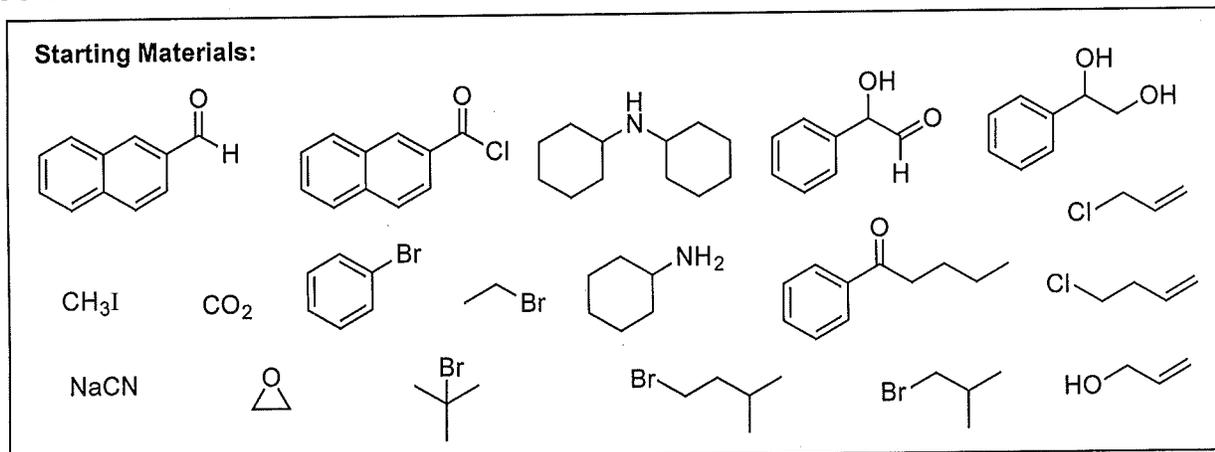
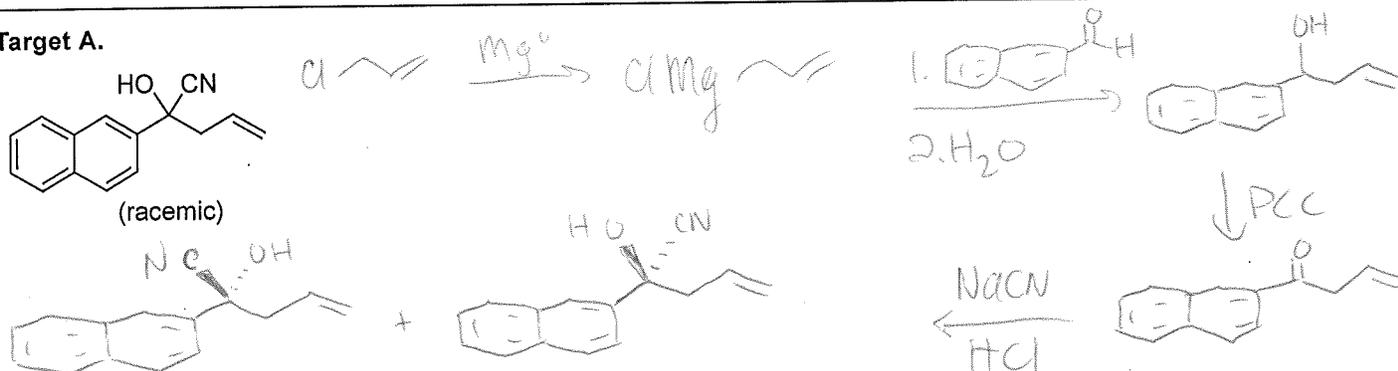


Synthesis Boot Camp -- Week 3  
Chapters 19-21

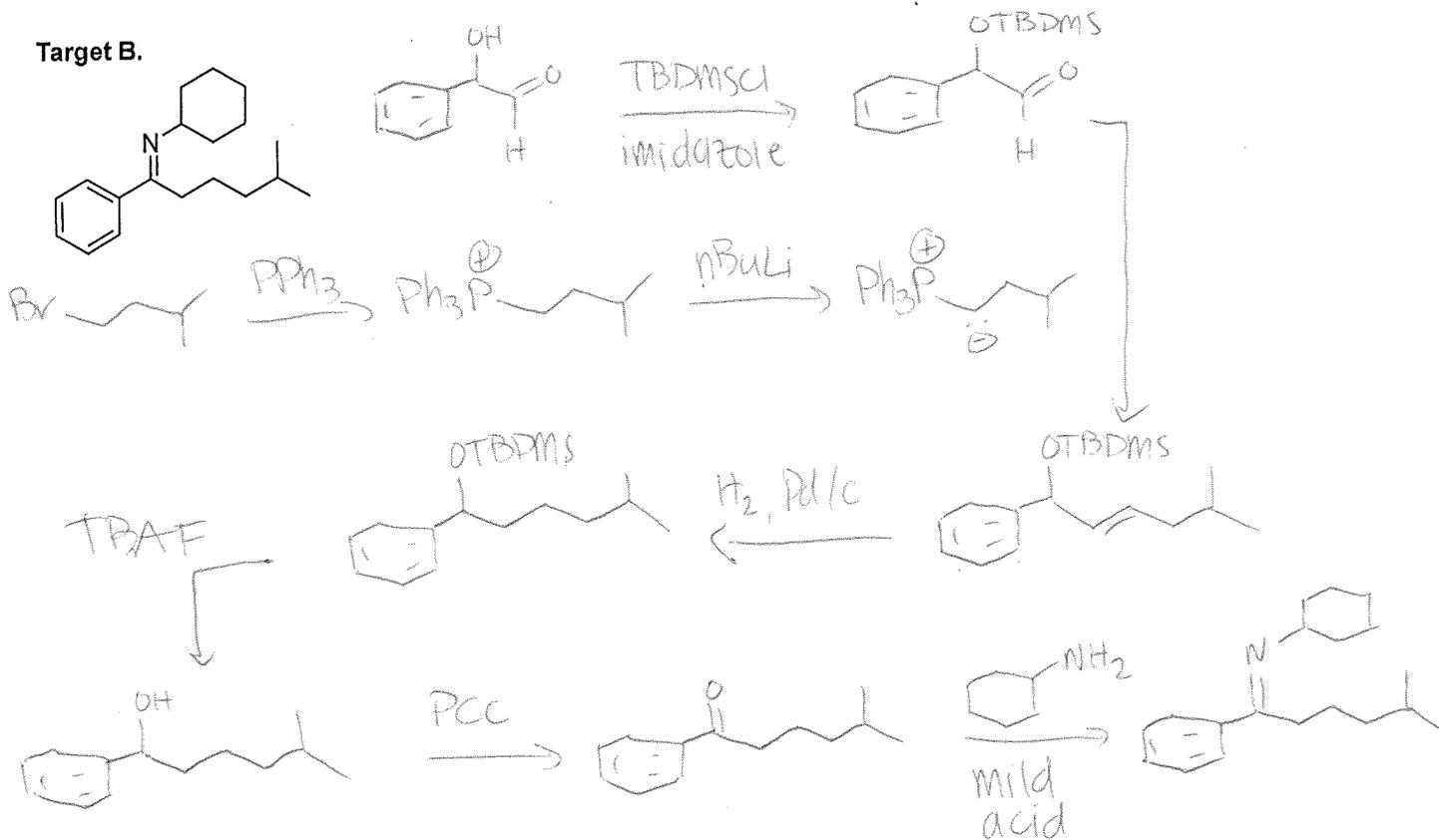
1. Propose syntheses of the targets below.  
All carbons must come from the starting materials provided, you can use any reagent you wish.  
YOU CAN IGNORE STEREOCHEMISTRY.



**Target A.**



**Target B.**





3. Match the names of the functional groups with labeled examples from the natural products and medicines.

<p>lactone <span style="border: 1px solid black; padding: 2px;">F</span></p> <p>ether <span style="border: 1px solid black; padding: 2px;">C</span></p> <p>hemiacetal <span style="border: 1px solid black; padding: 2px;">R</span></p> <p>cyanohydrin <span style="border: 1px solid black; padding: 2px;">A</span></p> <p>acetal <span style="border: 1px solid black; padding: 2px;">H</span></p> <p>aldehyde <span style="border: 1px solid black; padding: 2px;">D</span></p> <p>amide <span style="border: 1px solid black; padding: 2px;">L</span></p> <p>anhydride <span style="border: 1px solid black; padding: 2px;">Q</span></p>	<p>The image shows several chemical structures with dashed boxes highlighting specific functional groups labeled A through Q:</p> <ul style="list-style-type: none"> <li><b>A:</b> A cyanohydrin group (-C≡N) attached to a chiral carbon.</li> <li><b>B:</b> A thiazole ring system.</li> <li><b>C:</b> An ether linkage between two carbon chains.</li> <li><b>D:</b> An aldehyde group (-CHO).</li> <li><b>E:</b> A methyl ester group (-COOCH<sub>3</sub>).</li> <li><b>F:</b> A lactone ring (cyclic ester).</li> <li><b>G:</b> A hydroxyl group (-OH) on a steroid-like ring system.</li> <li><b>H:</b> An acetal linkage between two oxygen atoms and a central carbon.</li> <li><b>I:</b> A hemiacetal group (a carbon bonded to one oxygen and one hydroxyl group).</li> <li><b>J:</b> A hemiacetal group (a carbon bonded to one oxygen and one hydroxyl group).</li> <li><b>K:</b> A hemiacetal group (a carbon bonded to one oxygen and one hydroxyl group).</li> <li><b>L:</b> An amide group (-CONH-).</li> <li><b>M:</b> A tertiary amine group (a nitrogen atom bonded to three carbon atoms).</li> <li><b>N:</b> A secondary amine group (a nitrogen atom bonded to two carbon atoms).</li> <li><b>O:</b> A hemiacetal group (a carbon bonded to one oxygen and one hydroxyl group).</li> <li><b>P:</b> A hemiacetal group (a carbon bonded to one oxygen and one hydroxyl group).</li> <li><b>Q:</b> An anhydride group (two carbonyl groups linked by an oxygen atom).</li> <li><b>R:</b> A hemiacetal group (a carbon bonded to one oxygen and one hydroxyl group).</li> </ul>
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