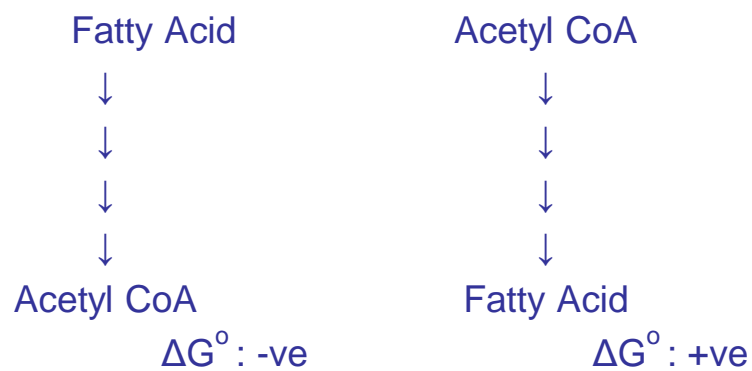


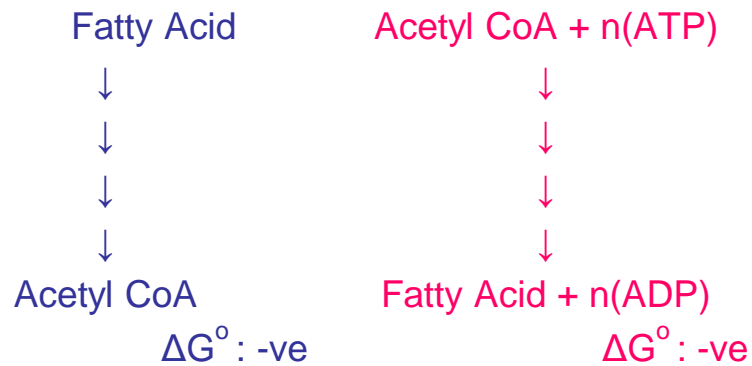
Fatty Acid Synthesis

- Requires
 - Carbon Source: Acetyl CoA
 - Reducing Power: NADPH
 - Energy Input: ATP

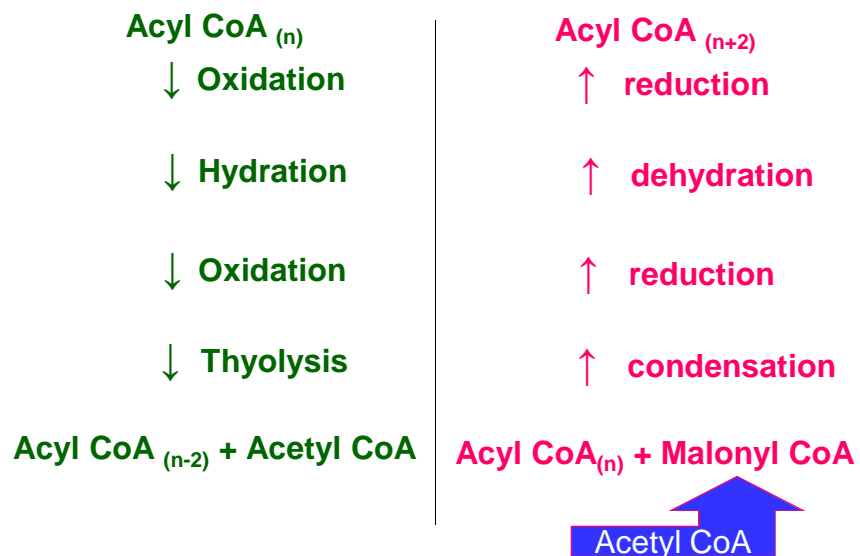
Why Energy ?



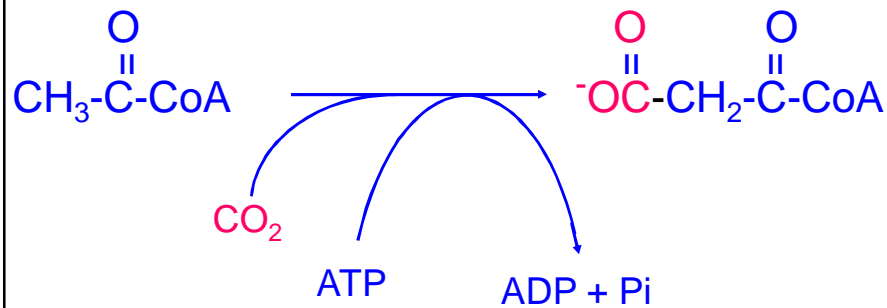
Why Energy ?



FA Degradation and Synthesis



Carboxylation of Acetyl CoA Produces Malonyl CoA

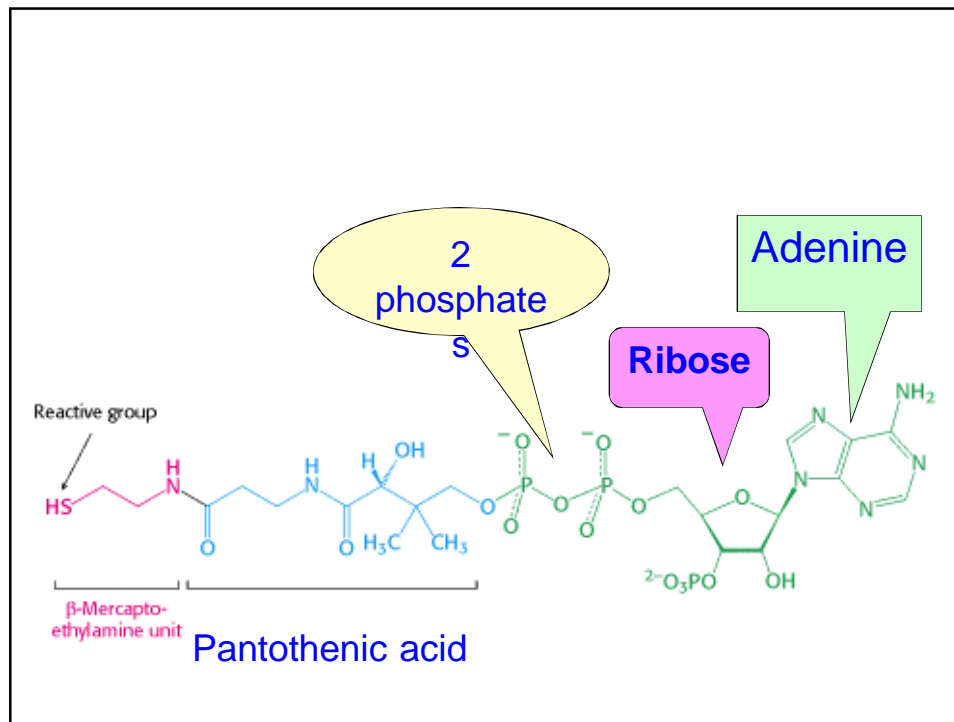


Acetyl CoA Carboxylase

Biotin-Containing Enzyme

Fatty Acid Synthase Catalyzes the remaining steps

- Multifunctional Enzyme Complex
- Dimer of two Identical Chains
- Each has Seven Catalytic Activities
 - One activity is Condensing Enzyme with $-\text{SH}$
- One Domain is Linked to Phosphopantetheine
 - With Reactive $-\text{SH}$



Fatty Acid Synthase Catalyzes the remaining steps

- **Multifunctional Enzyme Complex**
- **Dimer of two Identical Chains**
- **Each has Seven Catalytic Activities**
 - One activity is Condensing Enzyme with -SH
- **One Domain is Linked to Phosphopantetheine**
 - With Reactive -SH
 - Carries Intermediates during Catalysis
 - (Acyl, Acetyl and Malonyl Groups)
 - Known as **Acyl Carrier Protein (ACP)**

Fatty Acid Synthesis (Overview)

