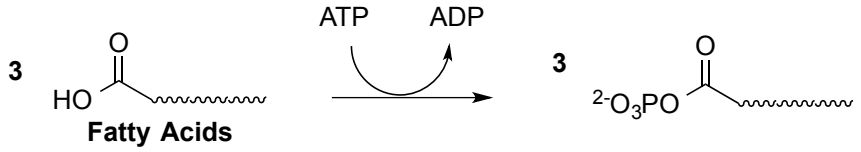
CHEM 109, Lecture 12

Lipids
- Classification
- Mevalonate Pathway to Isopentenyl Diphosphate (IPP)
- Conversion of IPP to Terpenoids
  - Carbocation Rearrangements (RRGT): Hydride & Methyl Shifts

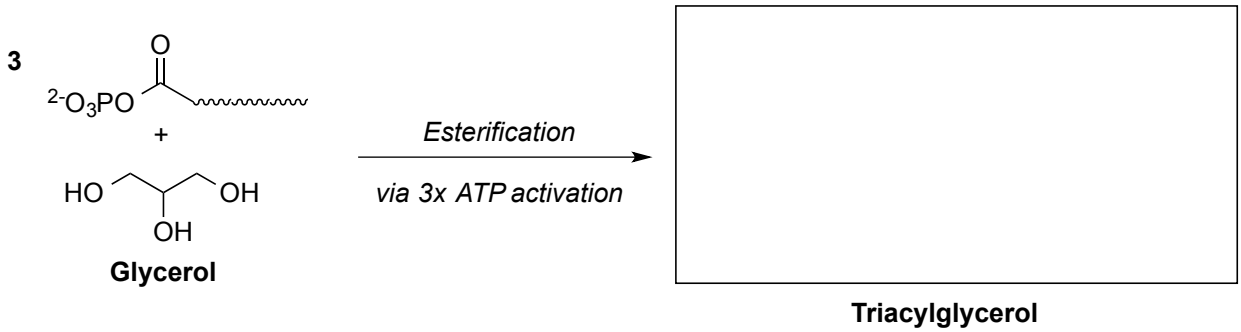
General Lipid Classifications
- Fatty acids, triacylglycerols, and terpenes
  - Be able to identify and/or construct these given the components

Fatty Acids & Triacylglycerols

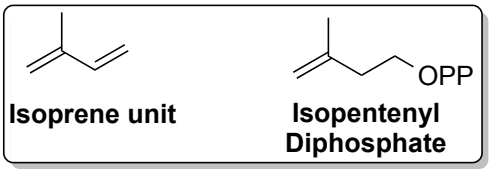
- ATP Activation



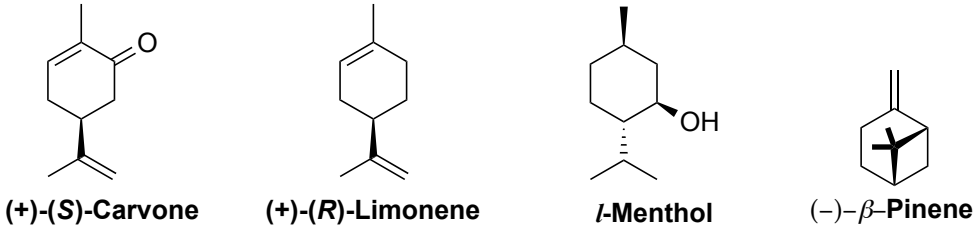
- Esterification



Terpenes & Terpenoids

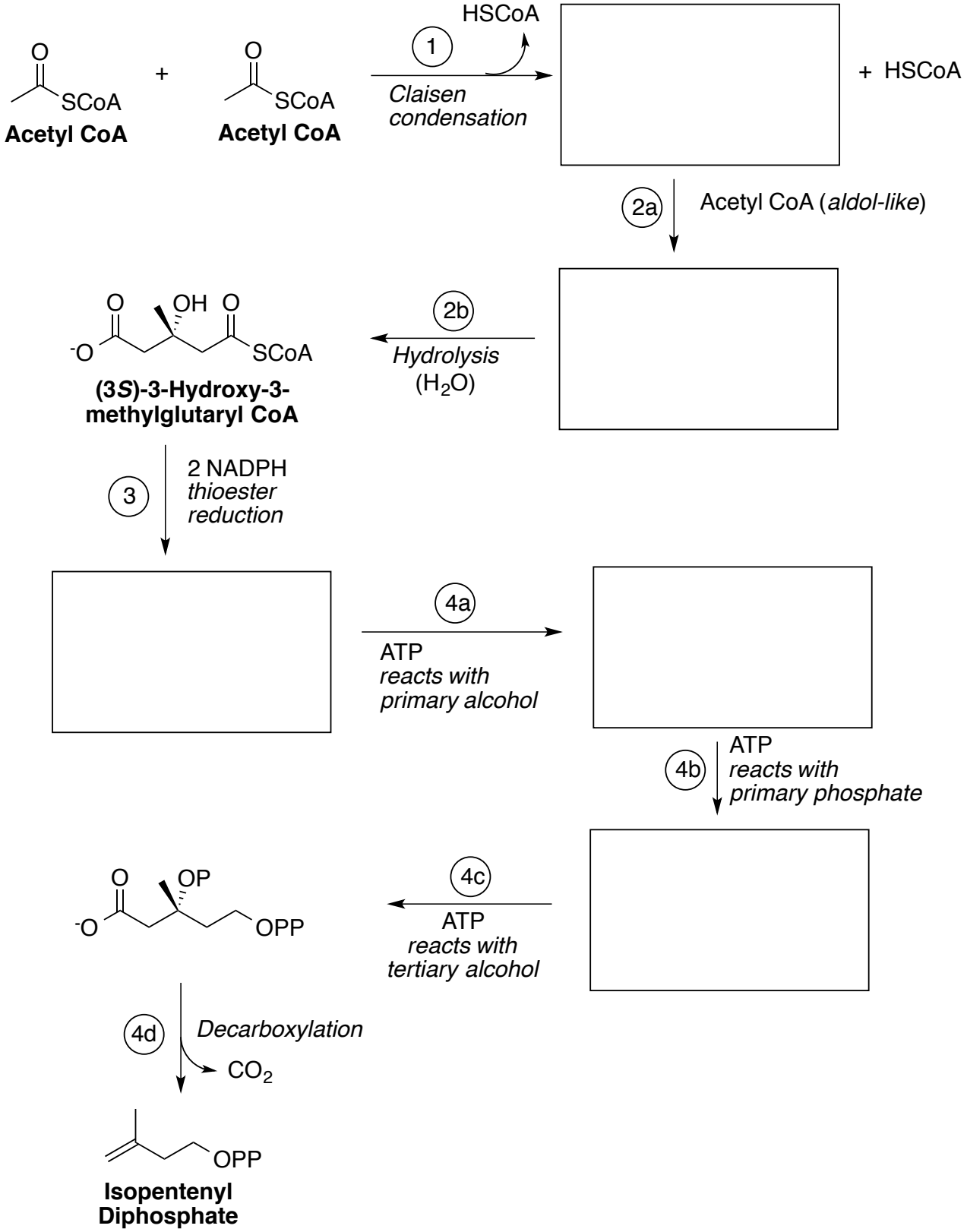


some monoterpenoids:

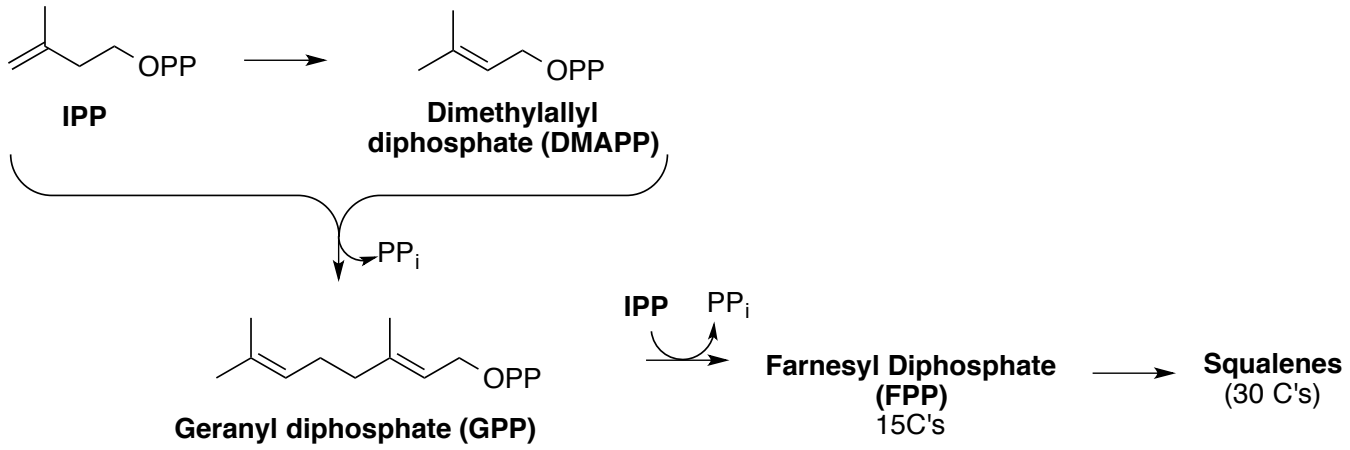


Mevalonate Pathway to Isopentenyl Diphosphate (IPP)

Fill in the boxes! Test your knowledge of reaction names, co-factors, etc.

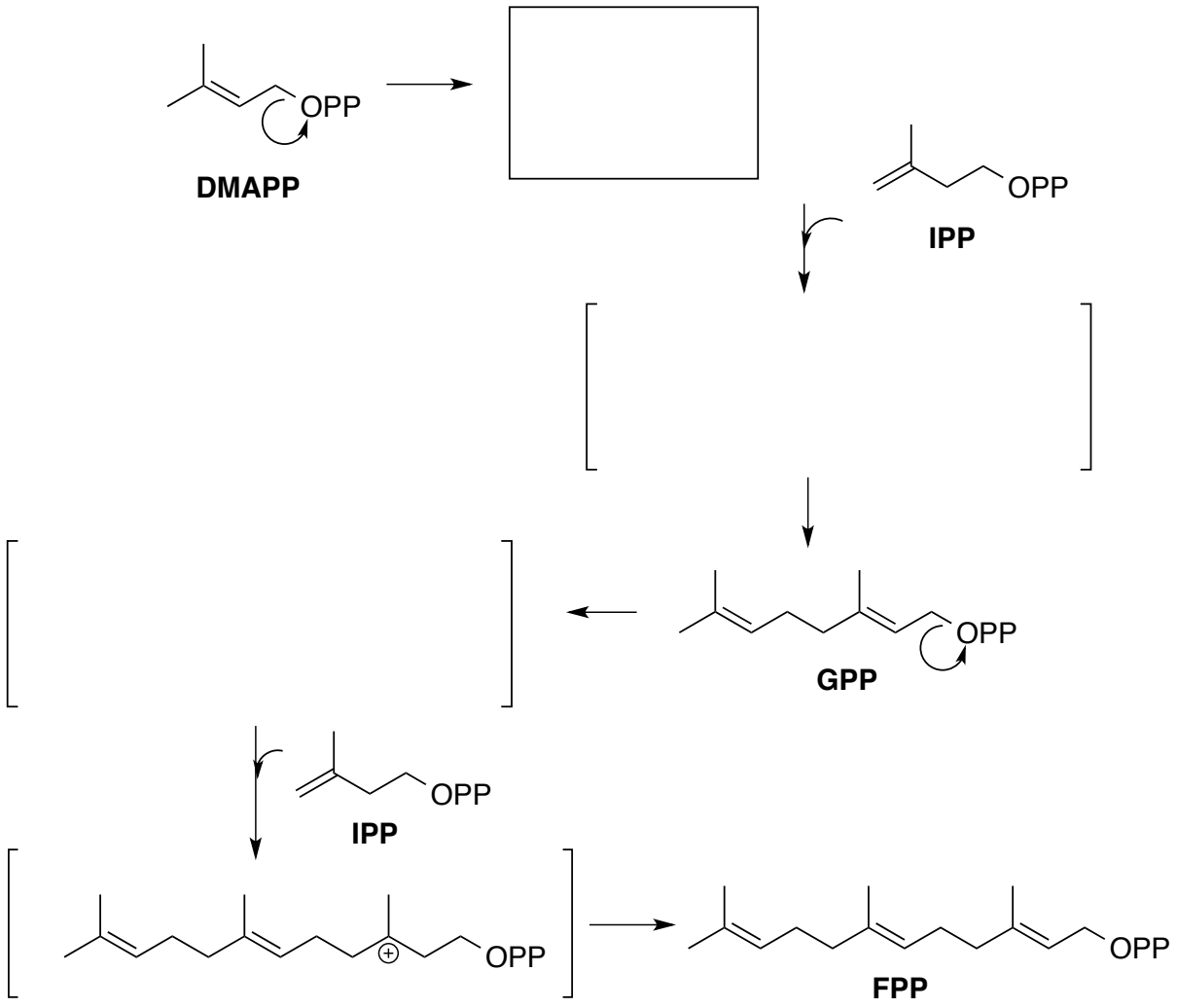


The IPP Building Block – process overview



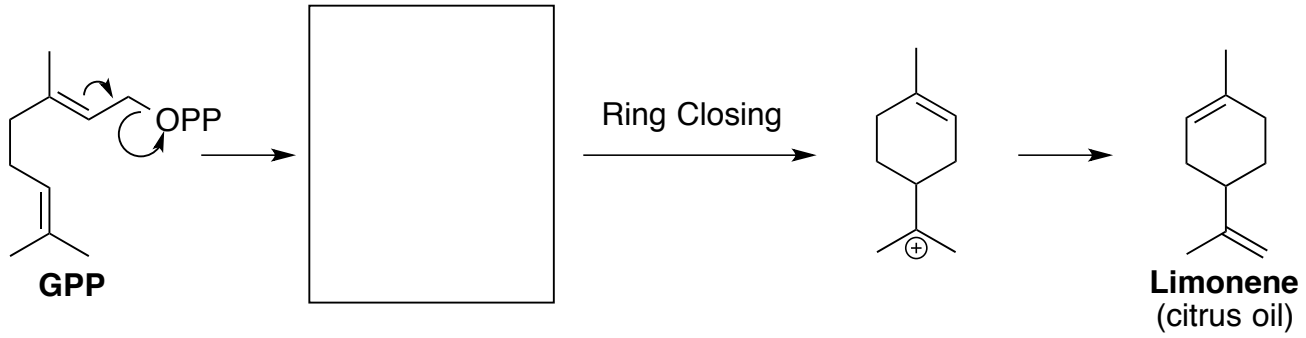
Geranyl Diphosphate (GPP) & Farnesyl Diphosphate (FPP):
Mono- and Sesquiterpenoid Scaffolds

Add or follow arrows, fill in the boxes…



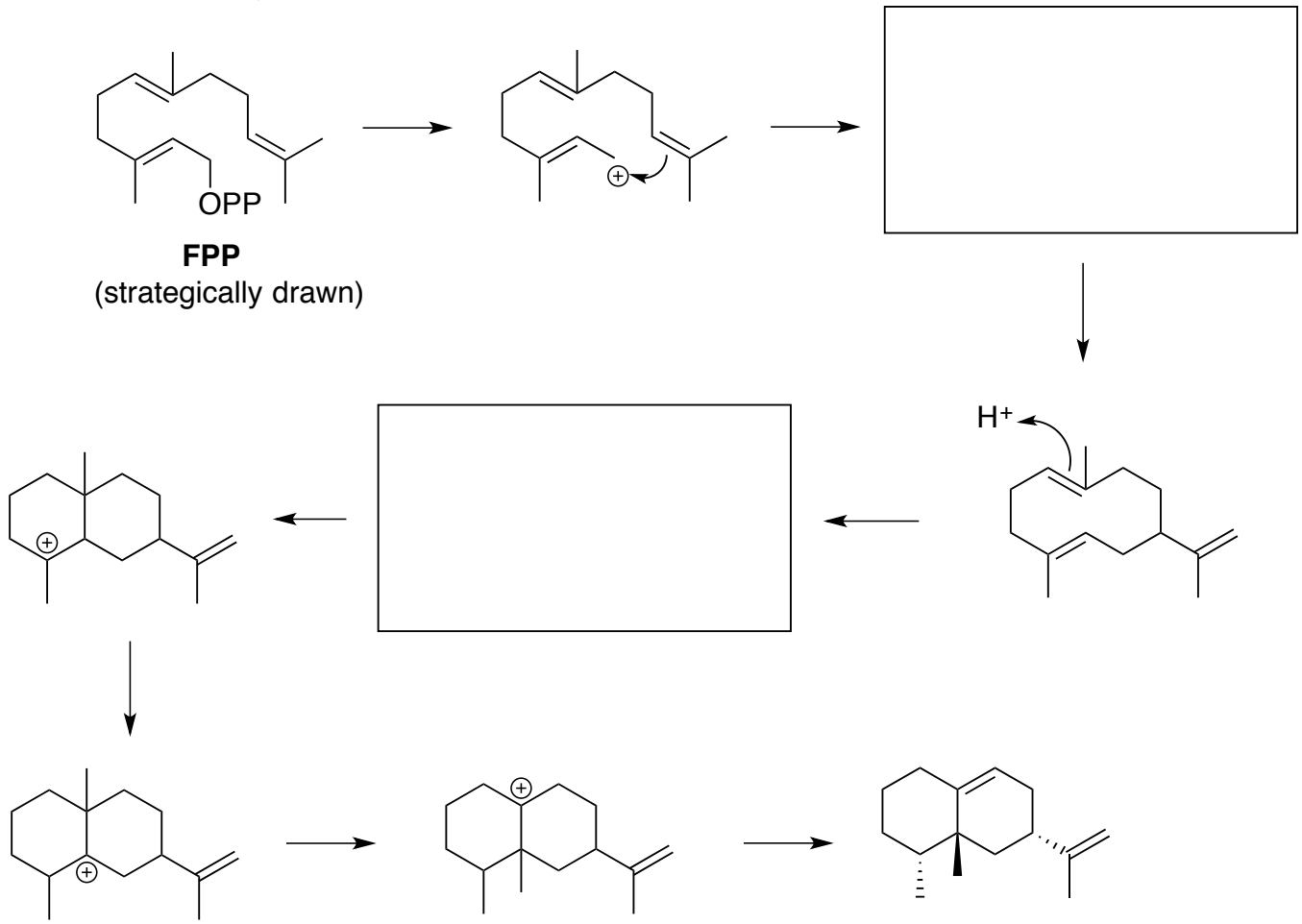
Monoterpenoids: Biosynthesis of Citrus Oil from GPP *via* C⁺ Rearrangements

Add or follow arrows, fill in the boxes…



Sesquiterpenoids: Biosynthesis of a Tobacco Component *via* C⁺ Rearrangements

Add or follow arrows, fill in the boxes…



***epi*-Aristolochene**
(stereochem incorporated along the way, not shown until now!)

And thus concludes Exam 2 material (Lectures 6-12)!