

# Reductions Via Electrons And Radicals

from chapter(s) \_\_\_\_\_ in the recommended text

## A. Introduction

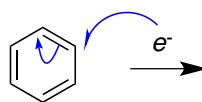
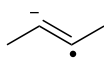
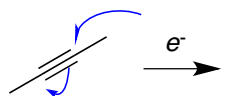
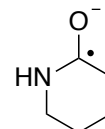
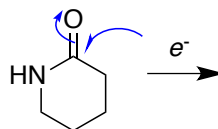
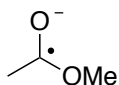
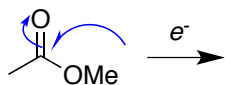
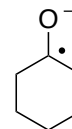
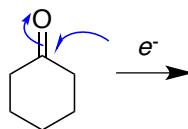
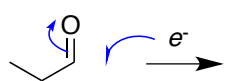
## B. Reductions Via Free Electrons

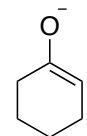
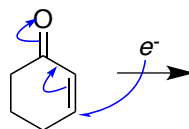
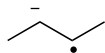
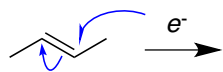
### Addition Of One Electrons

a *radical anion*

*proton* orbited

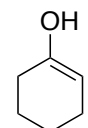
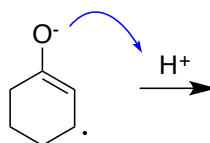
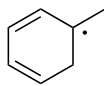
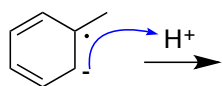
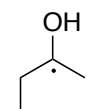
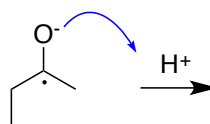
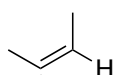
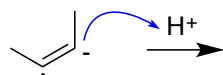
*radical anion*



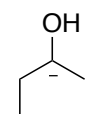
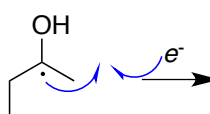
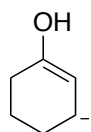
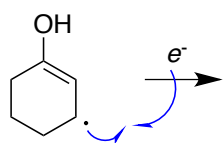


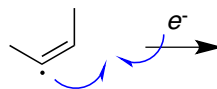
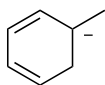
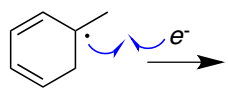
## Addition Of One Electron Then Protonation

*a radical*

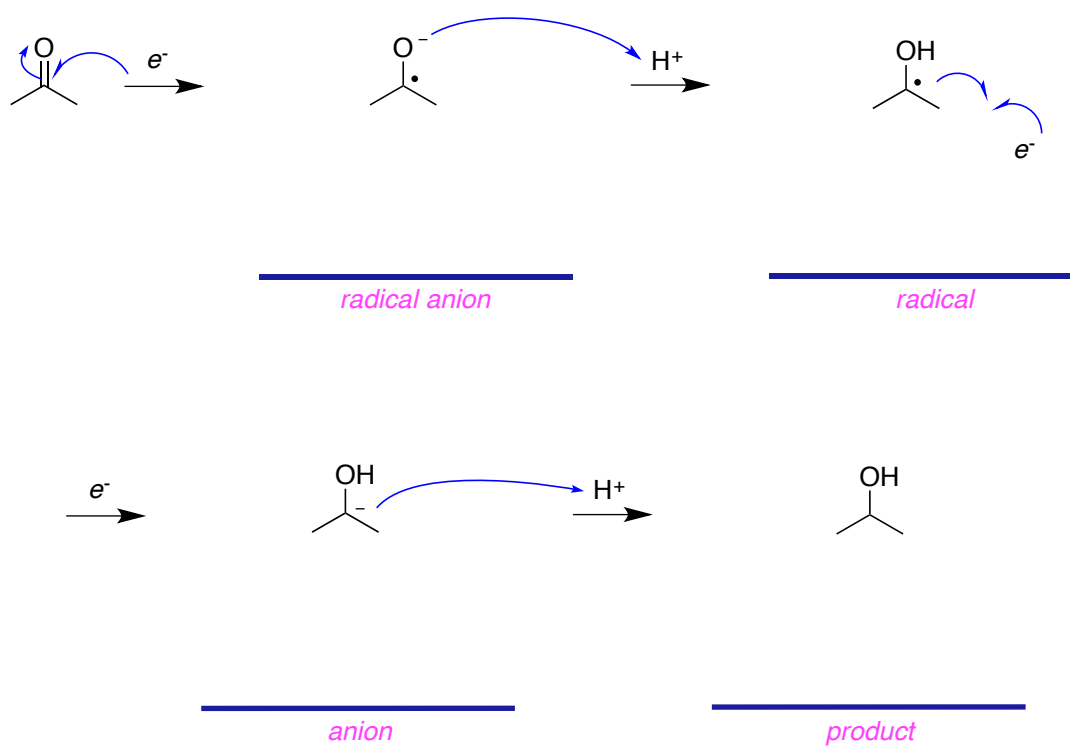


*dianion*  
*an anion*

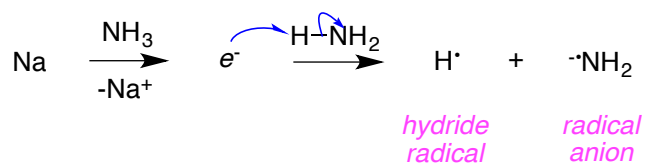




*addition of two hydrogens.*



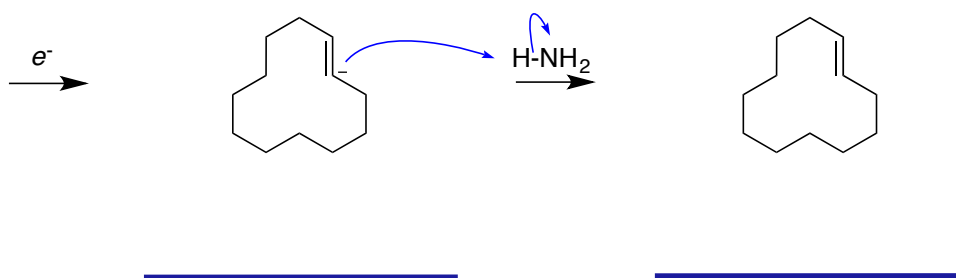
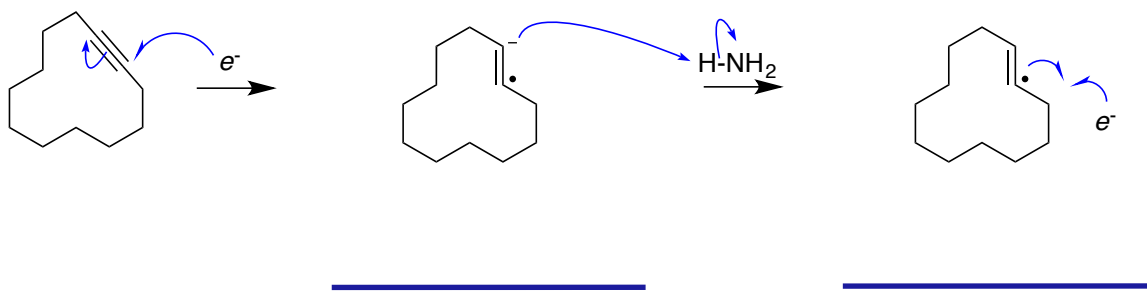
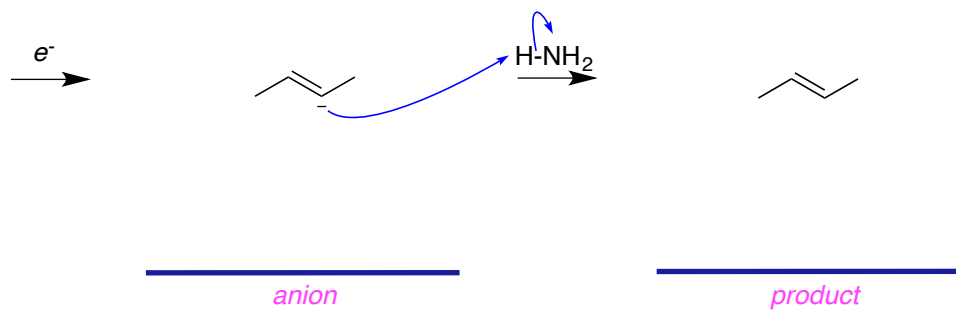
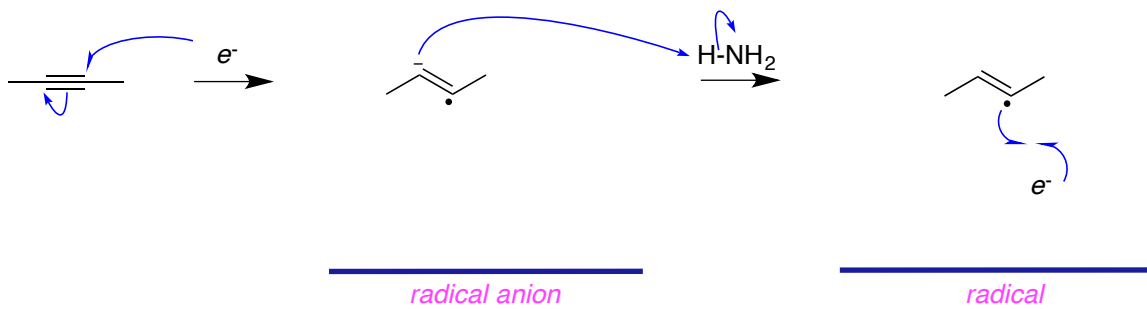
oxidize to Sm(3+)  
sodium amalgam  
inky-blue solution.



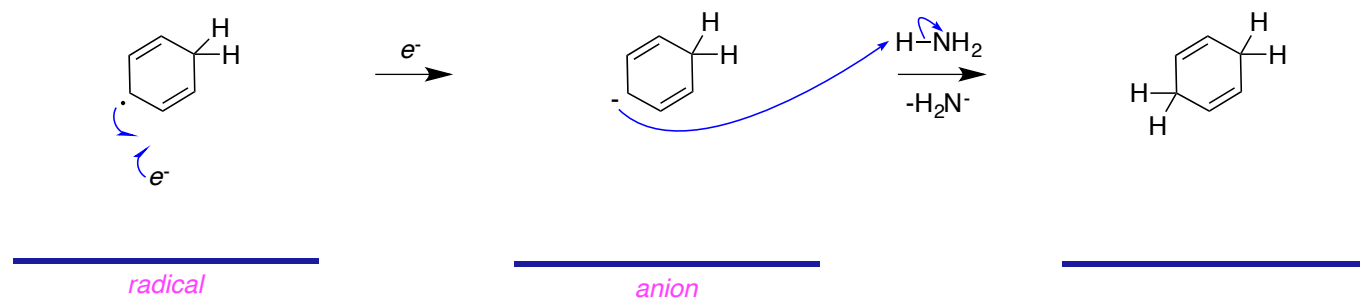
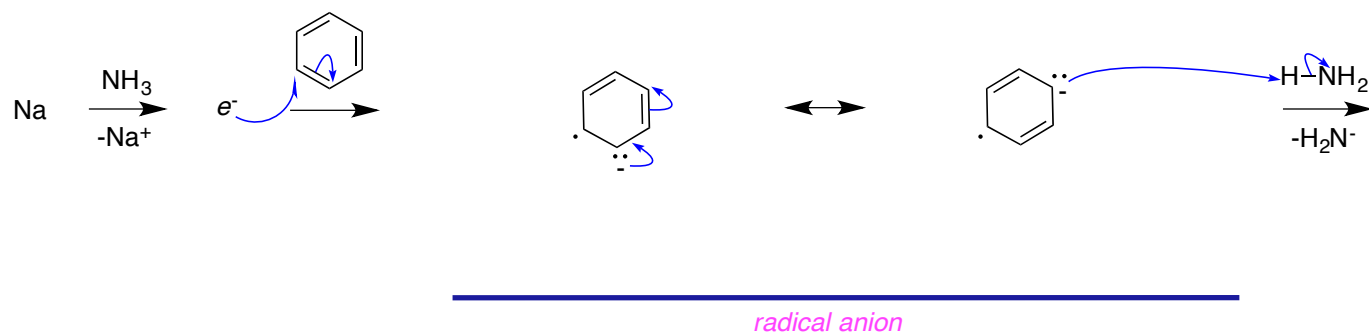
*anion*

### Cycles Of Electron Addition Then Protonation

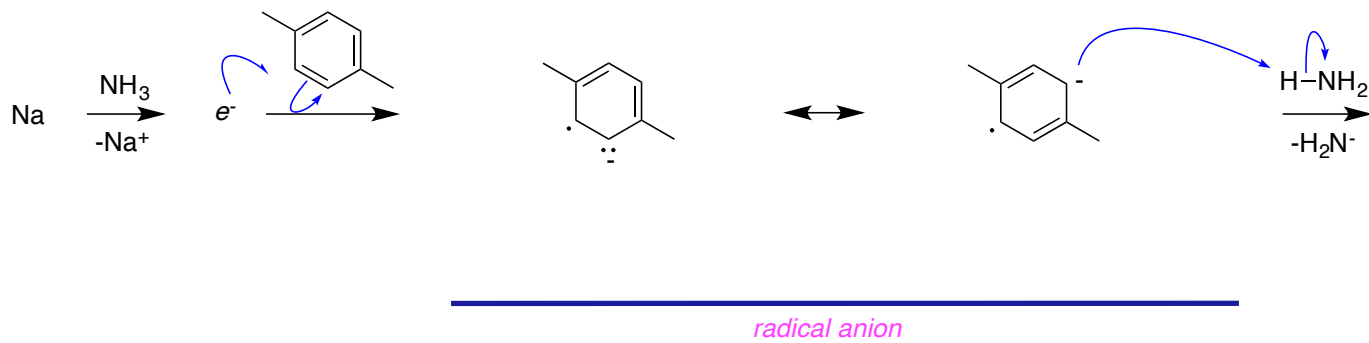
*trans*-geometry  
*equivalent* to

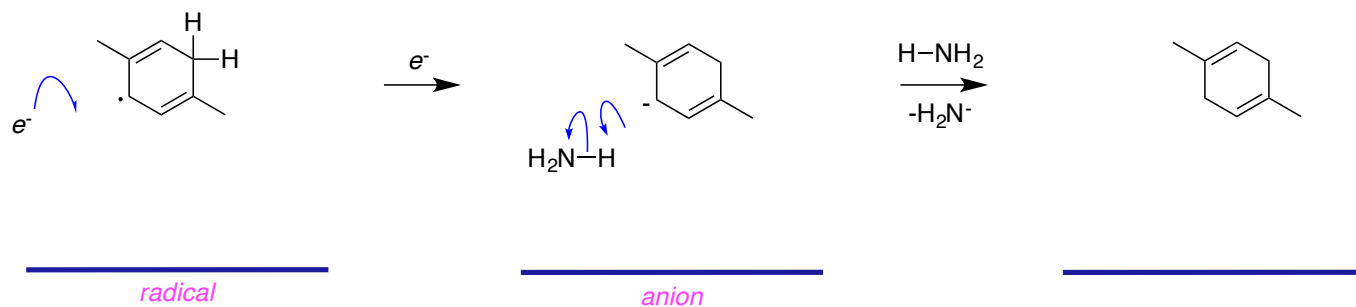


a *radical*, then another electron to form an



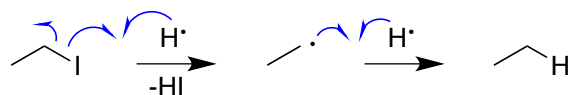
*HOMO*  
*non-conjugated*





## C. Reductions Via Radicals

*reduction*

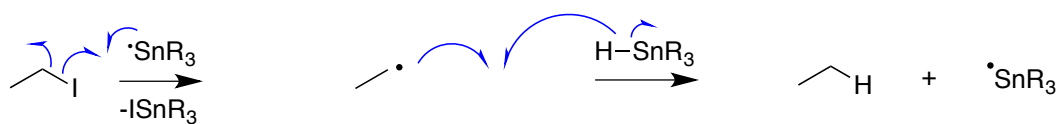


*kinetic* effects

*Catalytic* amounts



*chain initiation*



*chain propagation*

*radical*

*products*

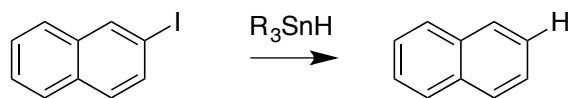
*another tin radical.*

*regenerated many times.*

concentration is *low*.



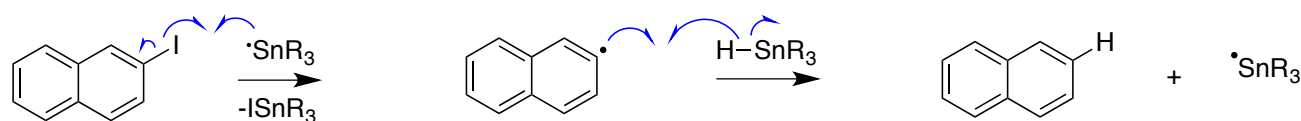




chain initiation



chain propagation



radical

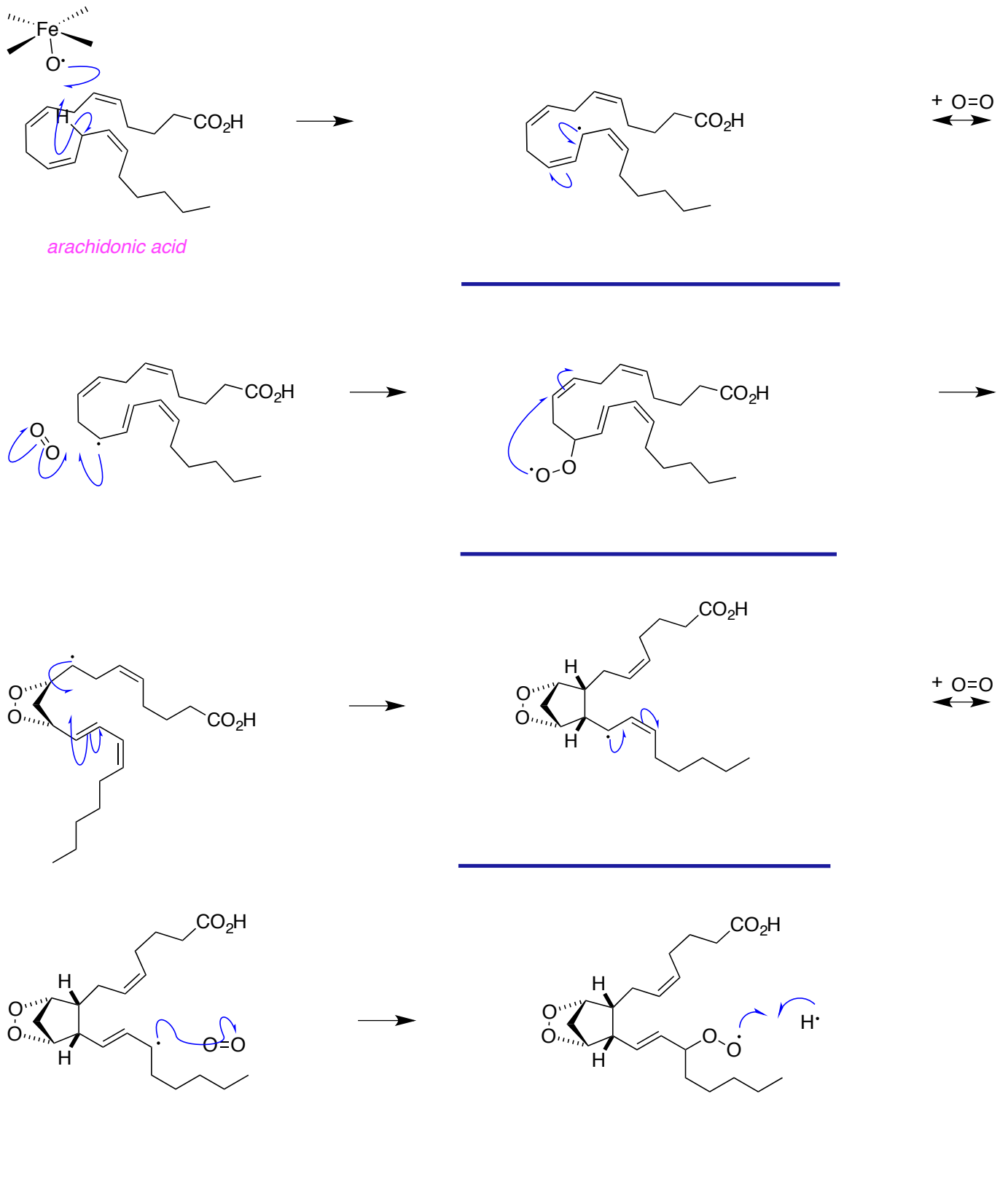
products

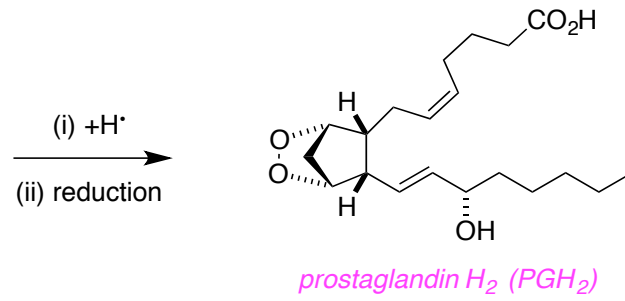
chain termination



would not change

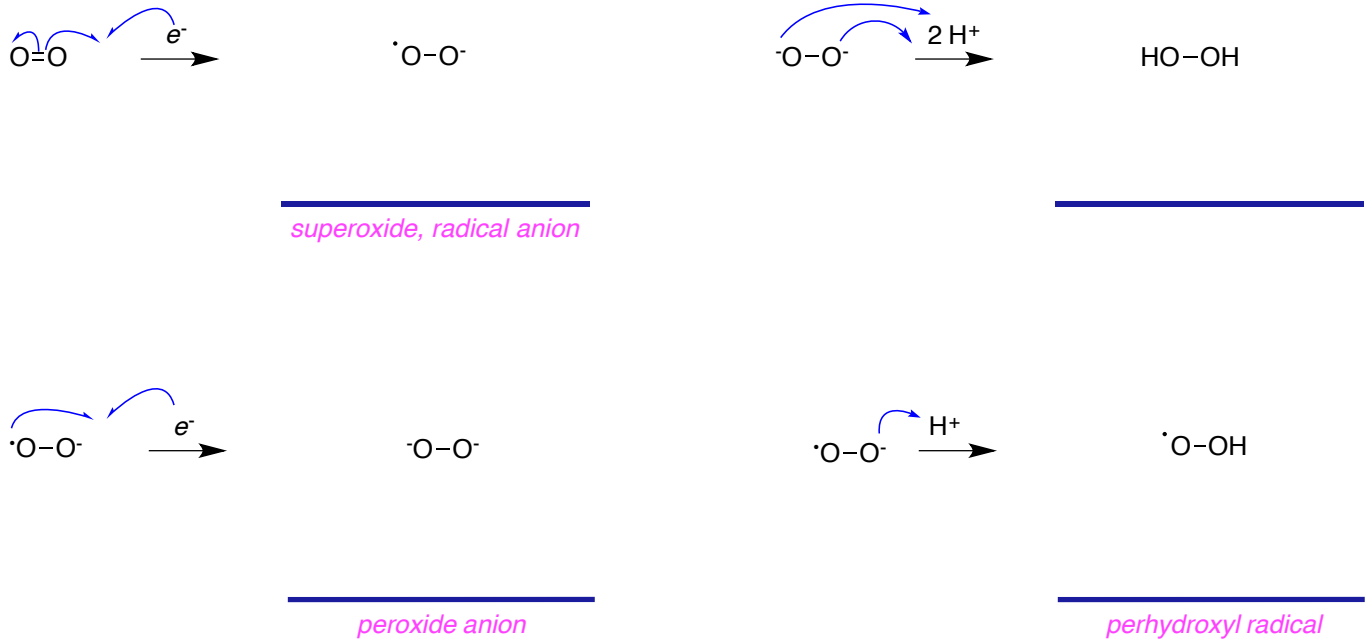
## D. Biosynthesis Of Prostaglandin H<sub>2</sub> (PGH<sub>2</sub>)





*dilate blood vessels and are secreted in seminal fluid from the prostate gland*

### E. Reactive Oxygen Species



*endoplasmic reticulum and mitochondria and peroxisomes*