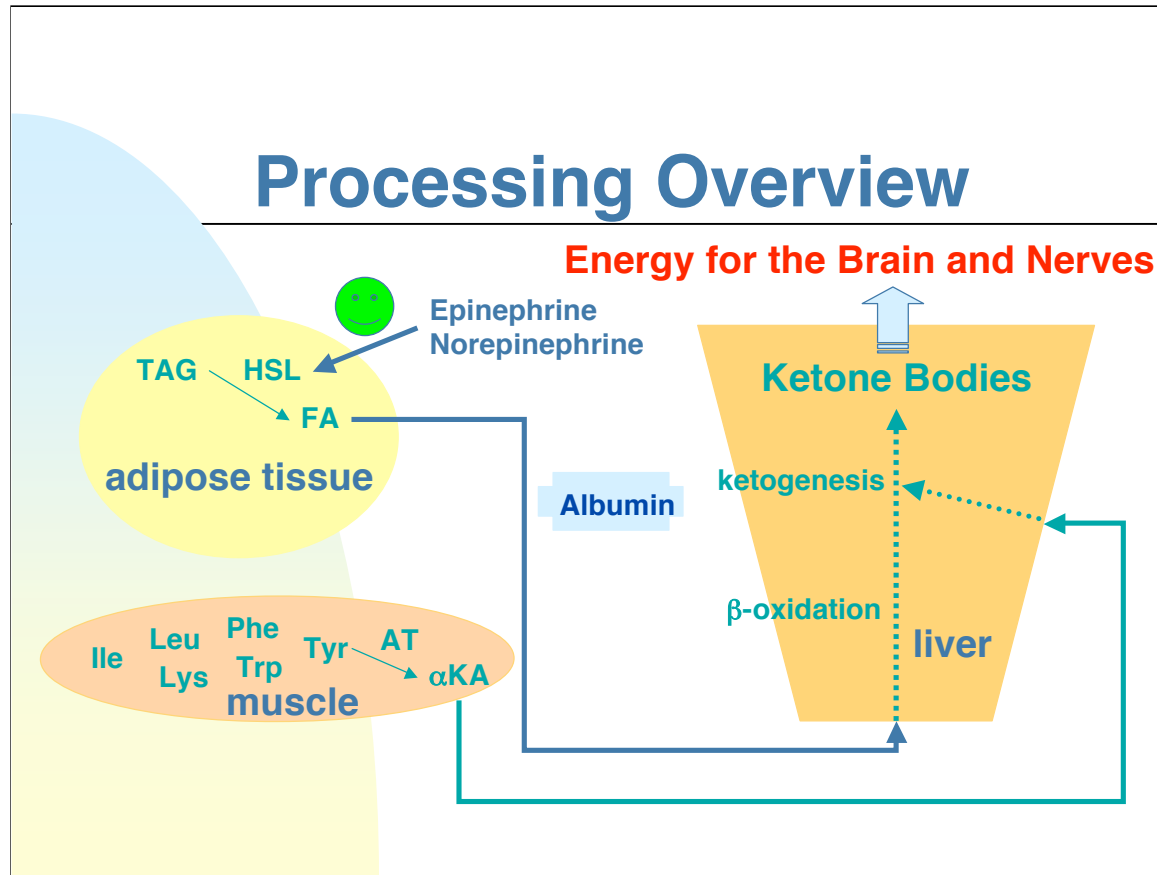


# Ketone Bodies

- **Processing overview**
- **Ketogenesis and utilization**

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**TAG:** triacylglycerol

**FA:** fatty acid

**Leu:** leucine; prominent source

**Phe:** phenylalanine

**Tyr:** tyrosine

**$\alpha$ KA:**  $\alpha$ -ketoacid

FA are bound to serum albumin and are transported through capillaries

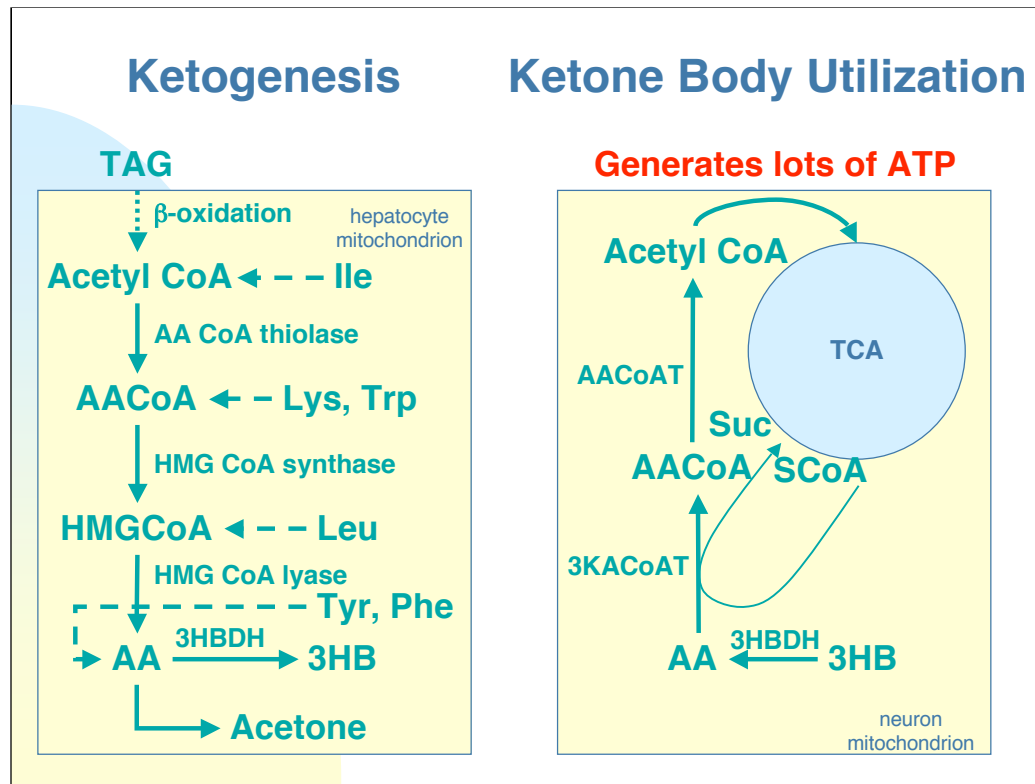
**HSL:** hormone sensitive lipase

**Ile:** isoleucine

**Lys:** lysine

**Trp:** tryptophan

**AT:** aminotransferase



**TAG:** triacylglycerol

**Ile:** isoleucine

**AACoA:** acetoacetyl coenzyme A

**Trp:** tryptophan

**HMGCoAS:** 3-hydroxy-3-methylglutaryl coenzyme A synthase

**HMGCoA:** 3-hydroxy-3-methylglutaryl coenzyme A

**Leu:** leucine

**Tyr:** tyrosine

**3HBDH:** 3-hydroxybutyrate dehydrogenase

**3KACoAT:** 3-ketoacyl coenzyme A transferase

Inborn errors in HMGCoA synthase and HMGCoA lyase (increased [HMGCoA])

Alcoholic ketoacidosis can result from abrupt halt in EtOH consumption leading to high 3HB:AA ratio (NADH is required). Clinical assay only looks for AA, so underestimates ketone bodies.

**Acetyl CoA:** acetyl coenzyme A

**AACoAT:** acetoacetyl coenzyme A thiolase

**Lys:** lysine

**AA:** acetoacetate

**Phe:** phenylalanine

**3HB:** 3-hydroxybutyrate

# Review Questions

- **What are ketone bodies?**
- **Which amino acids are ketogenic?**
- **How are ketone bodies generated (substrates, enzymes, pathways, location)?**
- **How are ketone bodies metabolized (enzymes, pathways, location)?**