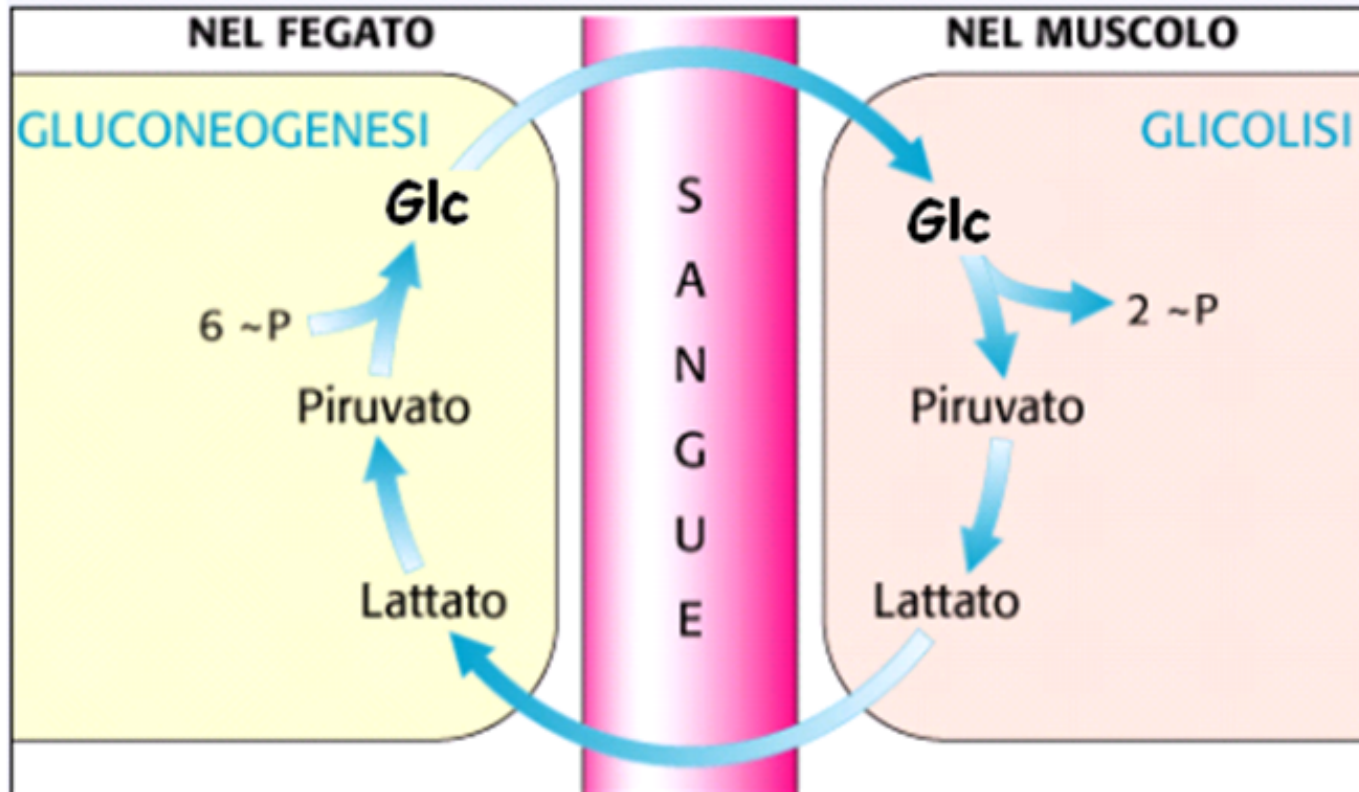
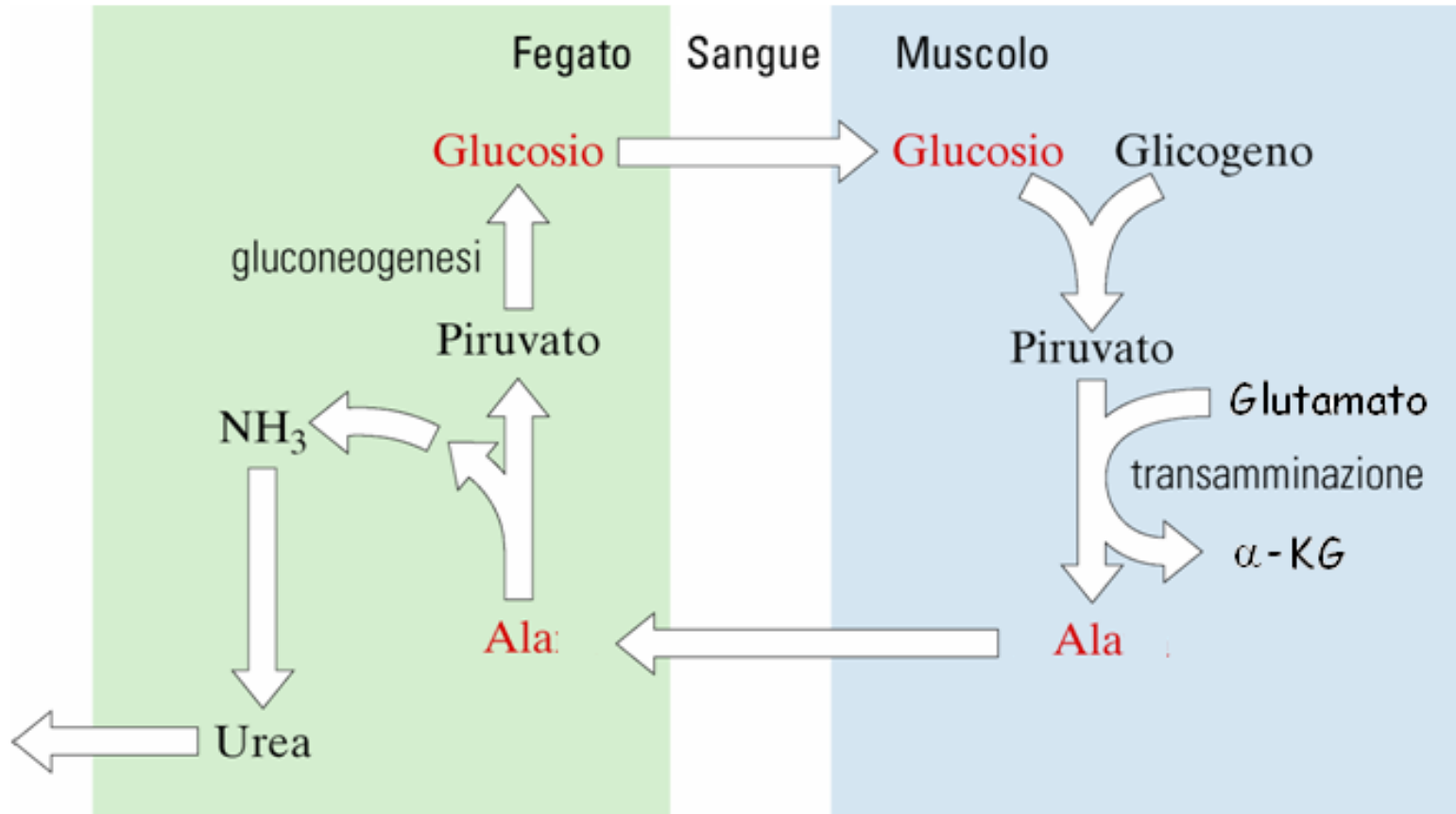
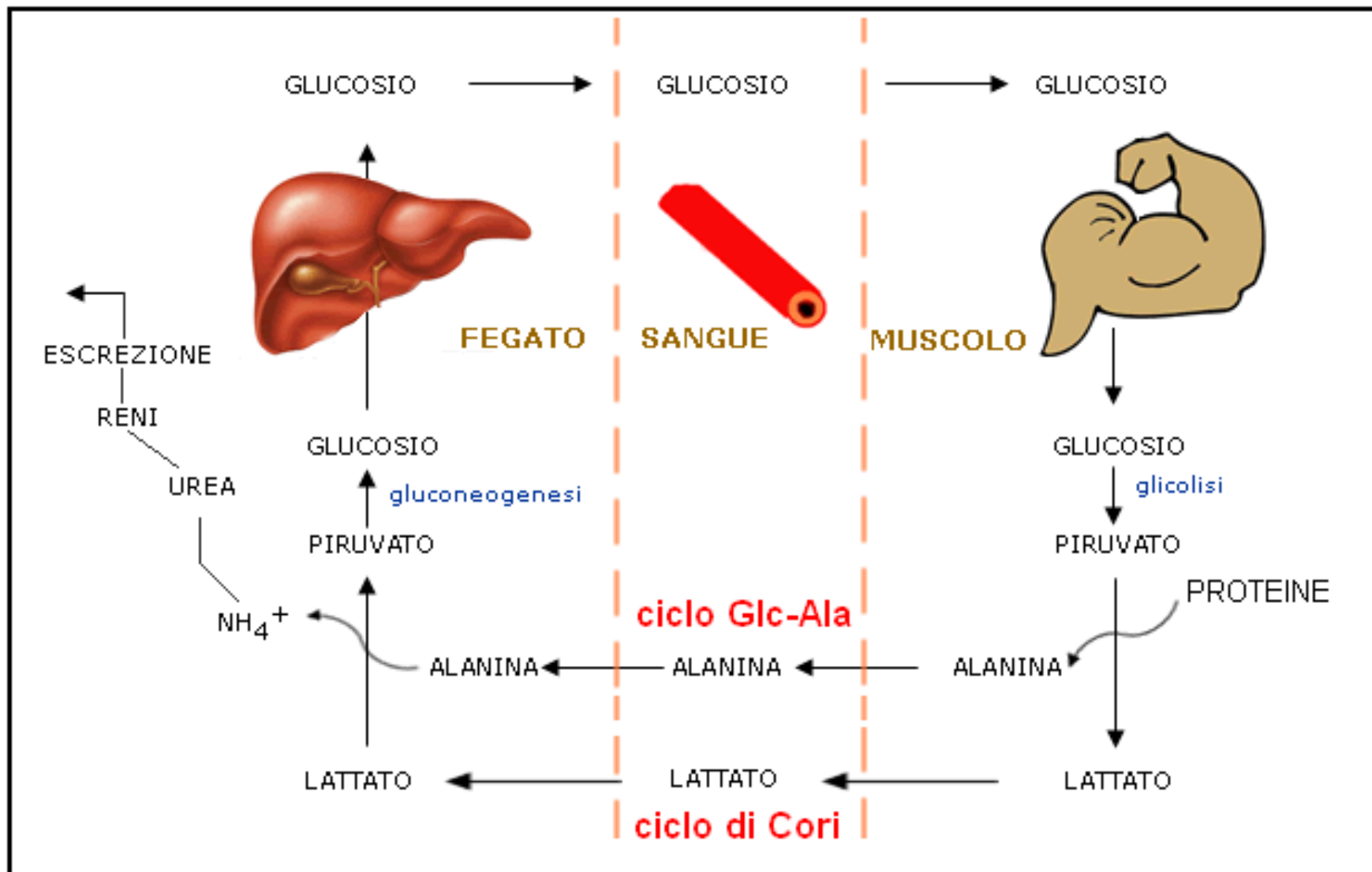


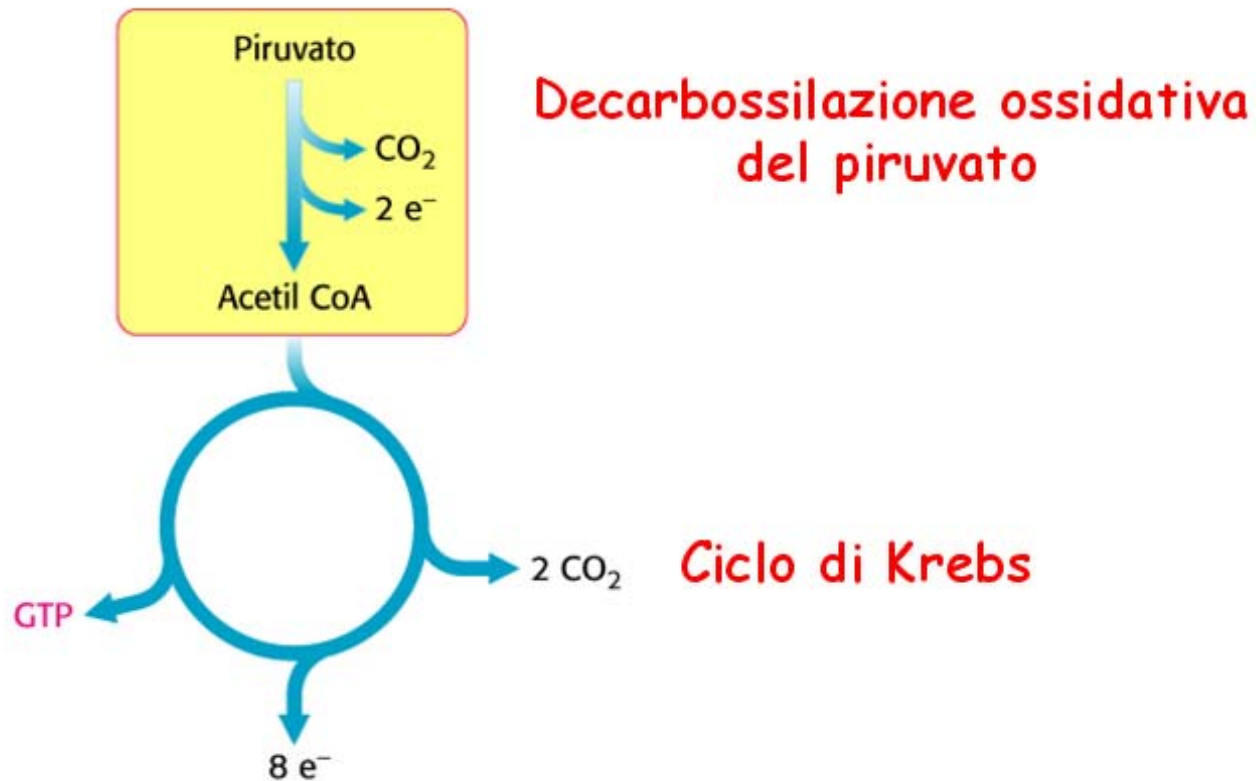
ciclo di Cori



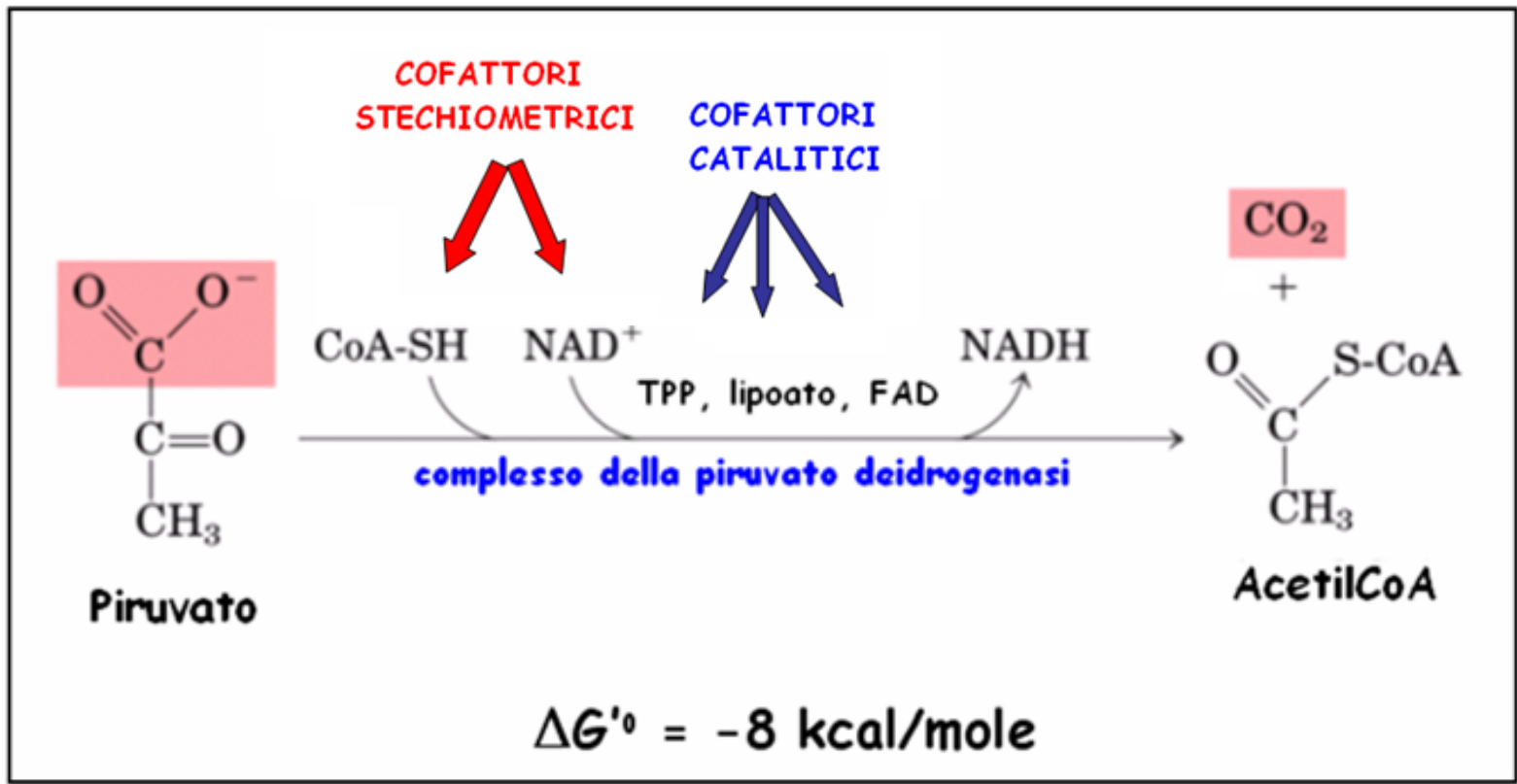
CICLO Glc-Ala



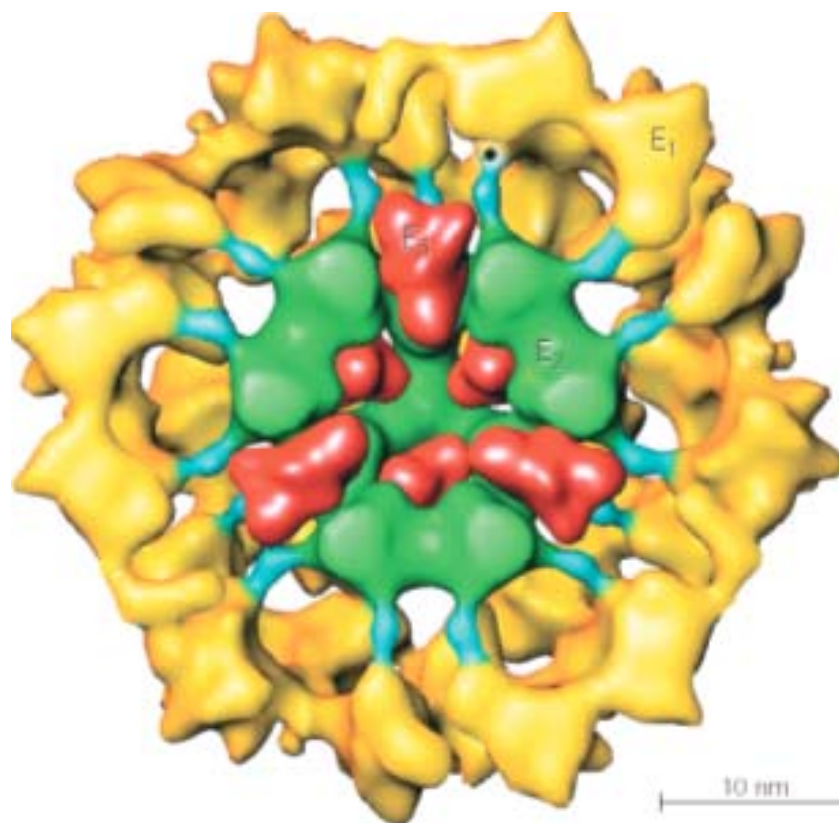


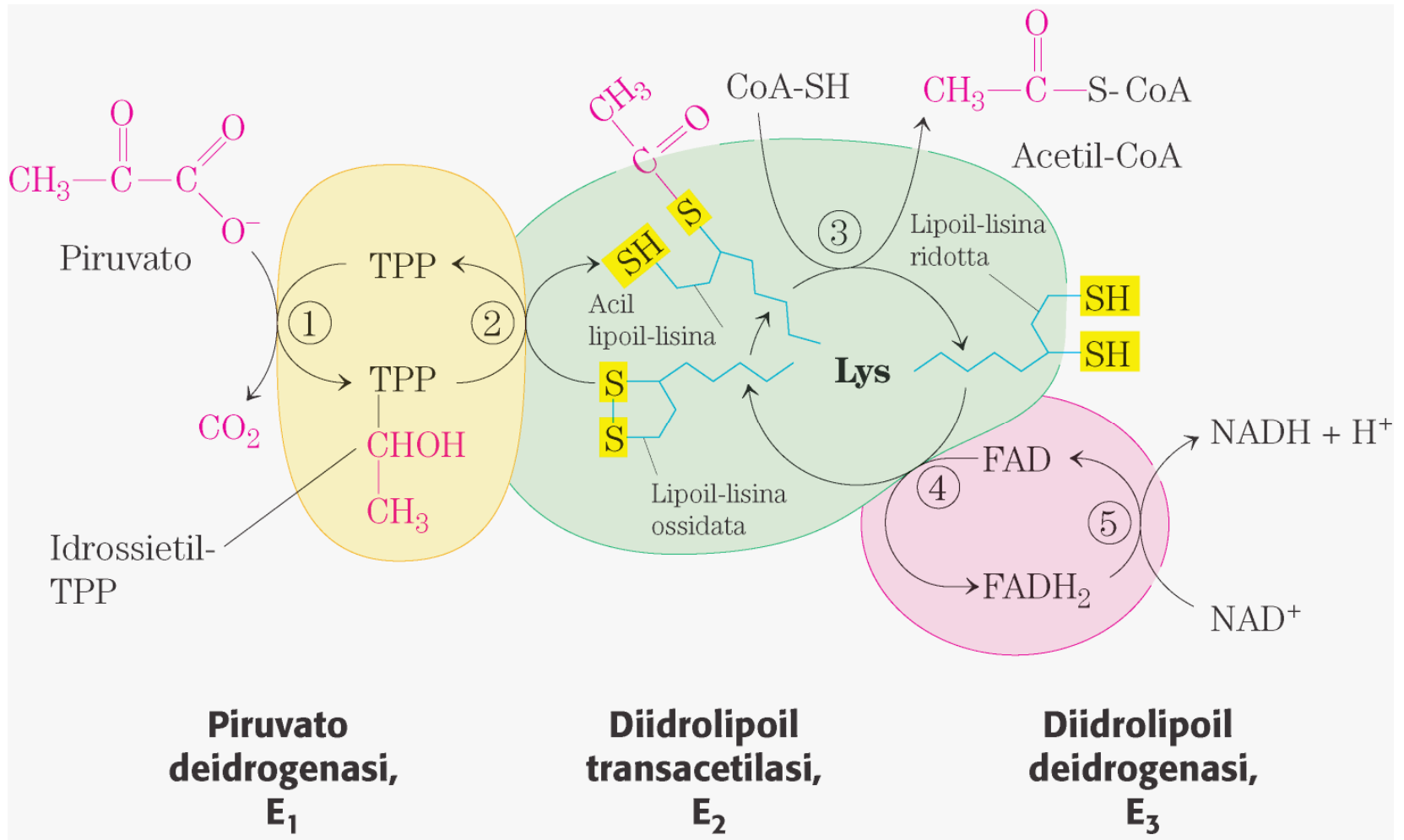


Avvengono entrambi nella matrice mitocondriale

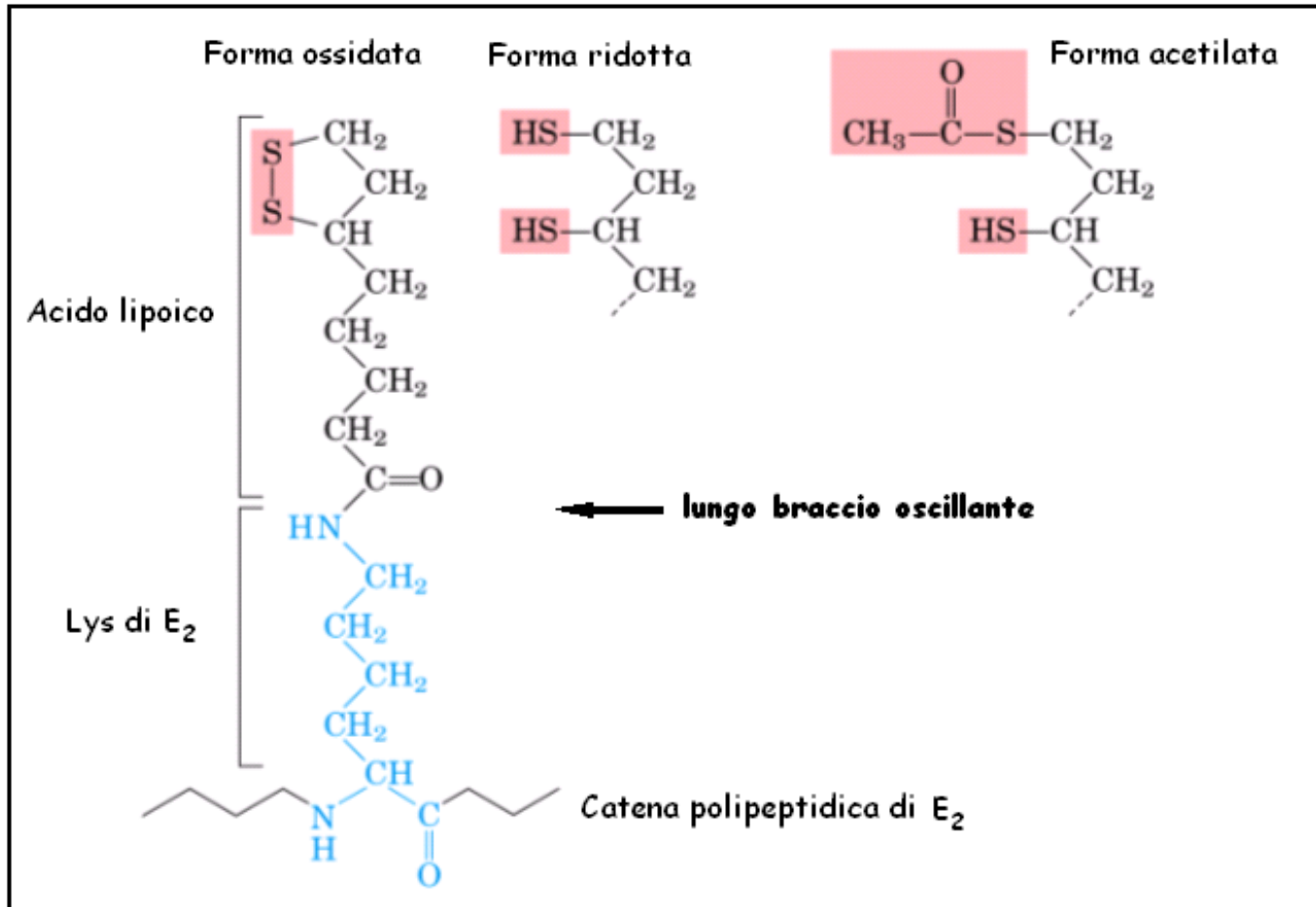


COMPLESSO DELLA PIRUVATO DEIDROGENASI

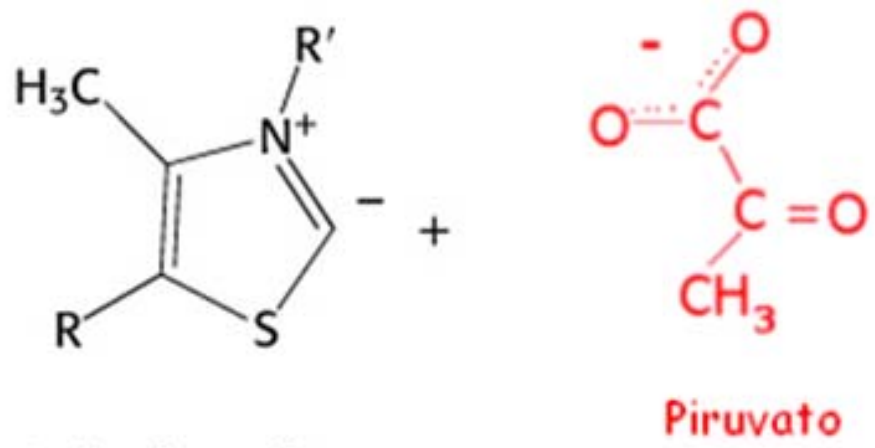




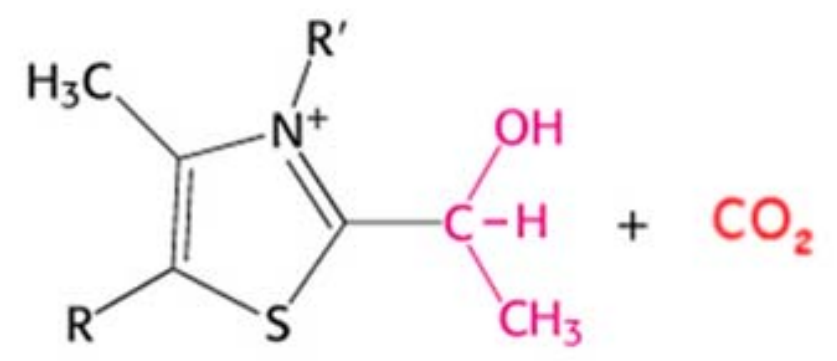
Il complesso contiene anche due **proteine regolatorie**



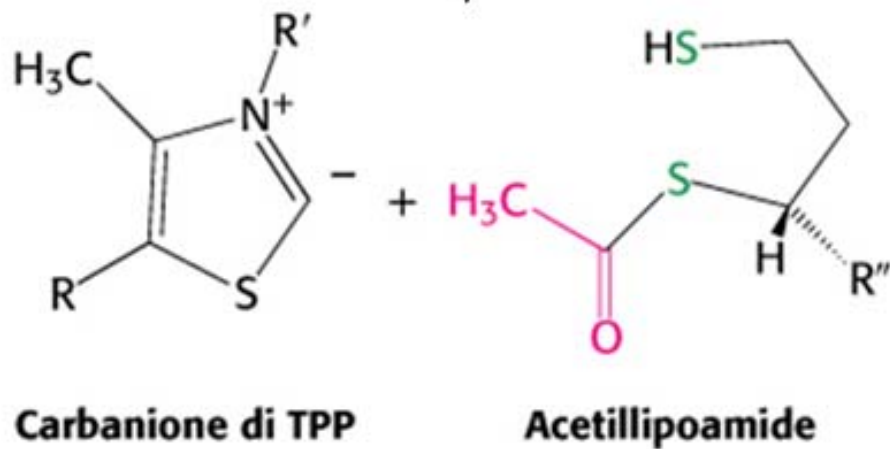
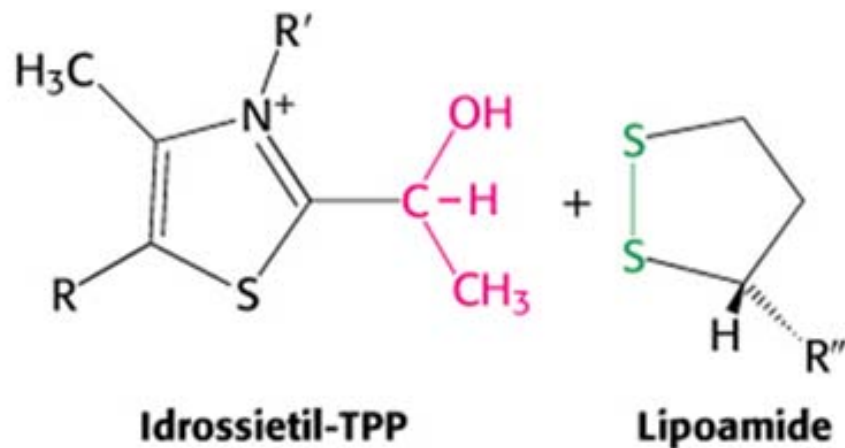
E2 costituisce il **nucleo** del complesso enzimatico

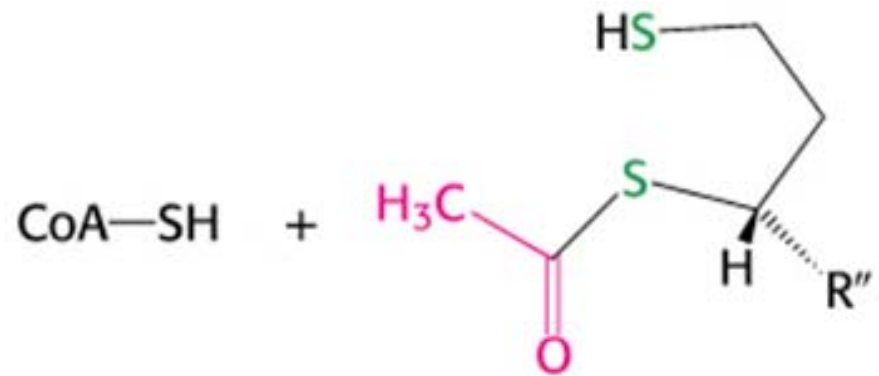


Carbanione di TPP



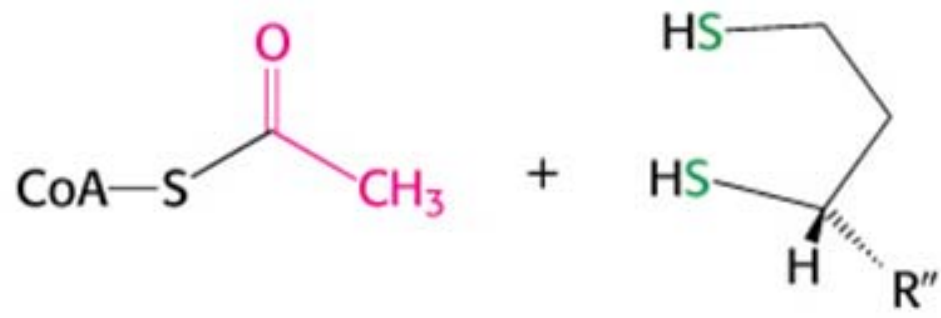
Idrossietil-TPP





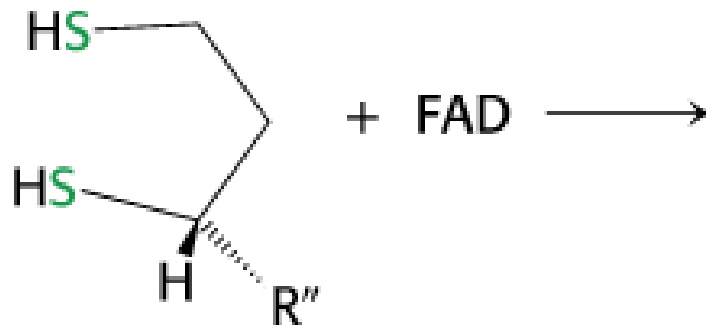
Coenzima A

Acetillipoamide

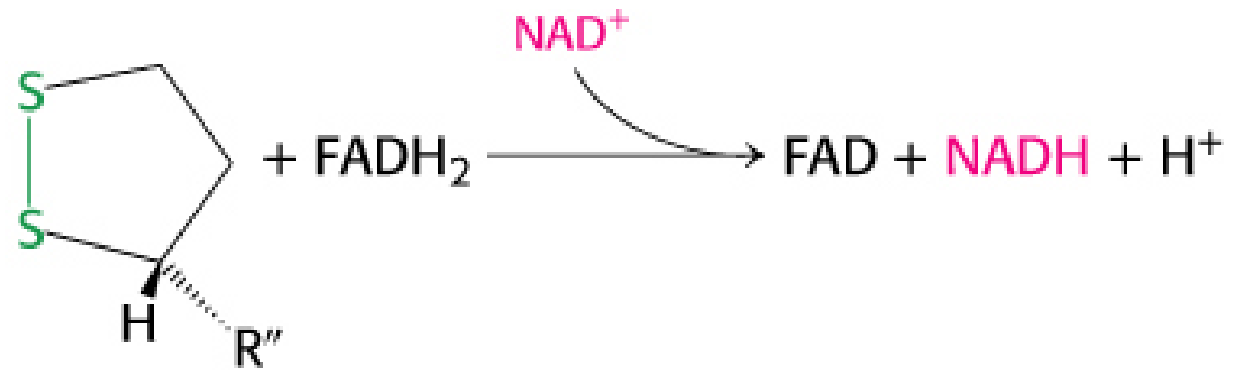


Acetil CoA

Diidrolipoamide



Dihidrolipoamide

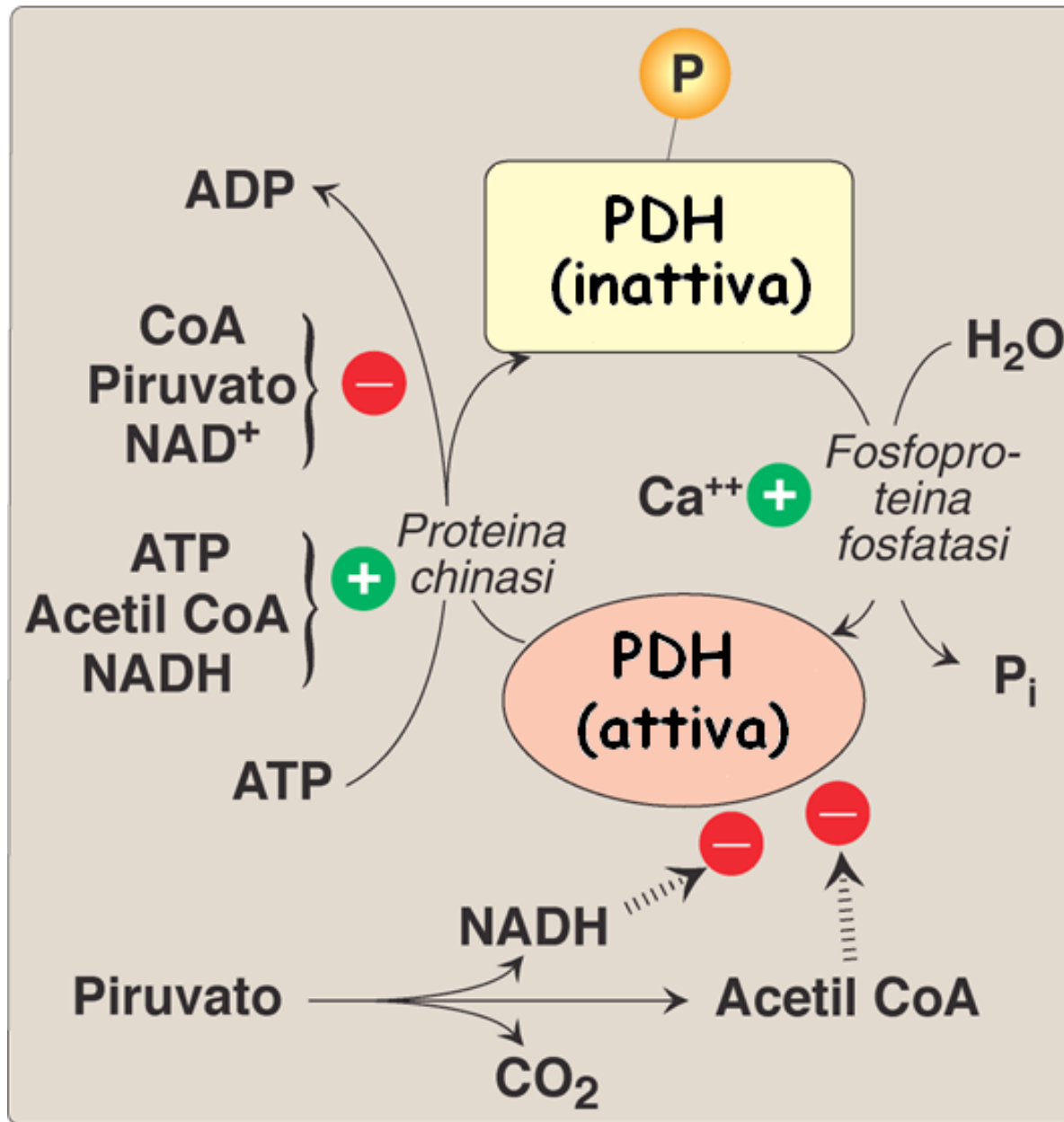


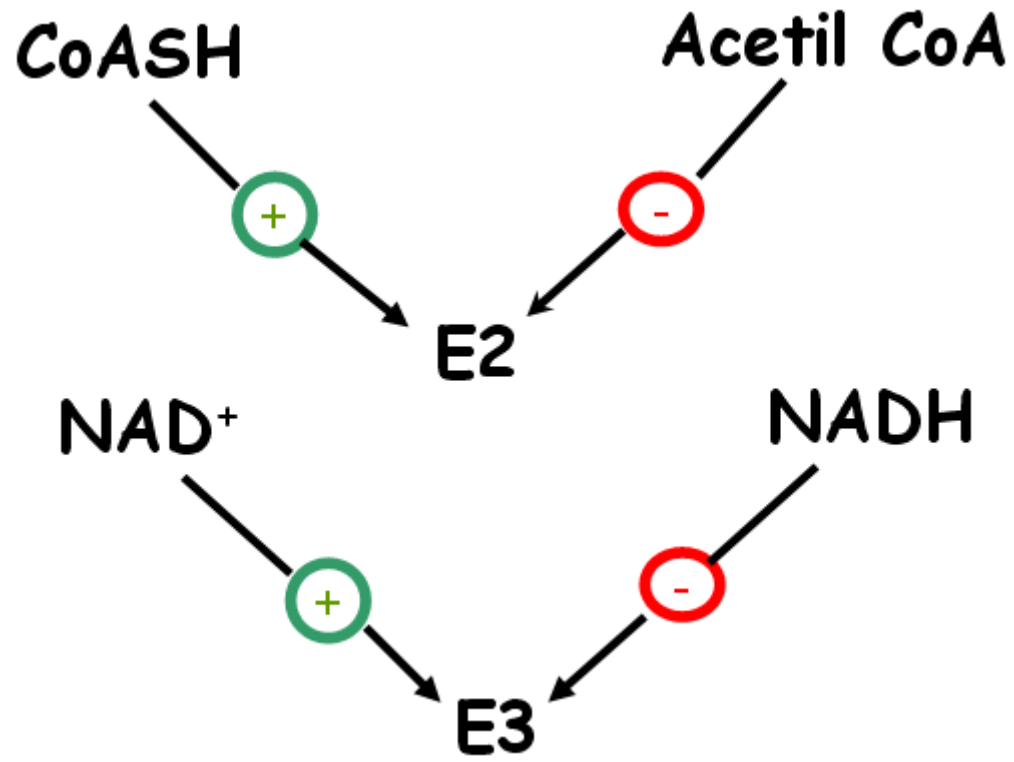
Lipoamide

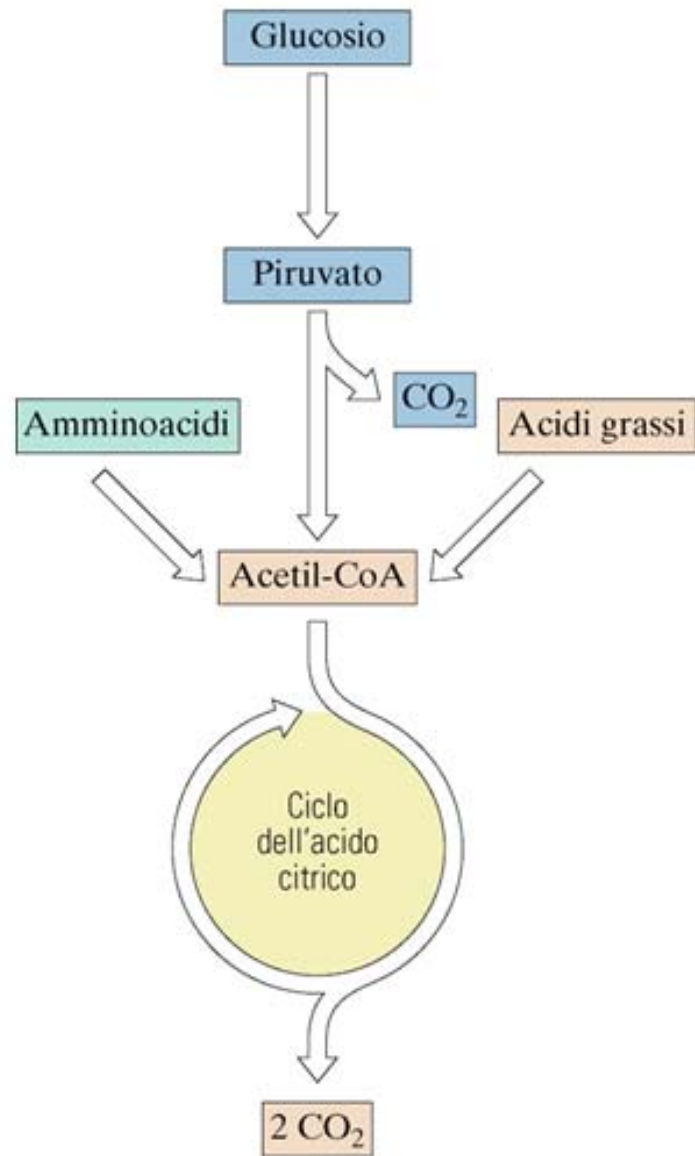
Il complesso contiene anche
due **proteine regolatorie**
che, agendo su E1, regolano
l'intero complesso

L'attività del complesso è regolata mediante

- regolazione covalente-allosterica di **E1**
- regolazione allosterica di **E2** ed **E3**







L'azione combinata
del ciclo di Krebs e della
fosforilazione ossidativa fornisce oltre
il **95%** dell'**ATP**
prodotto nel metabolismo

RUOLO ANFIBOLICO DEL CICLO DI KREBS

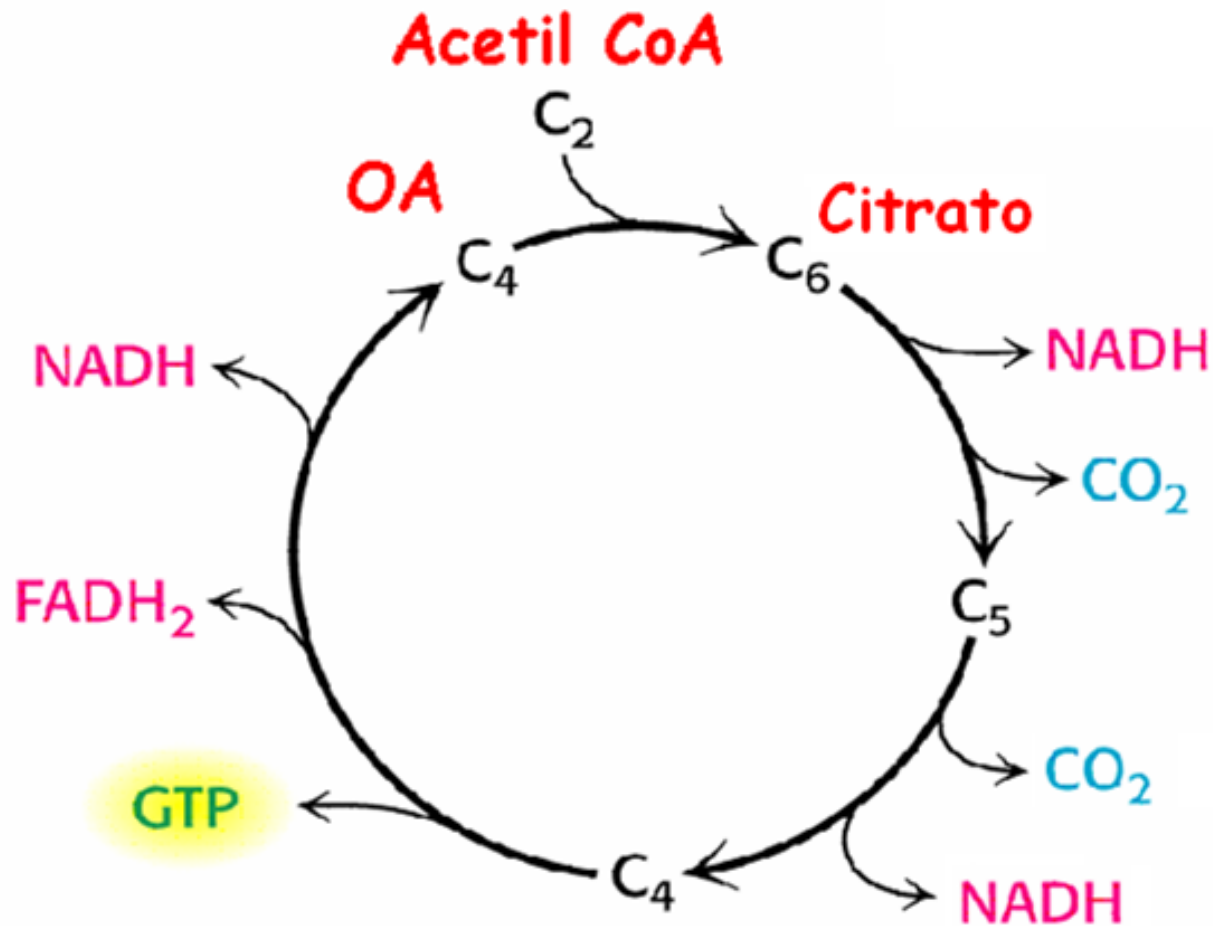
Catabolico

- ossidazione di acetil CoA
- biosintesi di ATP

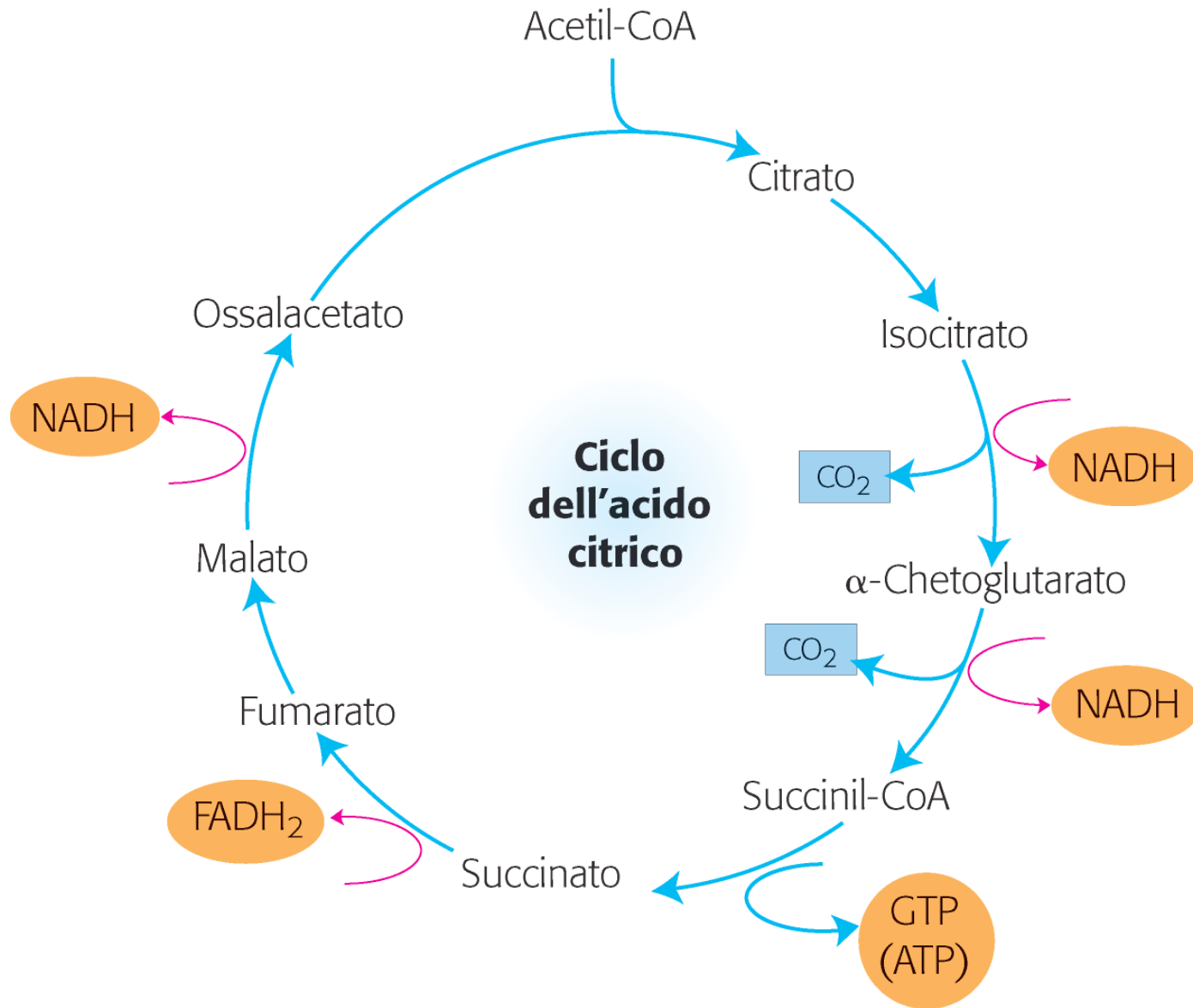
Anabolico

- produzione di intermedi metabolici utilizzati in diverse vie biosintetiche

- una **bassa [ATP]** esalta la **funzione catabolica**
- un'**alta [ATP]** spinge la **funzione anabolica**



Nel ciclo non vi è **né produzione né consumo netti** di qualunque dei suoi metaboliti





$$\Delta G'^0 = -7.7 \text{ kcal/mole}$$

L'OA si lega per **primo**: ne deriva
un **riarrangiamento strutturale**
nella citrato sintasi che crea il sito di
legame per l'**acetil CoA**

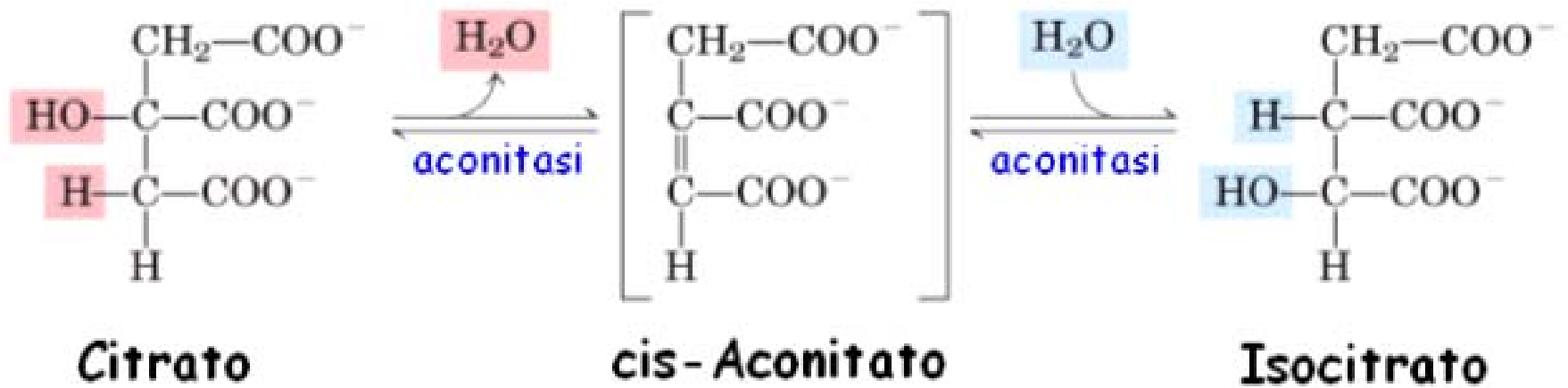
citrato  **isocitrato**

citrato

gruppo alcolico terziario

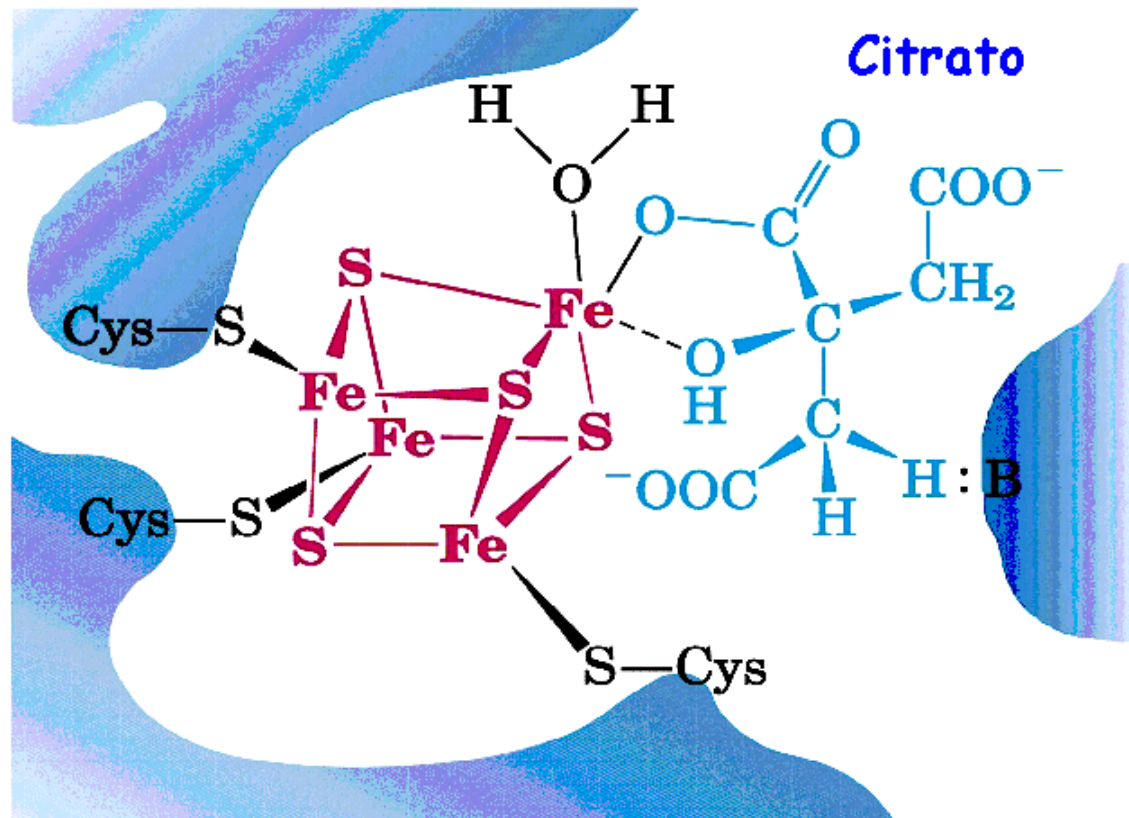
isocitrato

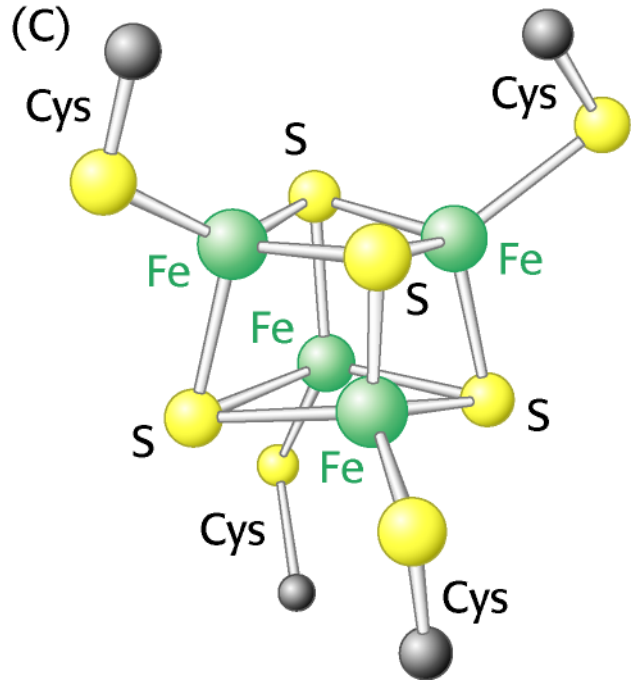
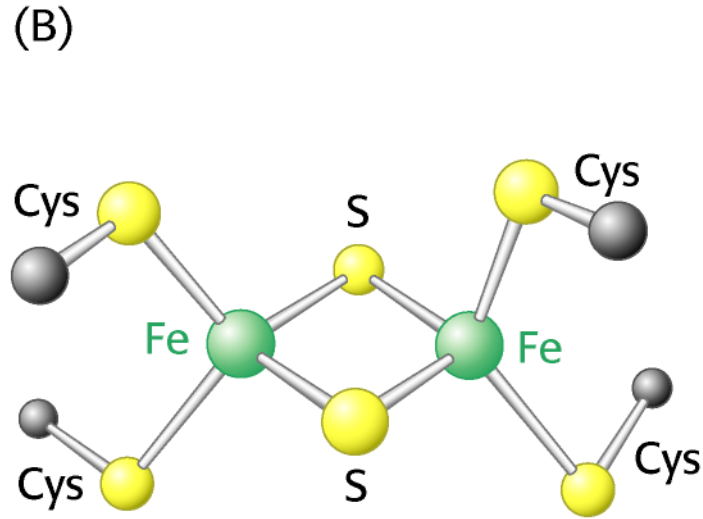
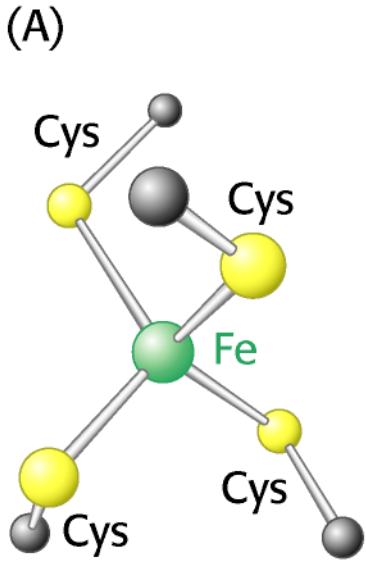
gruppo alcolico secondario

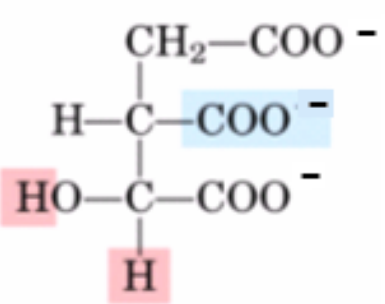


L'**aconitasi** appartiene al gruppo
delle **proteine Fe-S**

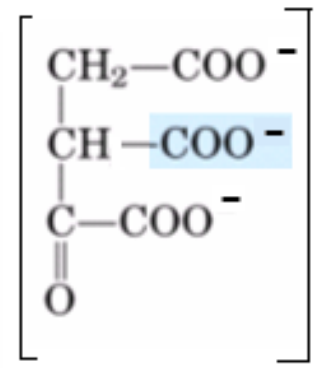
dette anche **ferroproteine non eminiche**



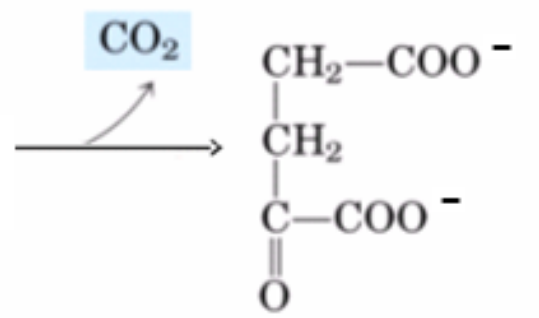




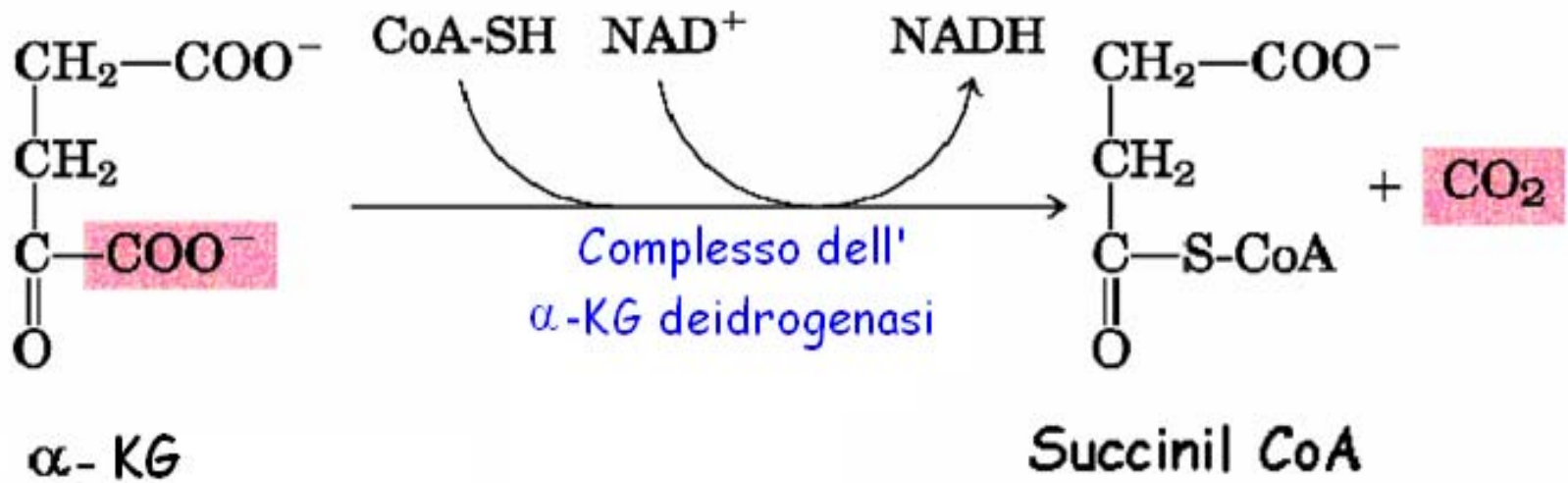
Isocitrato



Ossalsuccinato

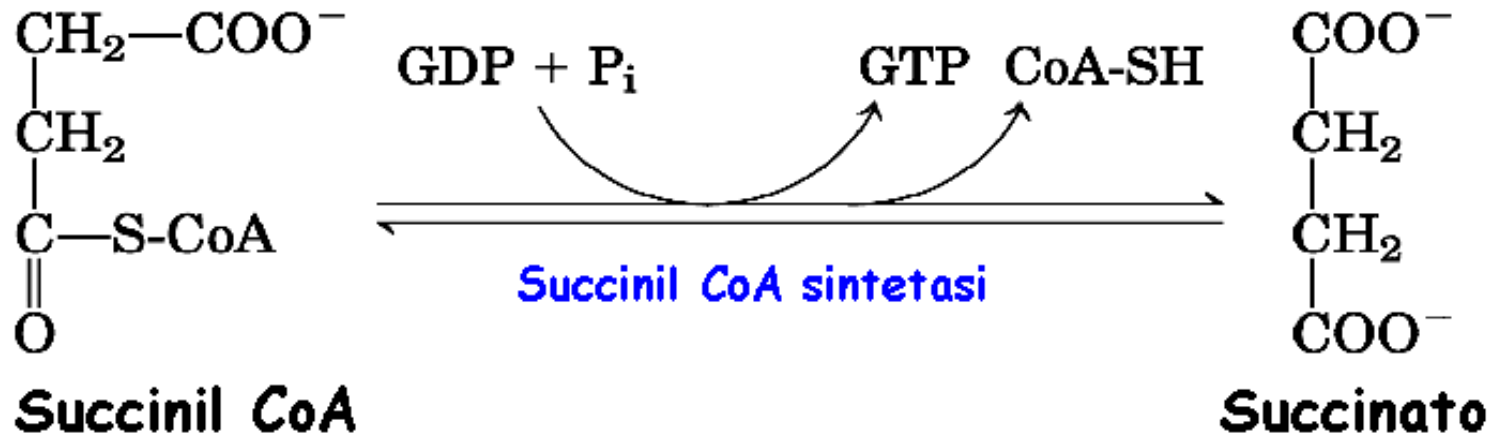


α -Chetoglutarato

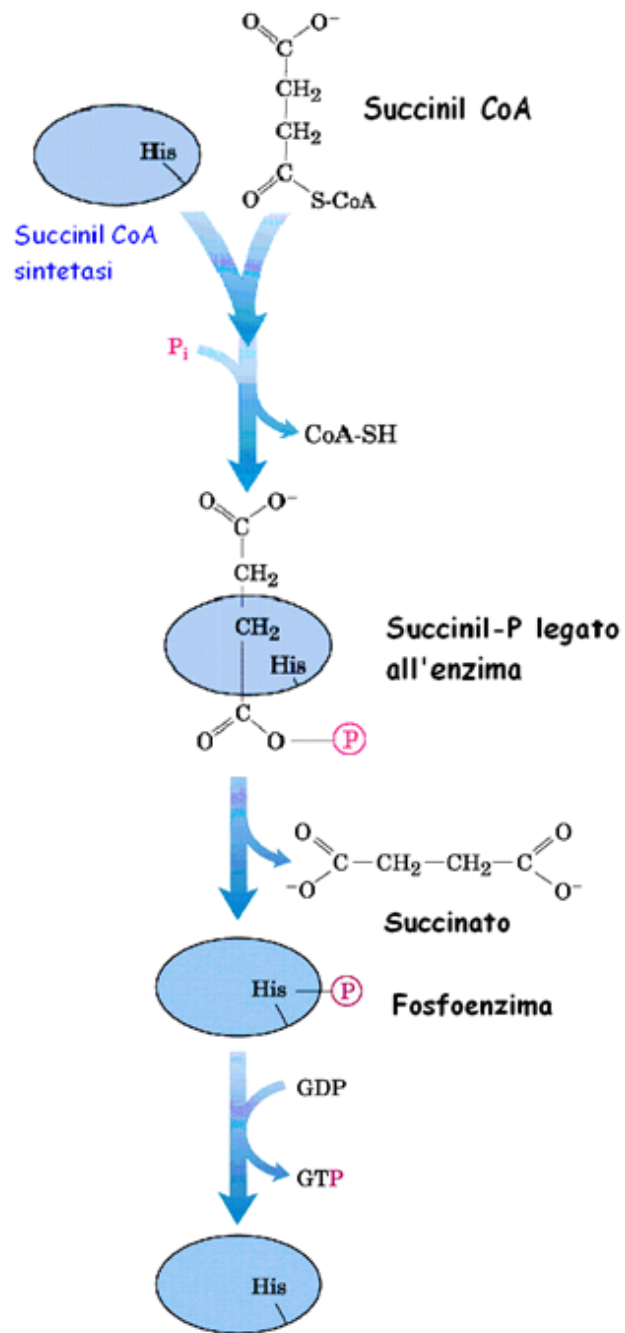


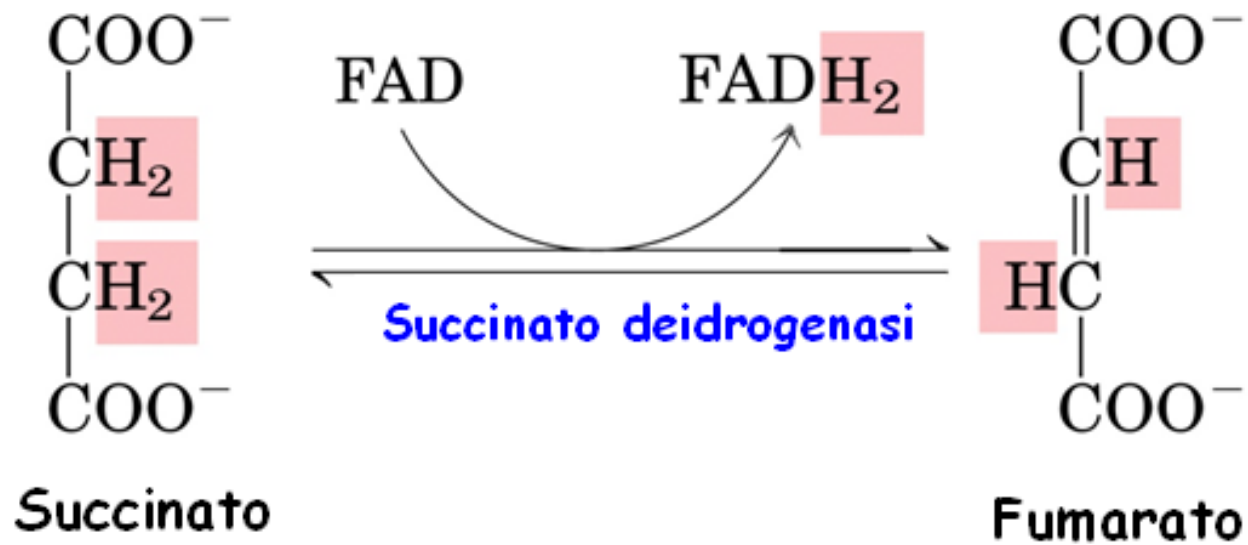
COMPLESSO DELL' α -KGDH

- simile a quello della PDH
- presenta solo una regolazione allosterica

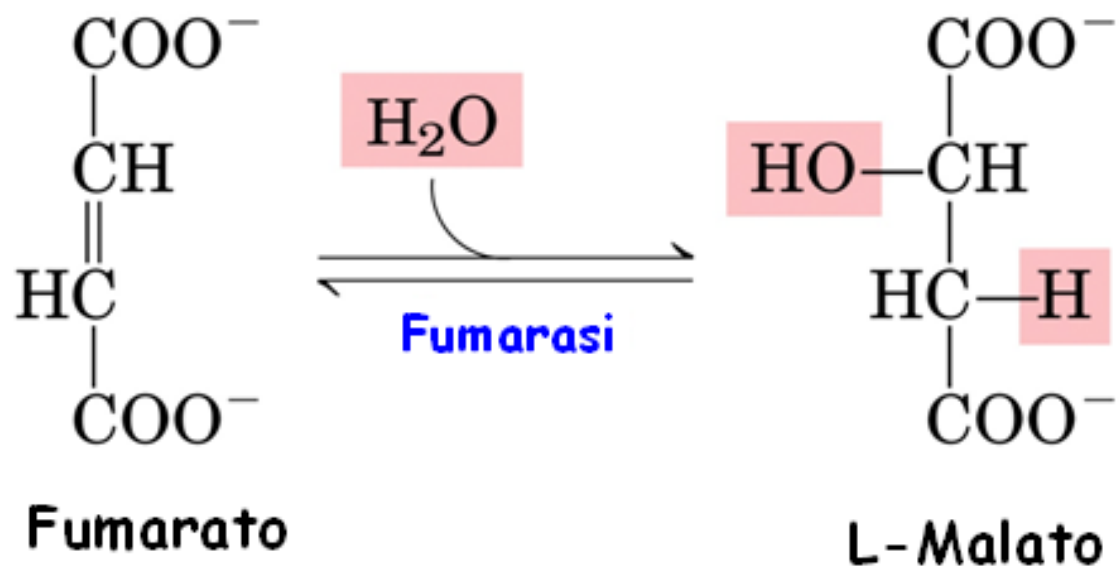


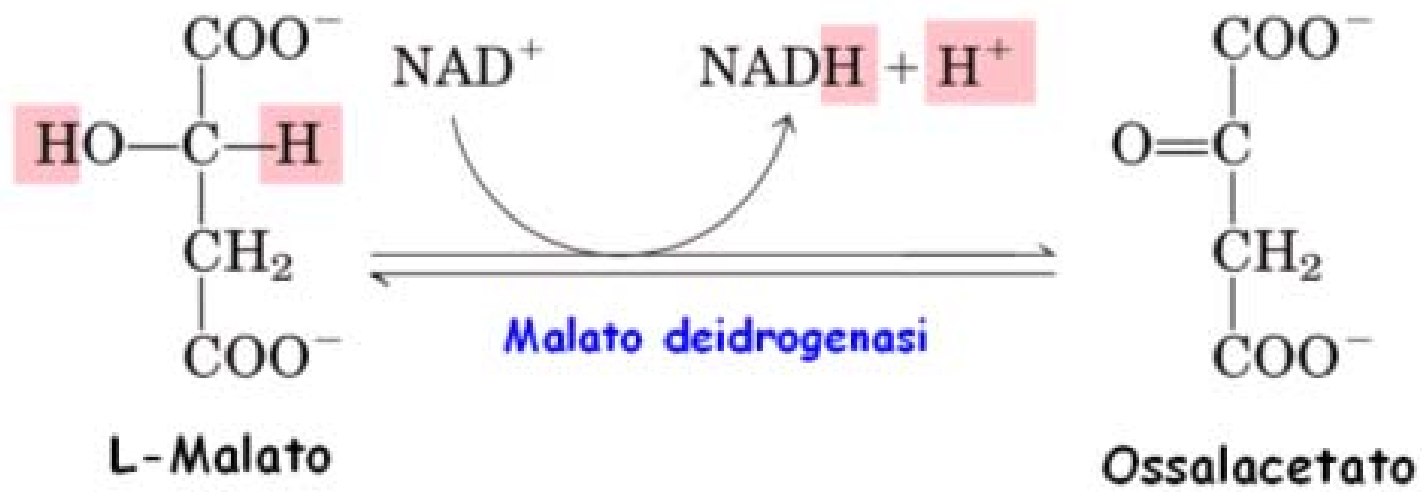
TAPPA DI FOSFORILAZIONE A LIVELLO DEL SUBSTRATO



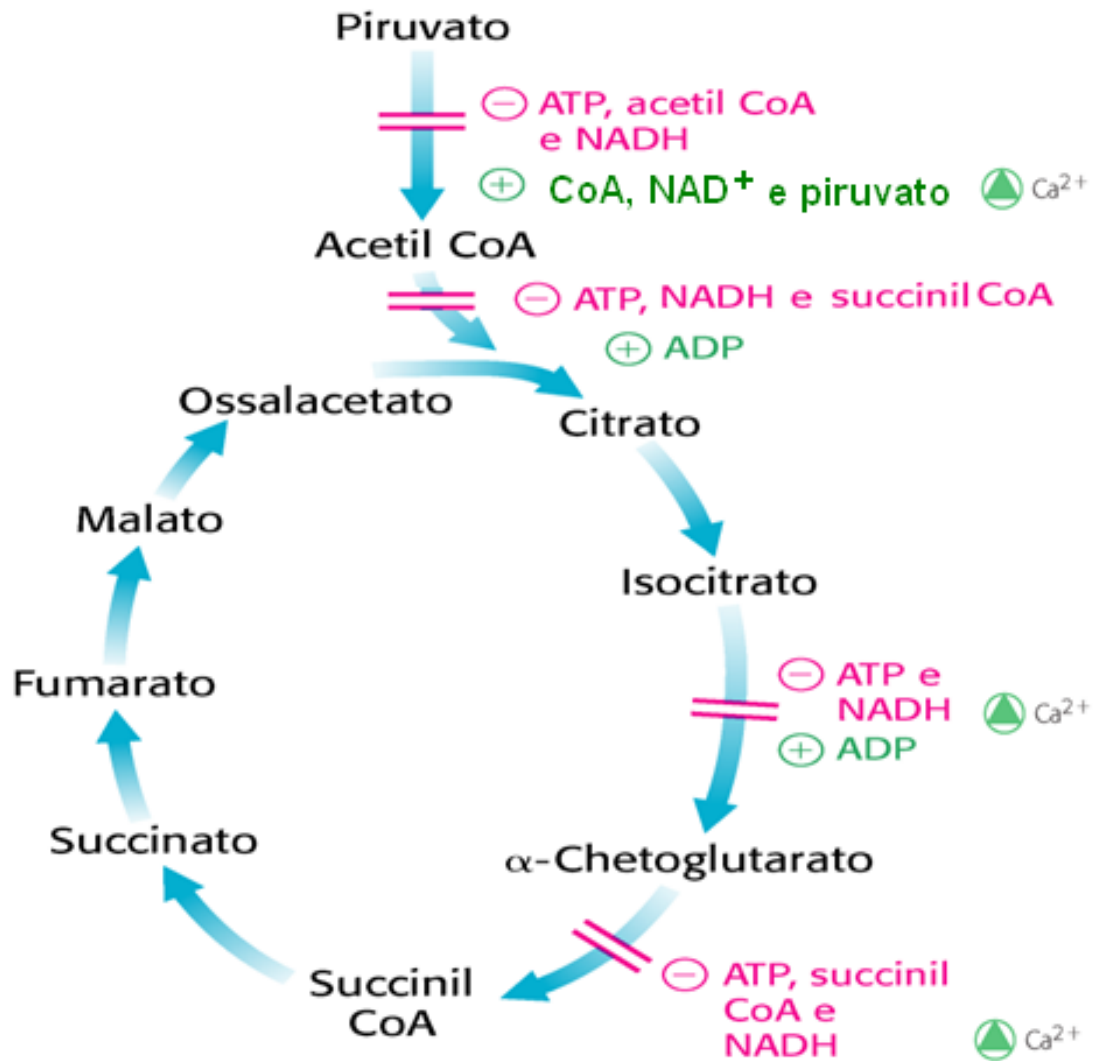


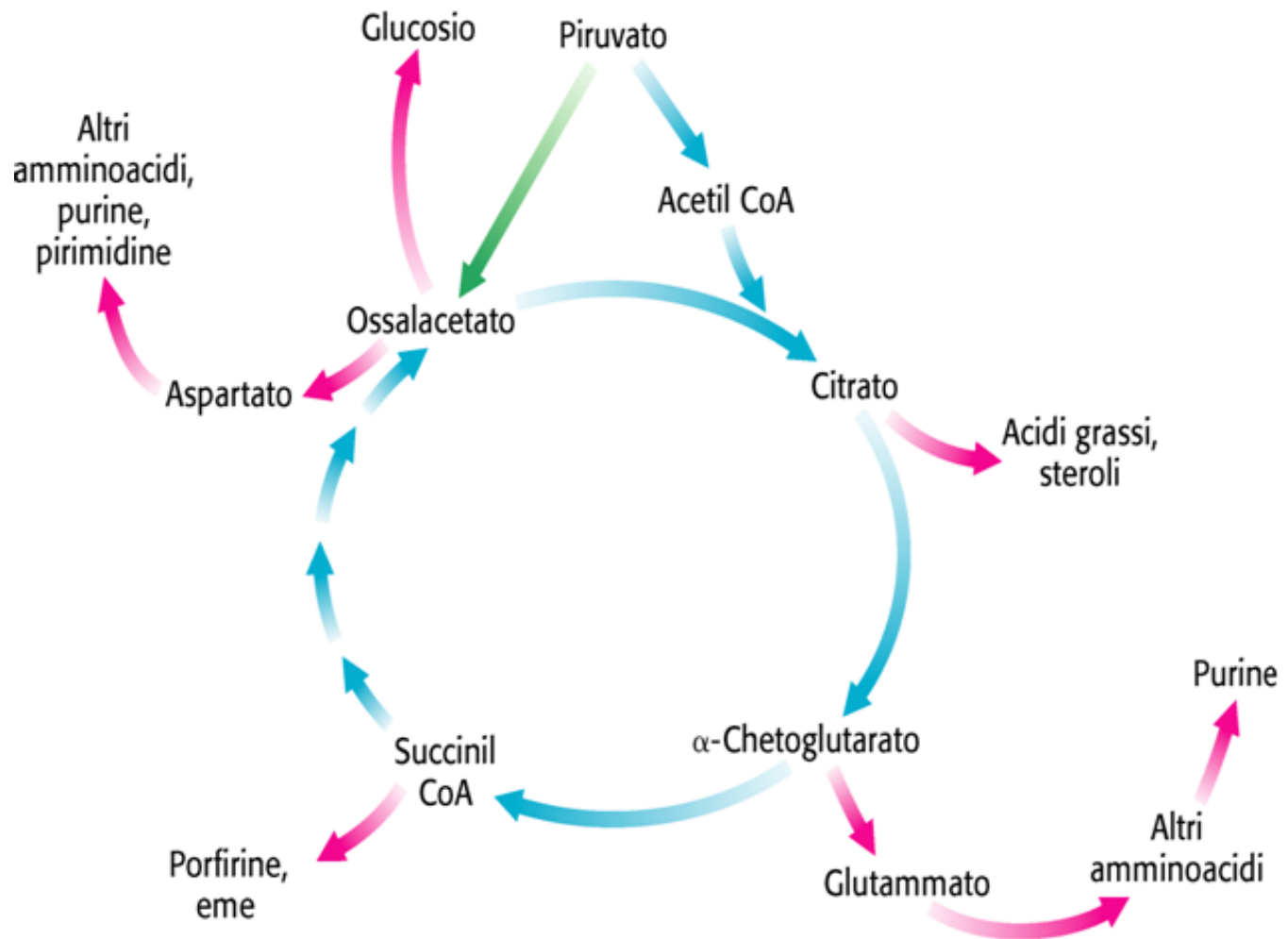
La **succinato deidrogenasi** fa parte integrante della membrana mitocondriale interna costituendo il **complesso II** della catena respiratoria





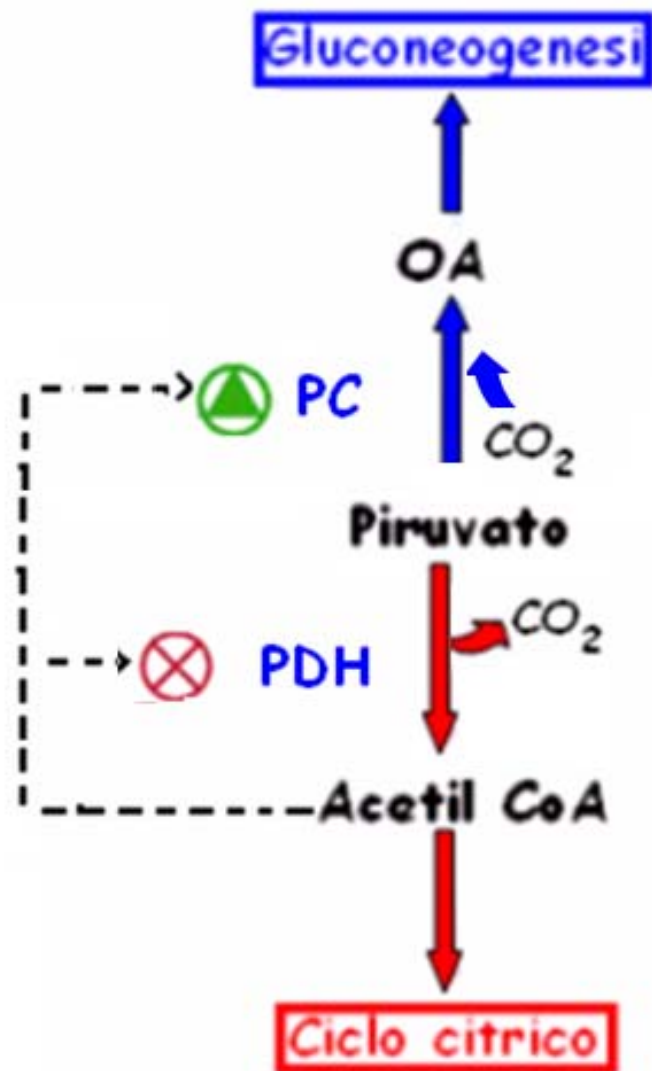
$$\Delta G'^{\circ} = +7.1 \text{ kcal/mole}$$





REAZIONI ANAPLEROTICHE

- riforniscono il ciclo di intermedi
- la più importante di esse è la **carbossilazione del piruvato ad OA**



Se [ATP] è alta
è favorita la gluconeogenesi

Se [ATP] è bassa
è favorito il ciclo citrico