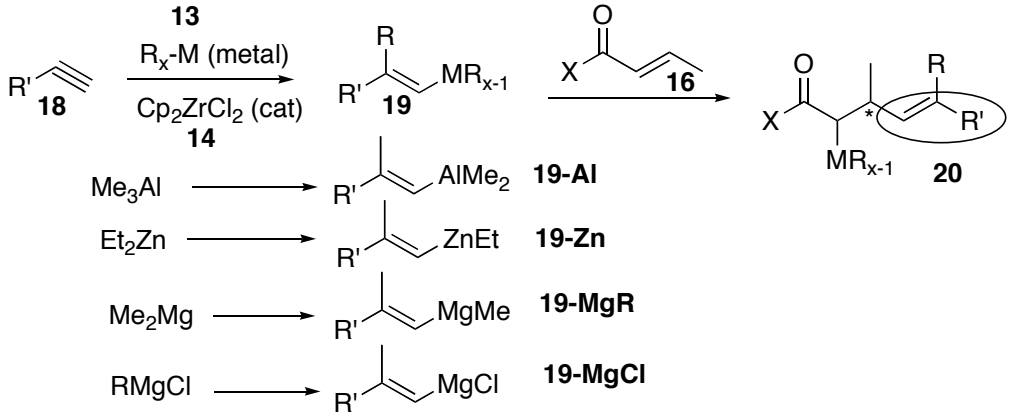
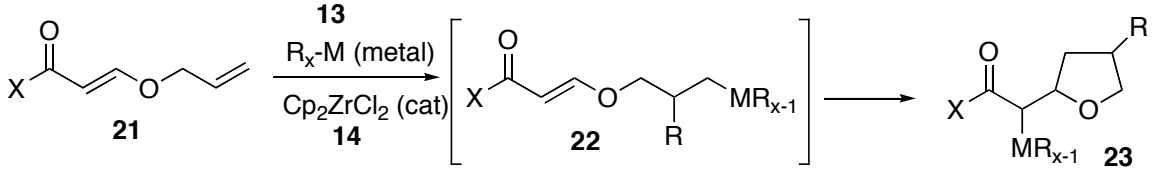
Project 6: Carbometallation of Alkynes. Conjugate Addition.



Notes: I believe the alkynes/alkenes could have substantial advantages
The vinyl metals **19** are likely to have superior reactivity for the **19** → **20** reaction.

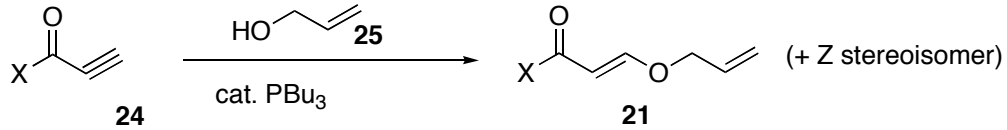
Project 7: Carbometallation/Intromolecular Cyclization

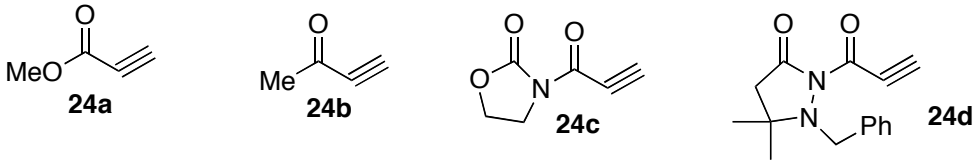


Notes:
If we can work out how to do carbometallations, the intramolecular cyclization of **22** could be really efficient
Targets such as **23** could be very interesting, especially if we could control relative stereochemistry.
This project is not a "starter" project.
It will depend on some "carbometallation" development (projects 5 and 6).

It will depend on access to substrates **21** (see project 8).
If it worked, there could be a lot of permutations. (Different ring sizes, substitution patterns, alkenes vs alkynes, etc..)

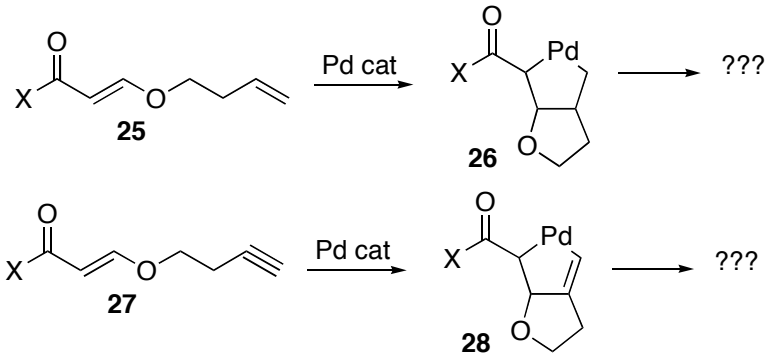
Project 8: Oxylation of Alkynes to Access Precursors **21**





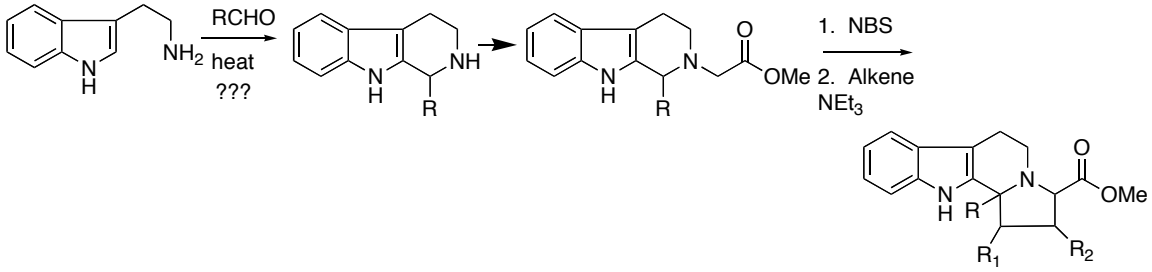
Mike has made some of these (and analogs as well) already.

Project 9: Different catalyzed cyclization (possibly with carbomettalation)

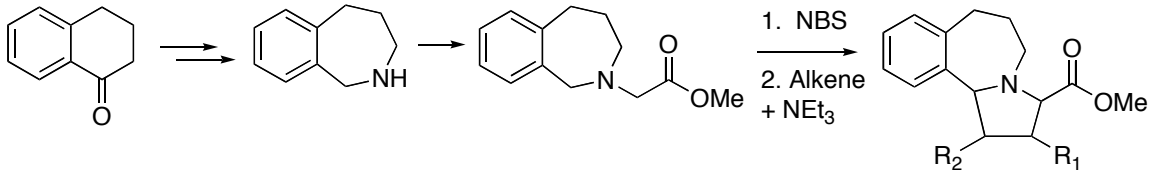


Notes:
I don't know exactly what we'll be able to do with products like **26** and **28**.
But these may provide some nice uses for the oxy-dienes **25** and oxy-enynes **27** that Mike has learned to make, and that nobody has previously been able to access or utilize.

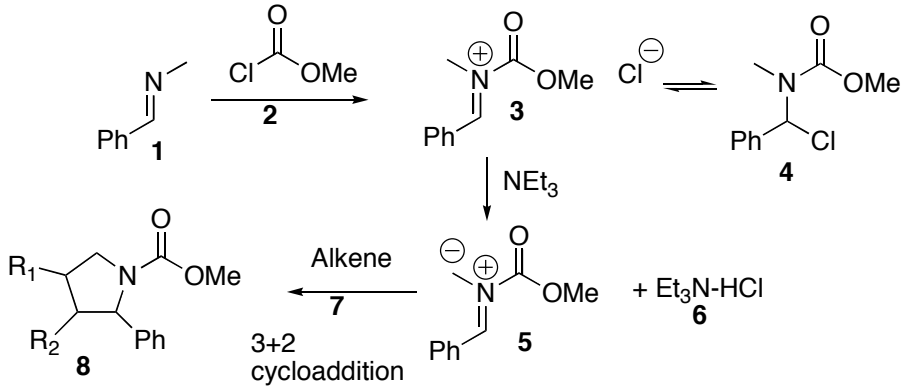
Project 10: Tryptamine
Do Scifinder Check ASAP



Project 11: Jeff's 7-membered ring azomethine ylide

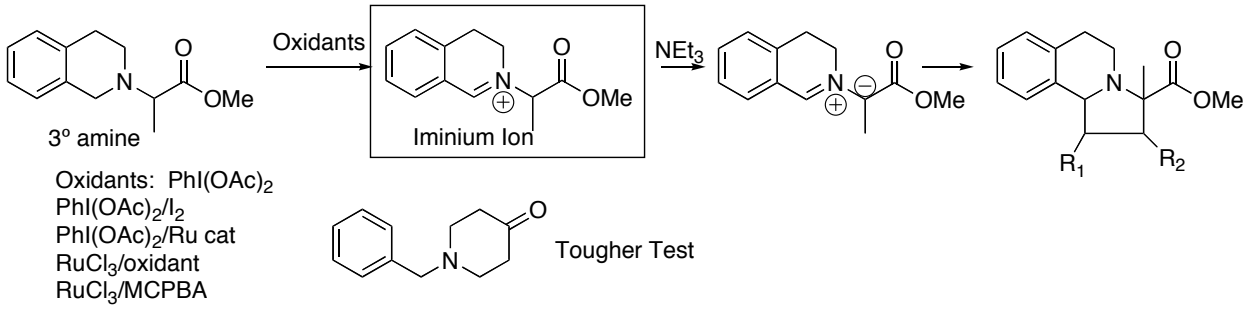


Project 12: N-Acyliminiums as precursor to Azomethine ylide dipoles.

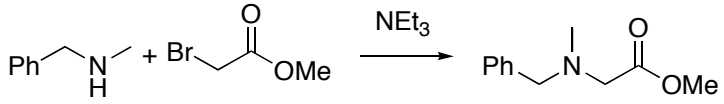


Questions:
What is the equilibrium between iminium **3** and chloroalkyl carbamate **4**?
Can a mild, practical base convert **3** (or **4**) to dipole **5**?
Will dipoles like **5** have reactivity for cycloaddition with alkenes? If so, which kinds, electron rich or electron poor?

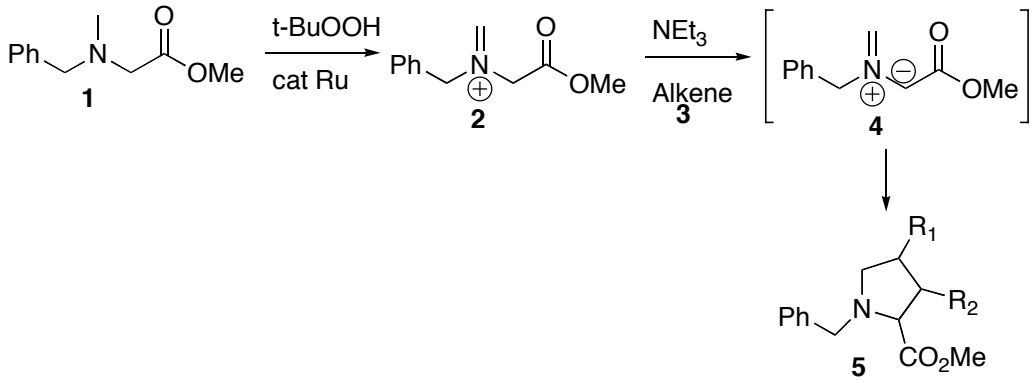
Project 13: Diacetoxy iodobenzene for oxidation of 3º amines as route to imminiums and azomethine ylide dipoles



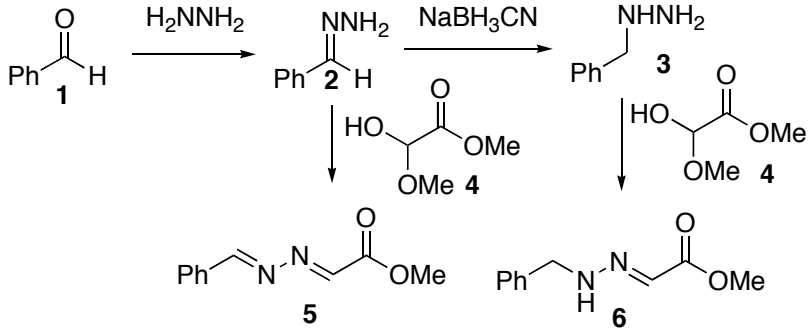
Project 14: Making azomethine imine precursor



Project 15: Ruthenium catalyzed oxidation of 3º amines as route to imminiums and azomethine ylide dipoles.



Project 16 Synthesis of some Hydrazones



Project 17: Some hydrazone uses?