

Radicals

Reading: *Lecture notes – Rearrangements and Reactive Intermediates (HLA)*
Clayden, Greaves & Warren Edition 1 Chapter 39 (37 in Ed 2)
Perkins - Oxford Chemistry Primer No. 91 – ‘Radical Chemistry’
Moody, Whitham - Oxford Primer no. 8 – ‘Reactive Intermediates’

Topics for notes:

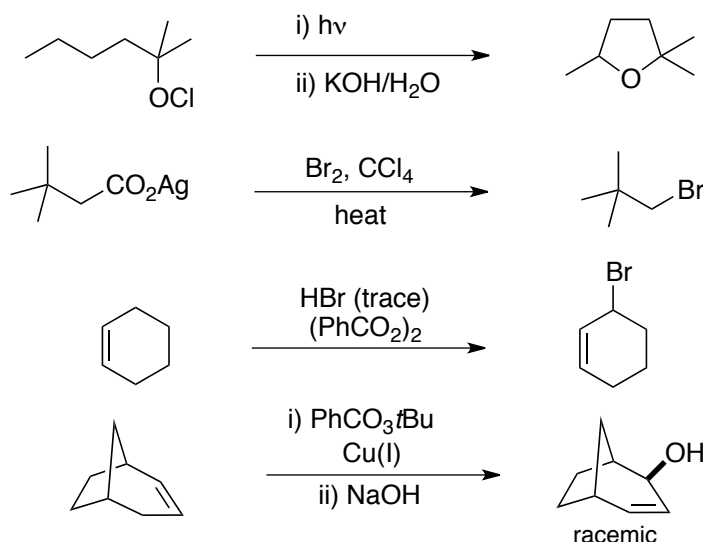
Radical Generation: Thermolysis of weak bonds; Photolysis of weak bonds; 1-electron redox chemistry; Chain processes; Selectivity and reactivity.

Synthesis with radicals: Reactions between radicals and non-radicals; Reactions between radicals and other radicals; Types of reactions (addition, substitution, elimination, rearrangement, electron transfer ($S_{RN}1$), Carbon-Carbon bond formation.

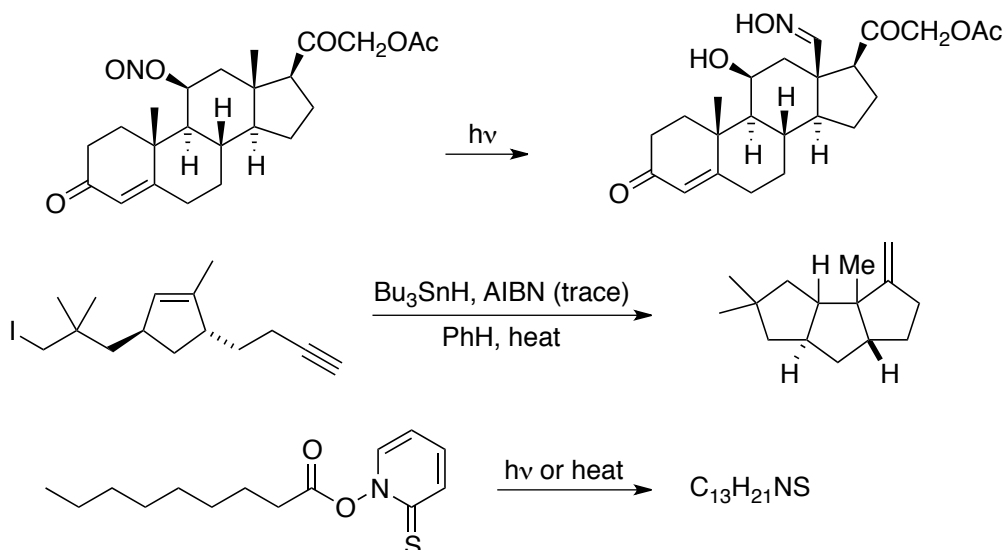
Specific Topics: Barton- thiohydroxamic esters; Barton- remote functionalisation (nitrite ester photolysis); Radicals in aromatic substitution e.g. diazonium salts + Cu(I); $Bu_3SnH + In + R-X$ to give $R-H$.

Tutorial Problems

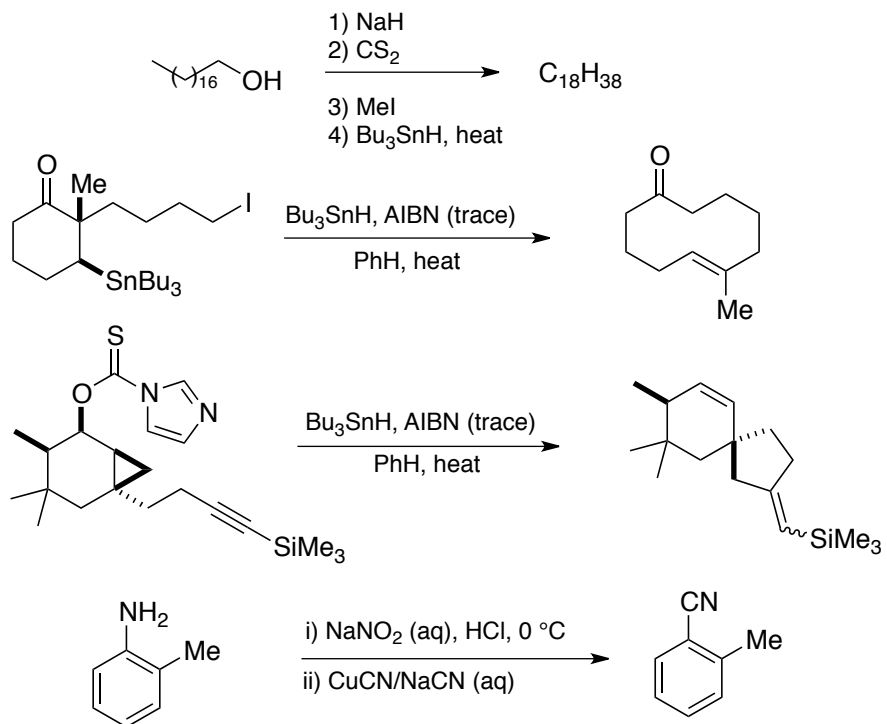
1) Provide mechanistic explanations for the following:



2) Give detailed mechanisms for these synthetic applications of radical chemistry.



3) Draw mechanisms for the following:



4) Draw mechanisms for the following:

