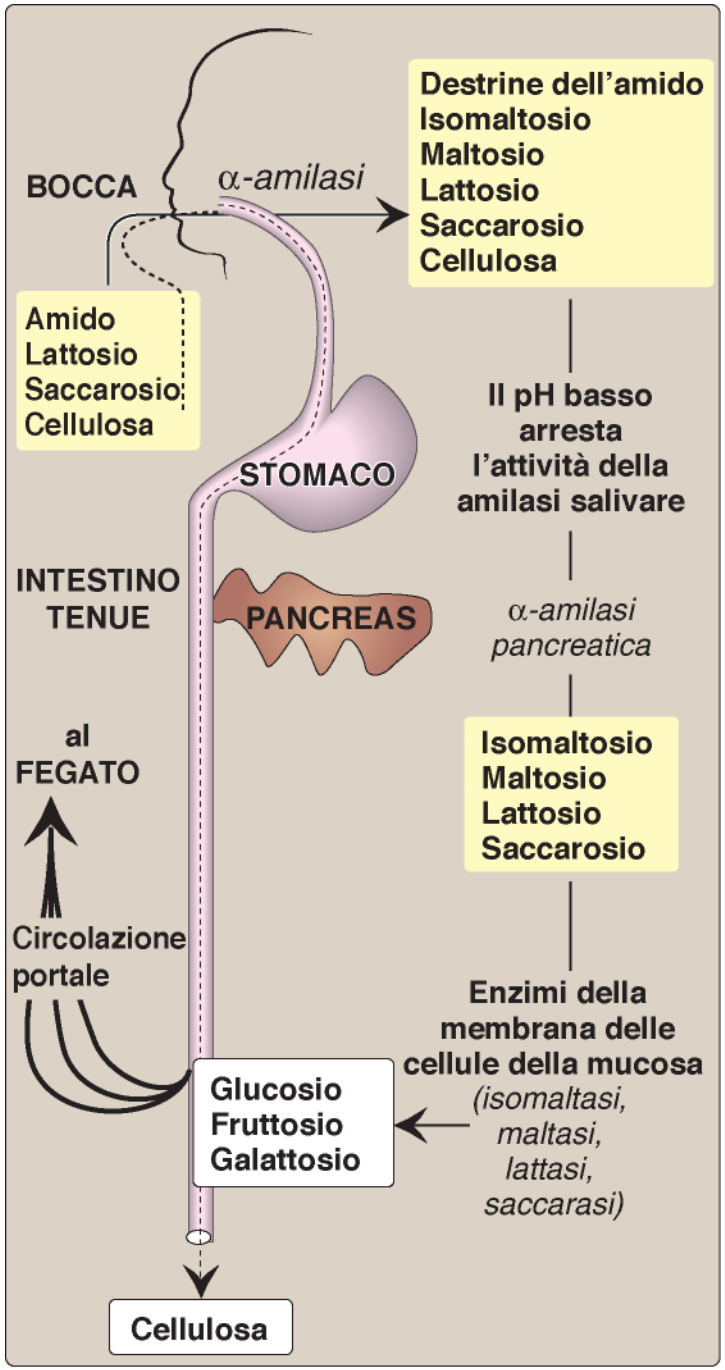
CARBOIDRATI

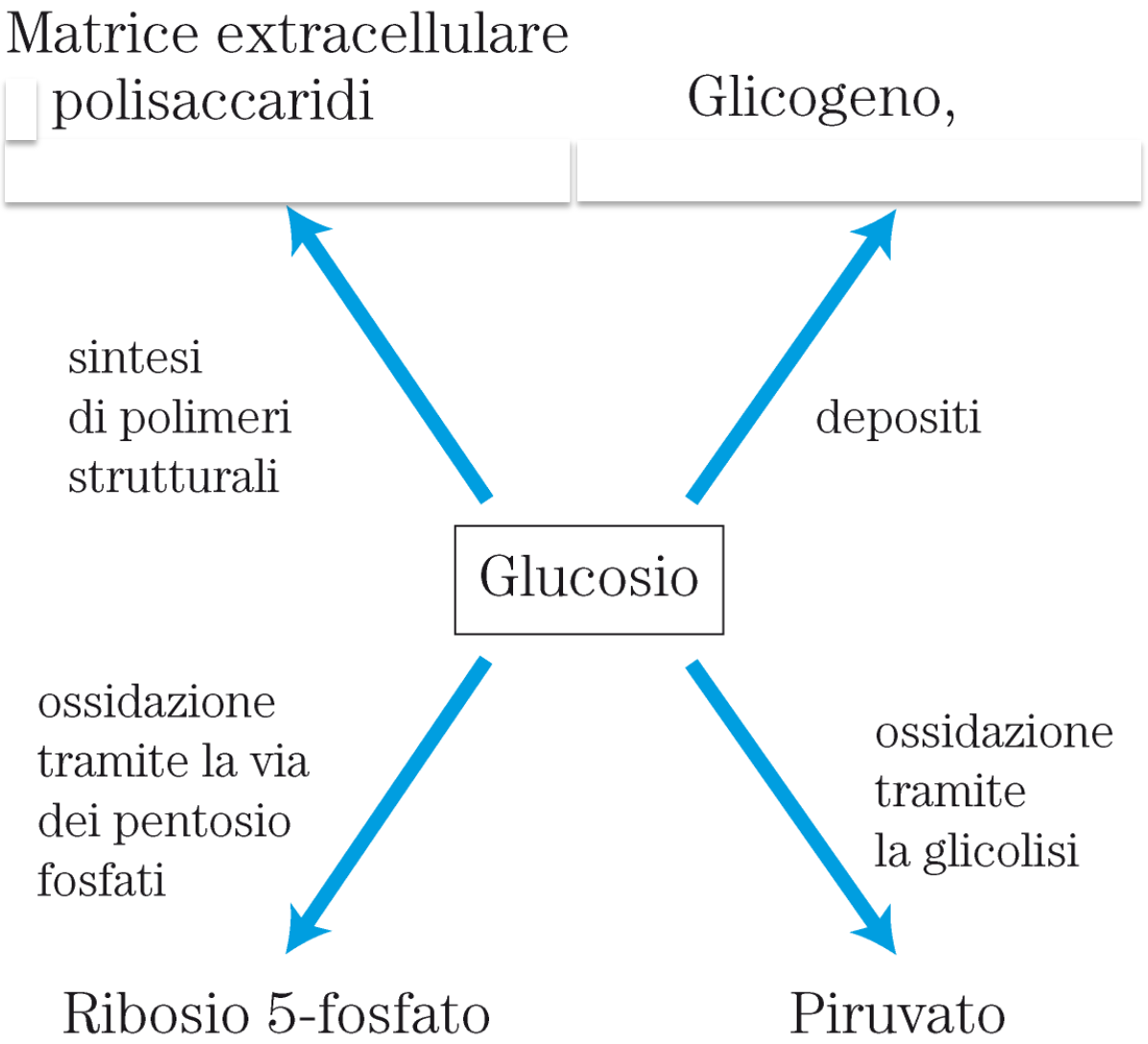
Forniscono 4 kilocalorie per grammo

Fonte primaria di energia per il cervello ed il tessuto nervoso

Possono essere utilizzati per sintetizzare aminoacidi, lipidi, acidi nucleici

Digestione dei carboidrati



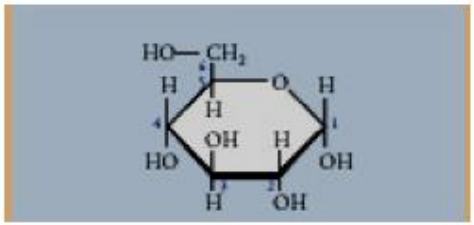


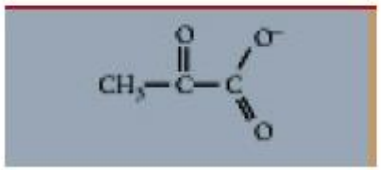
Principali vie di utilizzo del glucosio

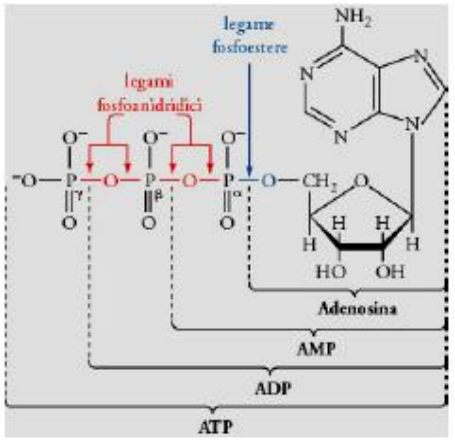
GLICOLISI

- via metabolica presente in tutte le cellule
- via citoplasmatica
- via anaerobica: non richiede il consumo di O2
- via di degradazione della molecola del glucosio (6C) in 2 molecole di piruvato (3C)

Glucosio ⟶ 2 piruvato + 2 ATP

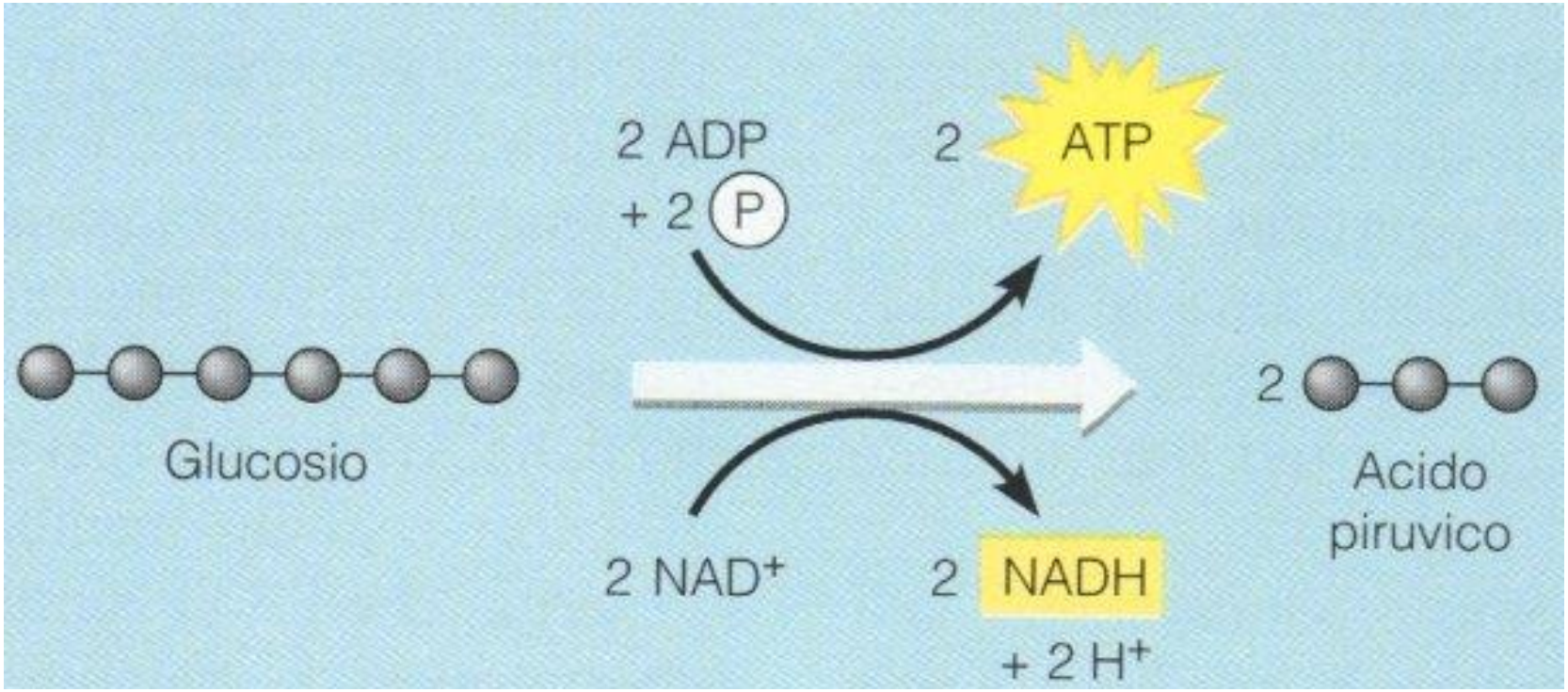




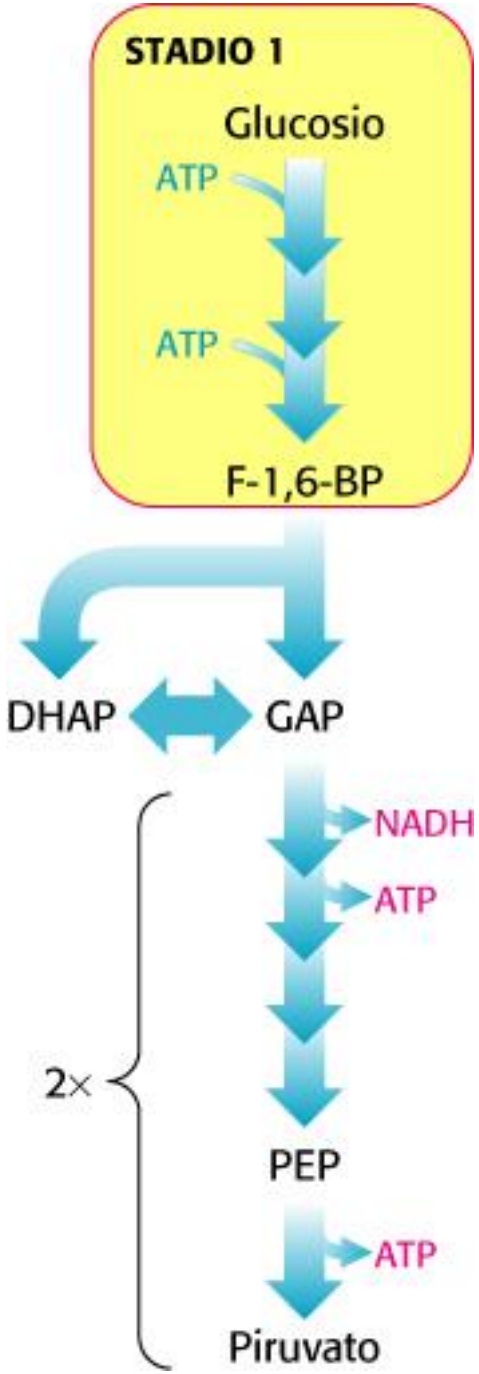


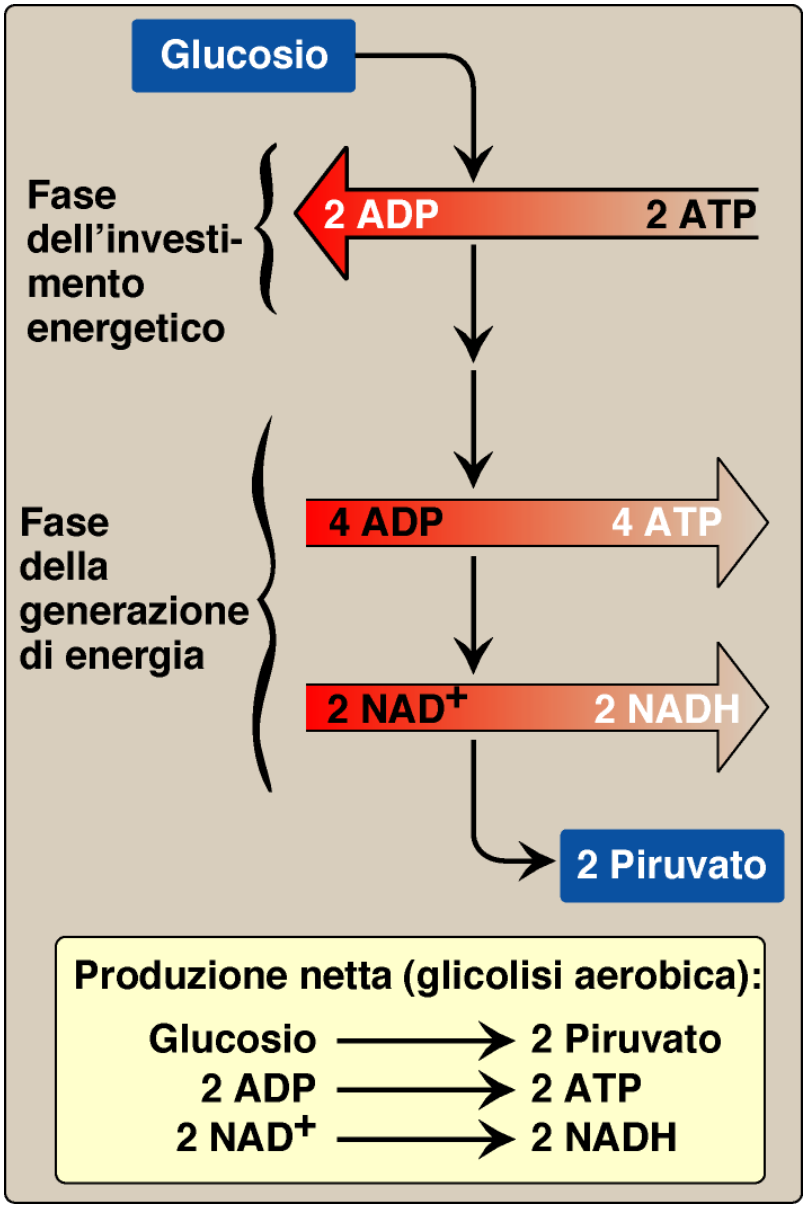
GLICOLISI

La glicolisi ricava energia chimica (ATP) ossidando il glucosio in acido piruvico



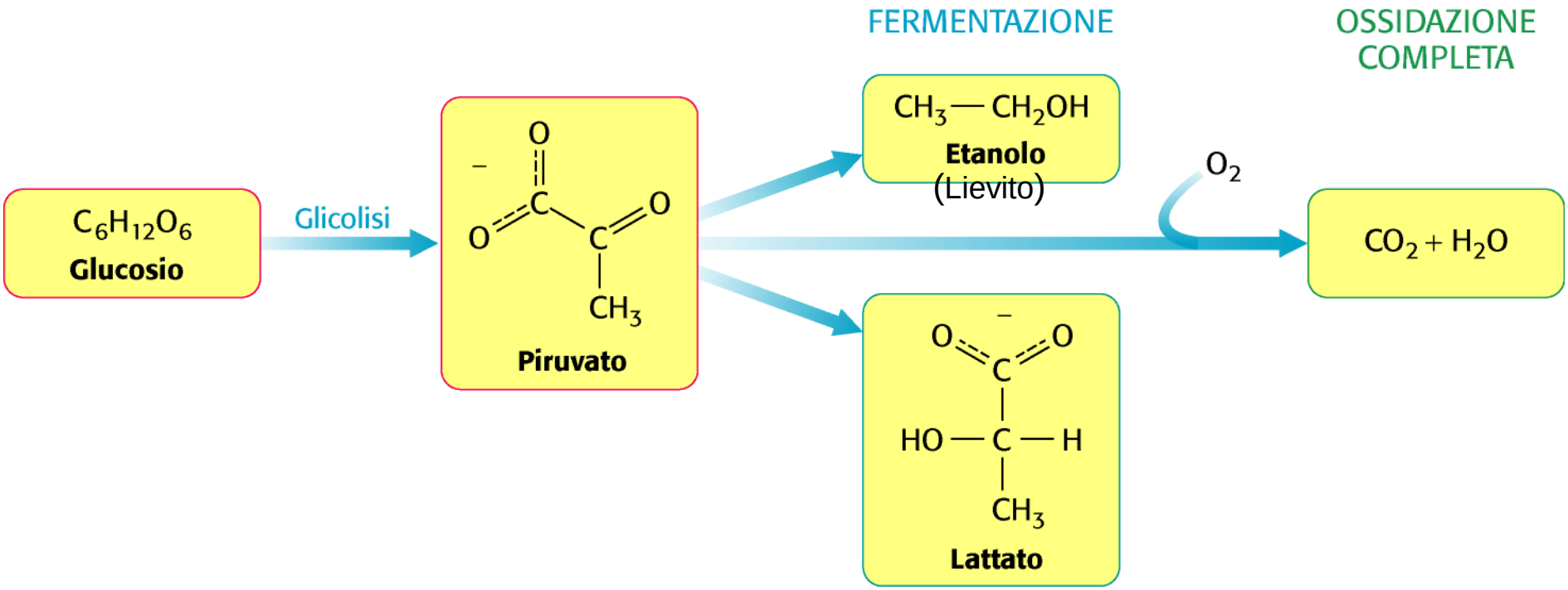
GLICOLISI


STADIO 1
Glucosio
ATP
ATP
F-1,6-BP
DHAP
GAP
NADH
ATP
2×
PEP
ATP
Piruvato


Glucosio
Fase dell'investi-mento energetico
2 ADP
2 ATP
Fase della generazione di energia
4 ADP
4 ATP
2 NAD+
2 NADH
2 Piruvato
Produzione netta (glicolisi aerobica):
Glucosio → 2 Piruvato
2 ADP → 2 ATP
2 NAD+ → 2 NADH

Le molecole di acido piruvico contengono ancora gran parte dell' energia presente nella molecola di glucosio di partenza.

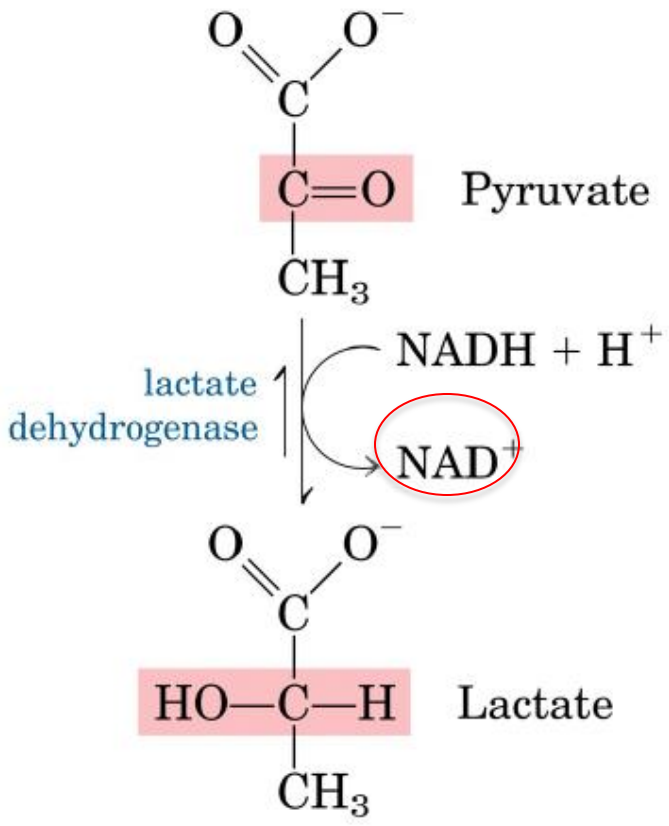
ALCUNI DESTINI DEL GLUCOSIO

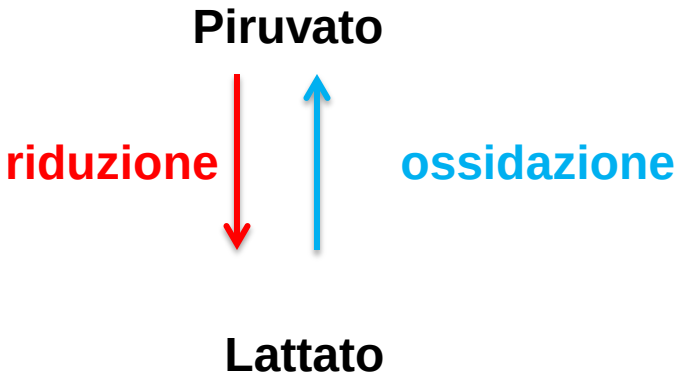


Berg J, Tymoczko JL, Stryer L. Biochimica- Zanichelli 6 ed

FERMENTAZIONE LATTICA

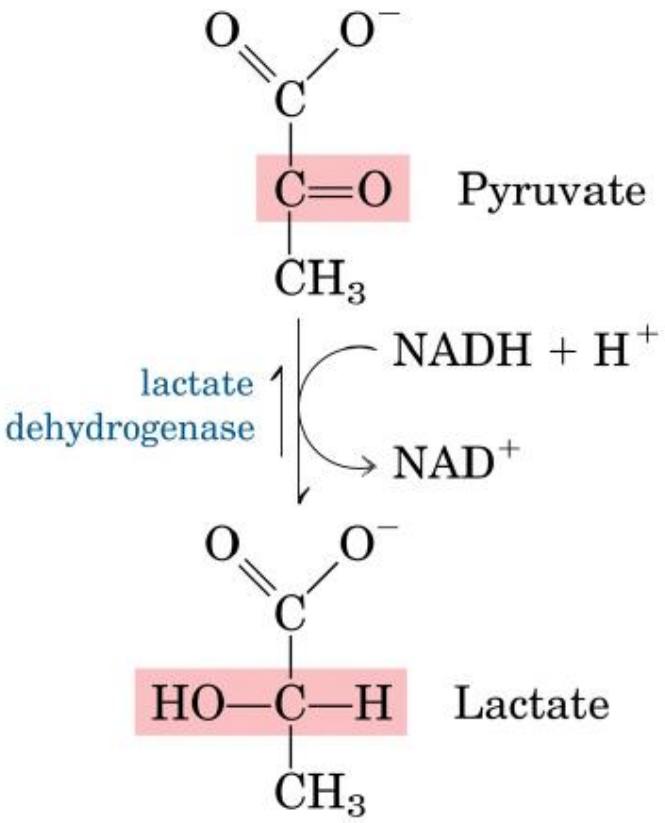
NEI MUSCOLI

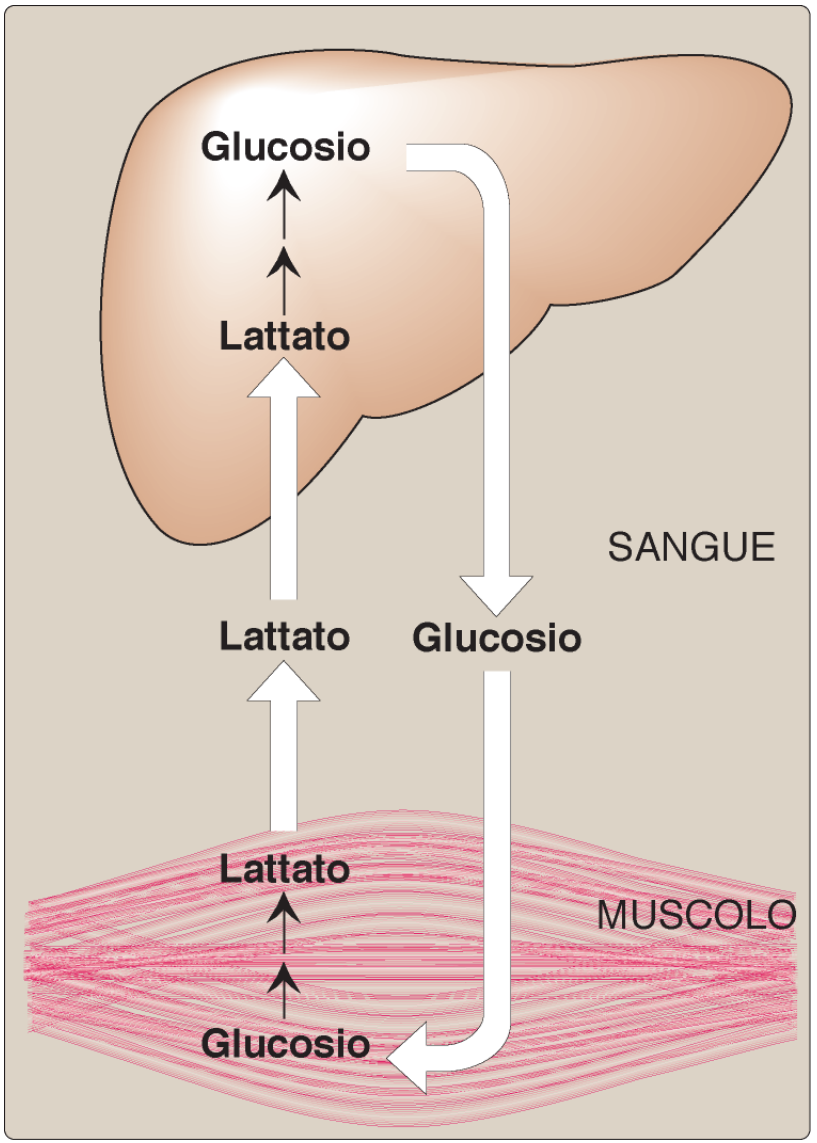




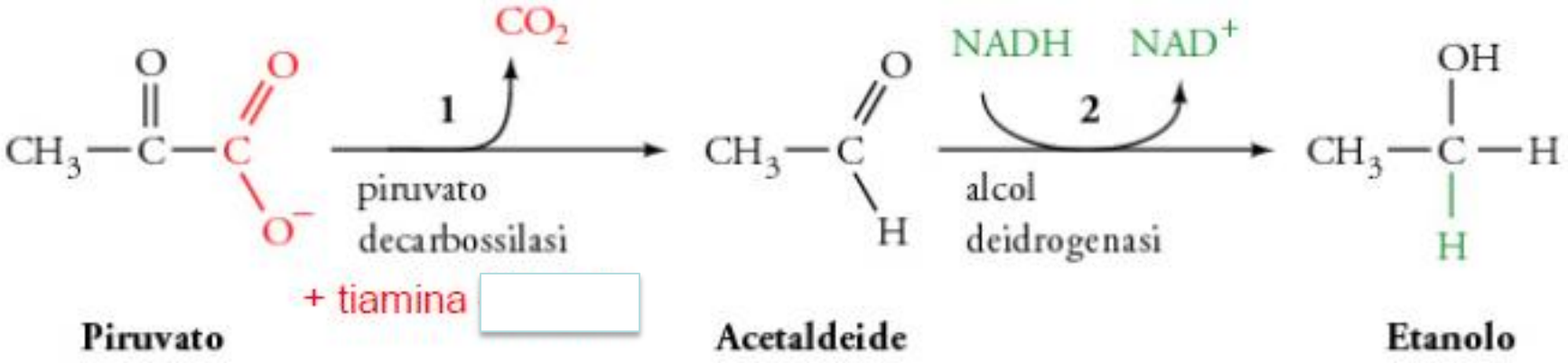
E NEI BATTERI LATTICI

INTERCONNESSIONE FEGATO-MUSCOLO





Il lattato trasportato al fegato viene riconvertito a glucosio

Fermentazione alcoolica

Nel lievito ed in alcuni microorganismi