

# SHUNT DEI PENTOSI

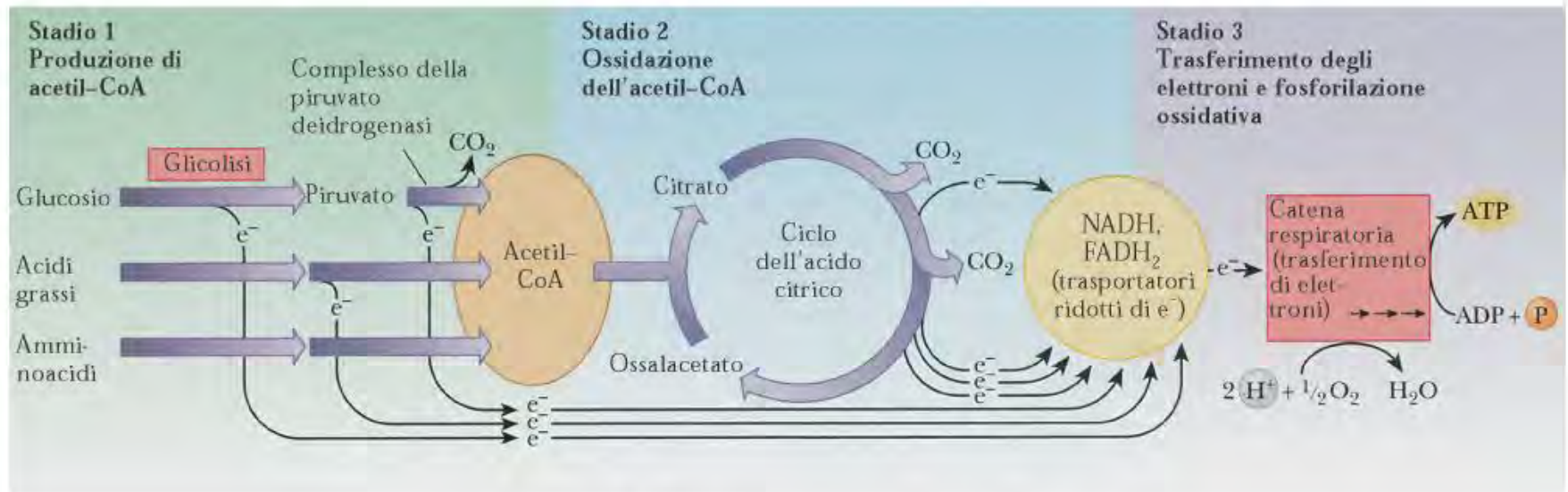


FIGURA 16.1

Il ciclo dell'acido citrico ha un ruolo centrale nel catabolismo. Gli amminoacidi, gli acidi grassi e il glucosio possono produrre tutti acetil-CoA nello stadio 1 del catabolismo. Nello stadio 2, l'acetil-CoA entra nel ciclo dell'acido citrico. Gli stadi 1 e 2 producono trasportatori di elettroni ridotti (qui mostrati come  $\text{e}^-$ ). Nello stadio 3, gli elettroni entrano nella catena di trasporto degli elettroni, che produce ATP.

Glycogen,  
starch, sucrose

storage

Glucose

oxidation via  
pentose phosphate  
pathway

oxidation via  
glycolysis

Ribose 5-phosphate

Pyruvate

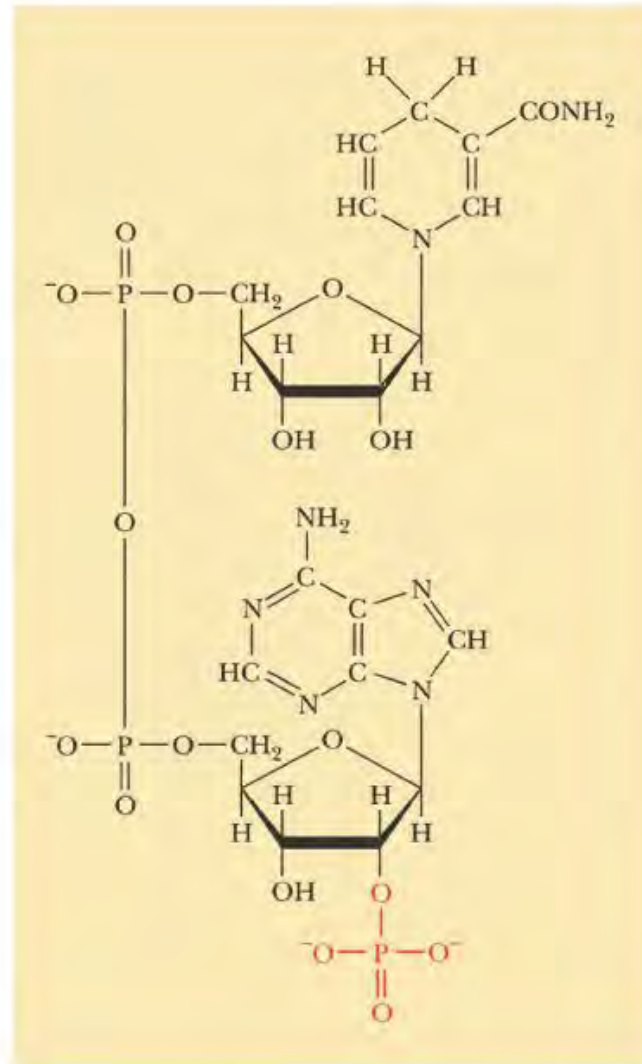


FIGURA 15.14

La struttura del nicotinammide adenin dinucleotide fosfato ridotto (NADPH).

## **Tabella 20.2 Vie che richiedono NADPH**

### **Sintesi**

Biosintesi degli acidi grassi

Biosintesi del colesterolo

Biosintesi dei neurotrasmettitori

Biosintesi dei nucleotidi

### **Detossicazione**

Riduzione del glutathione ossidato

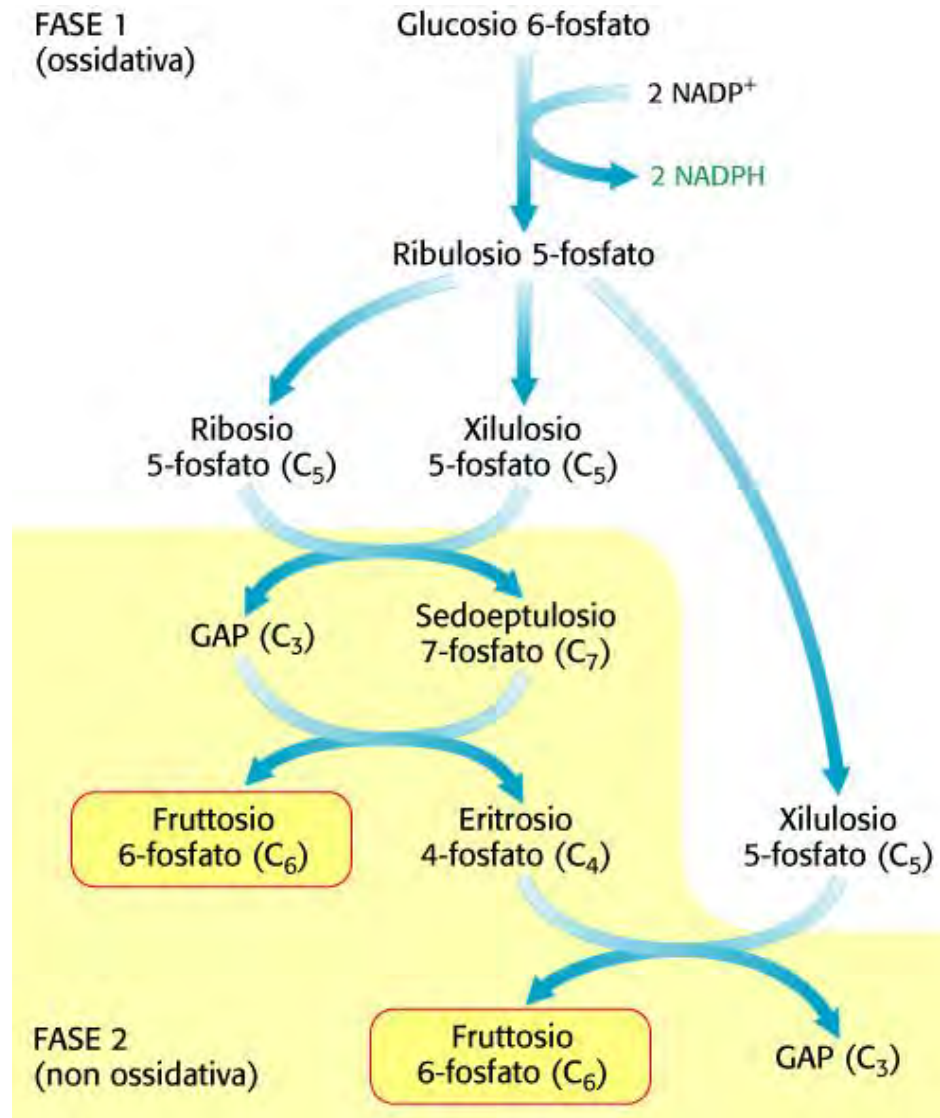
Citocromo P540 monoossigenasi

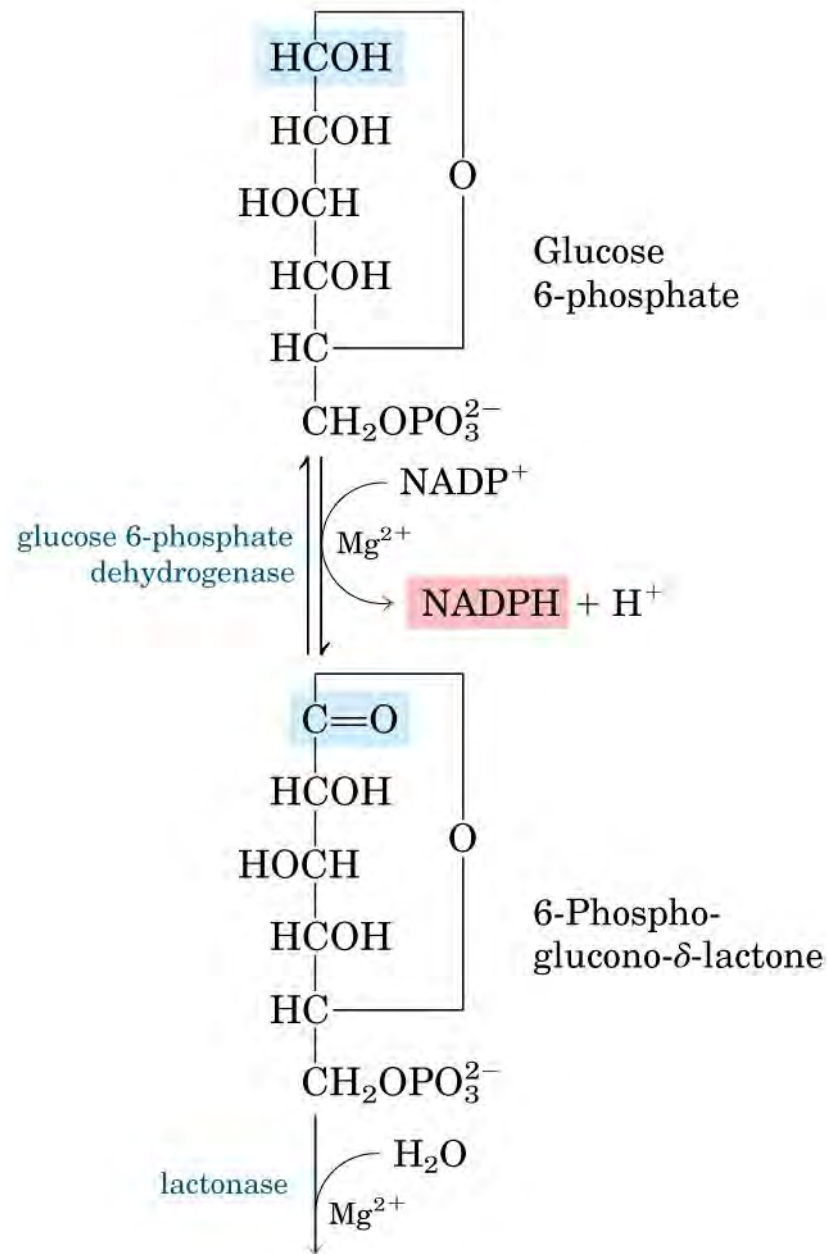
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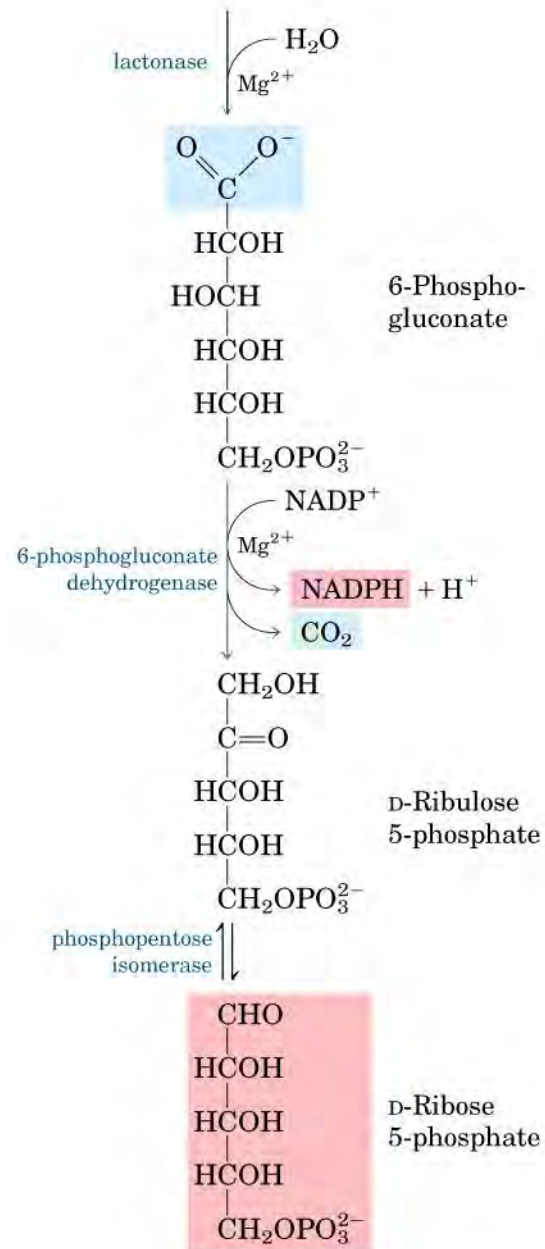
**Tabella 20.4** Tessuti con vie del pentosio fosfato attive

<i>Tessuto</i>	<i>Funzione</i>
Ghiandola surrenale	Sintesi degli steroidi
Fegato	Sintesi degli acidi grassi e del colesterolo
Testicoli	Sintesi degli steroidi
Tessuto adiposo	Sintesi degli acidi grassi
Ovaio	Sintesi degli steroidi
Ghiandola mammaria	Sintesi degli acidi grassi
Eritrociti	Mantenimento del glutathione ridotto

# Shunt dei pentosi (via del pentosio fosfato)

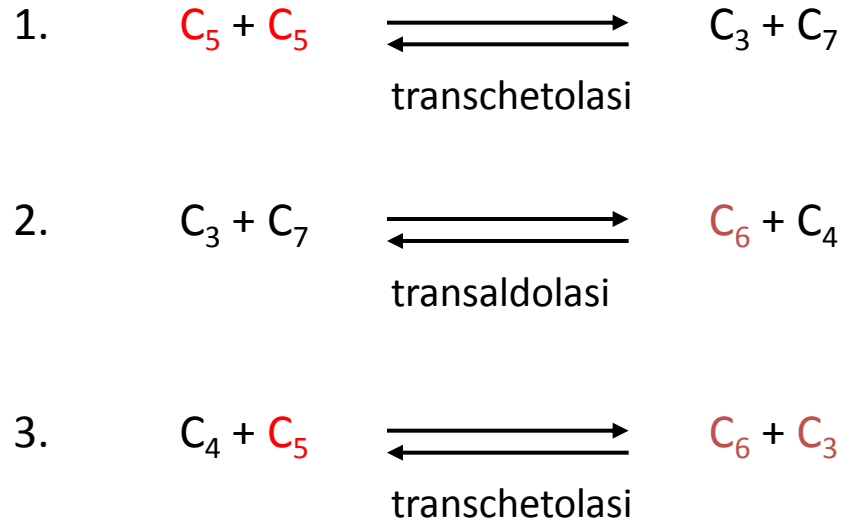
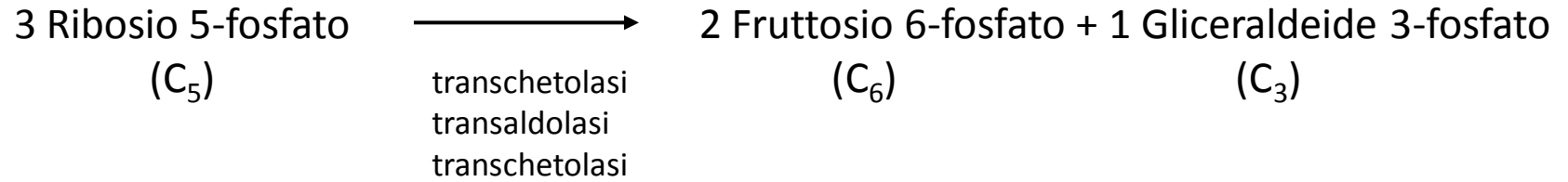


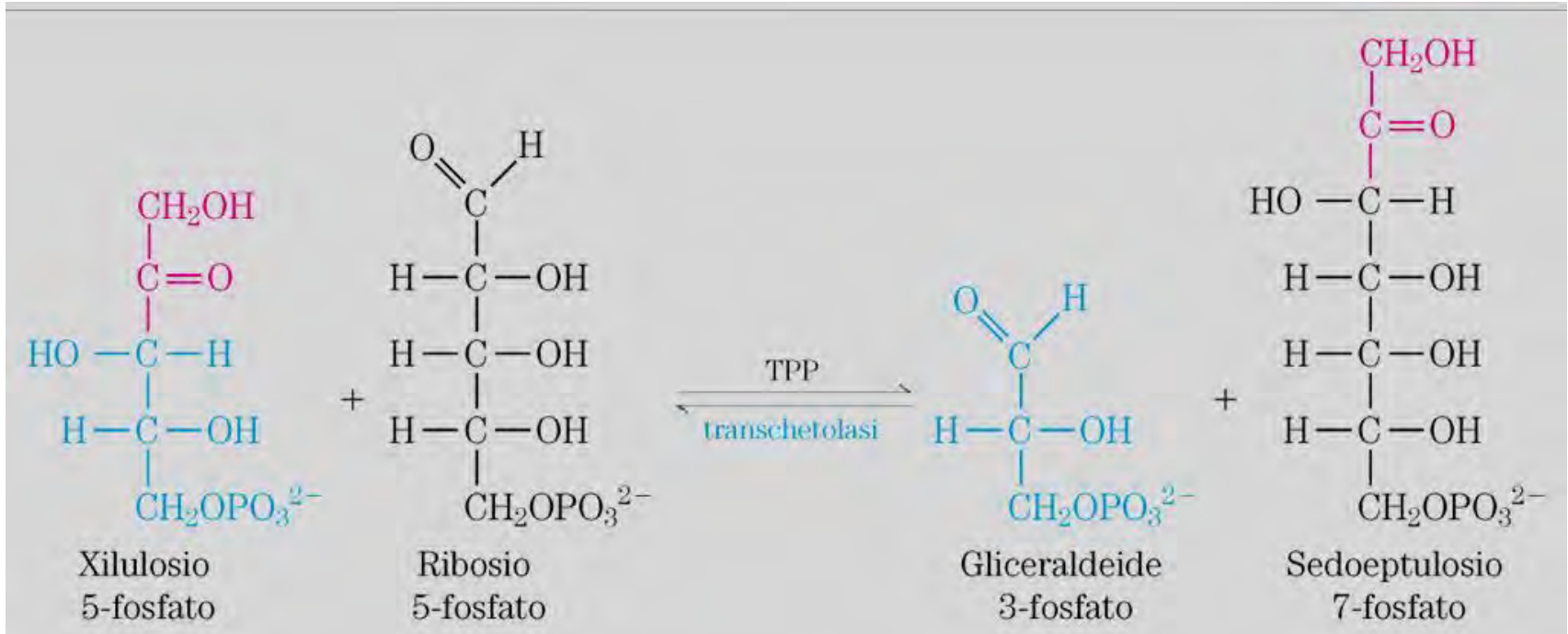
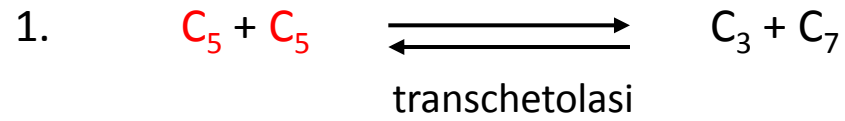


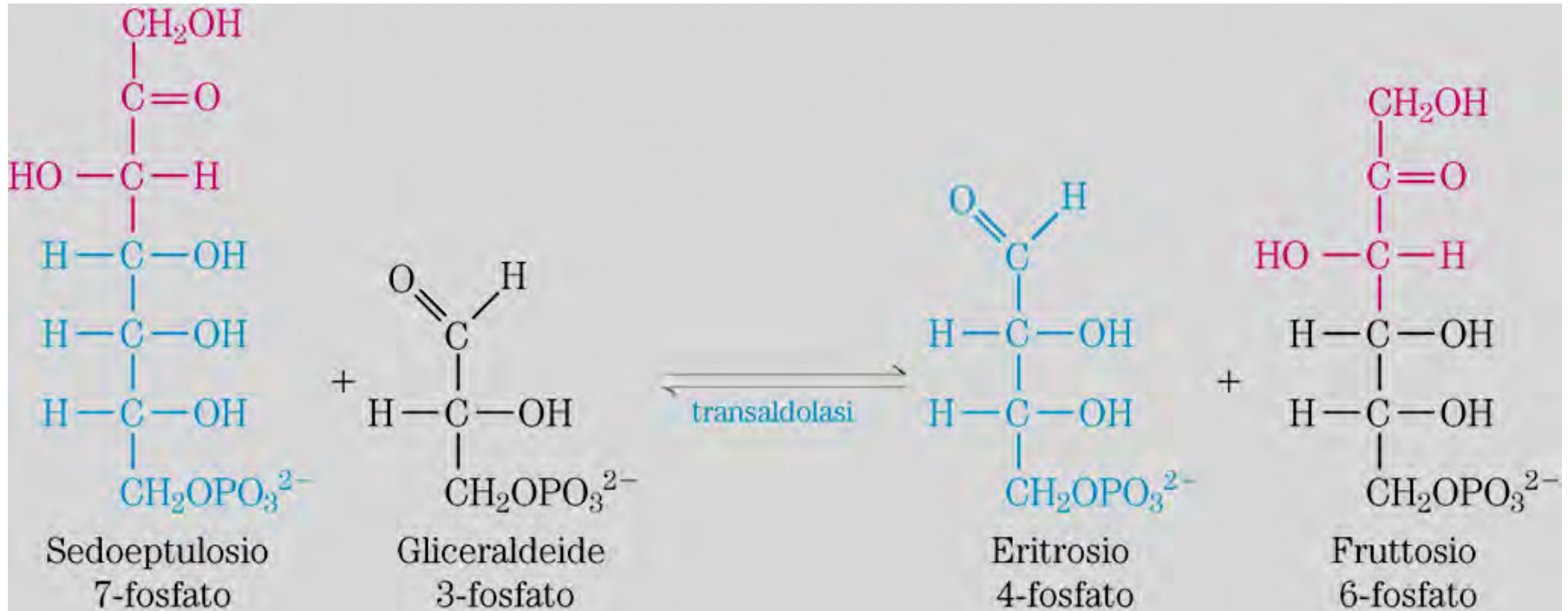
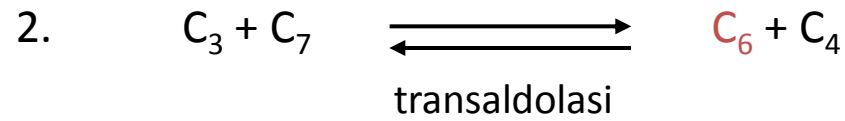


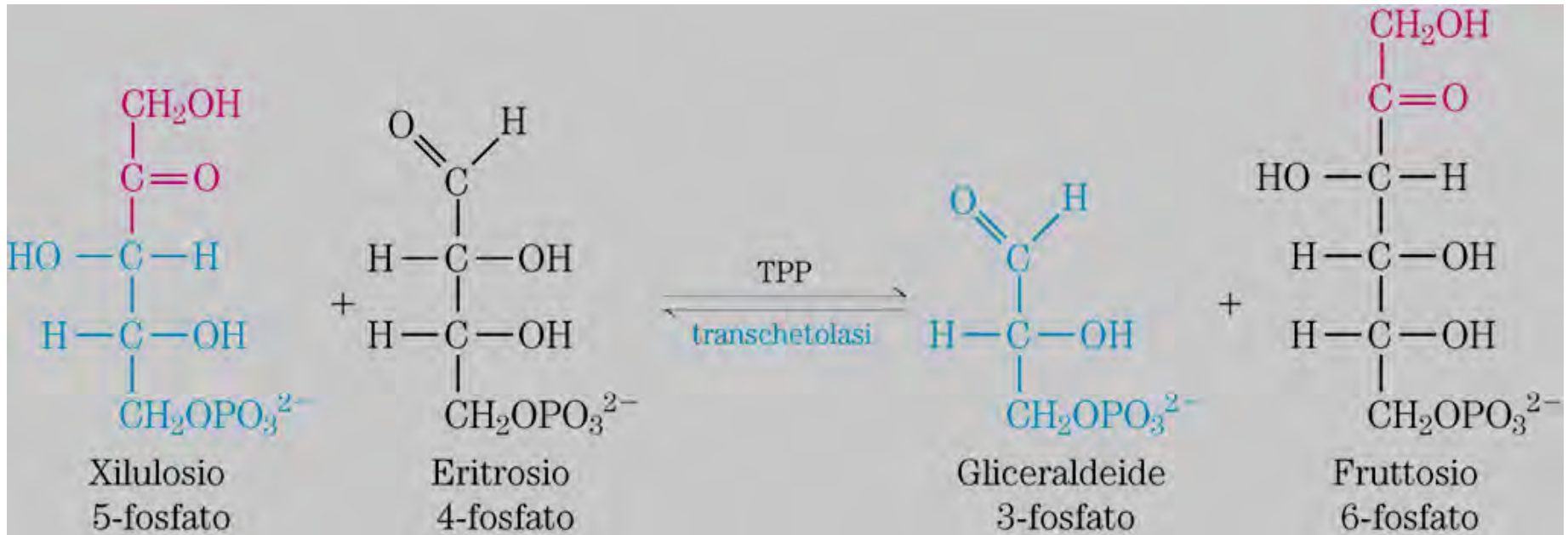
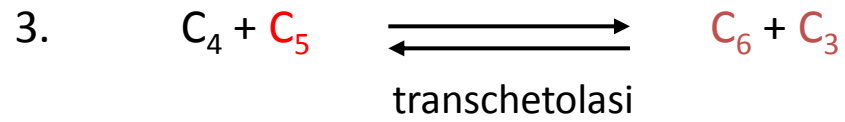


# FASE NON OSSIDATIVA

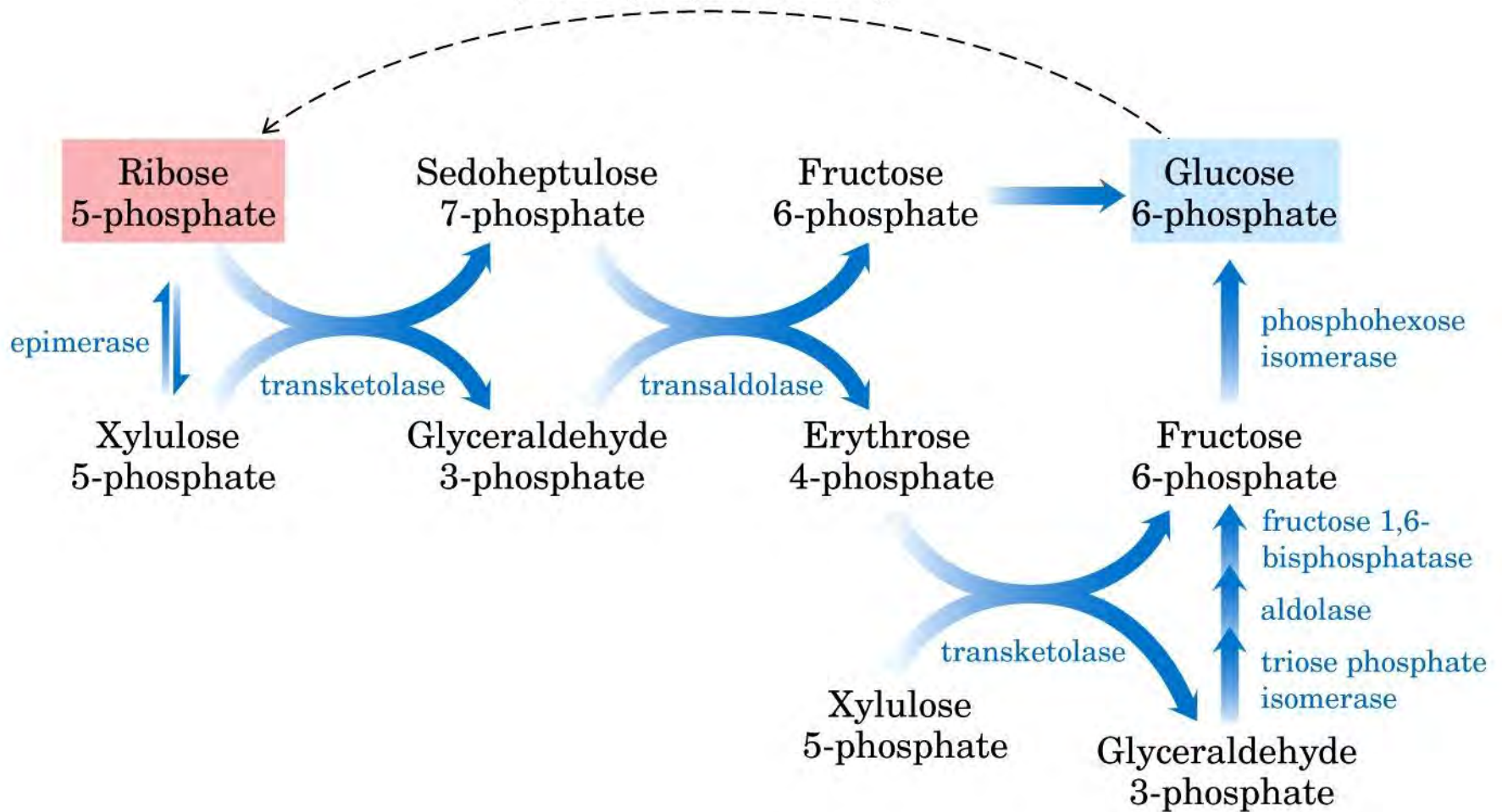






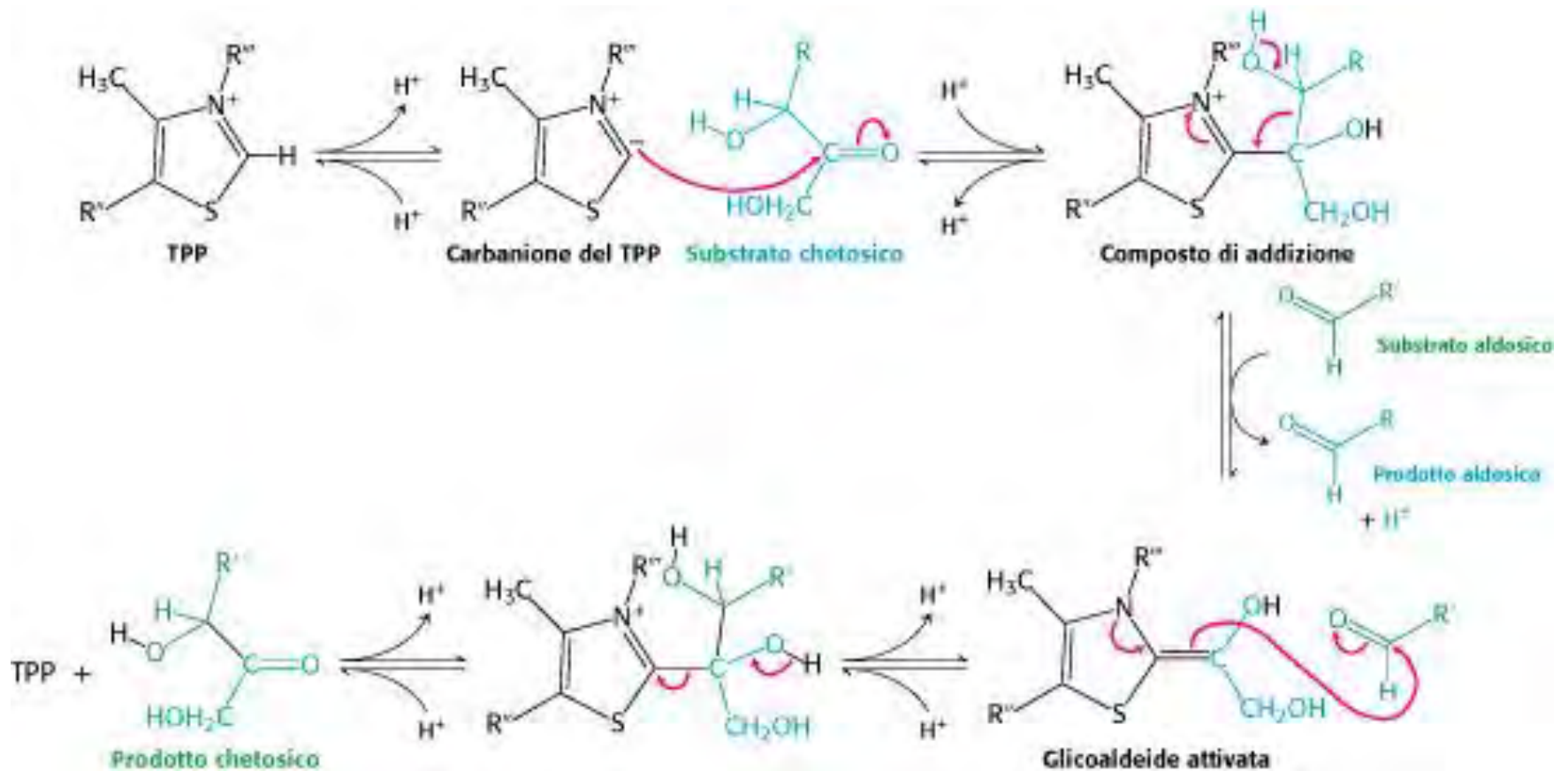


oxidative reactions of  
pentose phosphate pathway

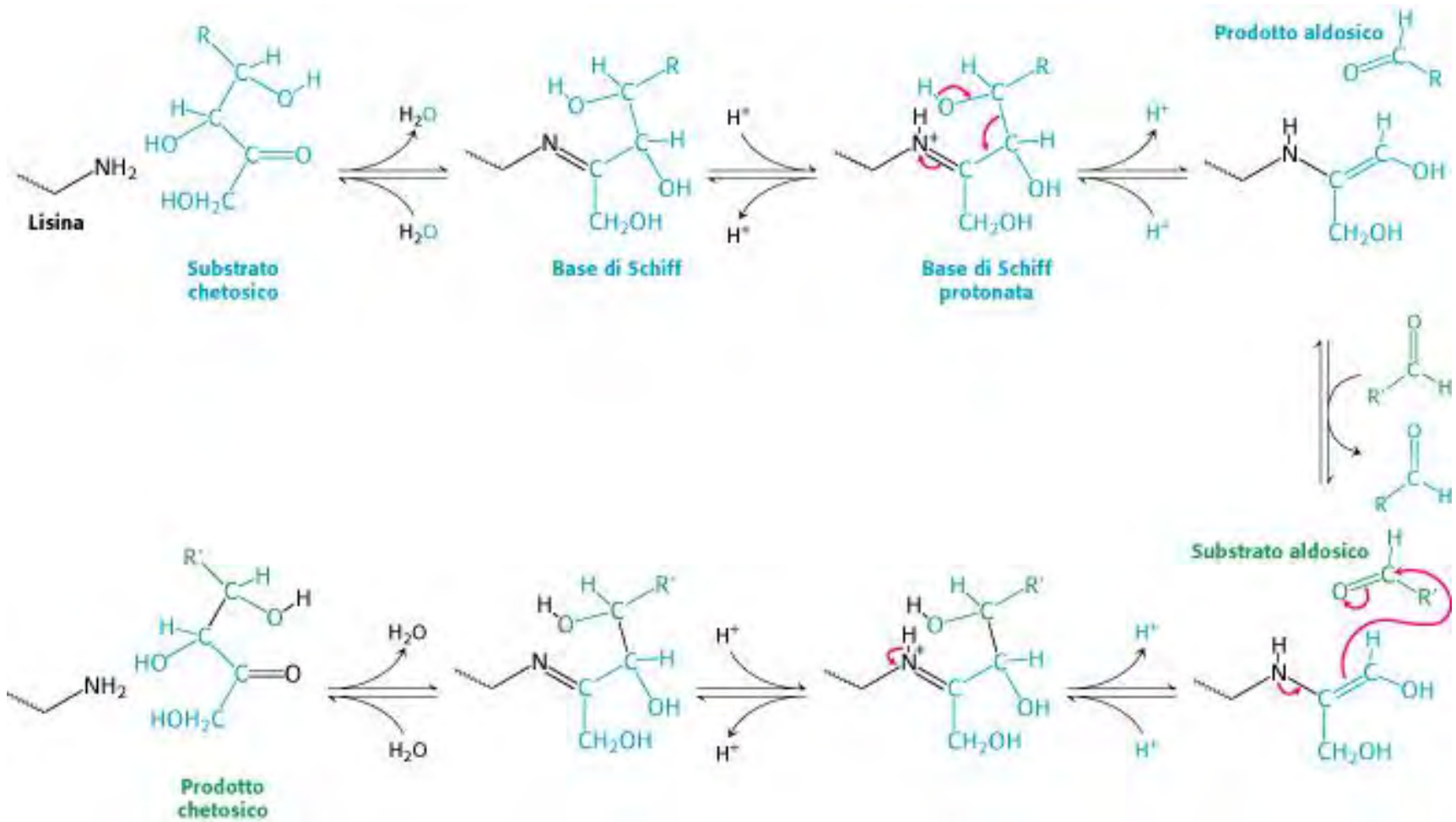


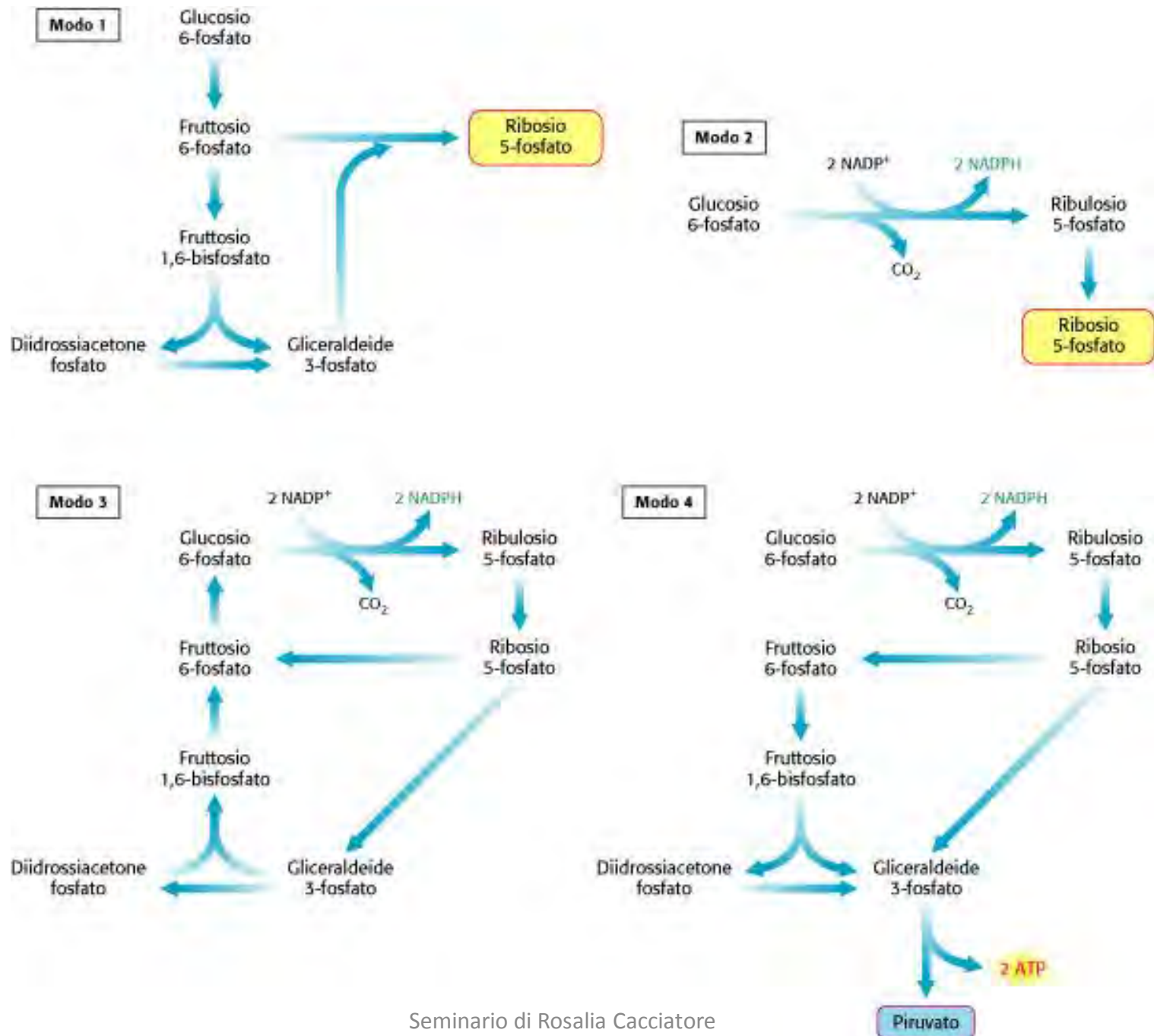
(a)

La tiamina pirofosfato (TPP) è il coenzima della transchetolasi



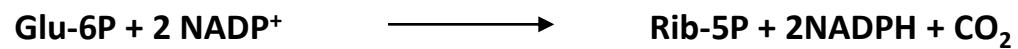
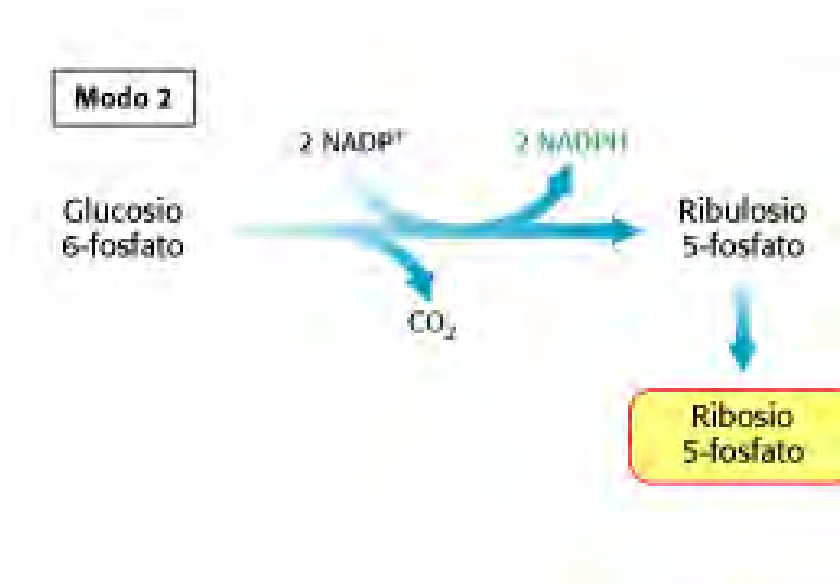
# Meccanismo della transaldolasi



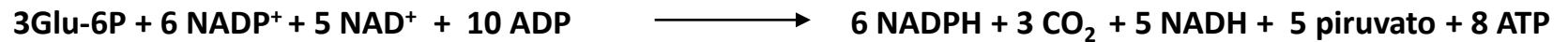
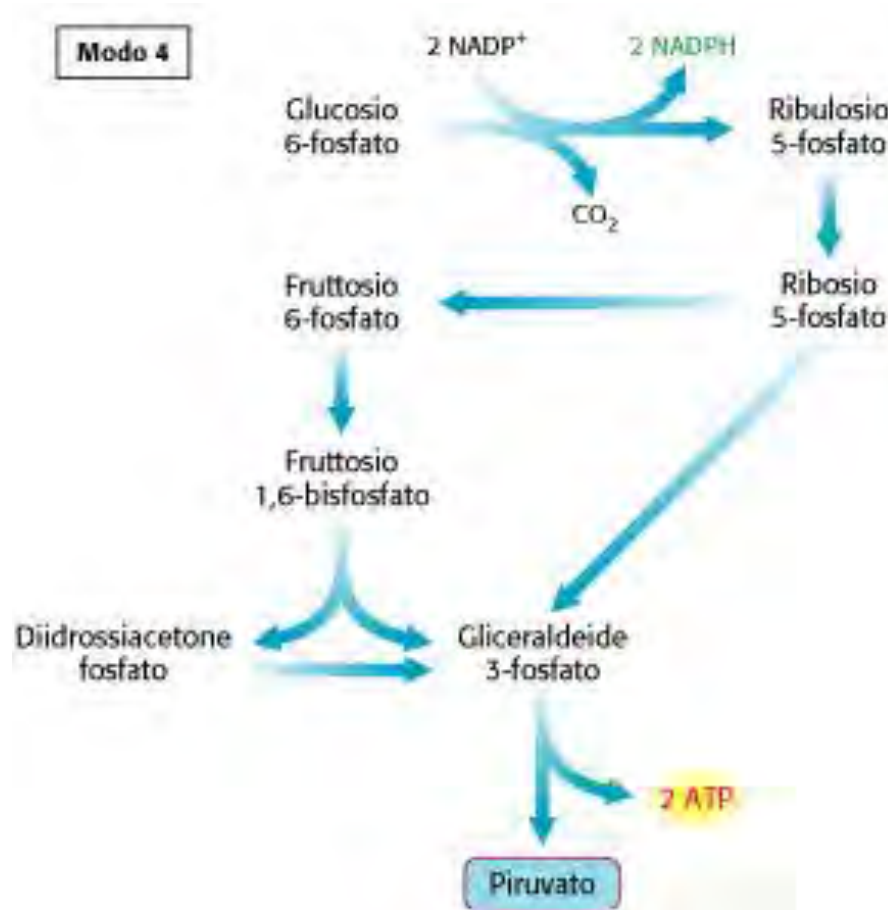




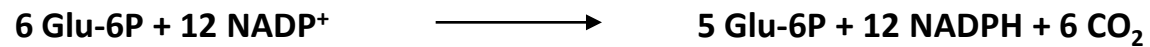
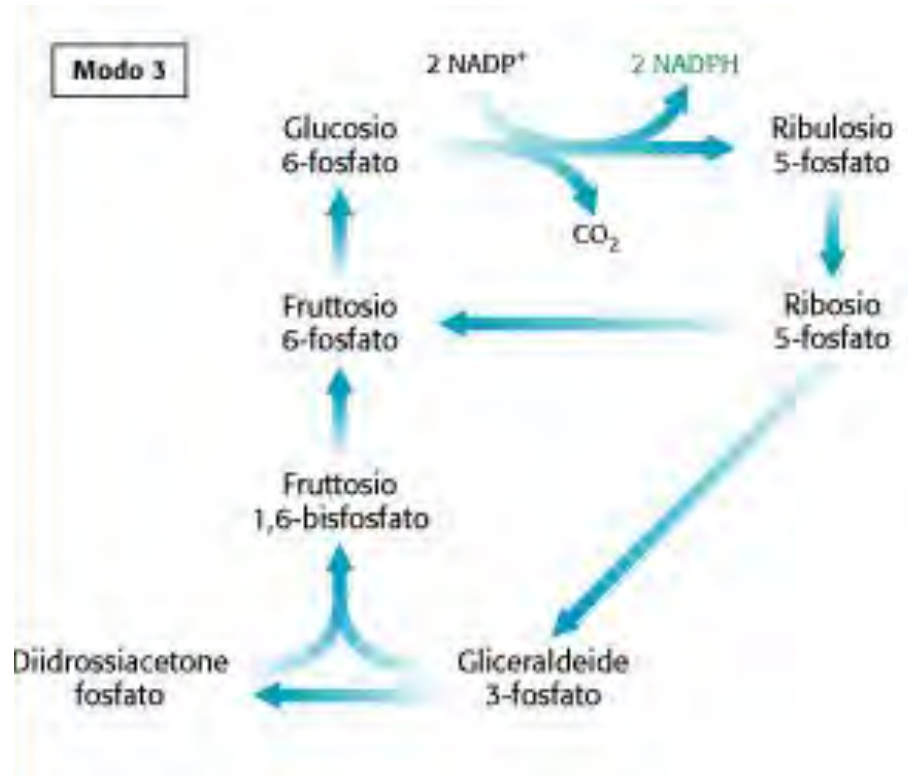
Se: è necessario sia ribosio 5-fosfato che NADPH



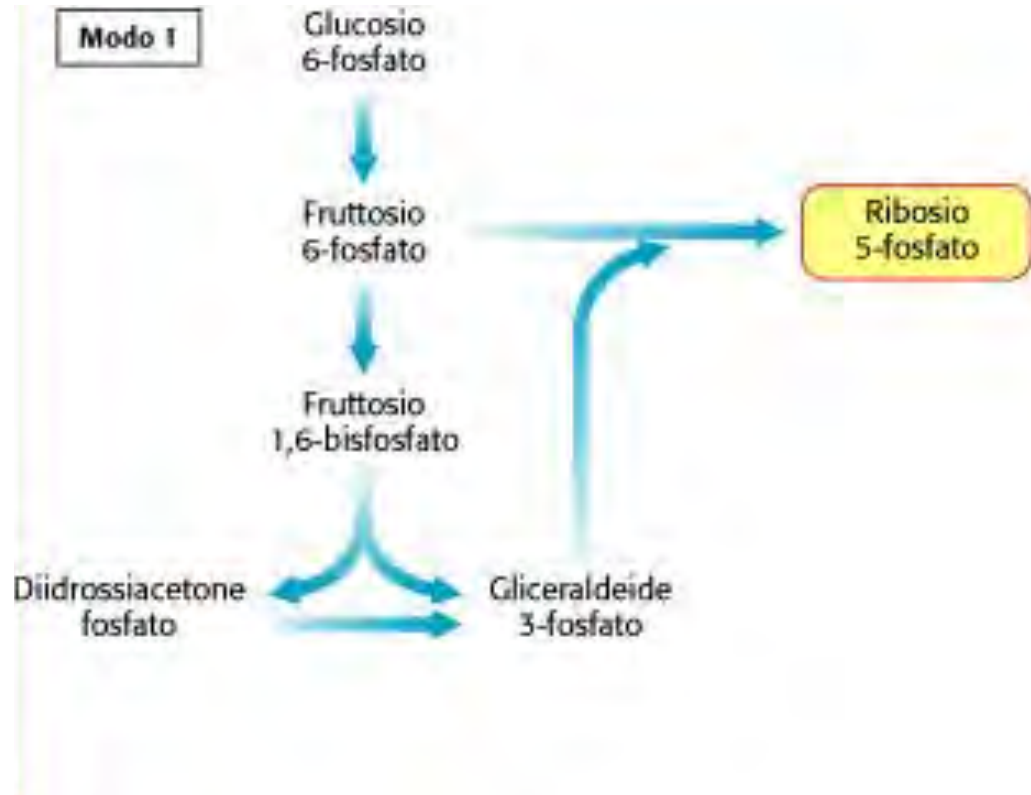
Se: è necessario più NADPH che ribosio 5-fosfato e serve energia



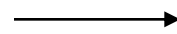
Se: è necessario più NADPH che ribosio 5-fosfato e ATP (es. fegato)



**Se: è necessario più ribosio 5-fosfato che NADPH**



**5 Glu-6P + ATP**



**5 Rib-5P + ADP**

## **Tabella 20.2 Vie che richiedono NADPH**

### **Sintesi**

Biosintesi degli acidi grassi

Biosintesi del colesterolo

Biosintesi dei neurotrasmettitori

Biosintesi dei nucleotidi

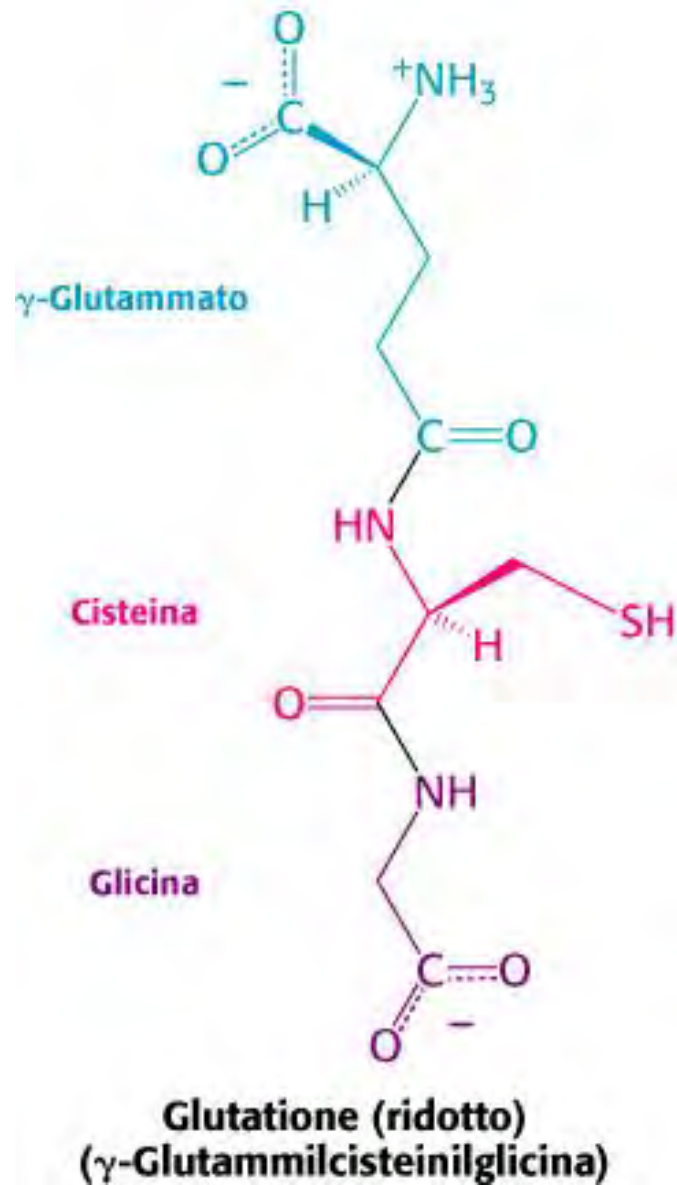
### **Detossicazione**

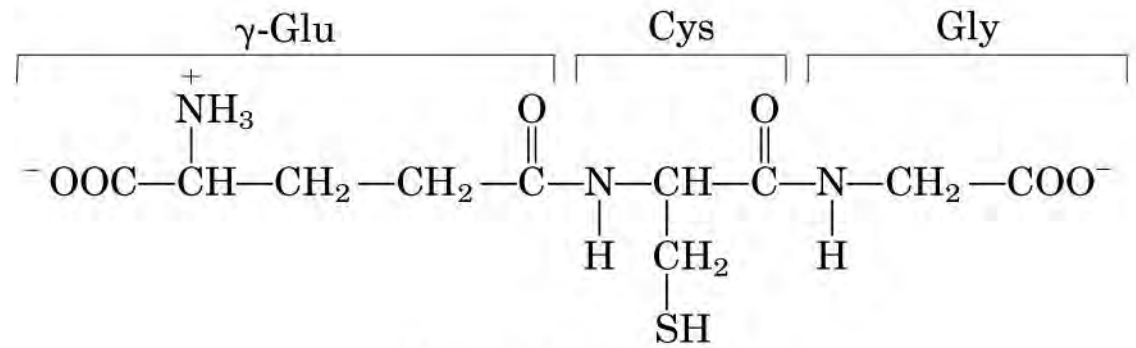
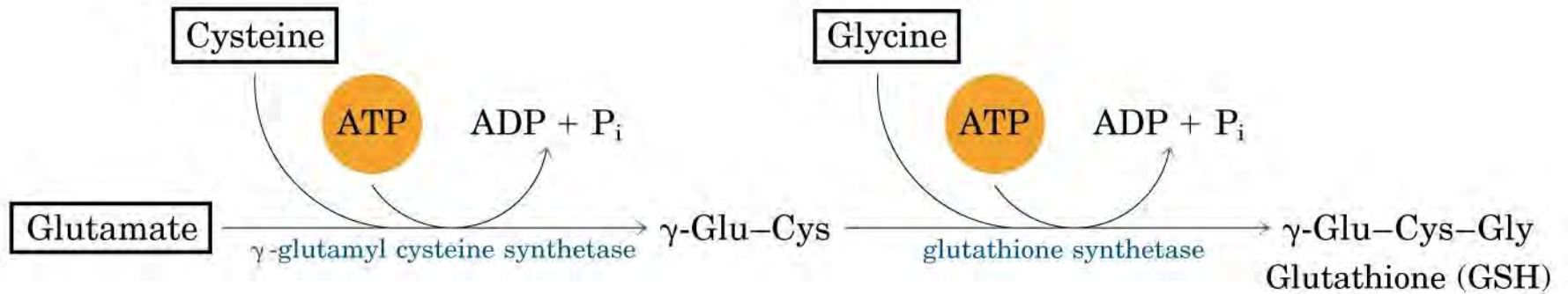
Riduzione del glutathione ossidato

Citocromo P540 monoossigenasi

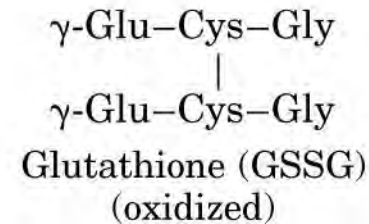
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## IL GLUTATIONE (Glu-Cys-Gly)





Glutathione (GSH)  
(reduced)



## Corpi di Heinz negli eritrociti di soggetti con carenza di G6P deidrogenasi

