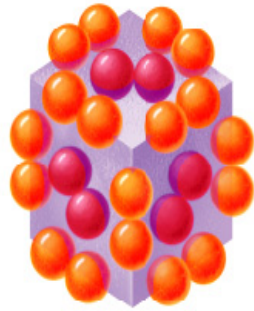


0.05 μ m ^{b)}

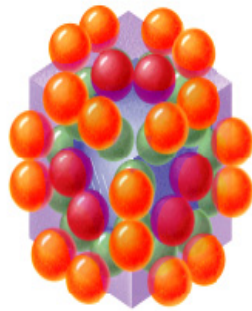
(a)

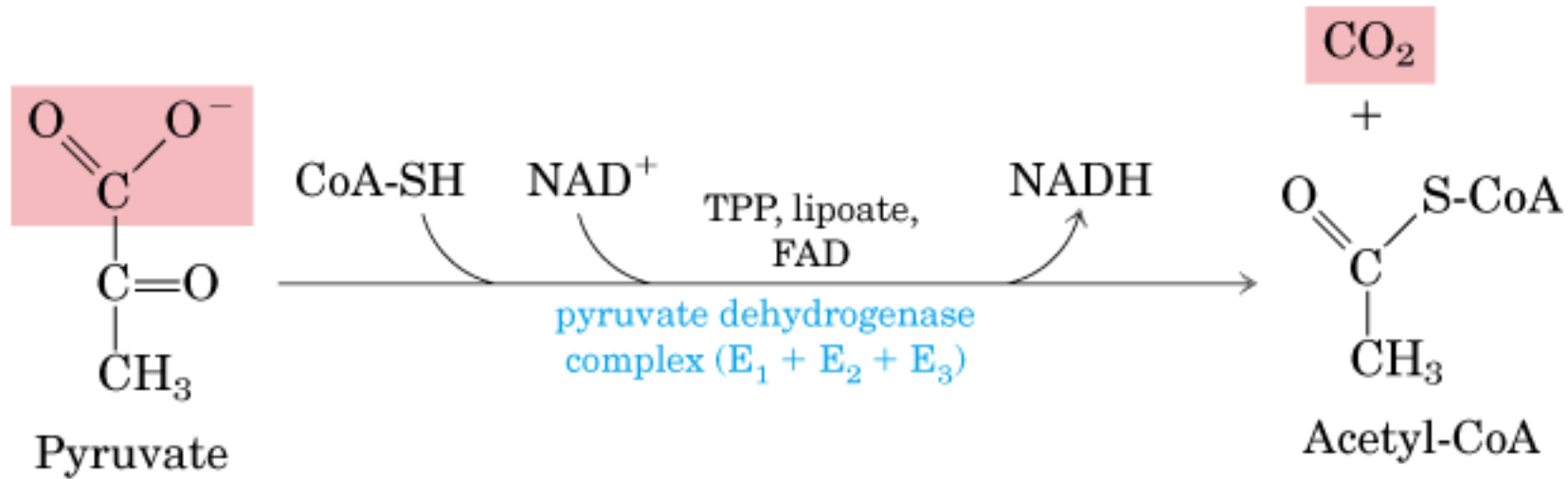


(b)

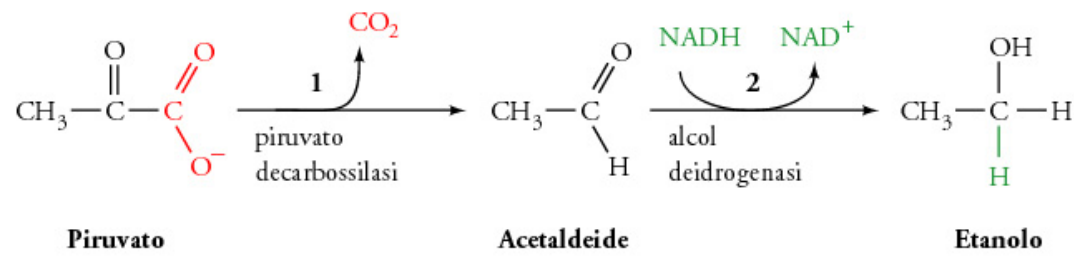
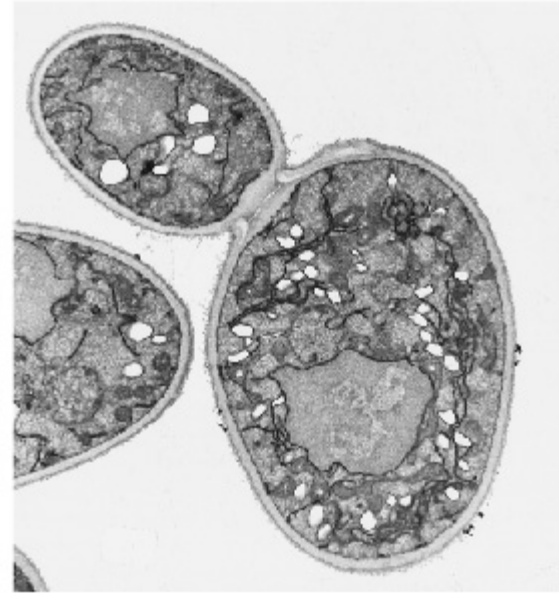
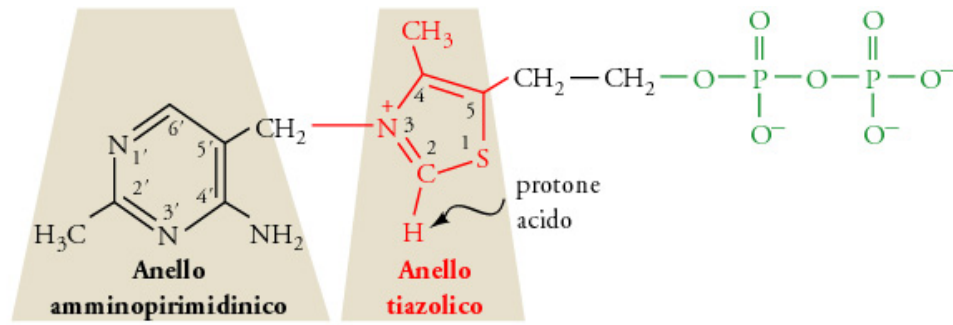


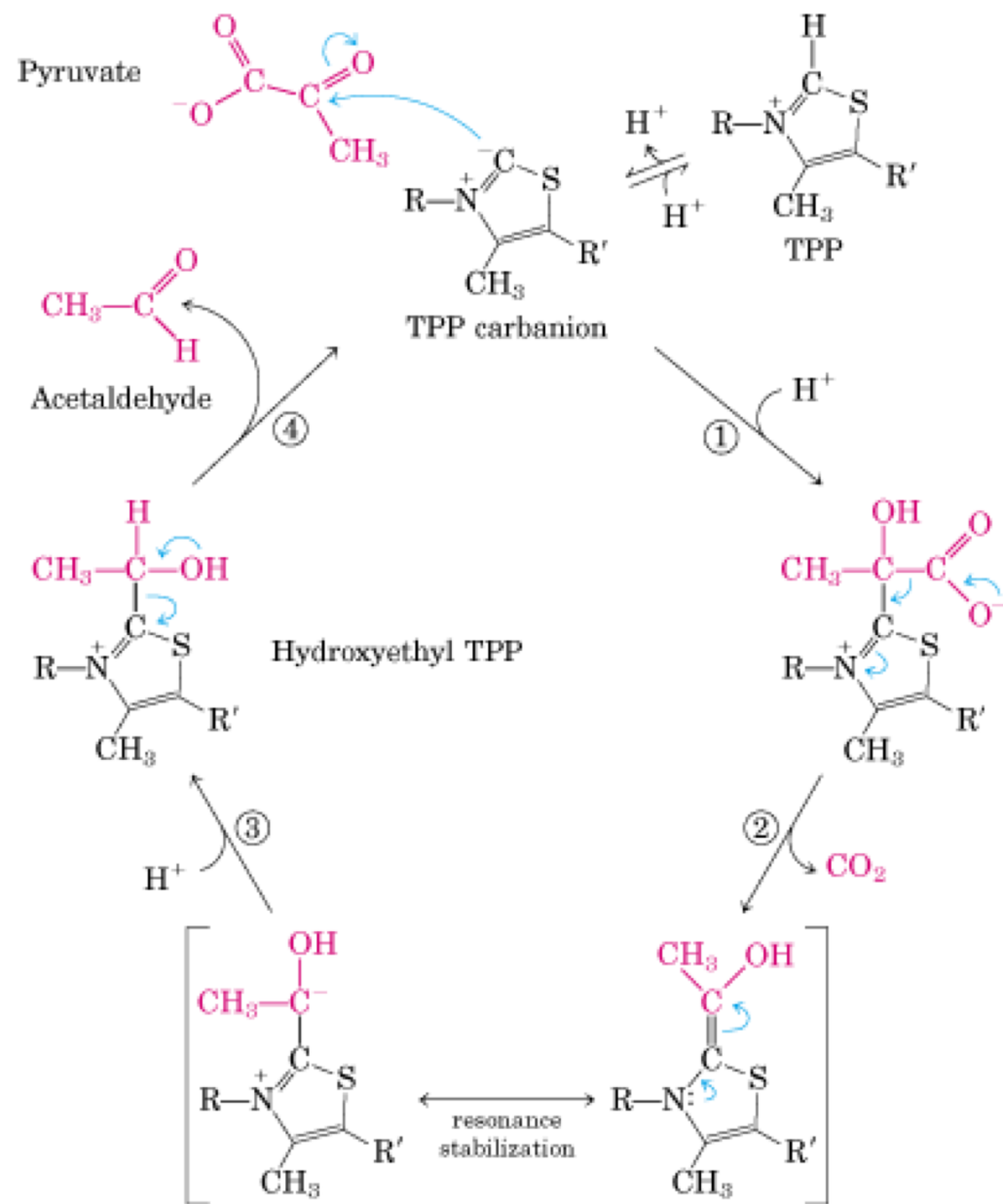
(c)



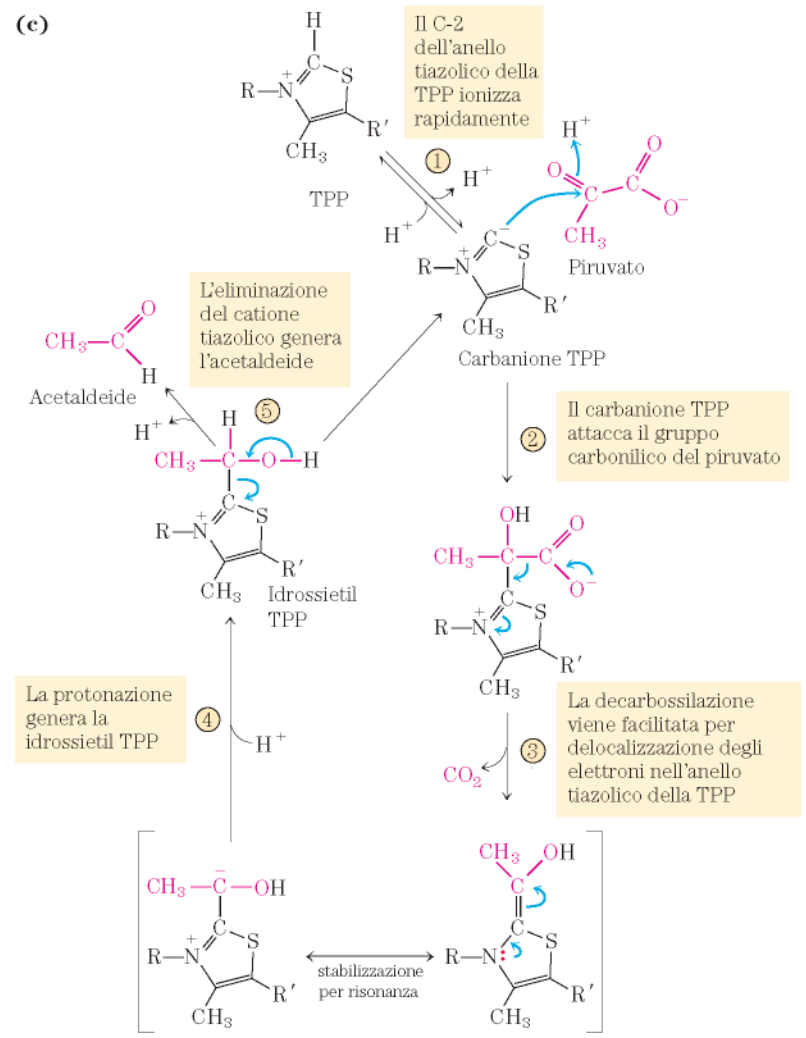
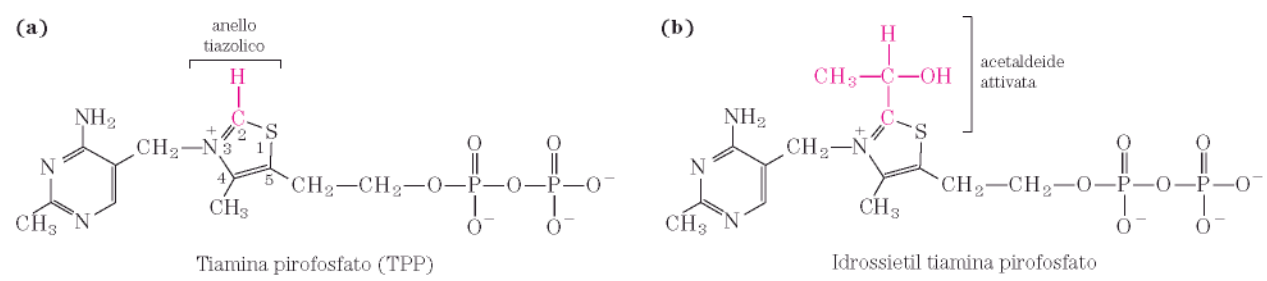


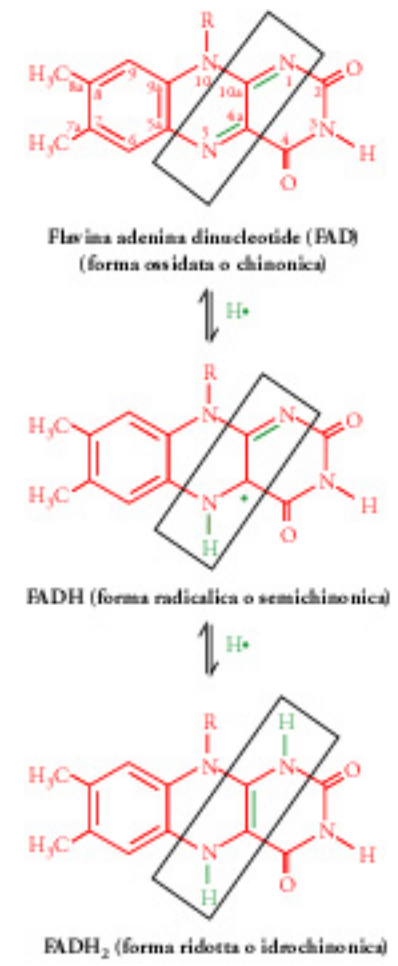
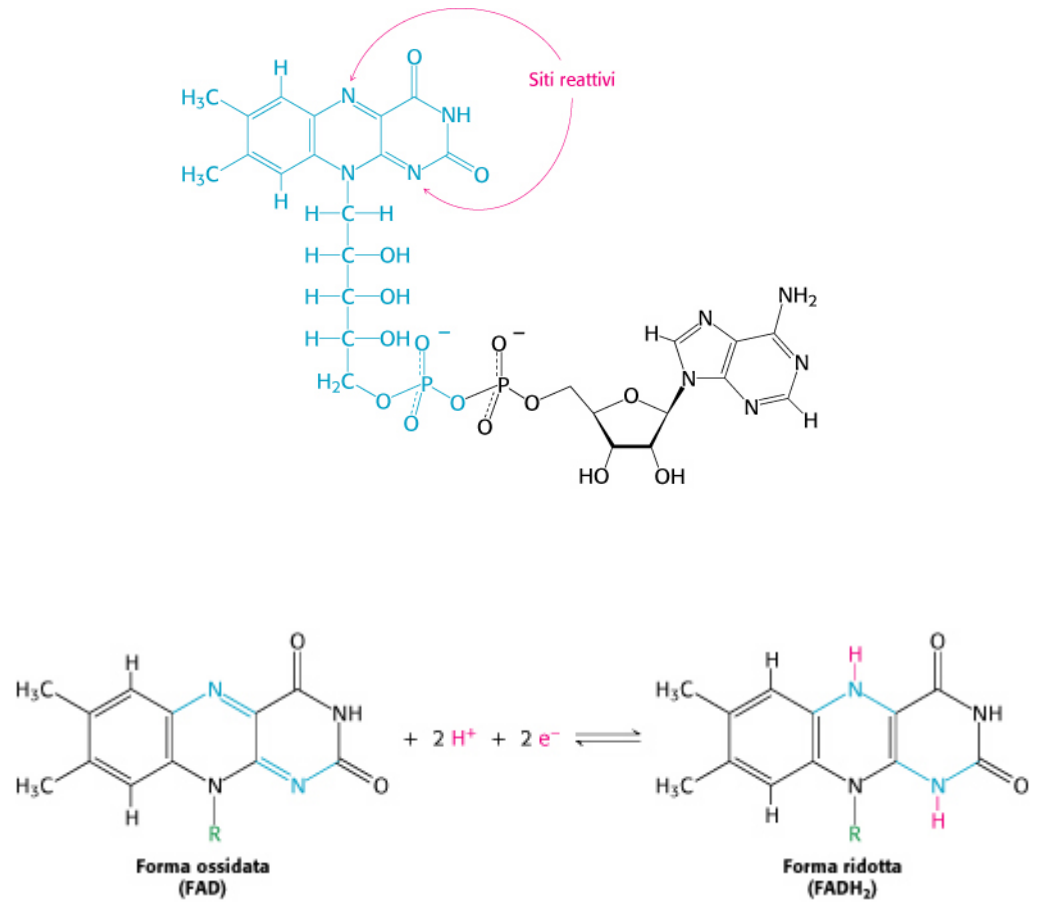
$$\Delta G'^{\circ} = -33.4 \text{ kJ/mol}$$

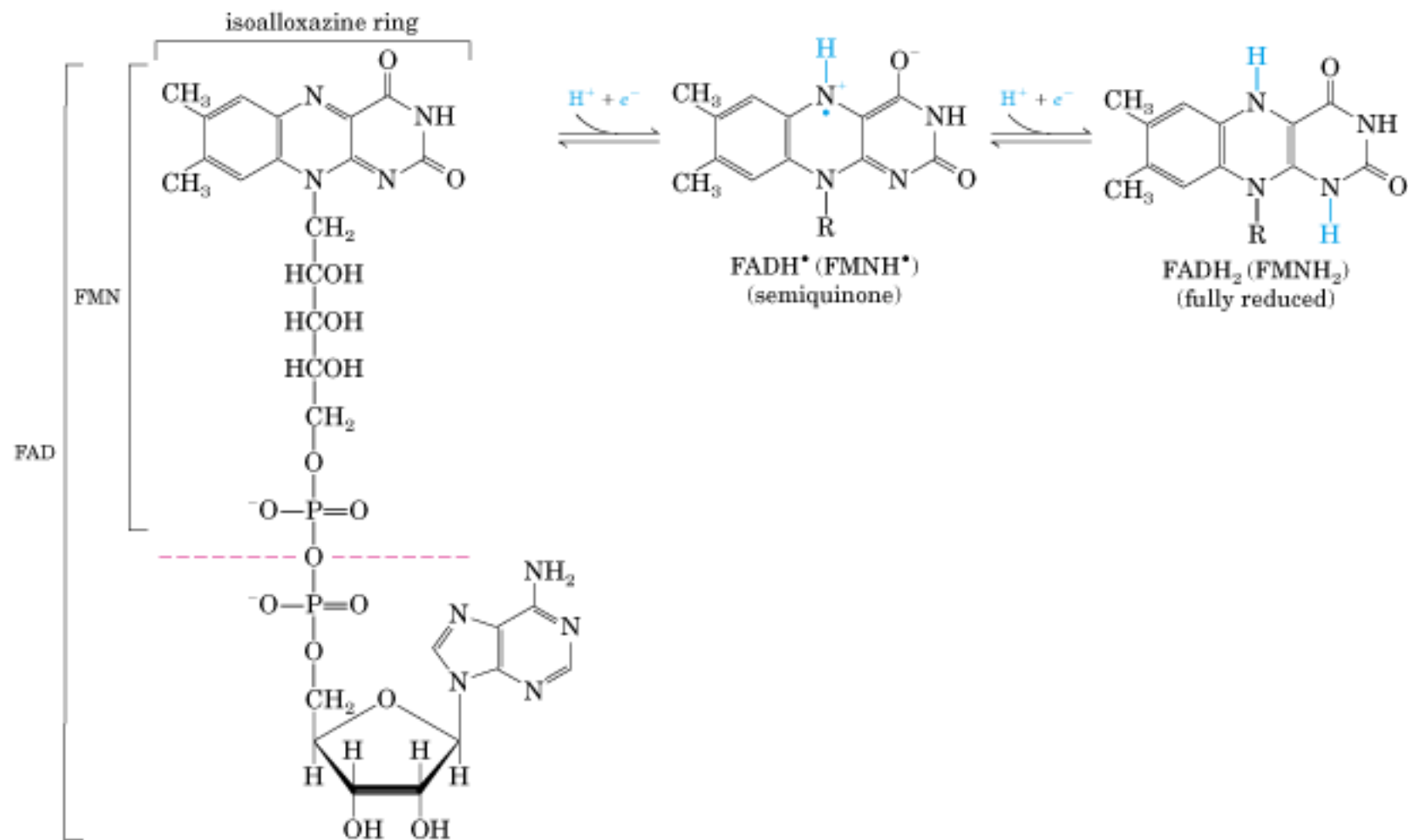




(c)





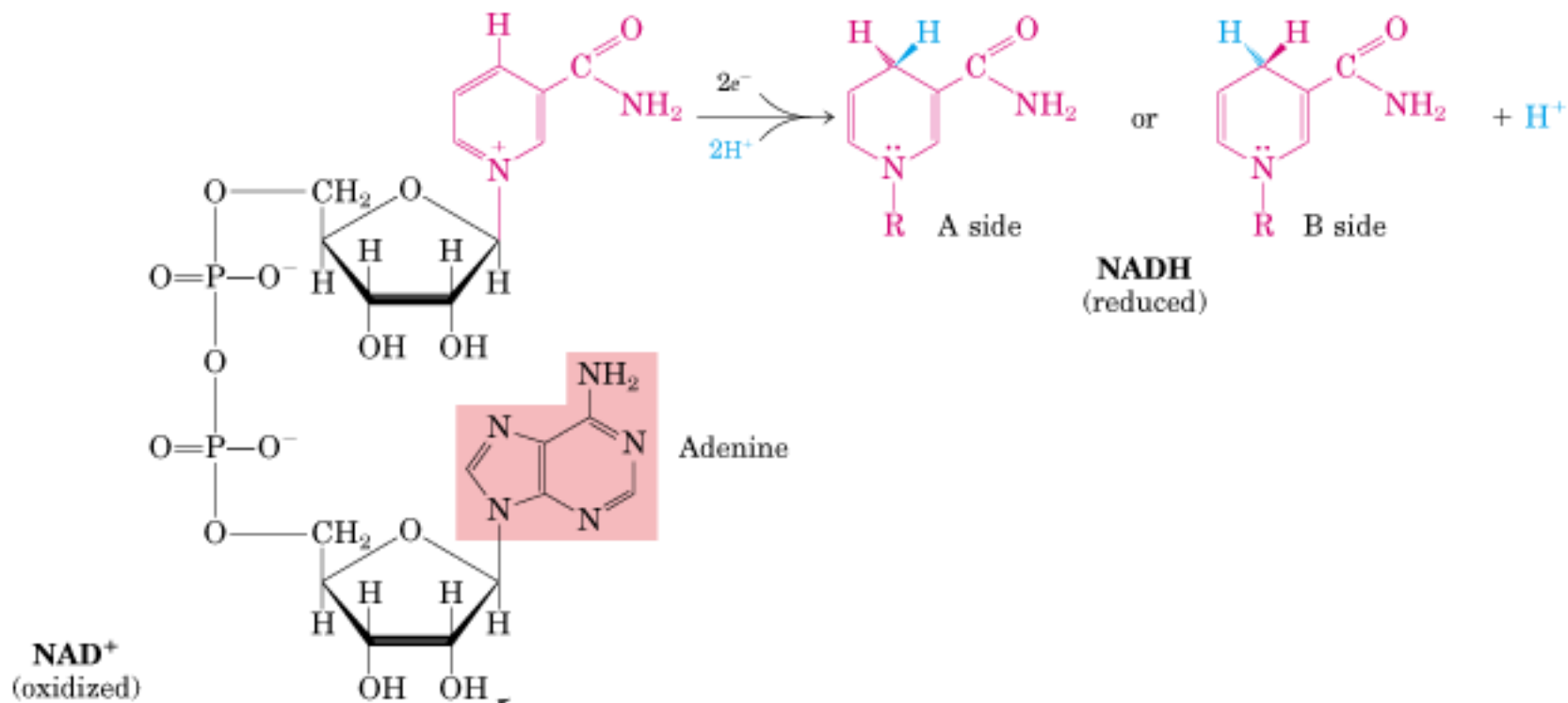


Flavin adenine dinucleotide (FAD) and
flavin mononucleotide (FMN)

table 14-9

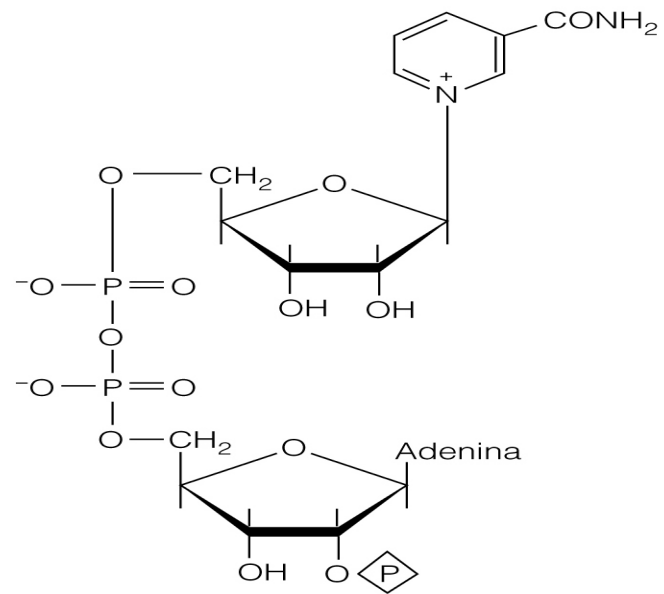
Some Enzymes (Flavoproteins) That Employ Flavin Nucleotide Coenzymes

Enzyme	Flavin nucleotide
Fatty acyl-CoA dehydrogenase	FAD
Dihydrolipoyl dehydrogenase	FAD
Succinate dehydrogenase	FAD
Glycerol 3-phosphate dehydrogenase	FAD
Thioredoxin reductase	FAD
NADH dehydrogenase (Complex I)	FMN
Glycolate dehydrogenase	FMN

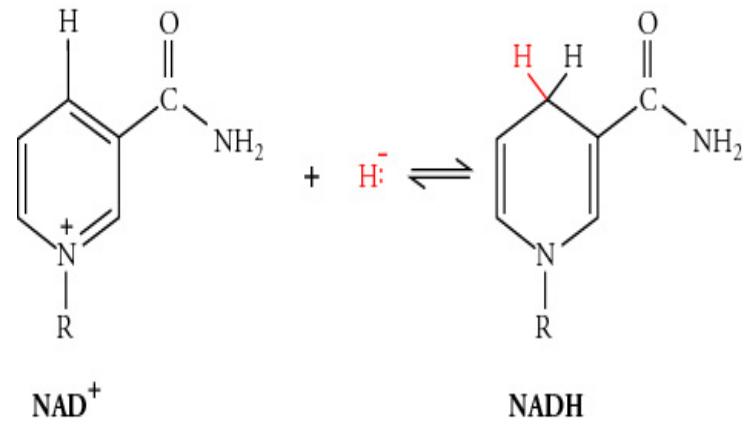


In NADP⁺ this hydroxyl group is esterified with phosphate.

(a)



NADP⁺
Nicotinamide adenin
dinucleotide fosfato
(ossidato)



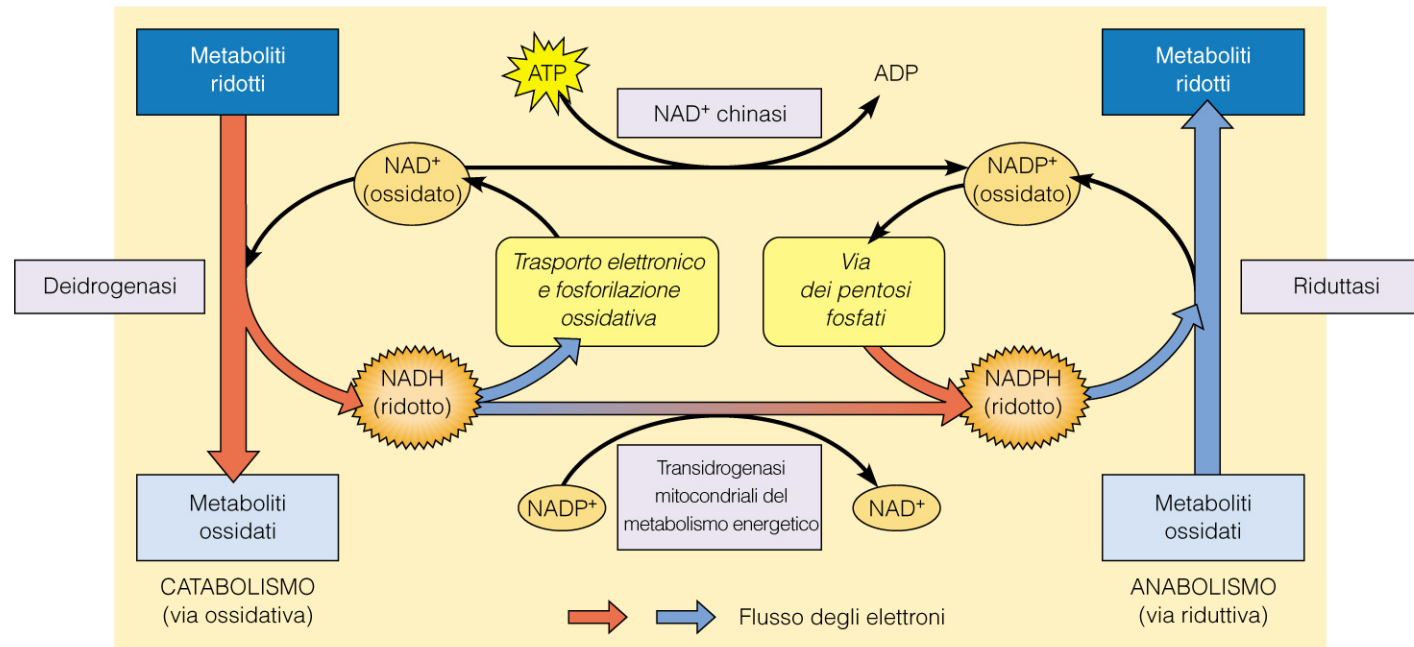
NAD⁺

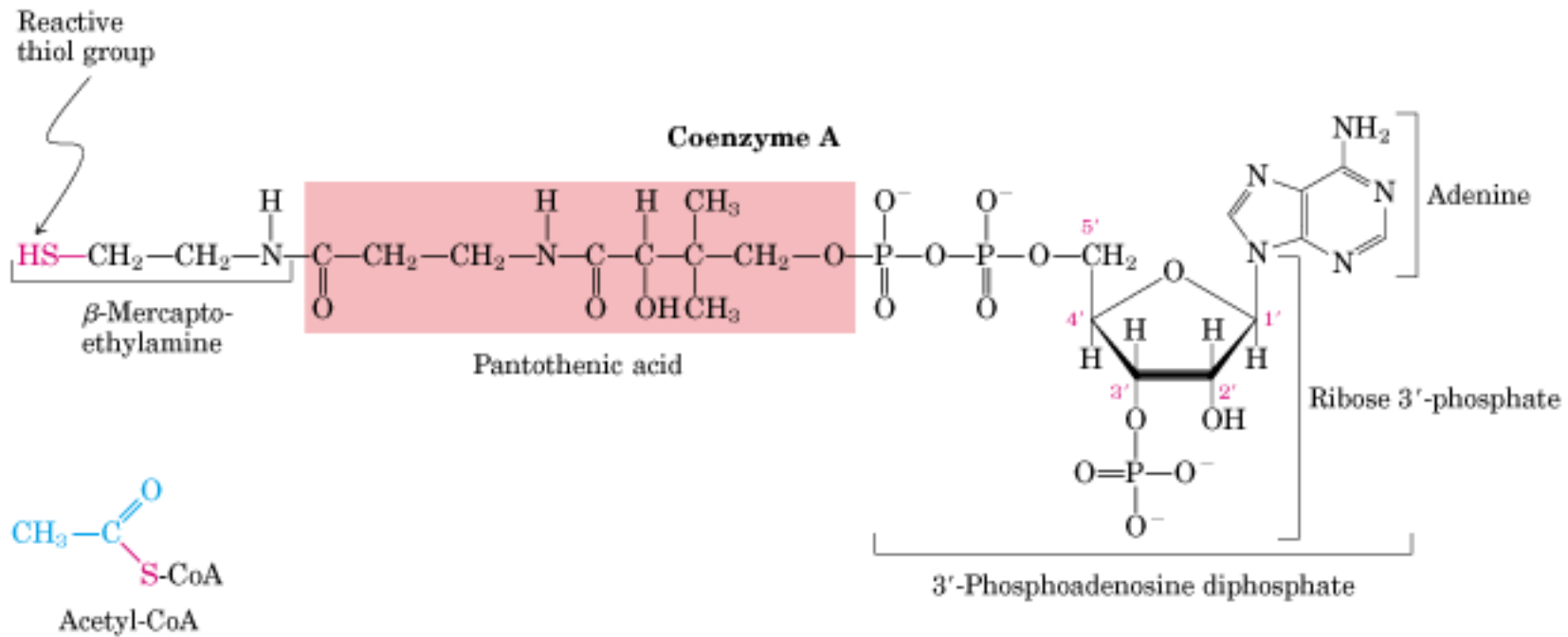
NADH

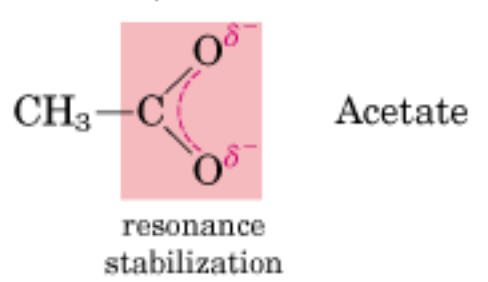
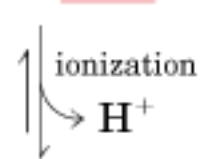
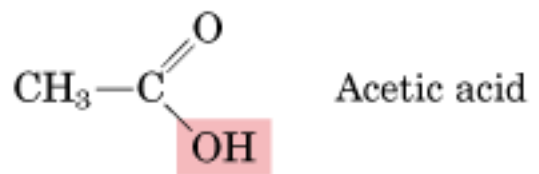
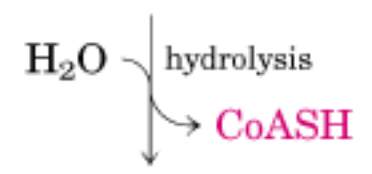
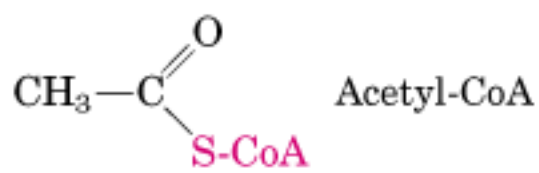
table 14-8

Stereospecificity of Dehydrogenases That Employ NAD⁺ or NADP⁺ as Coenzymes

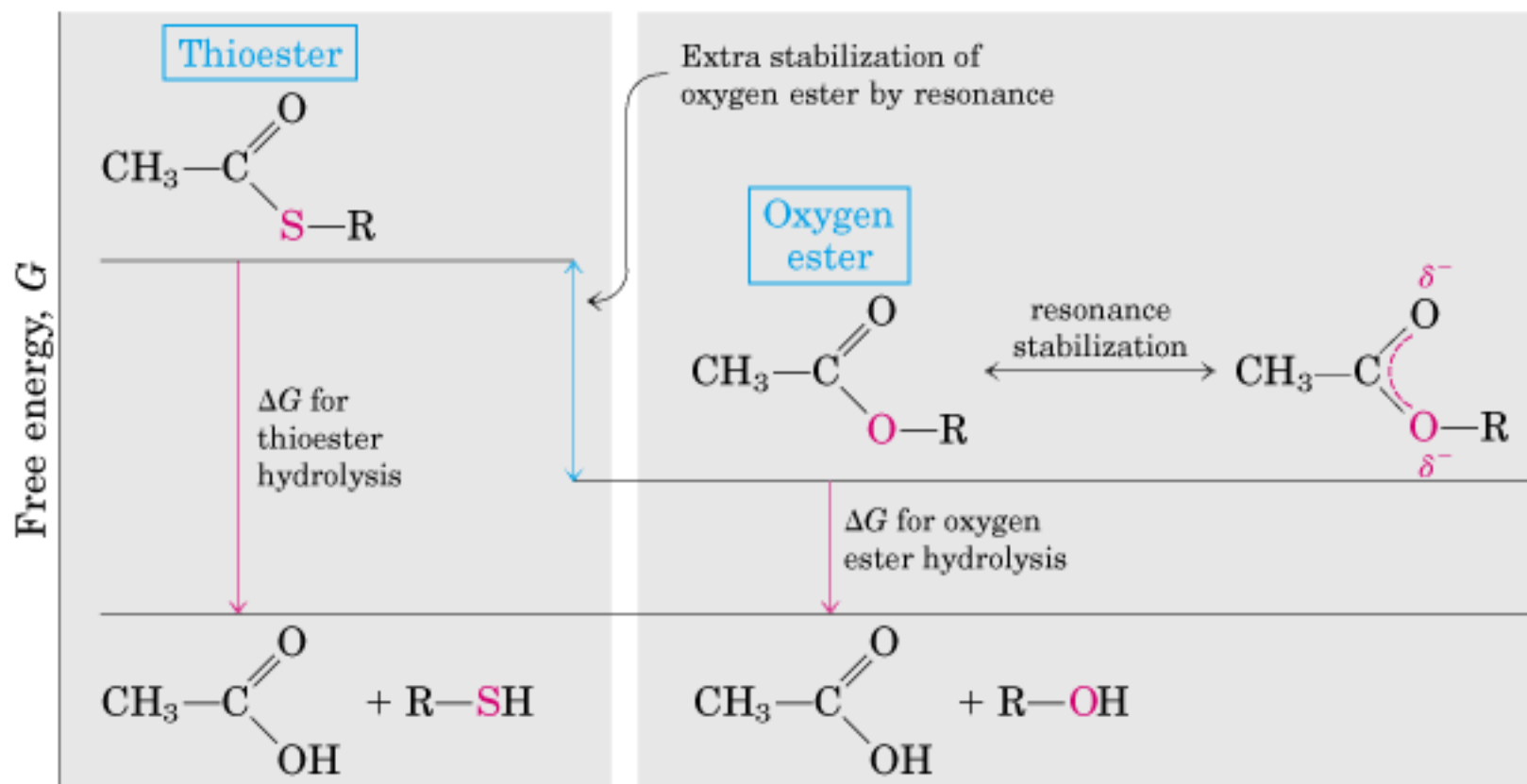
Enzyme	Coenzyme	Stereochemical specificity for nicotinamide ring (A or B)
Isocitrate dehydrogenase	NAD ⁺	A
α -Ketoglutarate dehydrogenase	NAD ⁺	B
Glucose 6-phosphate dehydrogenase	NADP ⁺	B
Malate dehydrogenase	NAD ⁺	A
Glutamate dehydrogenase	NAD ⁺ or NADP ⁺	B
Glyceraldehyde 3-phosphate dehydrogenase	NAD ⁺	B
Lactate dehydrogenase	NAD ⁺	A
Alcohol dehydrogenase	NAD ⁺	A

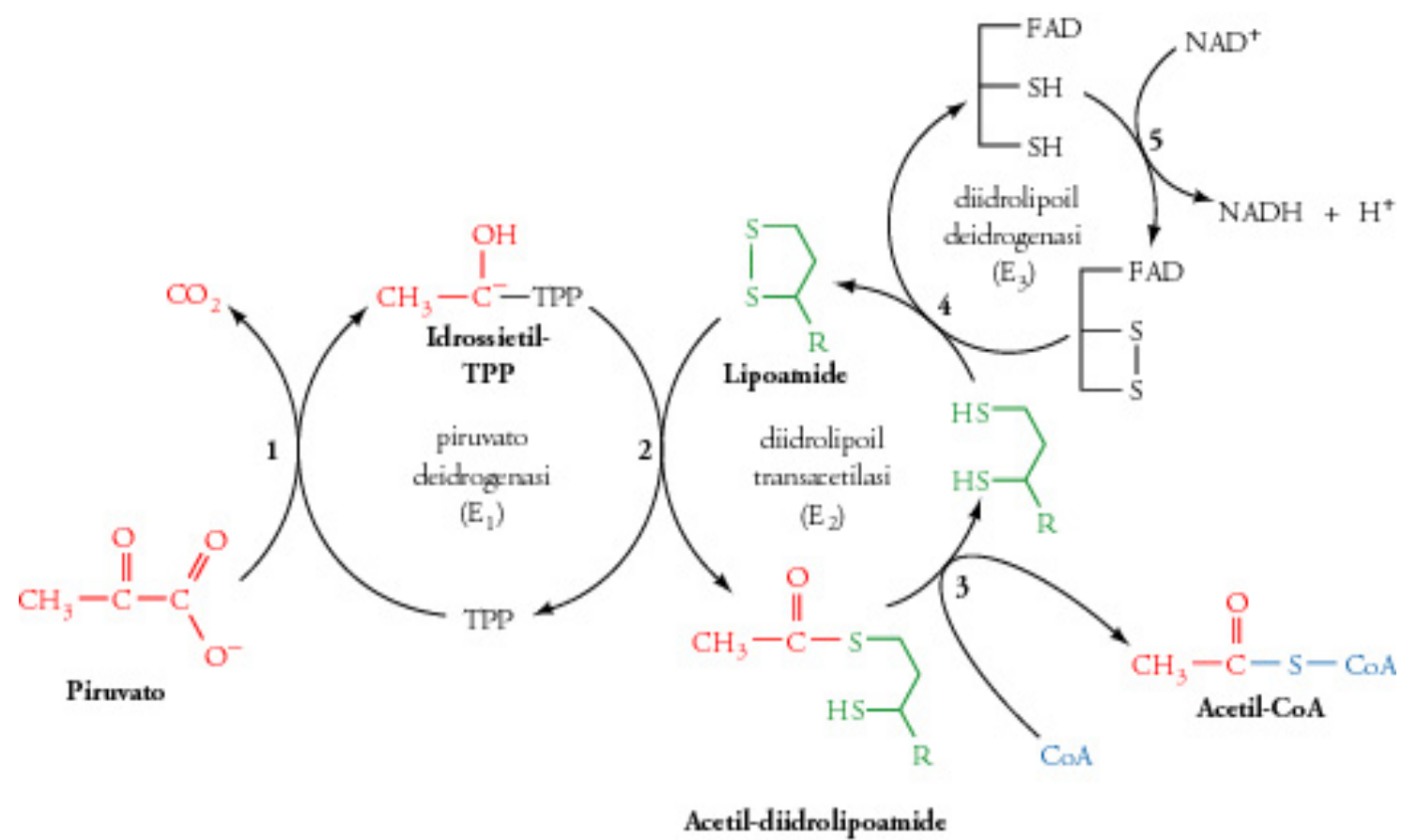


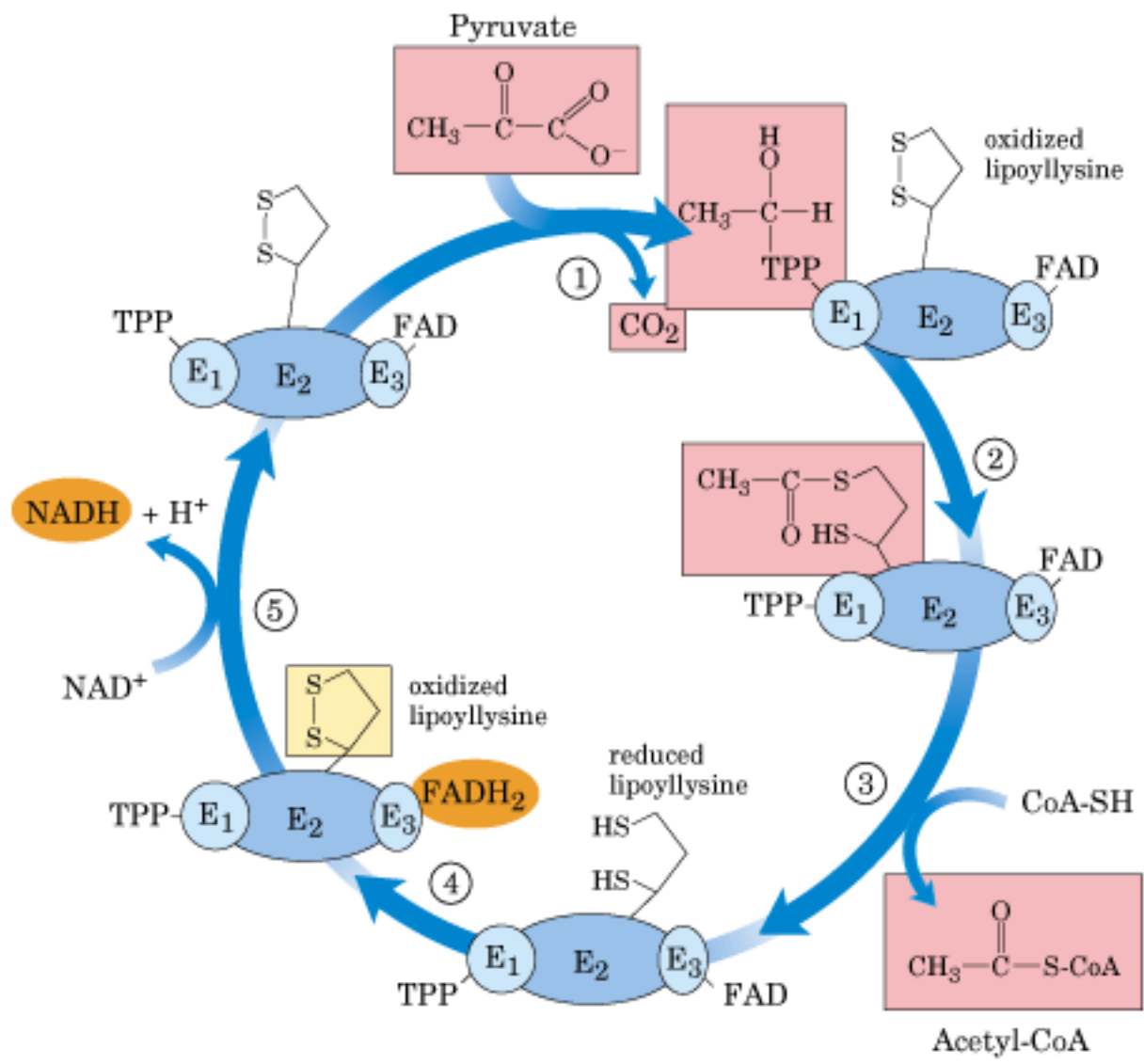


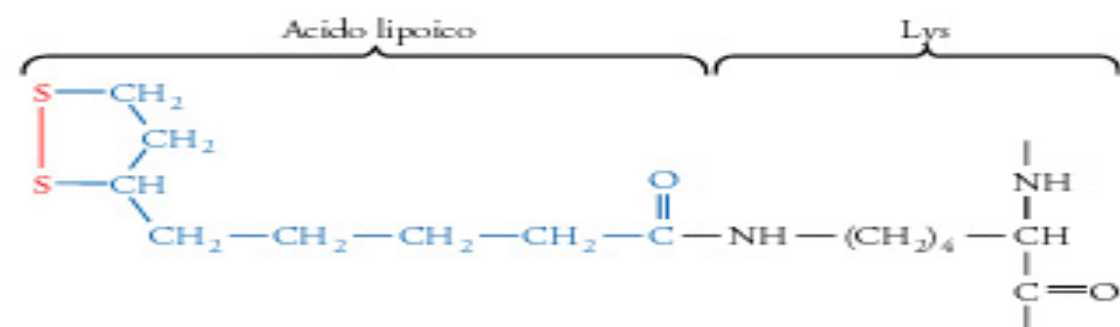


$\text{Acetyl-CoA} + \text{H}_2\text{O} \longrightarrow \text{acetate}^- + \text{CoA} + \text{H}^+$
 $\Delta G'^{\circ} = -32.2 \text{ kJ/mol}$

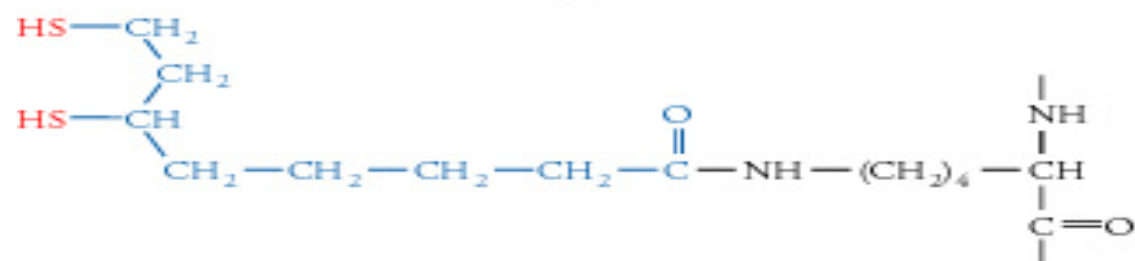
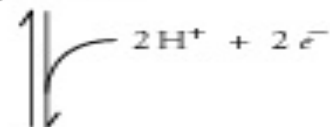




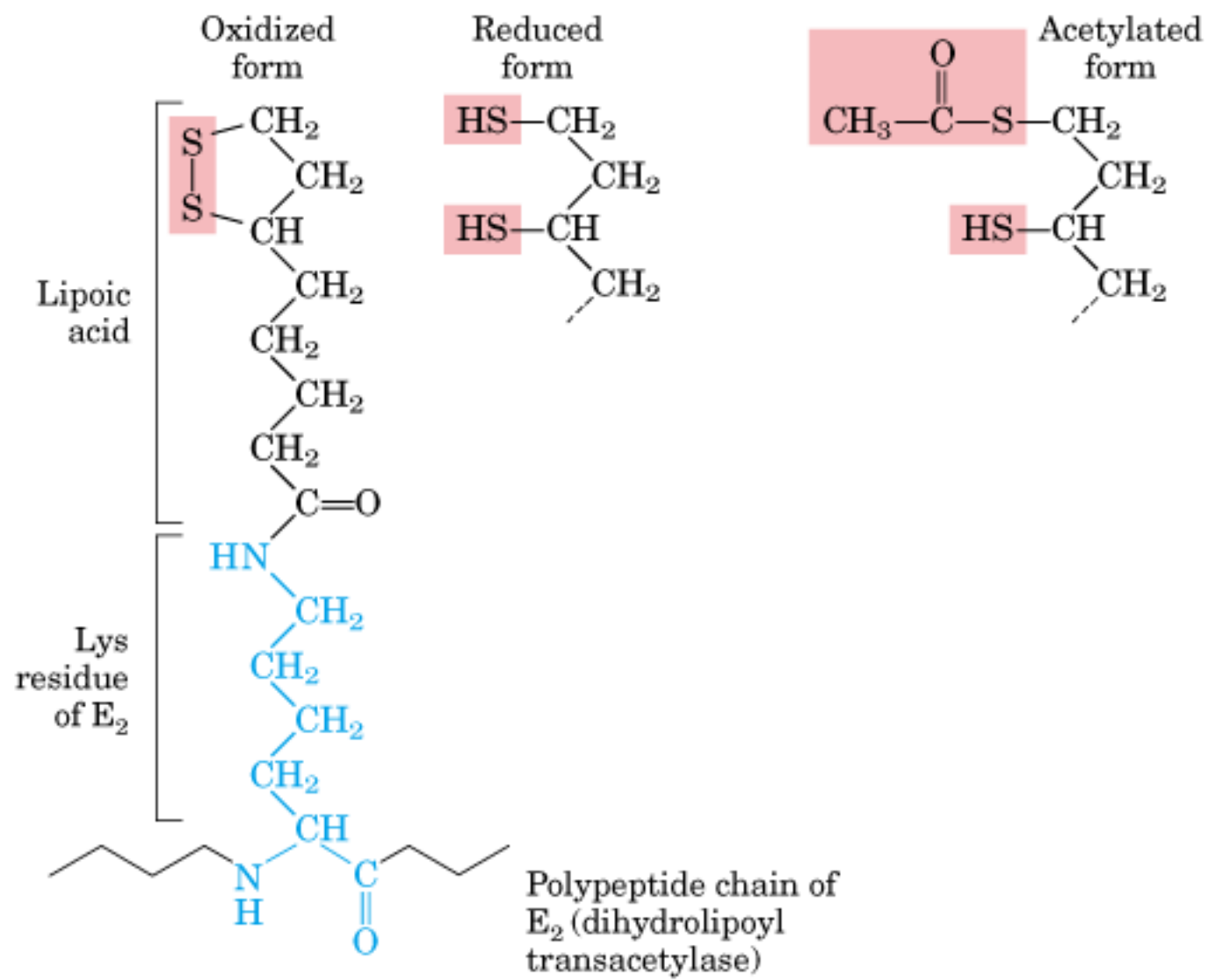


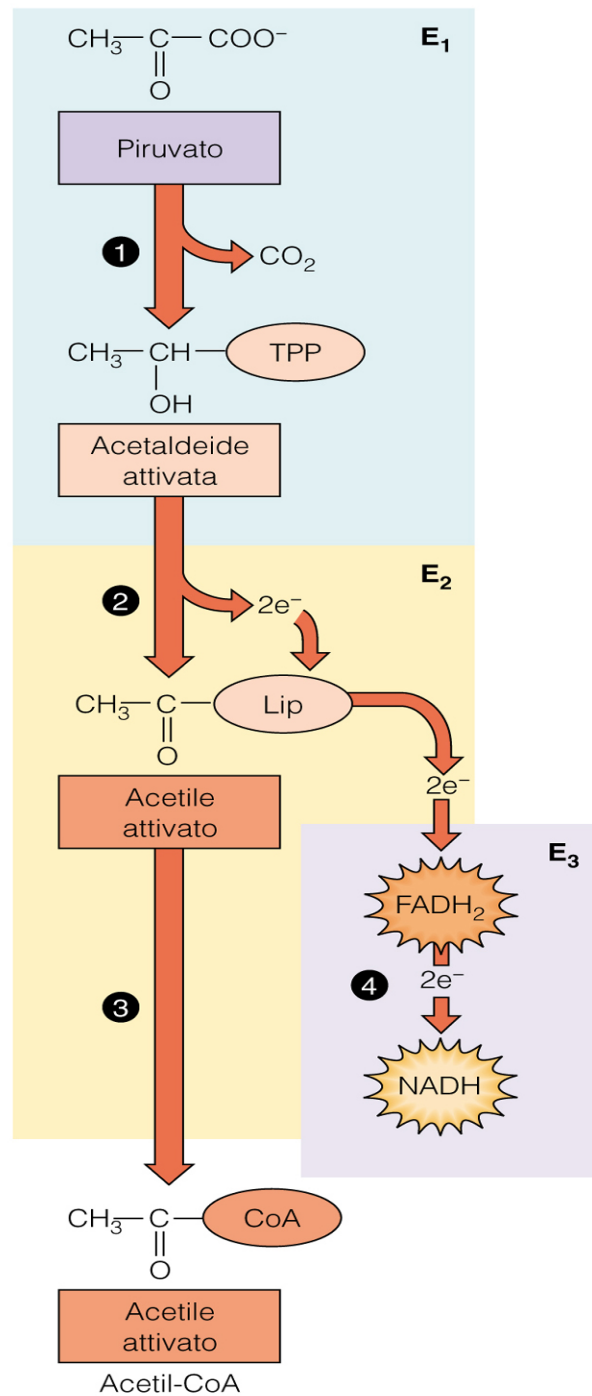


Lipoamide








Diidrolipoamide





Identificazione dei coenzimi:

-  TPP Tiamina pirofosfato
-  Lip Acido lipoico
-  FADH_2 Forma ridotta del FAD, flavin adenina dinucleotide
-  NADH Forma ridotta del NAD^+ , nicotinammide adenina dinucleotide
-  CoA Coenzima A