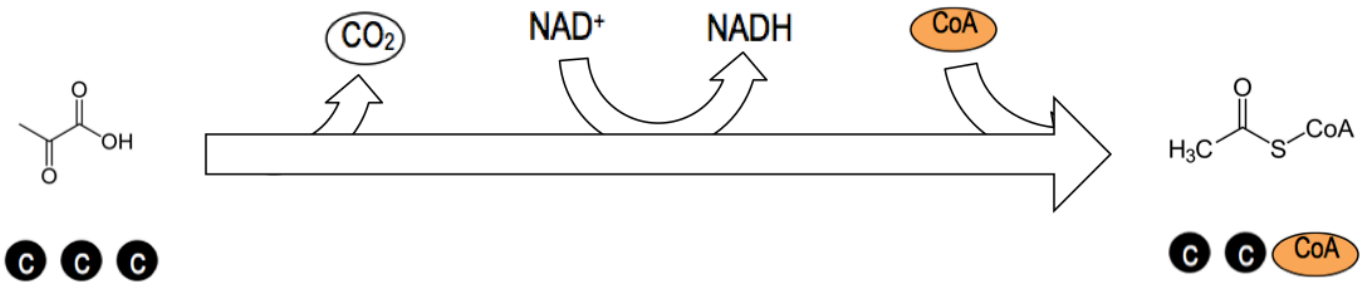
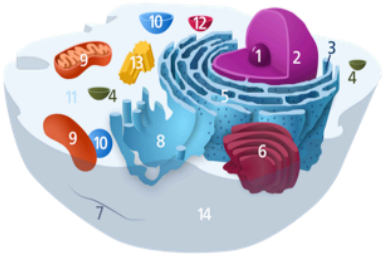
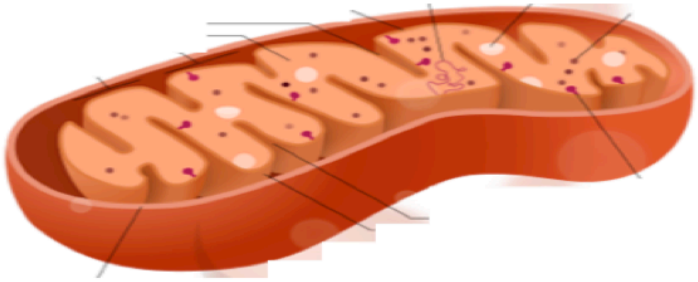
CONCEPT: PYRUVATE OXIDATION

- Pyruvate dehydrogenase ($\Delta G'^{\circ}$ = -33 kJ/mol) – complex of 3 enzymes: E1, E2, and E3
  - □ E1 – pyruvate dehydrogenase, E2 – dihydrolipoyl transacetylase, E3 – dihydrolipoyl dehydrogenase
  - □ Pyruvate dehydrogenase uses 3 substrates: pyruvate, CoA-SH (reduced form), and NAD^+
  - □ Pyruvate dehydrogenase uses 3 cofactors: FAD, lipoate, TPP
  - □ Produces 3 products: Acetyl-CoA, CO_2, NADH
  - □ It is negatively regulated by ATP, acetyl-CoA, NADH, and fatty acids
  - □ It is positively regulated by AMP, CoA, and NAD+







- Acetyl-CoA will contain carbons 1 and 2, or 5 and 6 from glucose
  - □ Acetyl-CoA will contain carbons 2 and 3 of pyruvate