

# $\beta$ -Oxidation of Saturated Fatty Acid

[PALMITIC ACID] (16C).

→ Process is strictly Aerobic.

→ Occurs in Mitochondria. [DEPTH OF BIOLOGY]

# Occurs in Mainly tissue Including Liver, Kidney, Heart.

## STAGES.

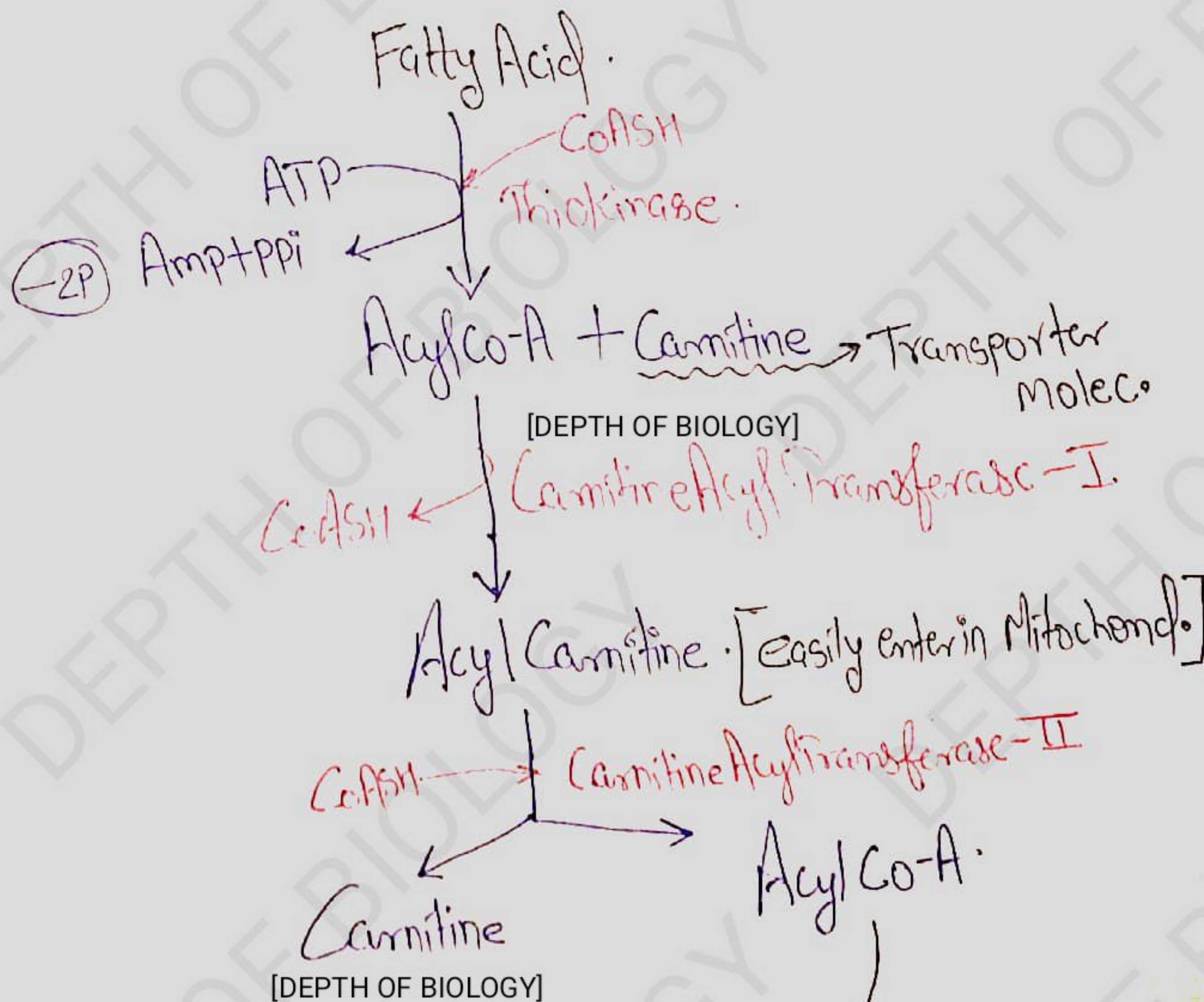
① Activation of Fatty Acid.

[Rxn. Occurs in Cytosol]

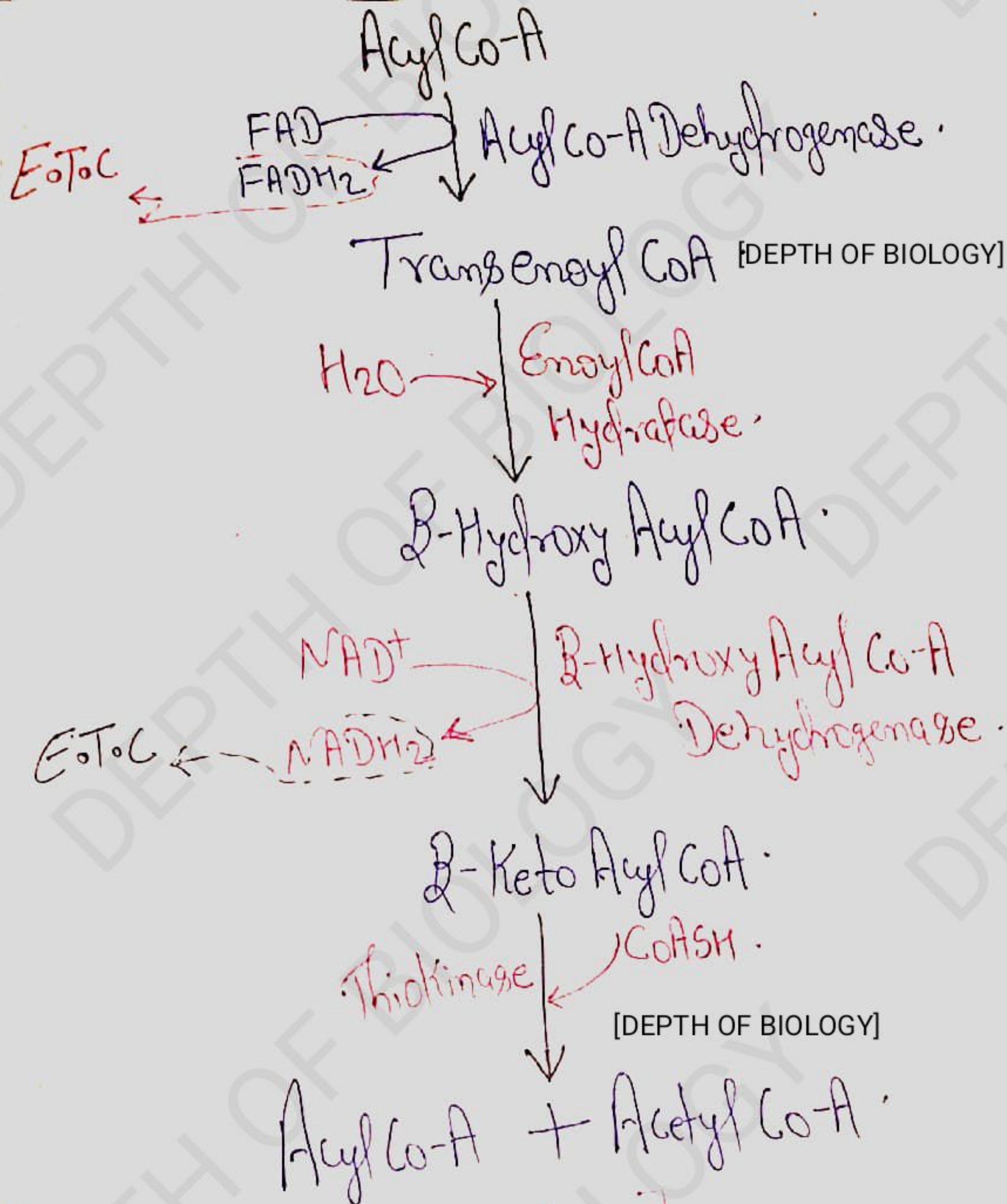
② Transport of fatty acid into Mitochondria.

[Carnitine Shuttle]

③  $\beta$ -Oxidation Proper in Mitochondrial Matrix.







[This reaction happens 7 times].

Energetics of β-Oxidation.

|                       |        |          |            |
|-----------------------|--------|----------|------------|
| ① 7 FADH <sub>2</sub> | 7 × 2  | ⇒ 14 ATP |            |
| ② 7 NADH <sub>2</sub> | 7 × 3  | ⇒ 21 ATP |            |
| ③ 8 Acetyl CoA        | 8 × 12 | ⇒ 96 ATP |            |
|                       |        |          | 131 ATP.   |
|                       |        |          | - 2 ATP    |
|                       |        |          | 129 ATP.   |
|                       |        |          | Synthesis. |

⚡  
 [1 Fatty Acid = 129 A.T.P] form  
 E<sub>o</sub>T<sub>o</sub>C