Question #61108, Chemistry, Other

Describe the phenomenon of substrate channeling observed in the conversion of pyruvate (5) into acetyl Co-A.

Answer:

After glycolysis, pyruvate is converted into acetyl CoA in order to enter the citric acid cycle.
The oxidative conversion of pyruvate into acetyl-CoA is referred to as the pyruvate dehydrogenase reaction. It is catalyzed by the pyruvate dehydrogenase complex.
In cell metabolism, substrate channeling is a phenomenon where the product of one reaction is transported to a second enzyme active site without equilibrating into bulk solvent.
In the process of conversion of pyruvate into acetyl Co-A (Figure 1) channeling of substrate reduces reaction time with less diffusion of substrate.

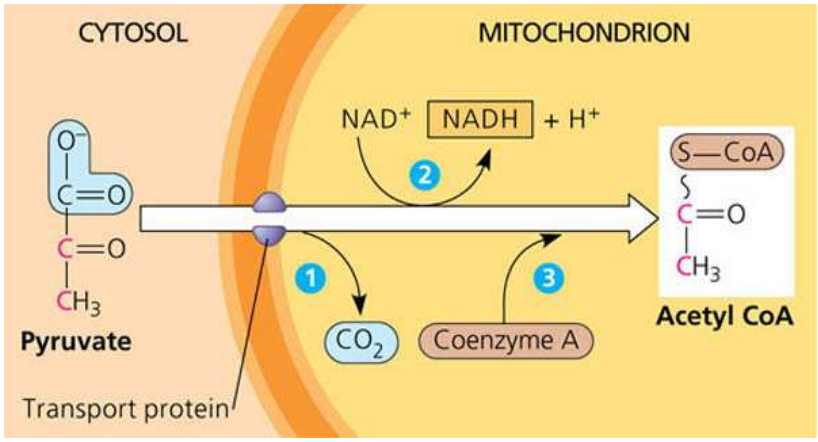

Figure 1 - Conversion of pyruvate into acetyl Co-A