

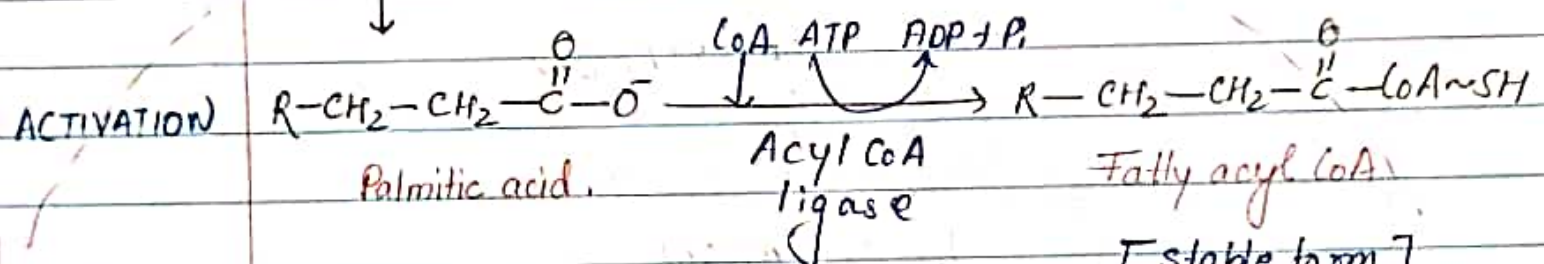
## Beta-oxidation

- In beta oxidation 2 carbon atoms are removed at a time as acetyl CoA.
- acetyl CoA is formed as the bond between the  $\alpha$  and  $\beta$ -carbon atoms are broken.
- This reaction occurs inside the mitochondria

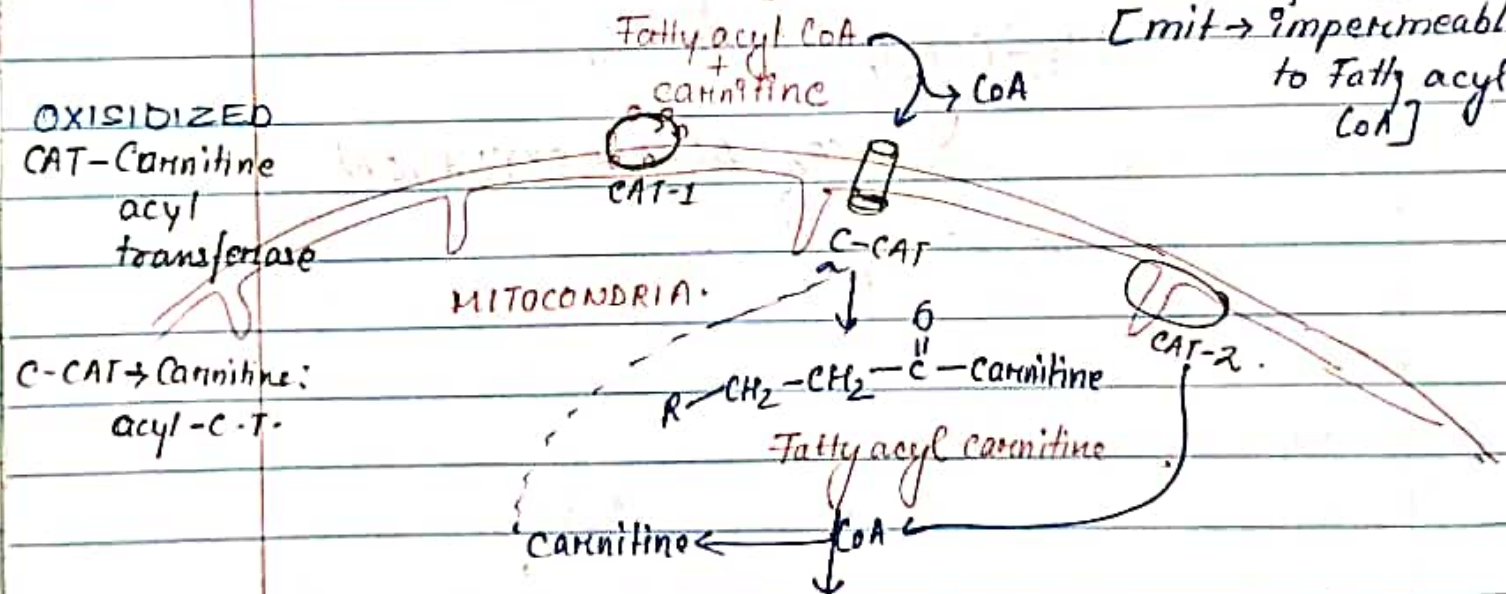
Free fatty acids (-16C Palmitic acid)



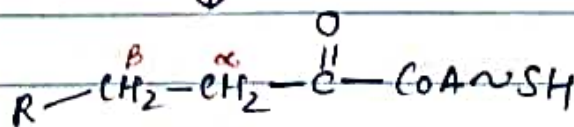
CYTOPLASM



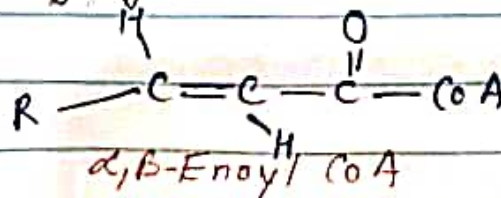
[stable form]  
[mit → impermeable to Fatty acyl CoA]



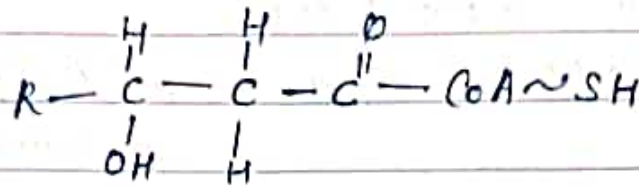
C-CAT → Carnitine: acyl-C-T



OXIDATION

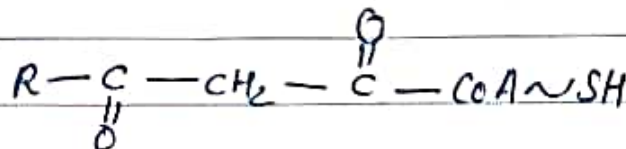


HYDROLYSIS Enoyl CoA  
hydratase  $\downarrow$   $\leftarrow$  H<sub>2</sub>O



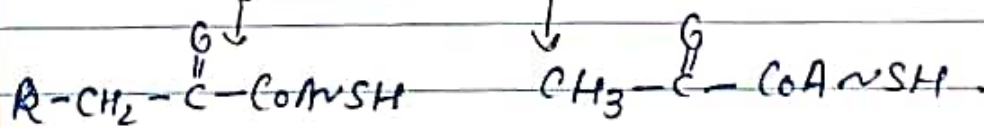
3 $\beta$ -hydroxyl Acyl CoA

OXIDATION  $\beta$ -keto  
acyl-CoA  
dehydrogenase  $\left\{ \begin{array}{l} \leftarrow \text{NAD}^+ \\ \rightarrow \text{NADH} \end{array} \right.$



THIOLYSIS  $\beta$ -keto acyl CoA

Thiolase  $\left\{ \begin{array}{l} \leftarrow \text{CoA} \\ \downarrow \end{array} \right.$



Fatty acyl CoA (14-c)

$\downarrow$

12c

$\downarrow$

10c

$\downarrow$

8c

$\downarrow$

6c

$\downarrow$

4c  $\rightarrow$  2c

Acetyl CoA

$\downarrow$

TCA

ATP/GTP

FADH<sub>2</sub>

CO<sub>2</sub>

NADH

$\downarrow$

ATP