

Katabolismus

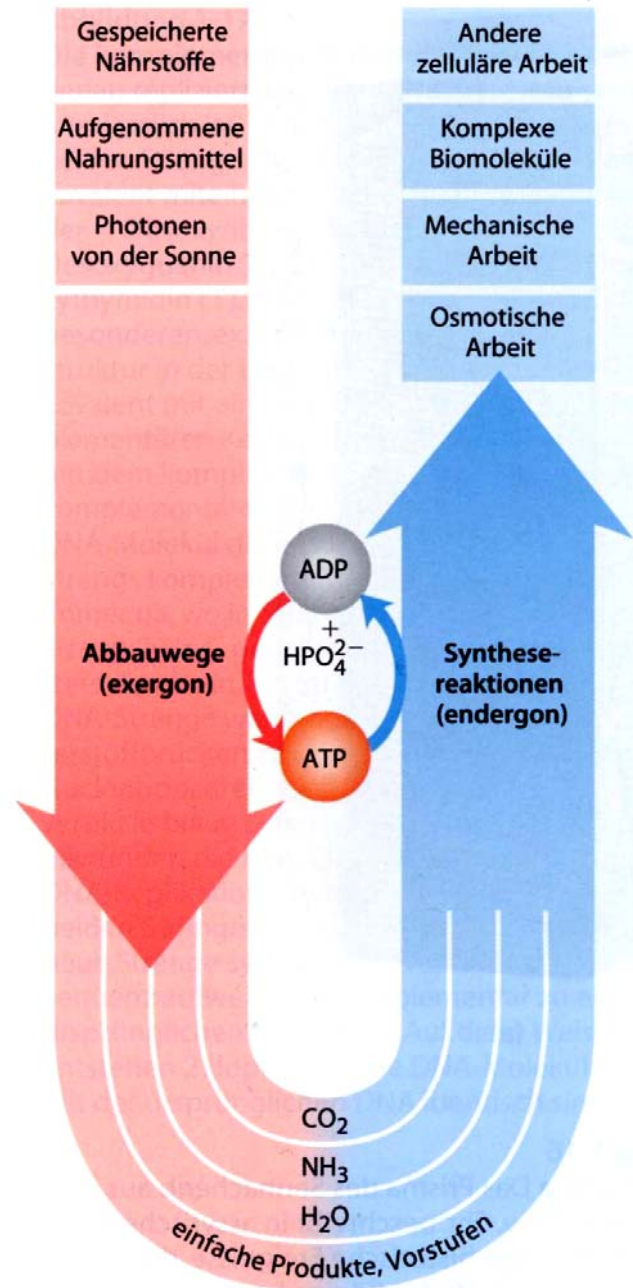
1. Kohlenhydrate

2. Lipide

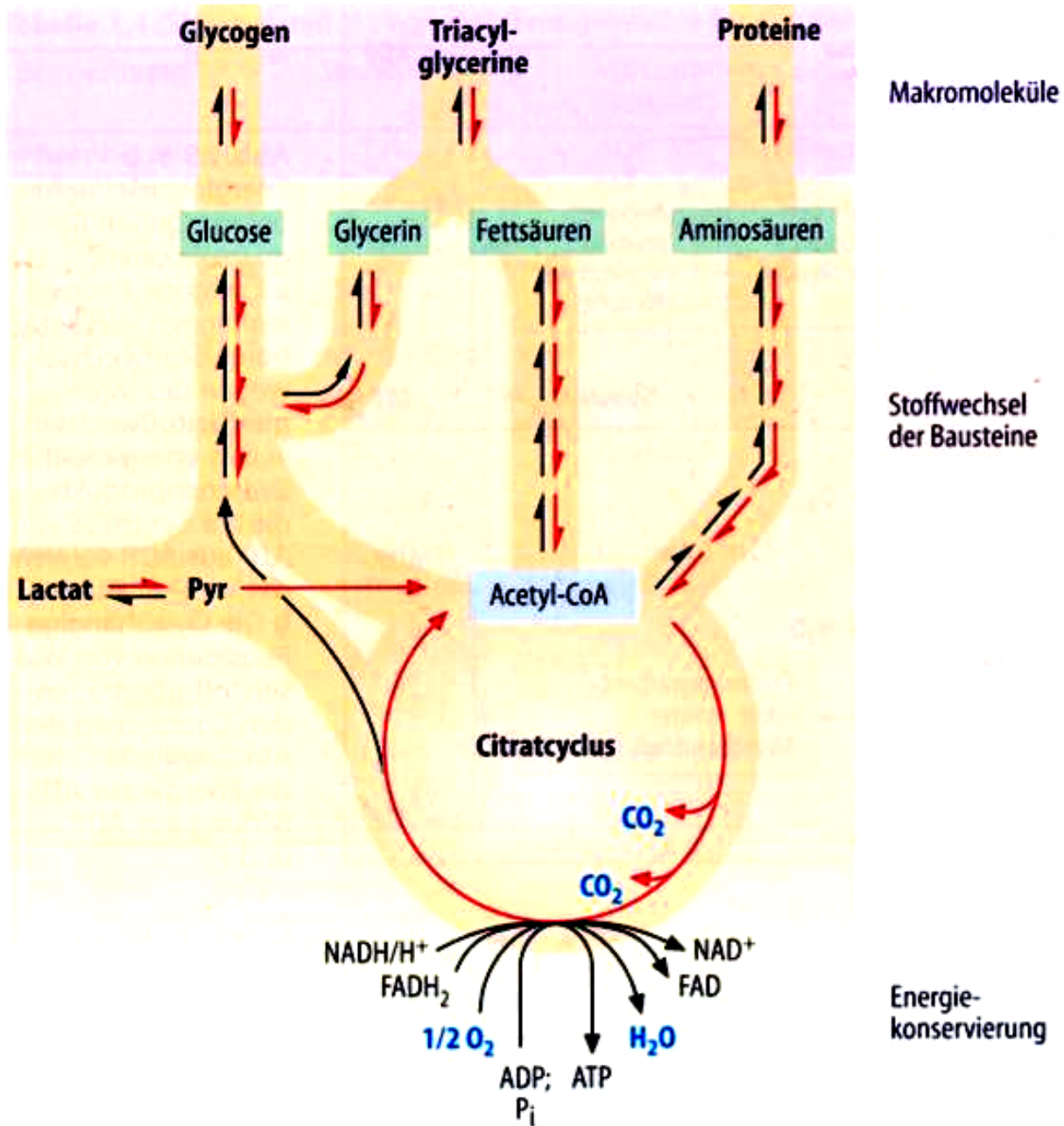
3. Proteine

Katabolismus

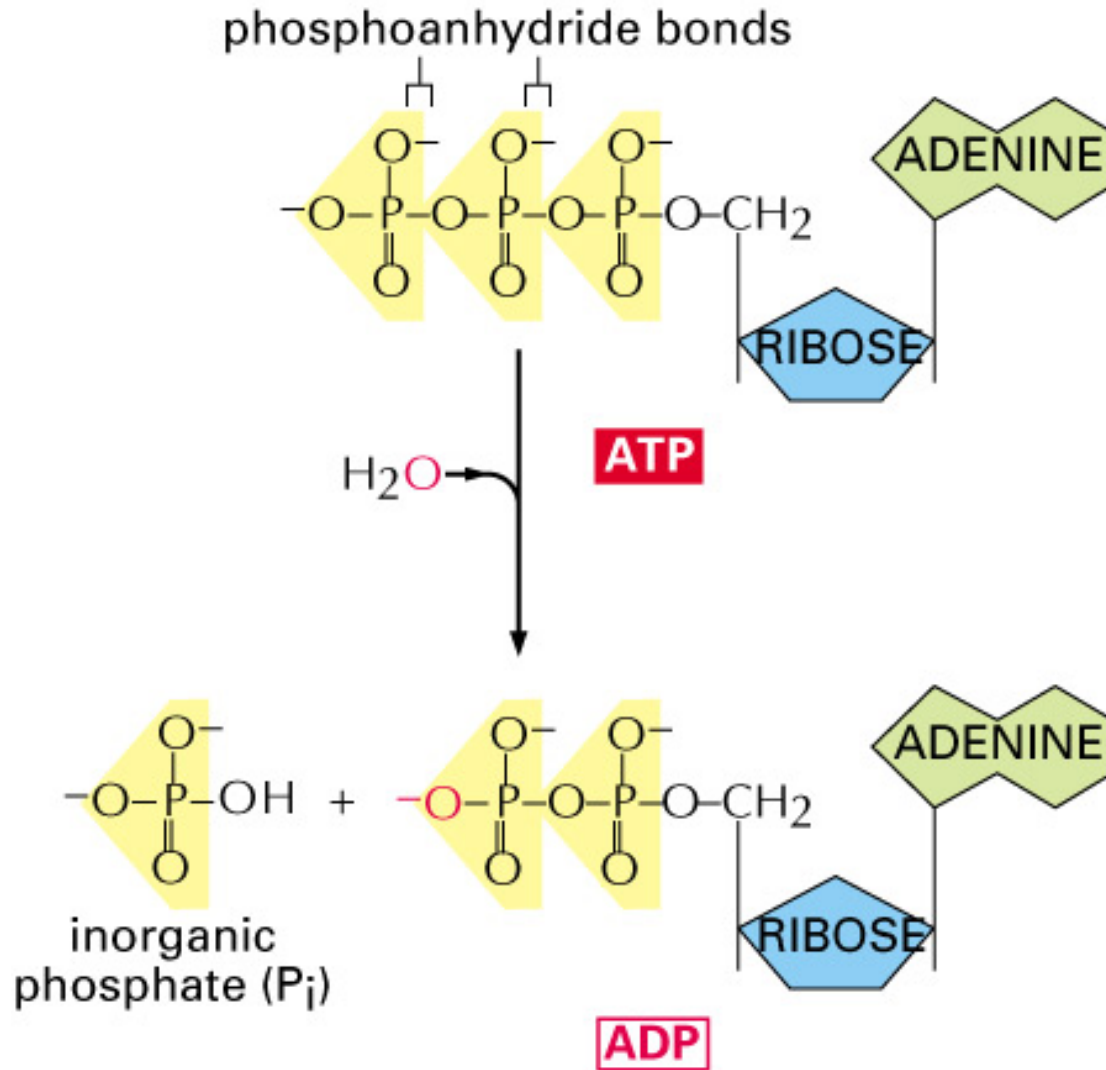
Anabolismus

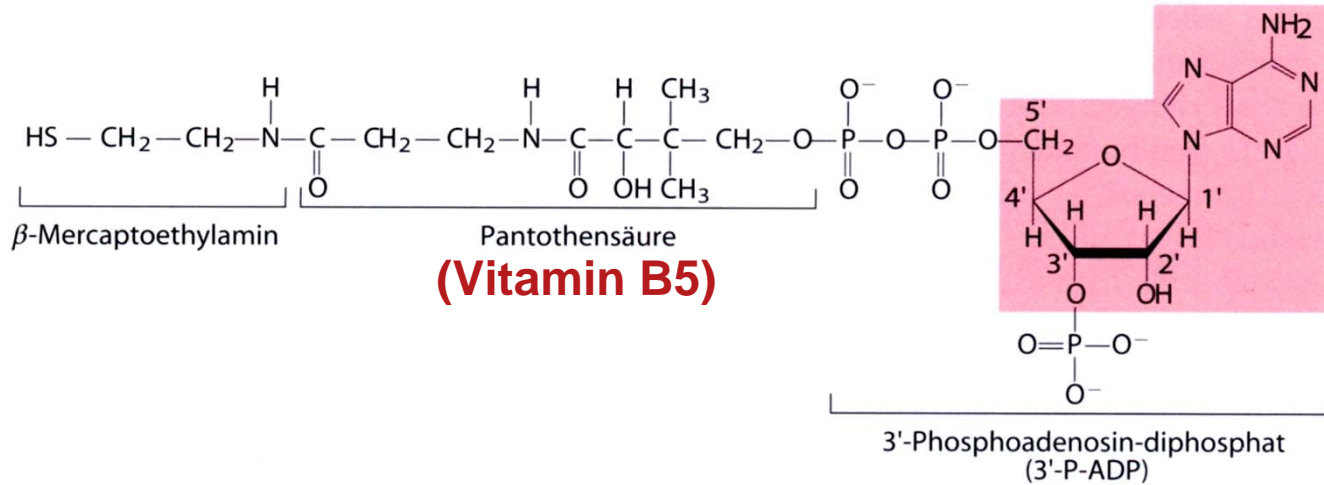


Übersicht über den Intermediärstoffwechsel

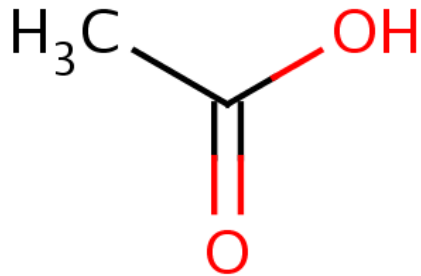


Adenosintriphosphat (ATP)

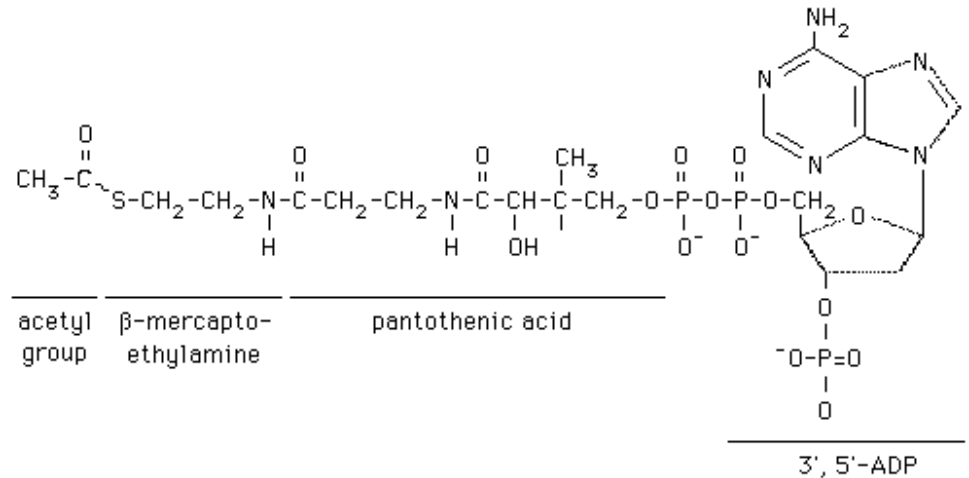




Coenzym A

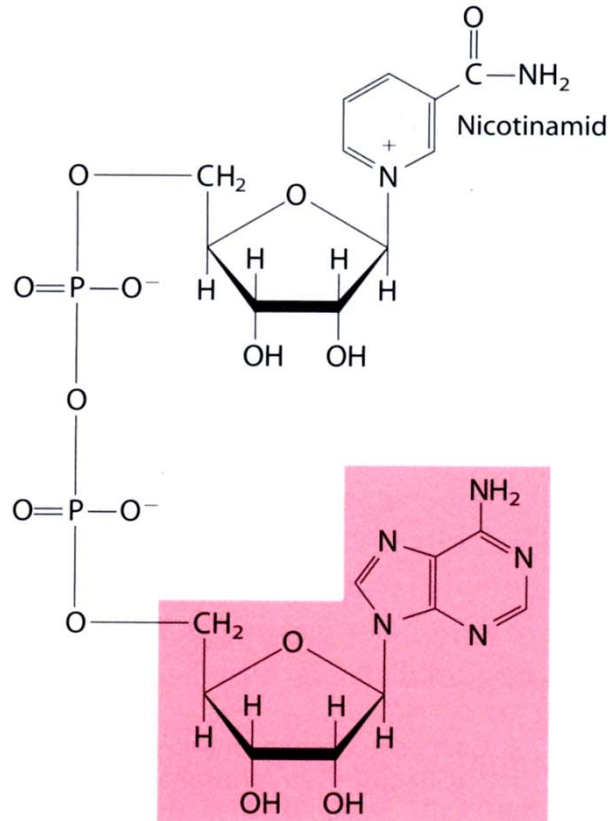


Essigsäure



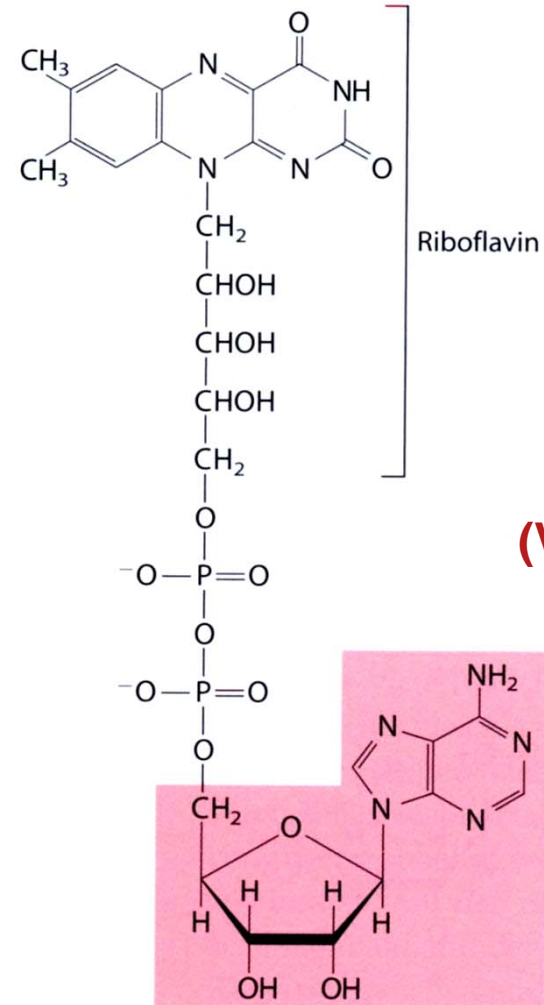
Acetyl coenzyme A, showing its constituents

NAD⁺
(Vitamin B3)



Nicotinamid-adenin-dinucleotid (NAD⁺)

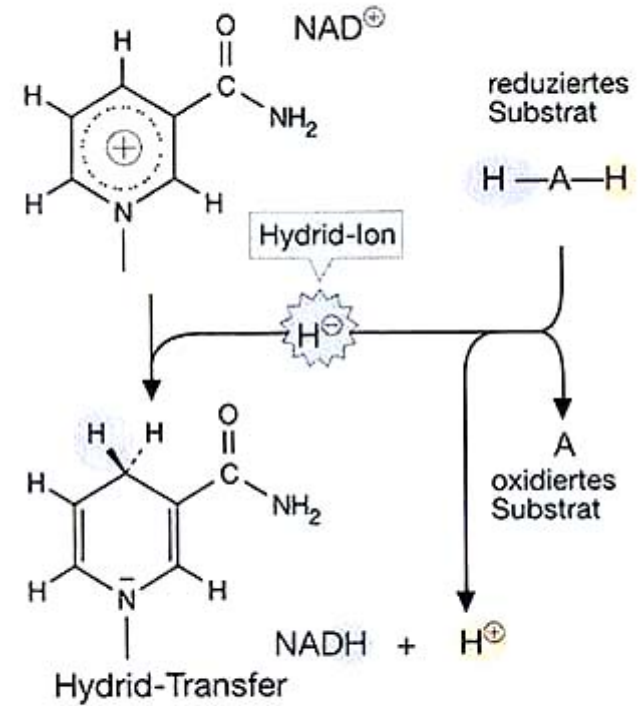
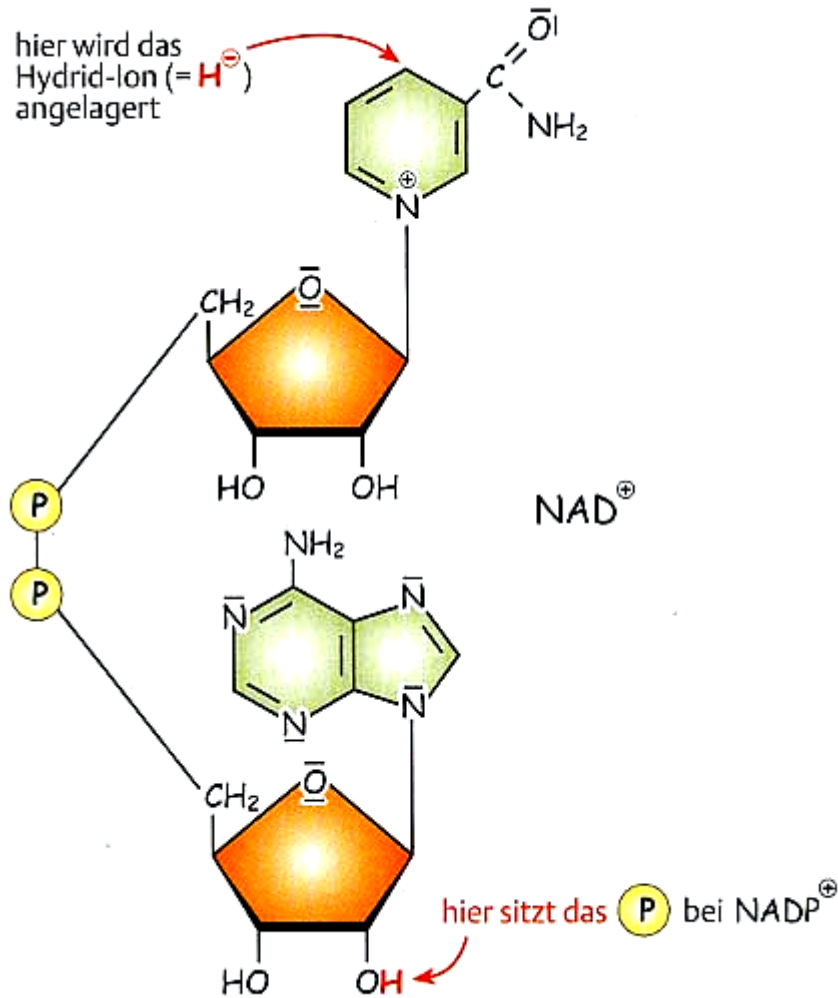
löslich



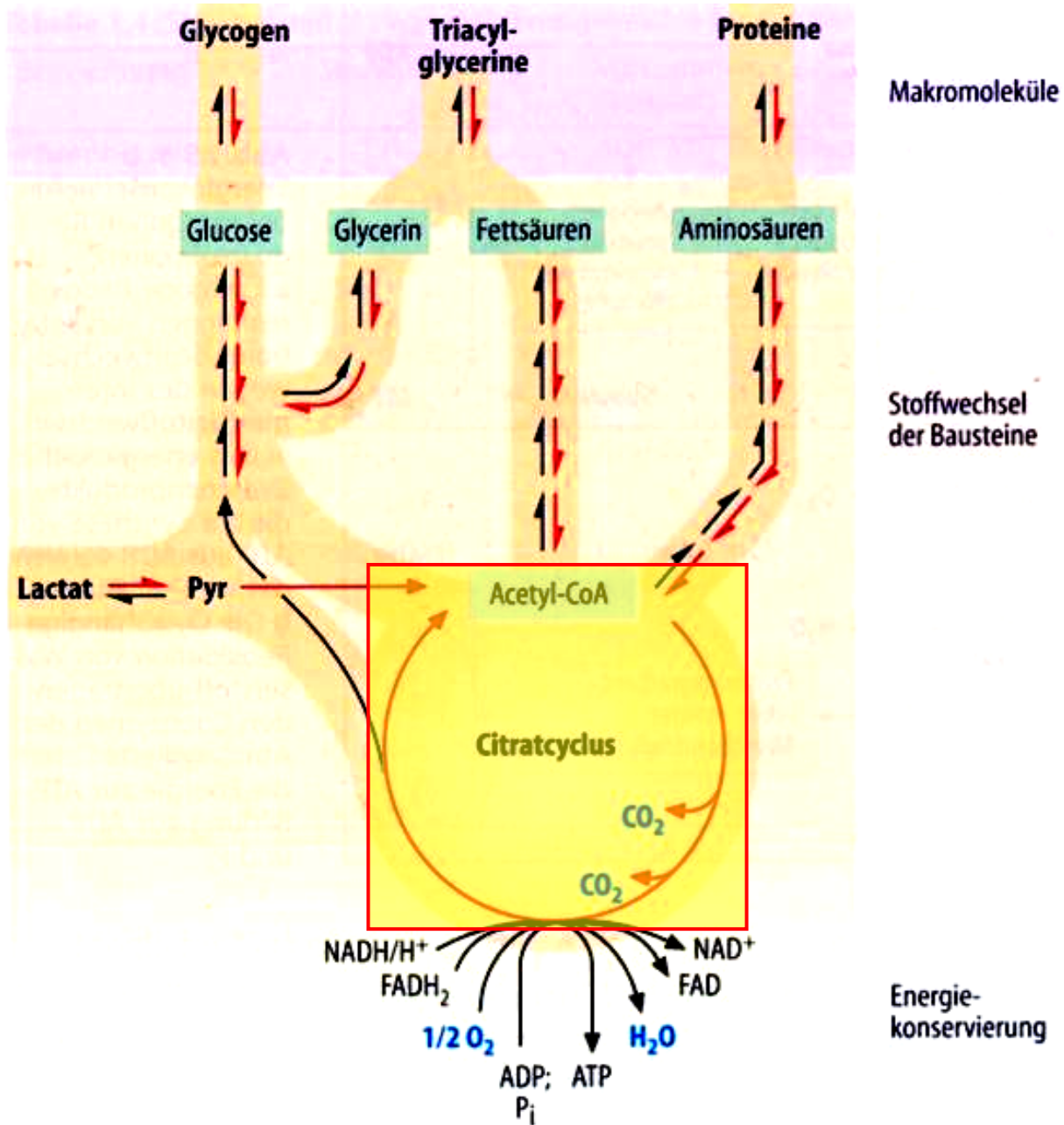
FAD
(Vitamin B2)

Flavin-adenin-dinucleotid (FAD)

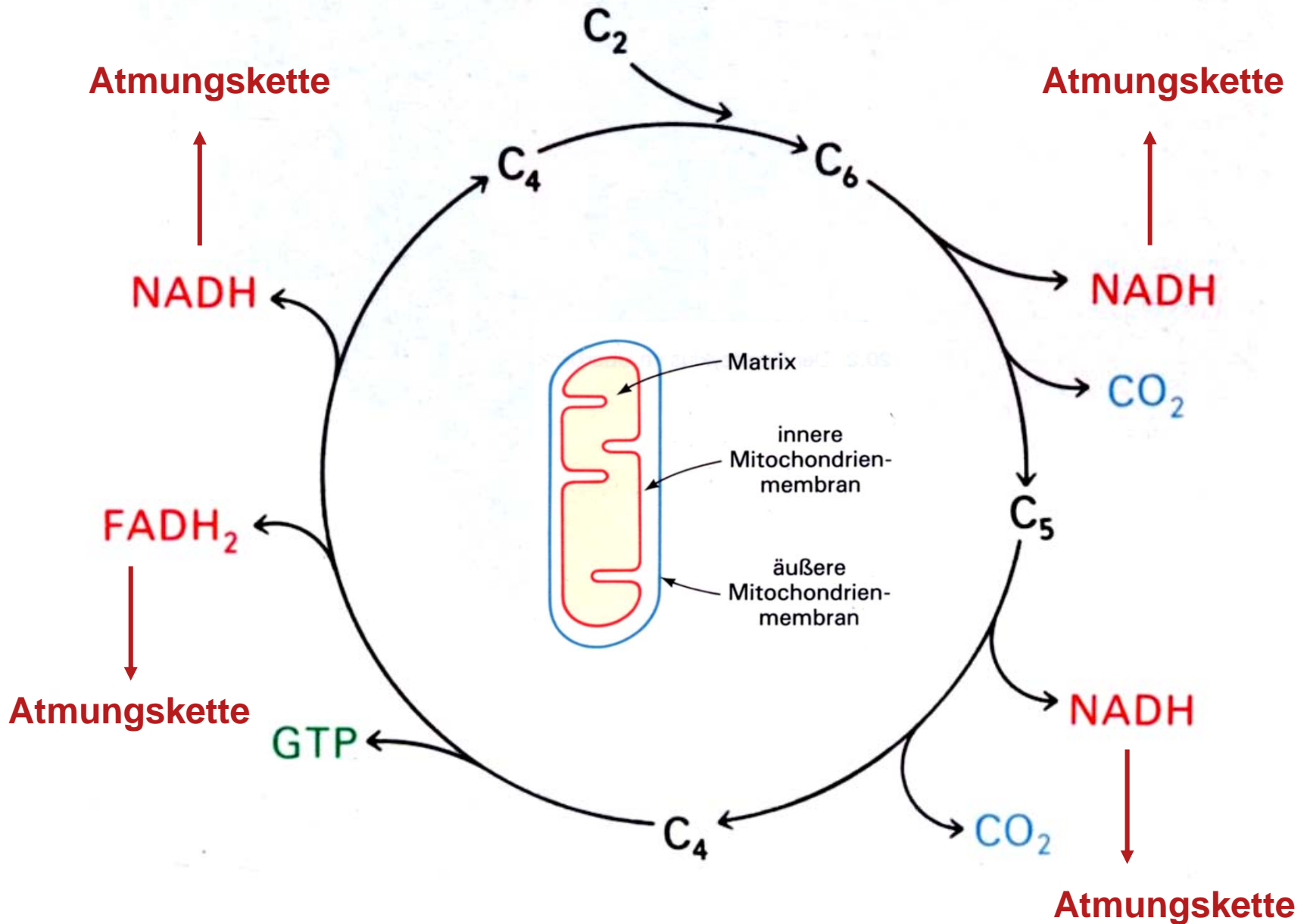
proteingebunden



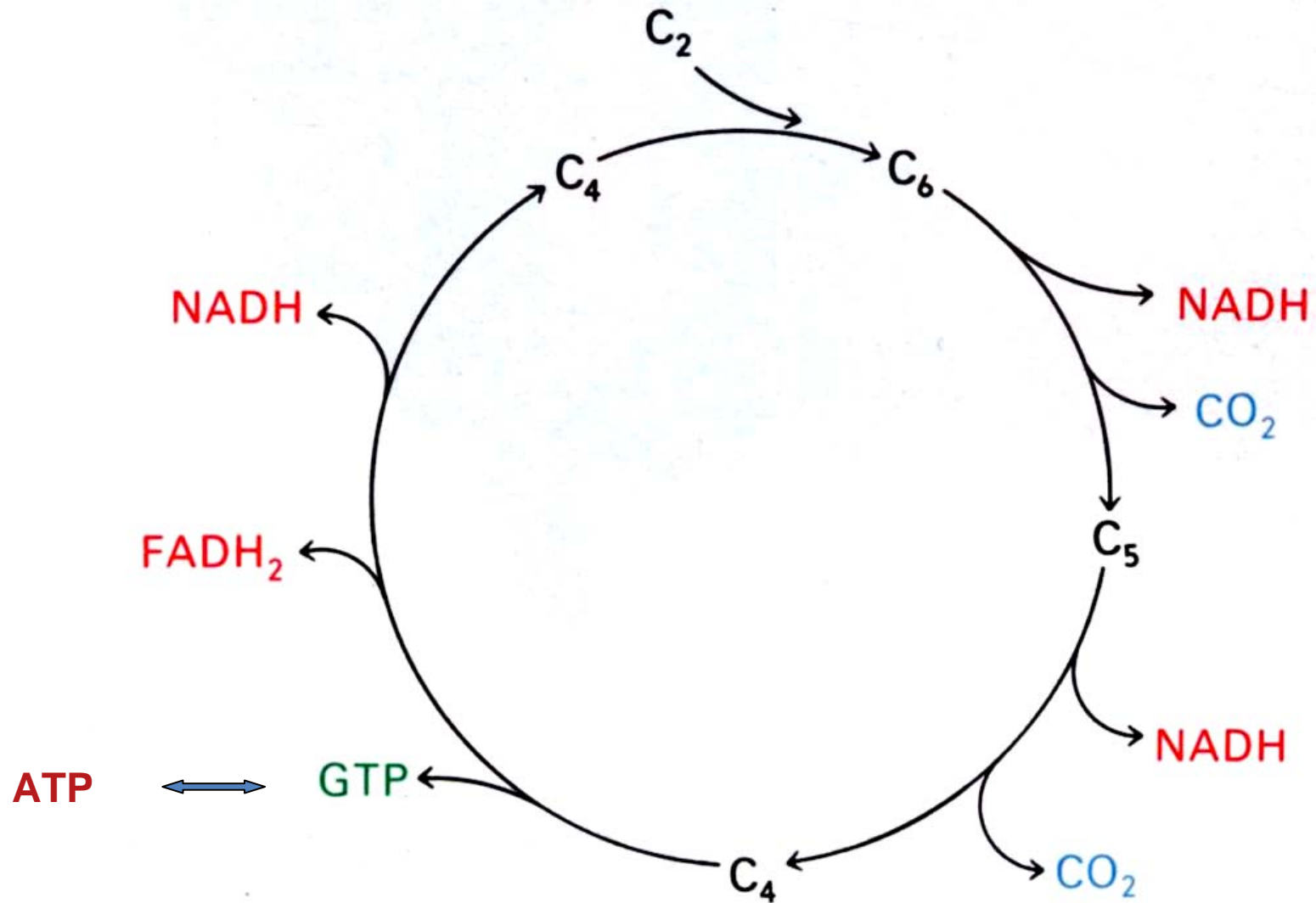
Intermediärstoffwechsel



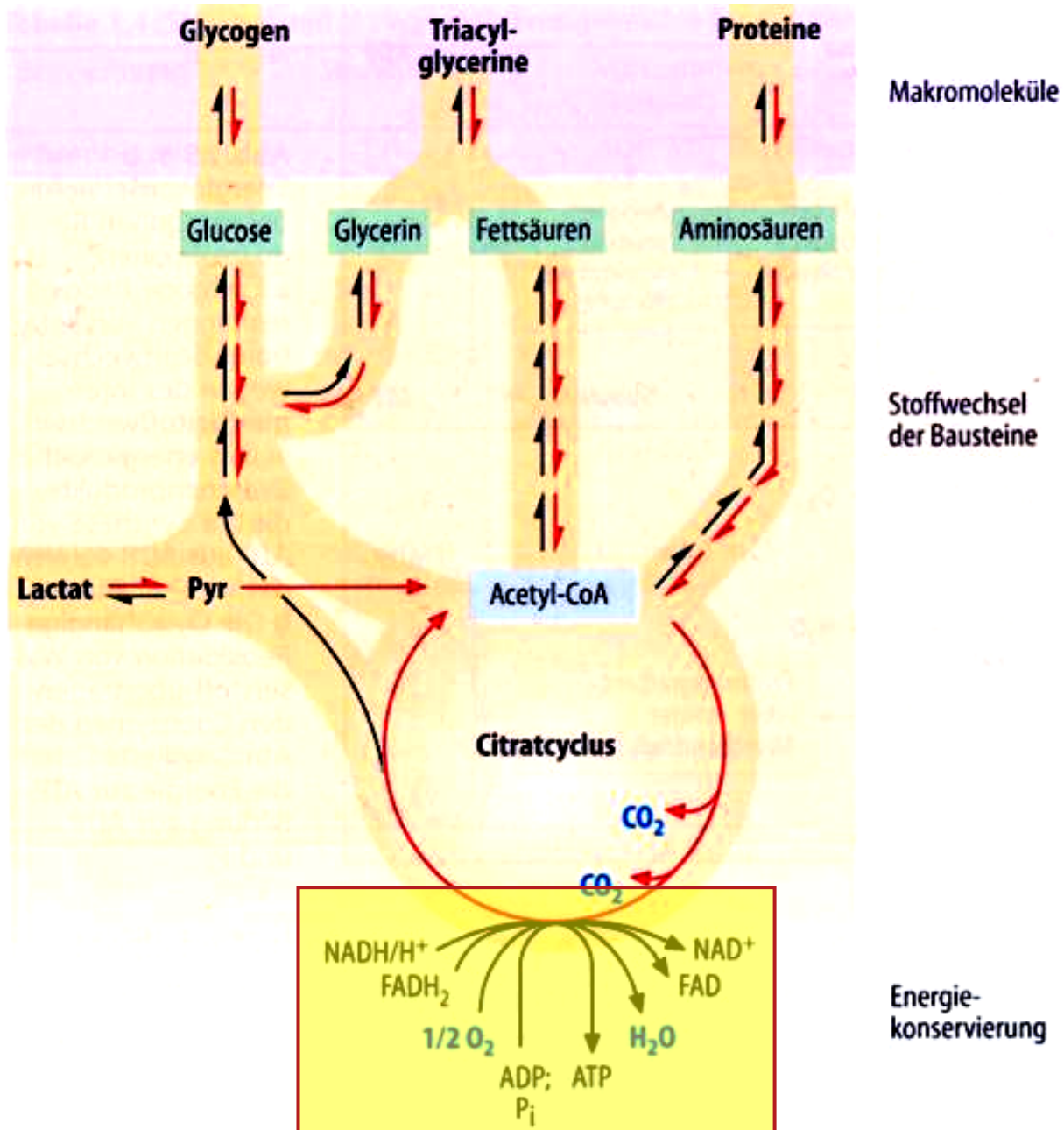
Übersicht über den Zitratzyklus



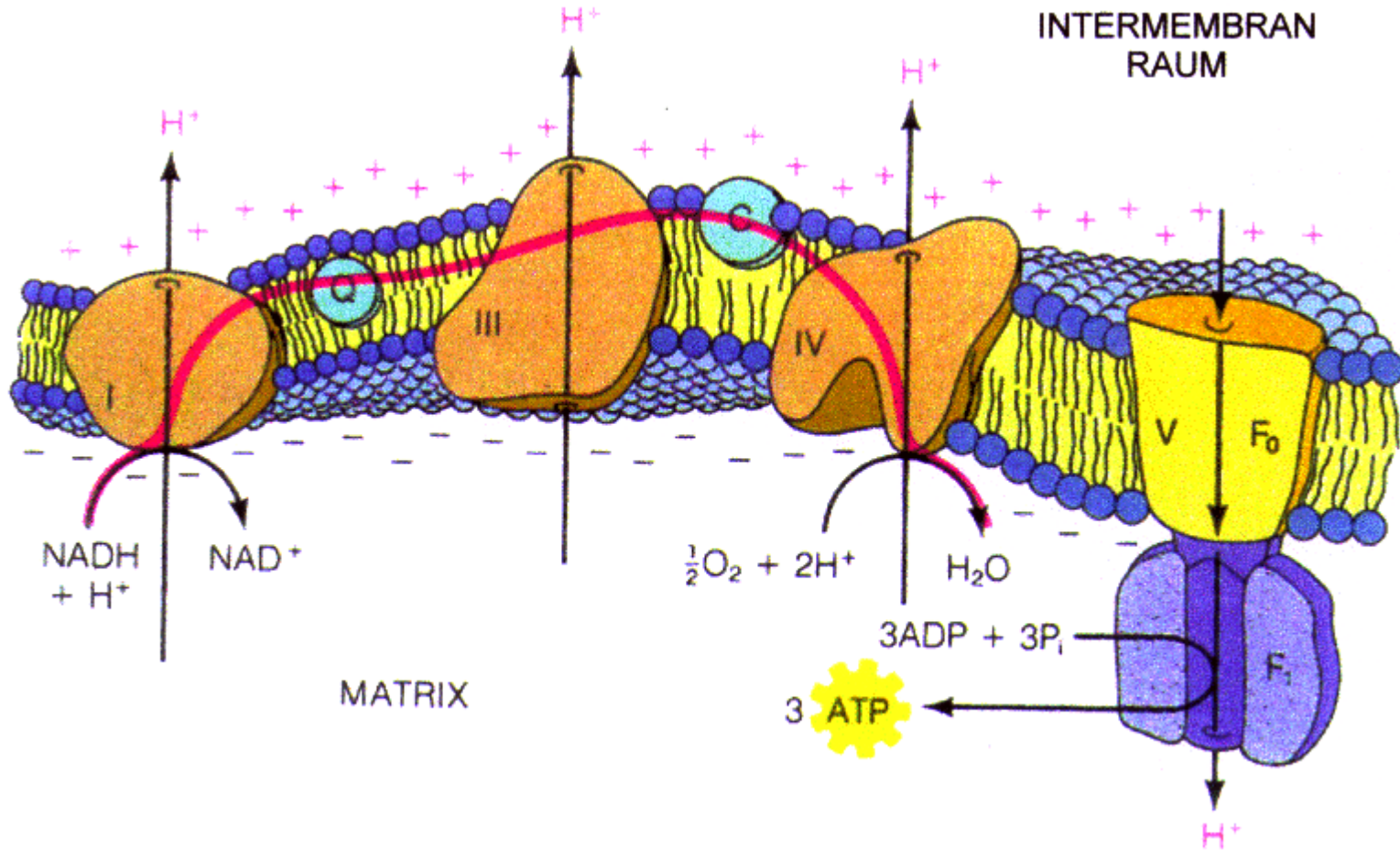
Übersicht über den Zitratzyklus



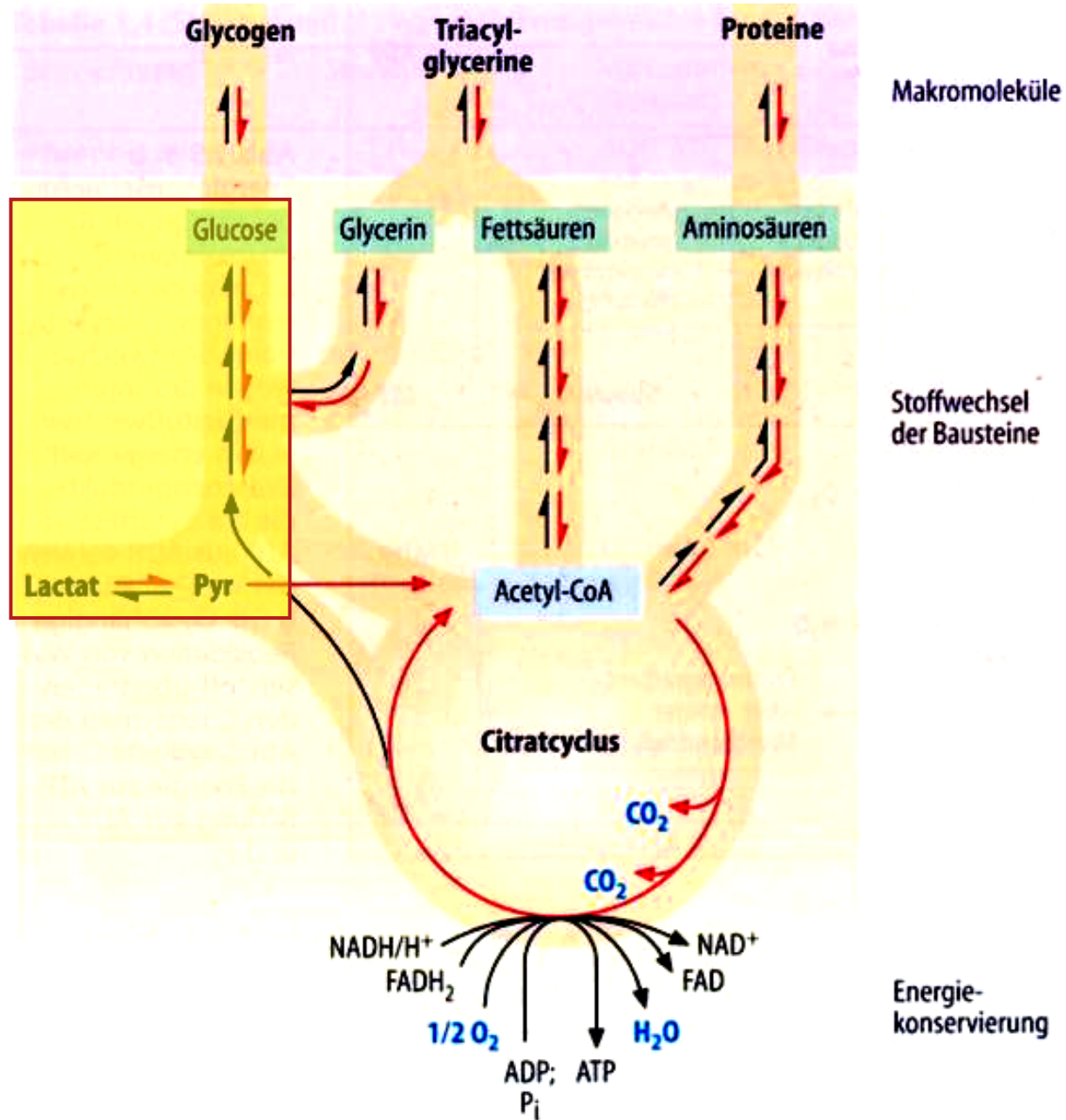
Intermediärstoffwechsel



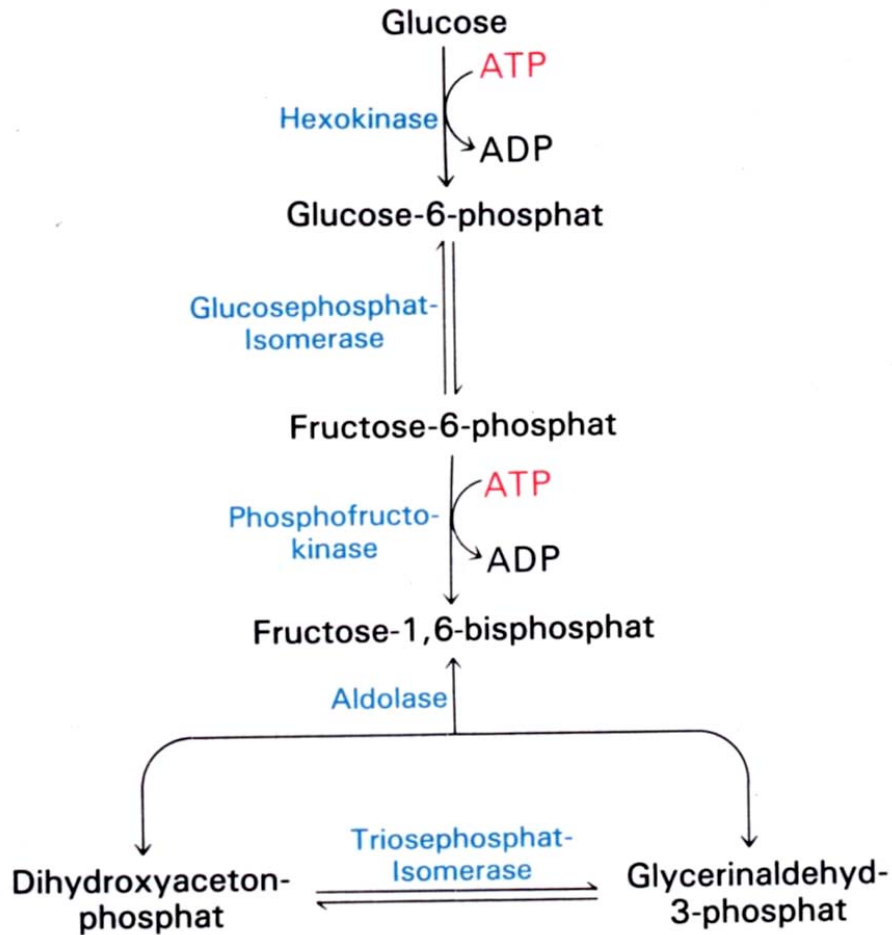
Energie-
konservierung



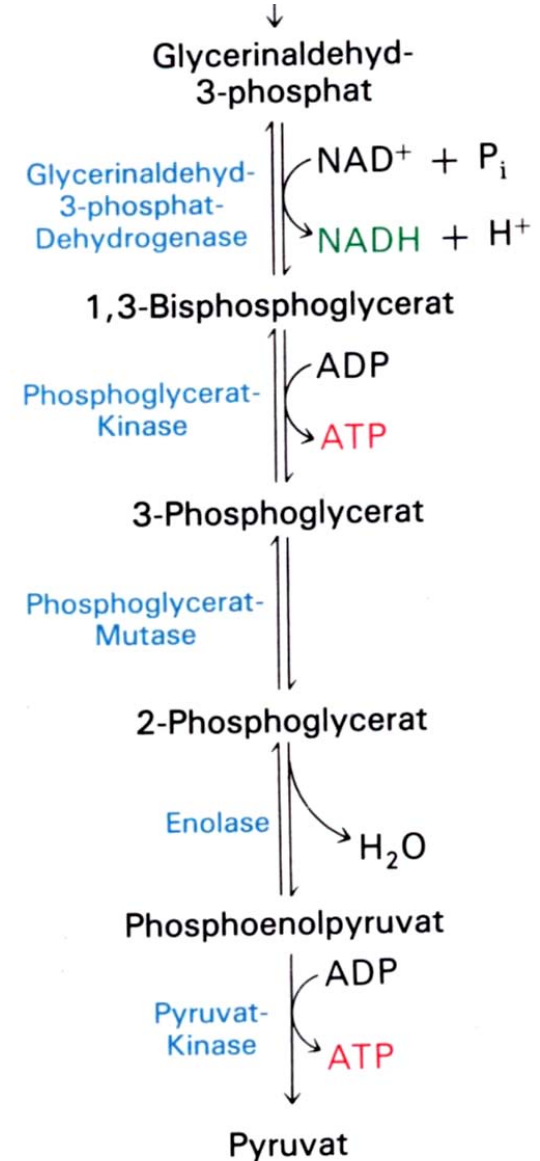
Intermediärstoffwechsel



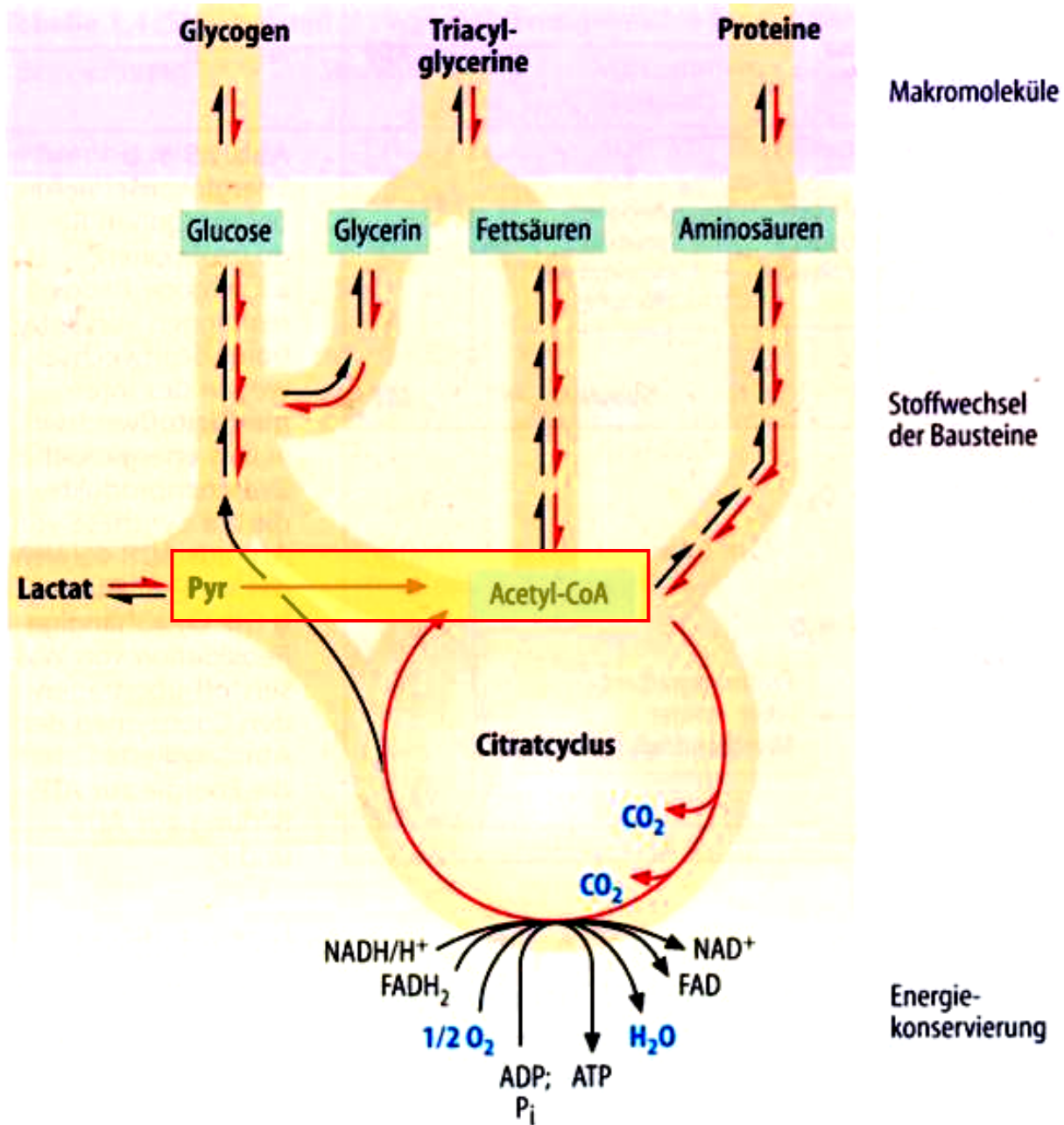
Vorbereitungsphase



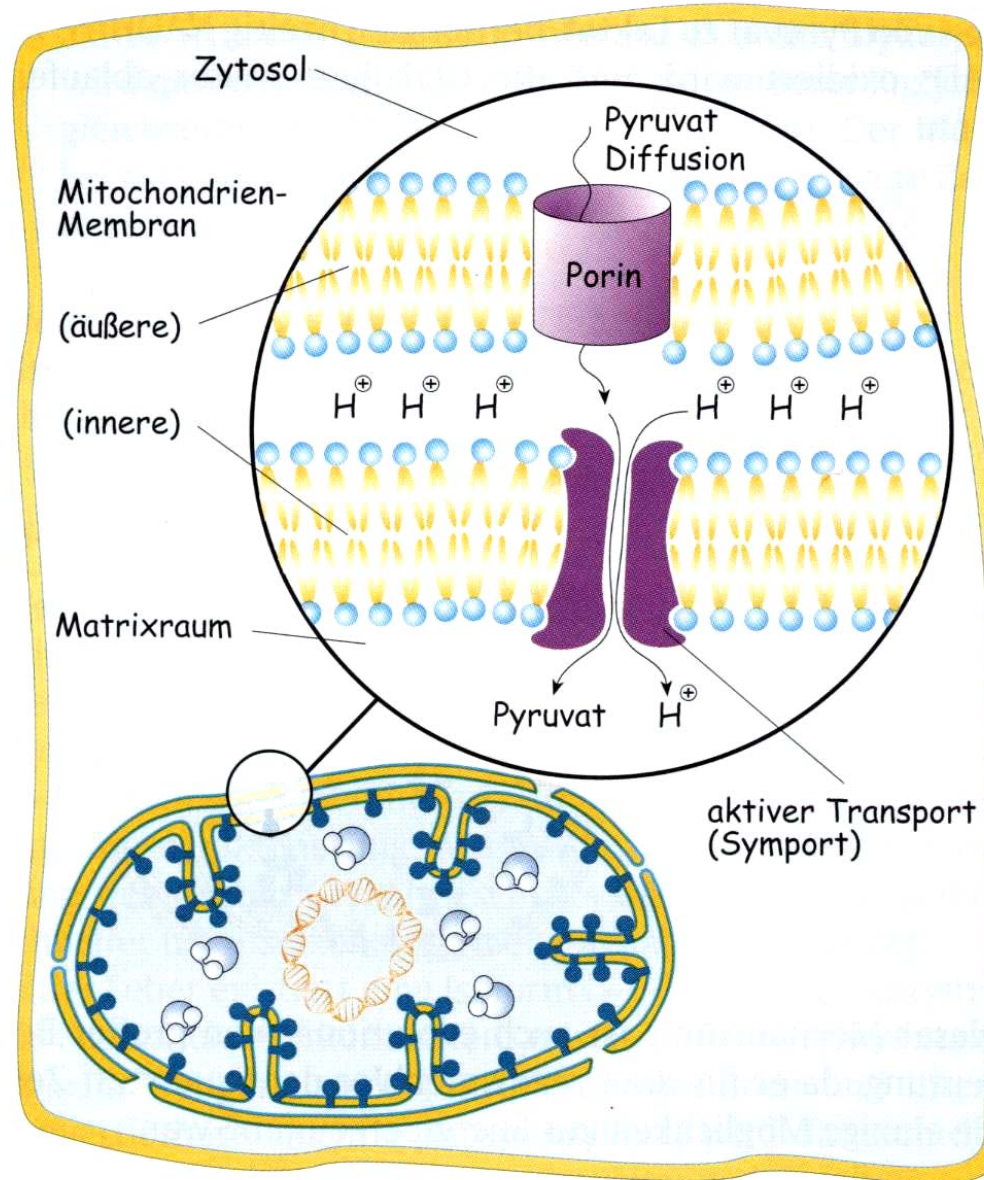
Ertragsphase



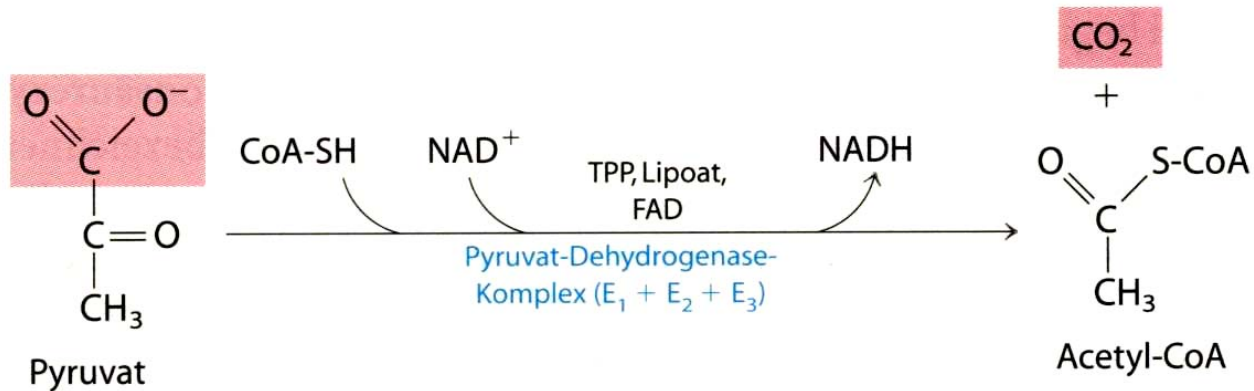
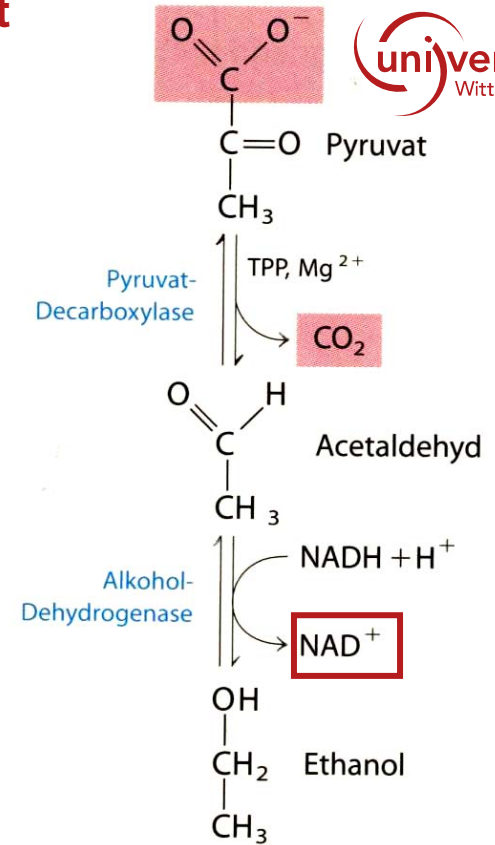
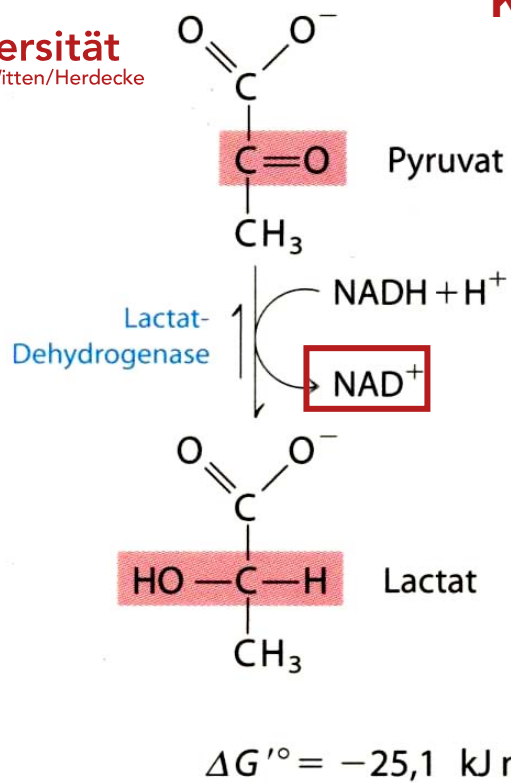
Intermediärstoffwechsel



Transport von Pyruvat ins Mitochondrium

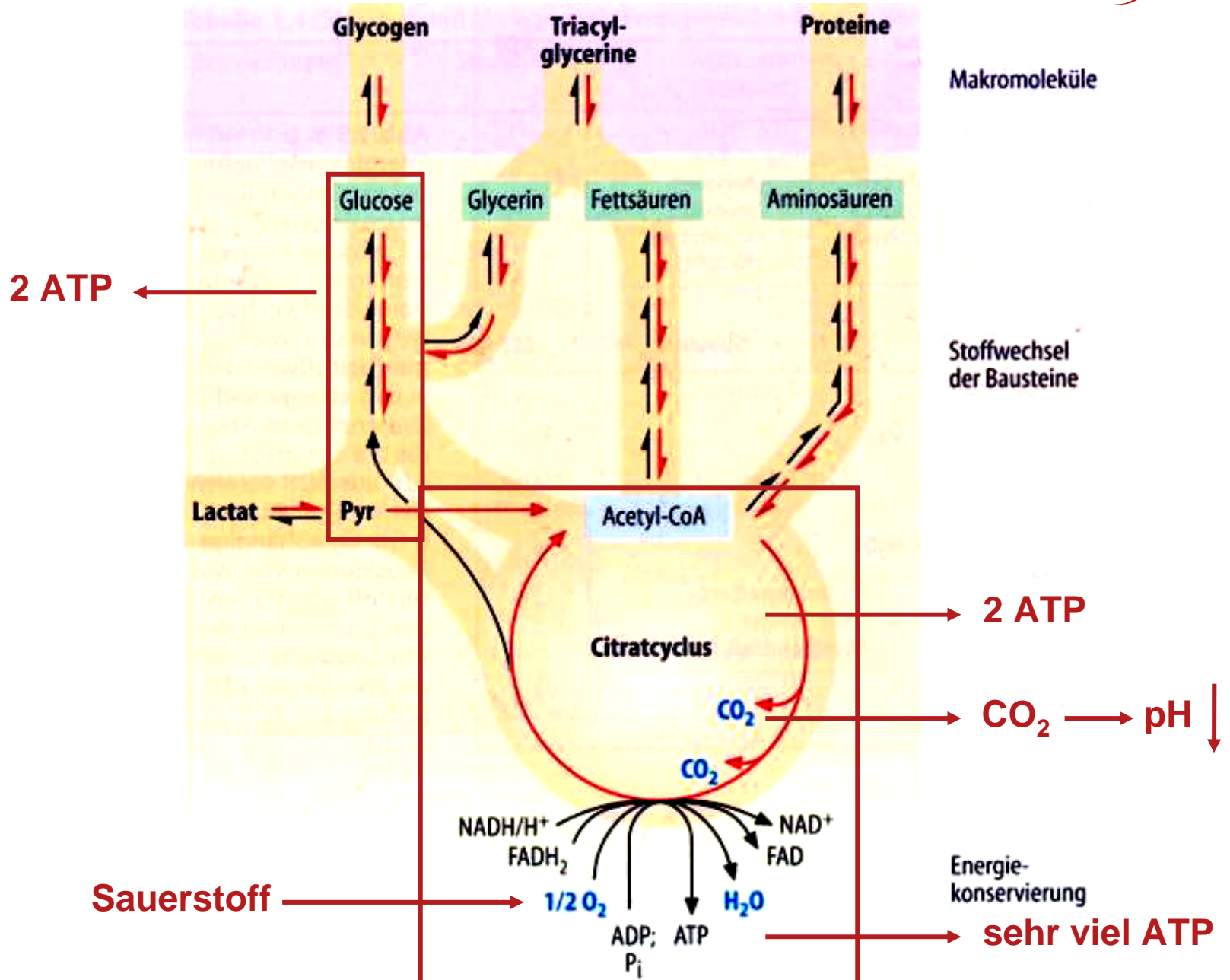


Katabolismus von Pyruvat

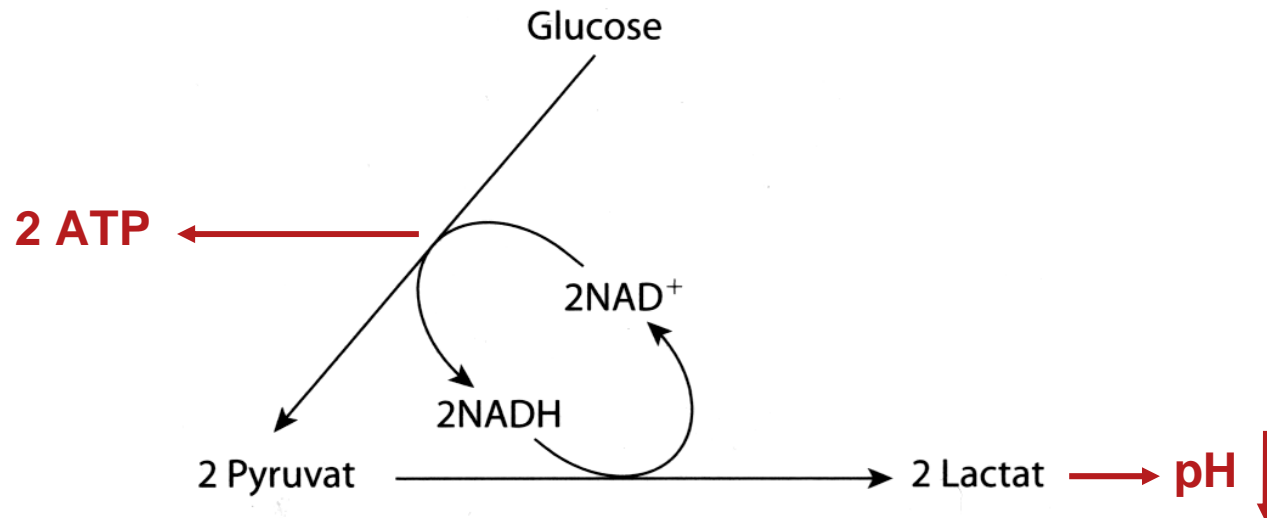


$\Delta G'^{\circ} = -33,4 \text{ kJ mol}^{-1}$

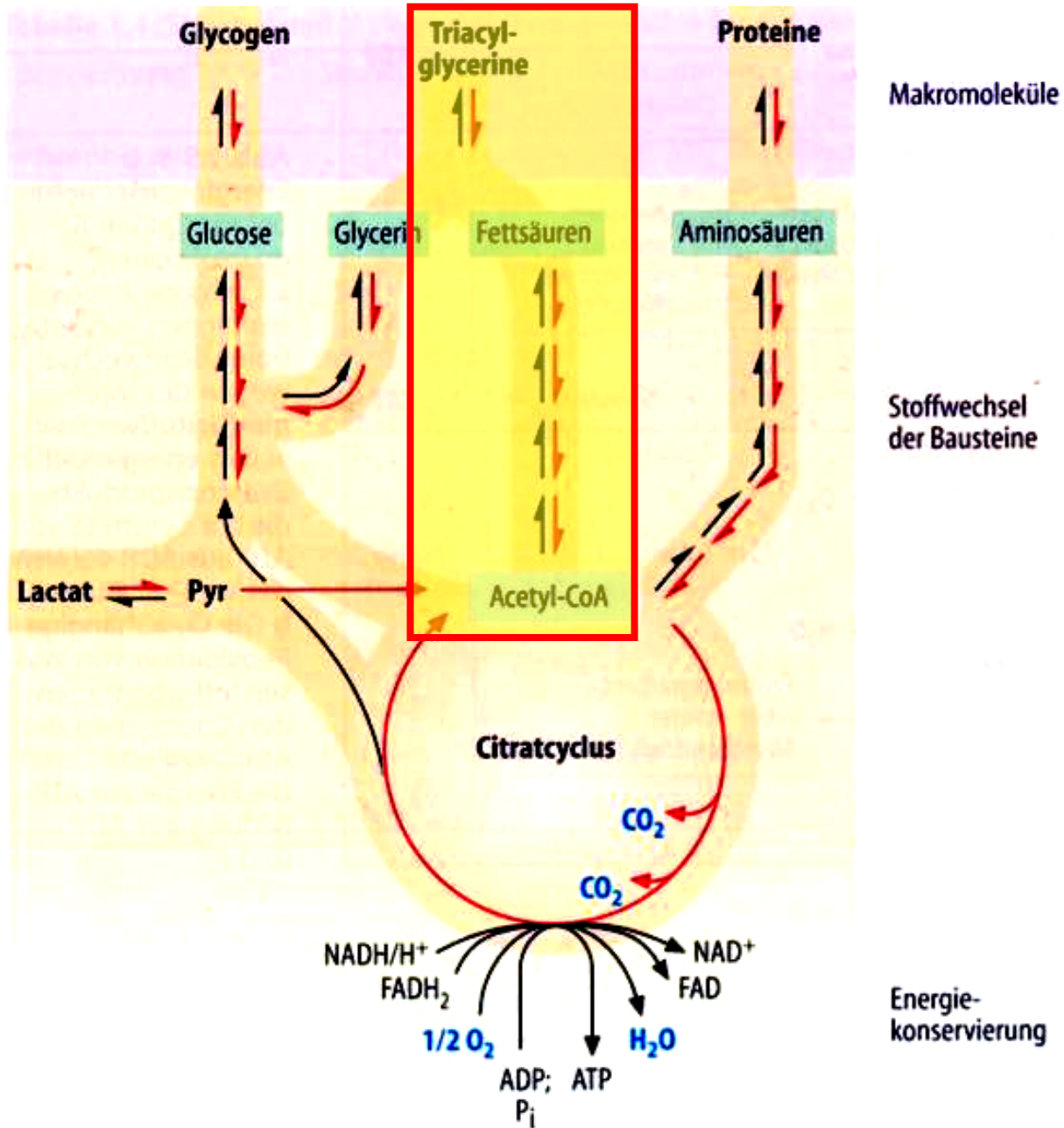
Aerobe Glykolyse

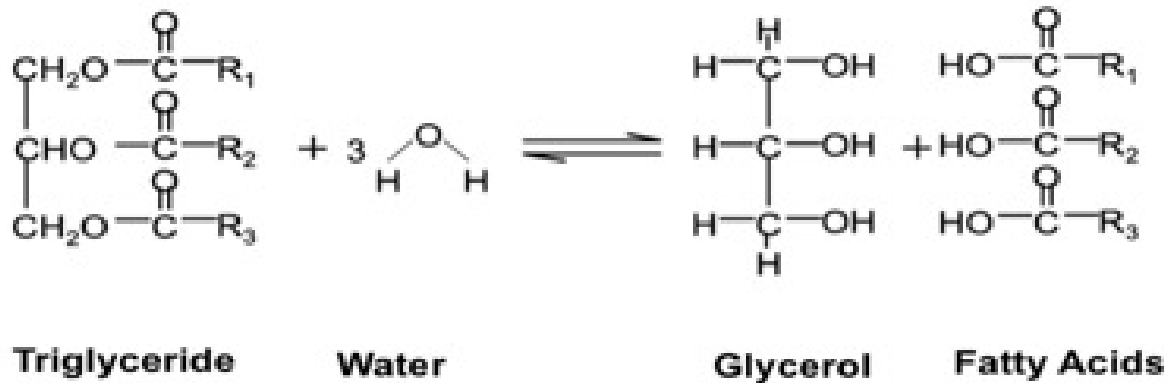
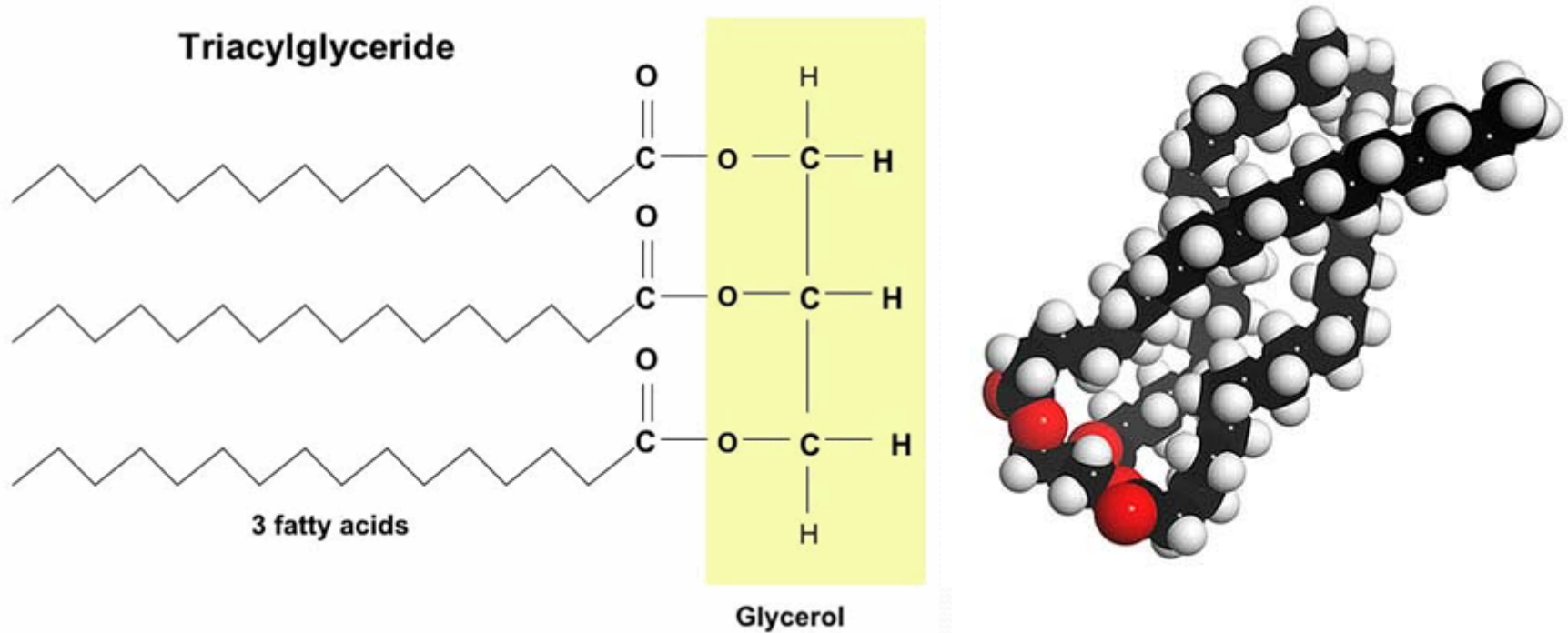


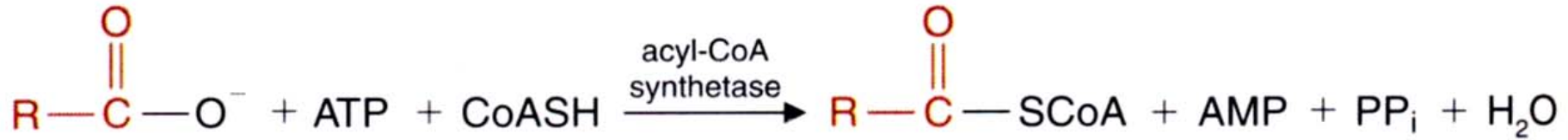
kein Sauerstoff	—————>	keine Atmungskette
keine Atmungskette	—————>	kein ATP / kein NAD ⁺
kein NAD ⁺	—————>	keine Glykolyse
keine Glykolyse	—————>	überhaupt kein ATP mehr
überhaupt kein ATP mehr	—————>	Zellnekrose



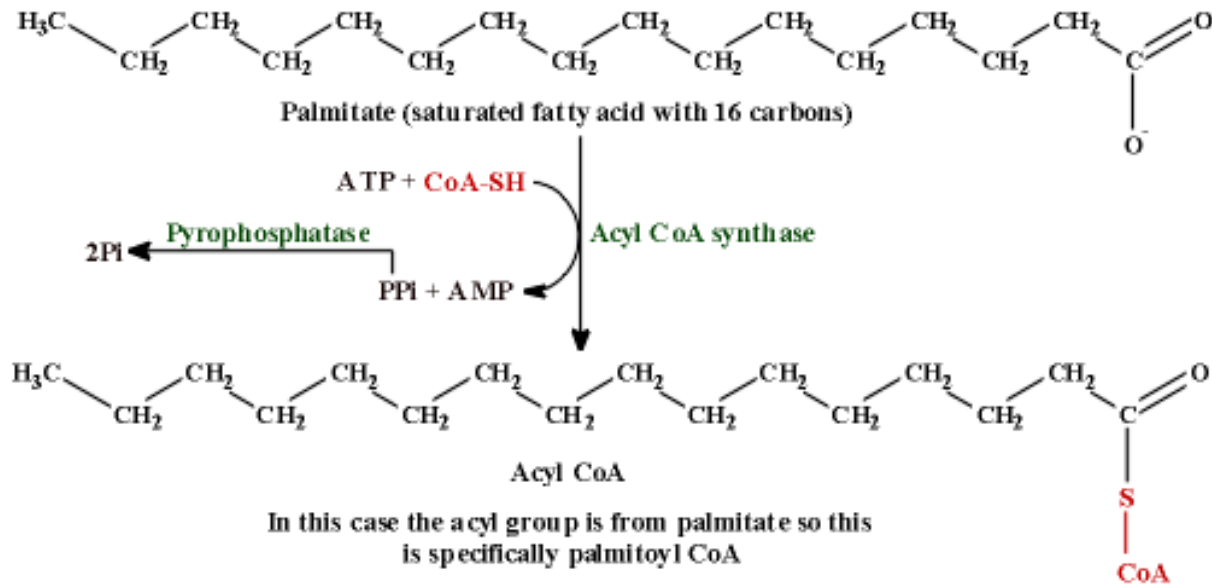
Intermediärstoffwechsel

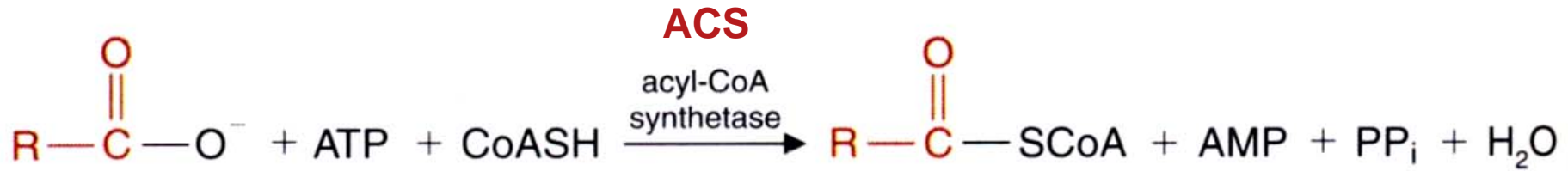




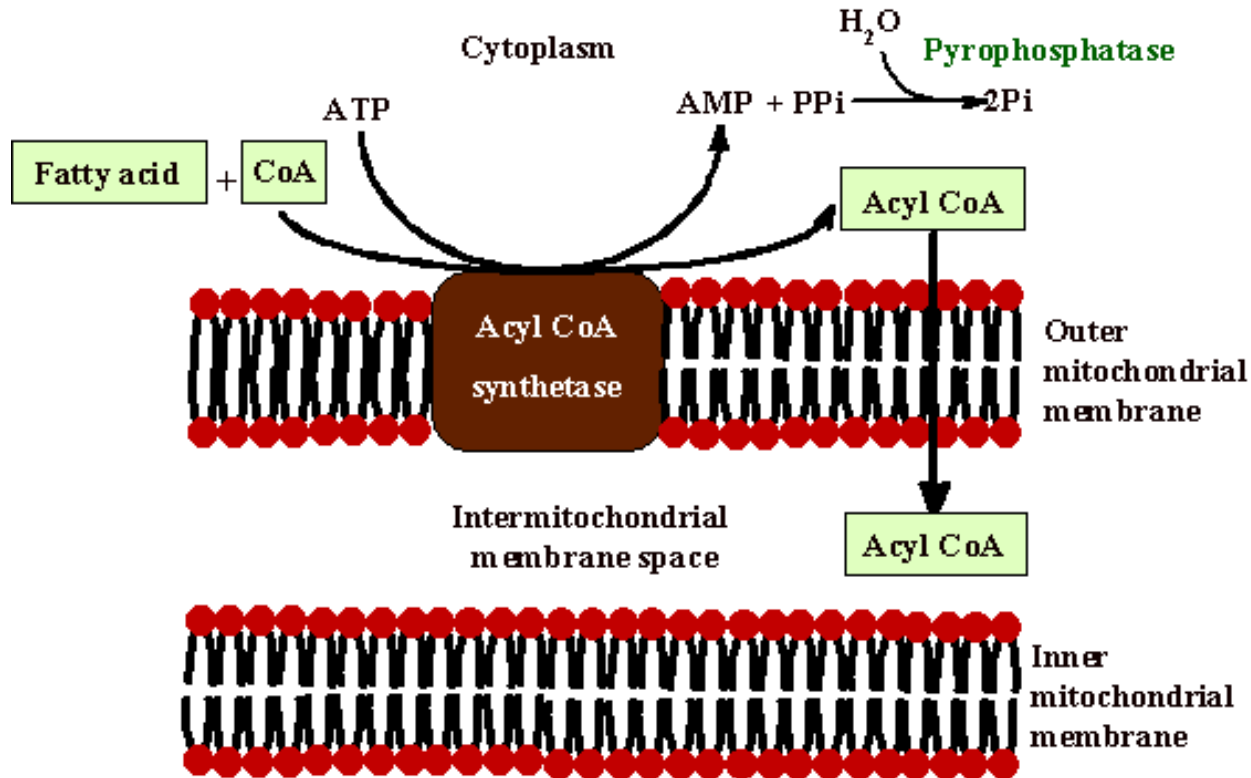


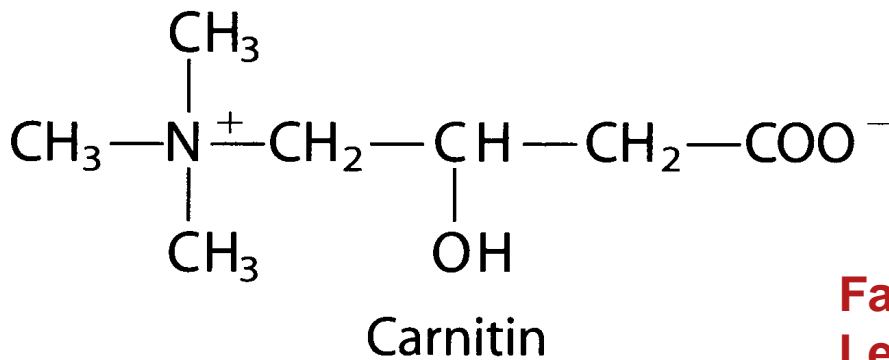
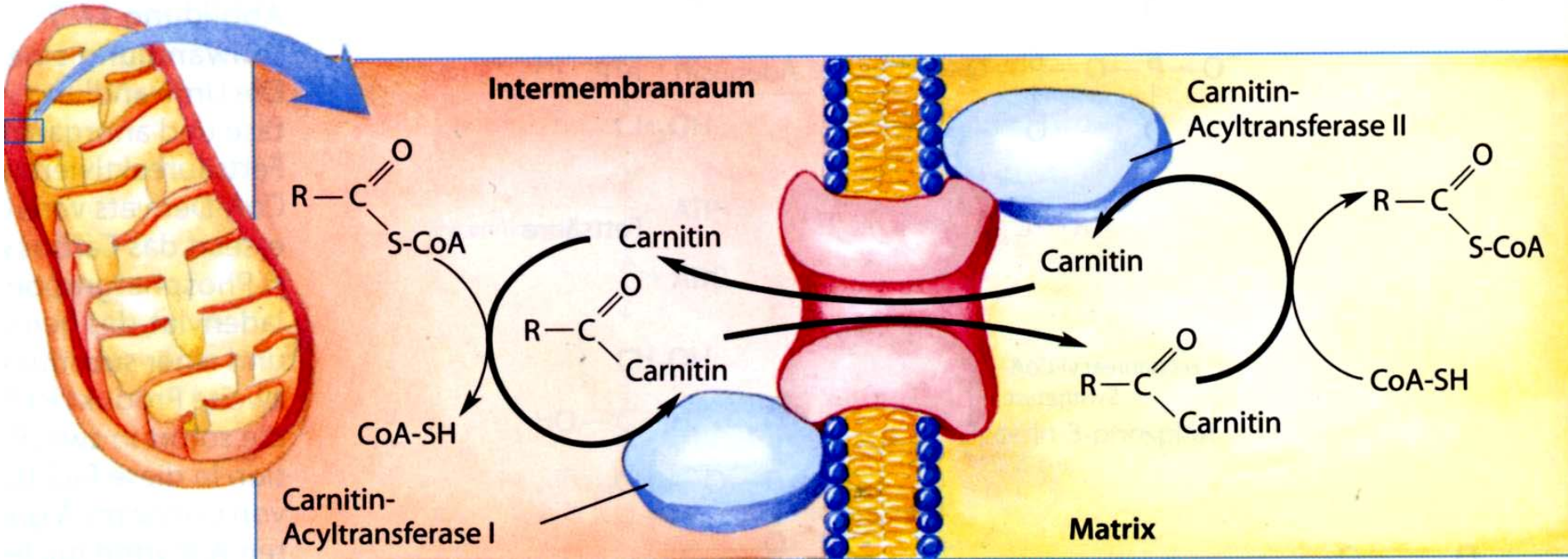
(äußere Mitochondrienmembran)





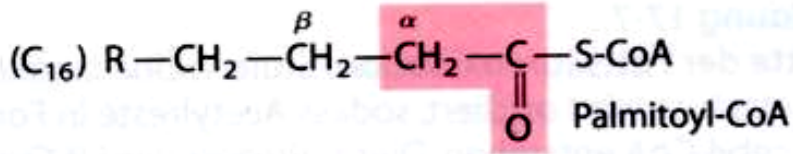
(äußere Mitochondrienmembran)



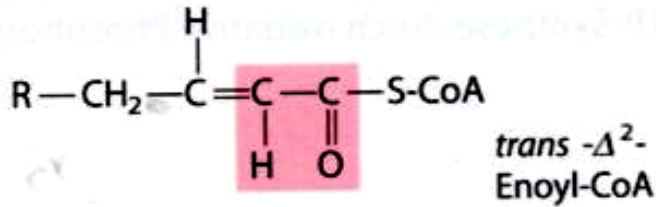


Fatburner?
Leistungssteigerung?

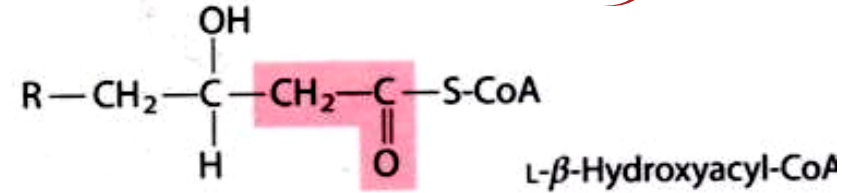
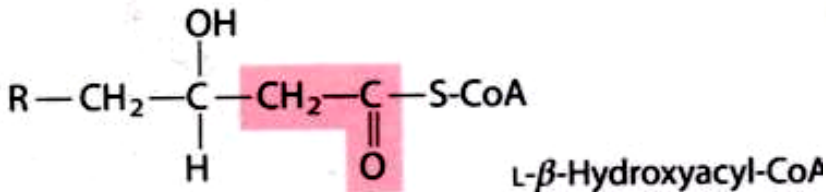




1) Acyl-CoA-Dehydrogenase
FAD → FADH₂



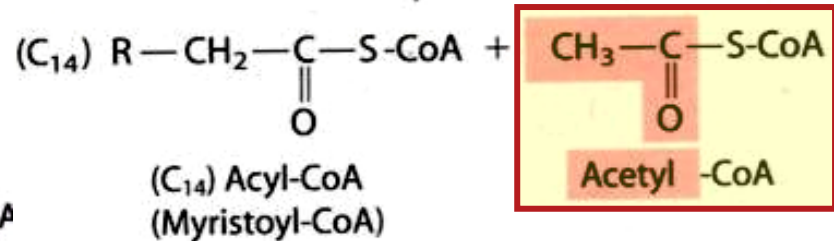
2) Enoyl-CoA-Hydratase
H₂O



3) β-Hydroxyacyl-CoA-Dehydrogenase
NAD⁺ → NADH + H⁺



4) Acyl-CoA-Acetyltransferase (Thiolase)
CoA-SH



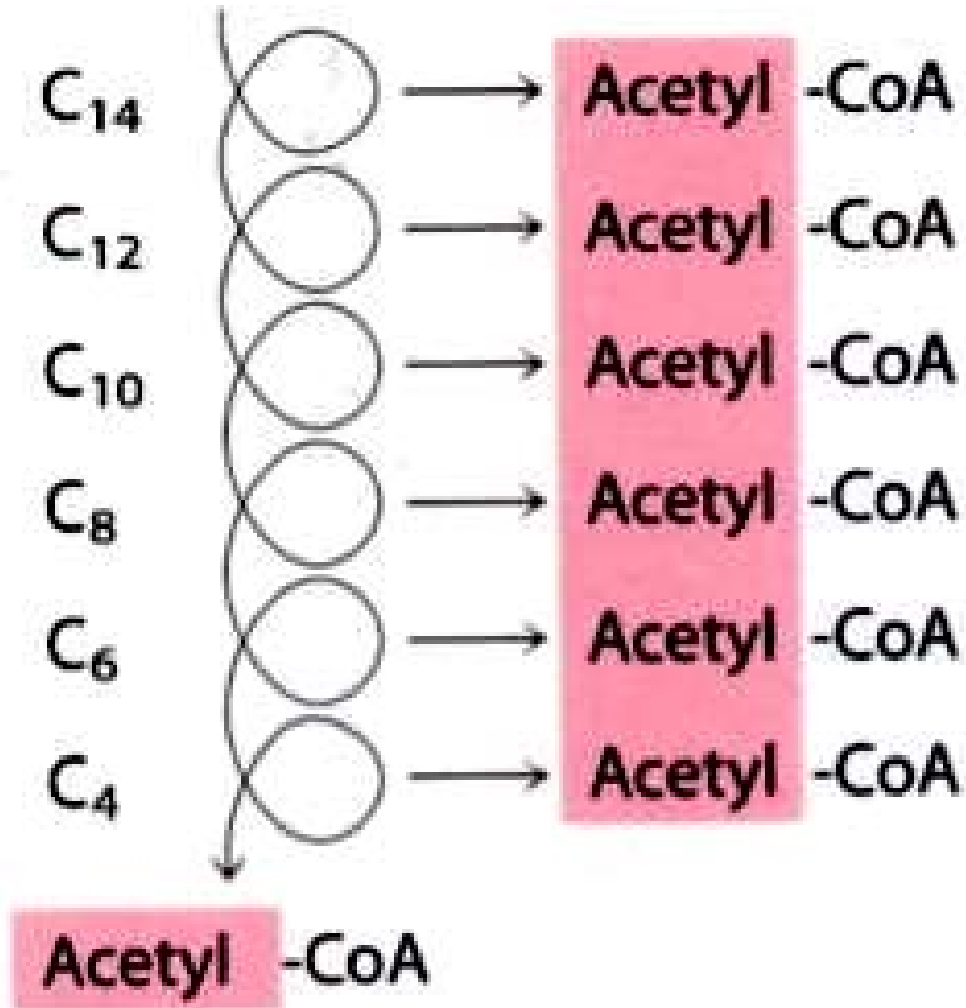
1) Oxidation (gesättigt → Doppelbindung)

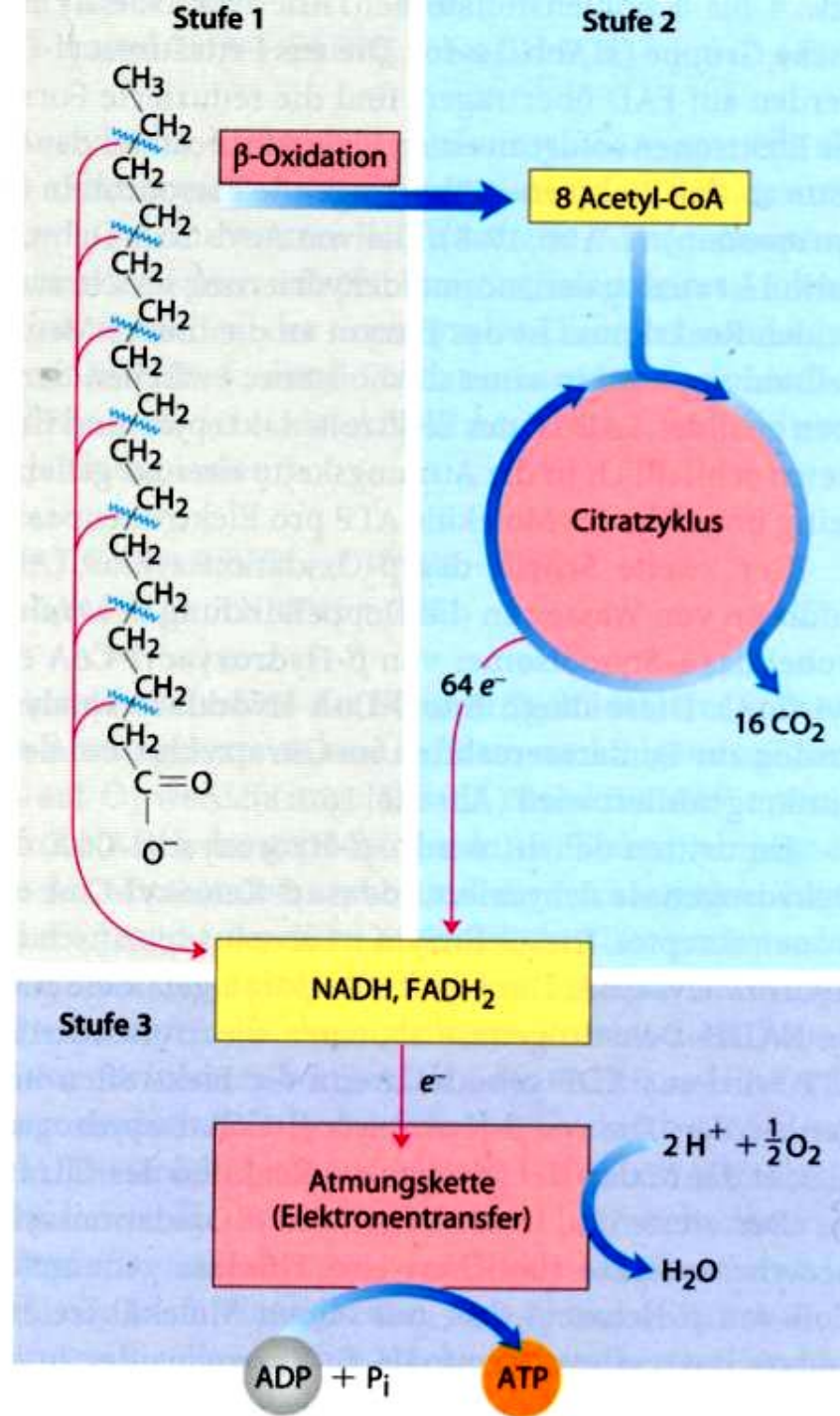
2) Wasser rein (Doppelbindung → Alkohol)

3) Oxidation (Alkohol → Keton)

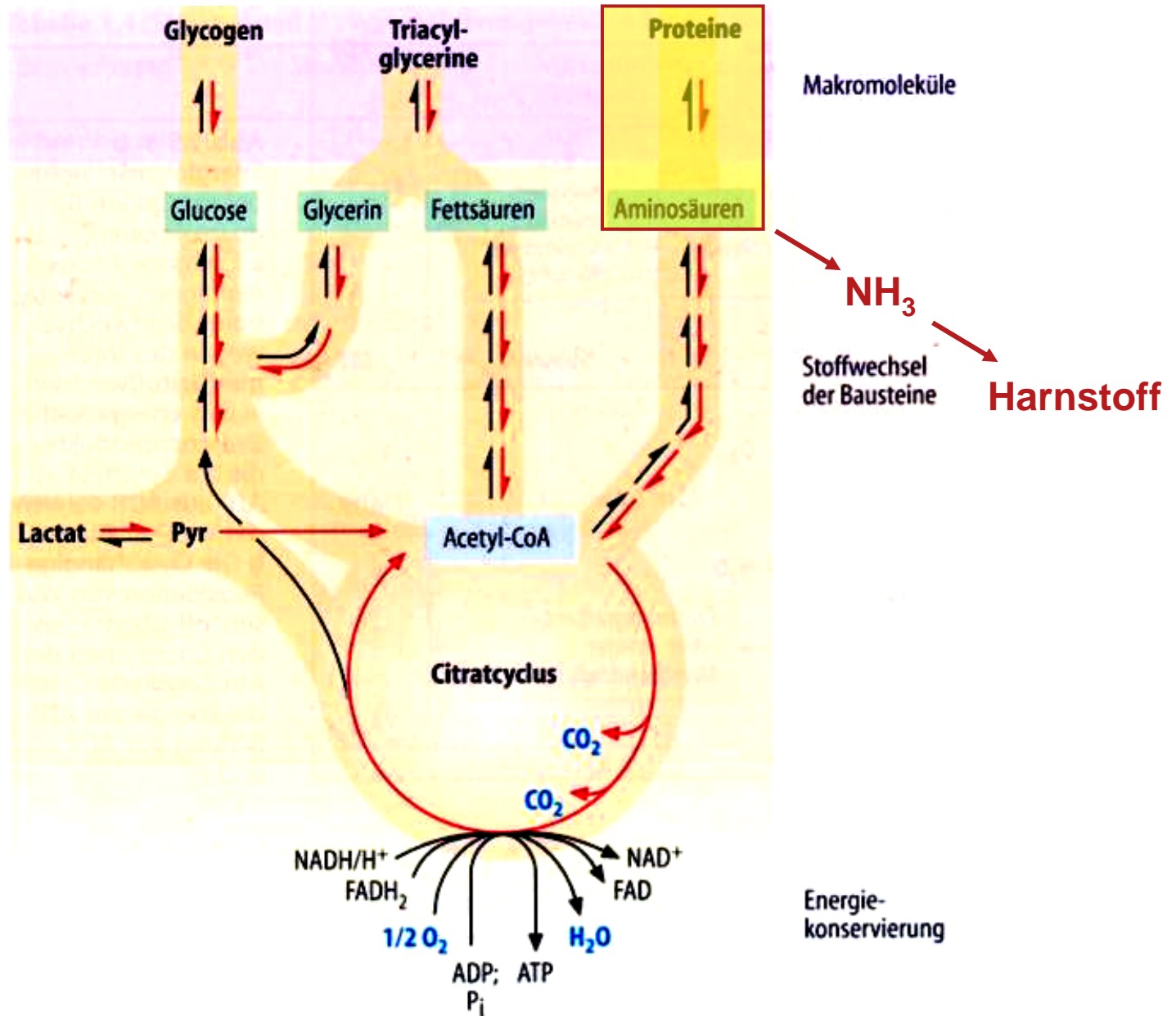
4) Abspaltung von Acetyl-CoA

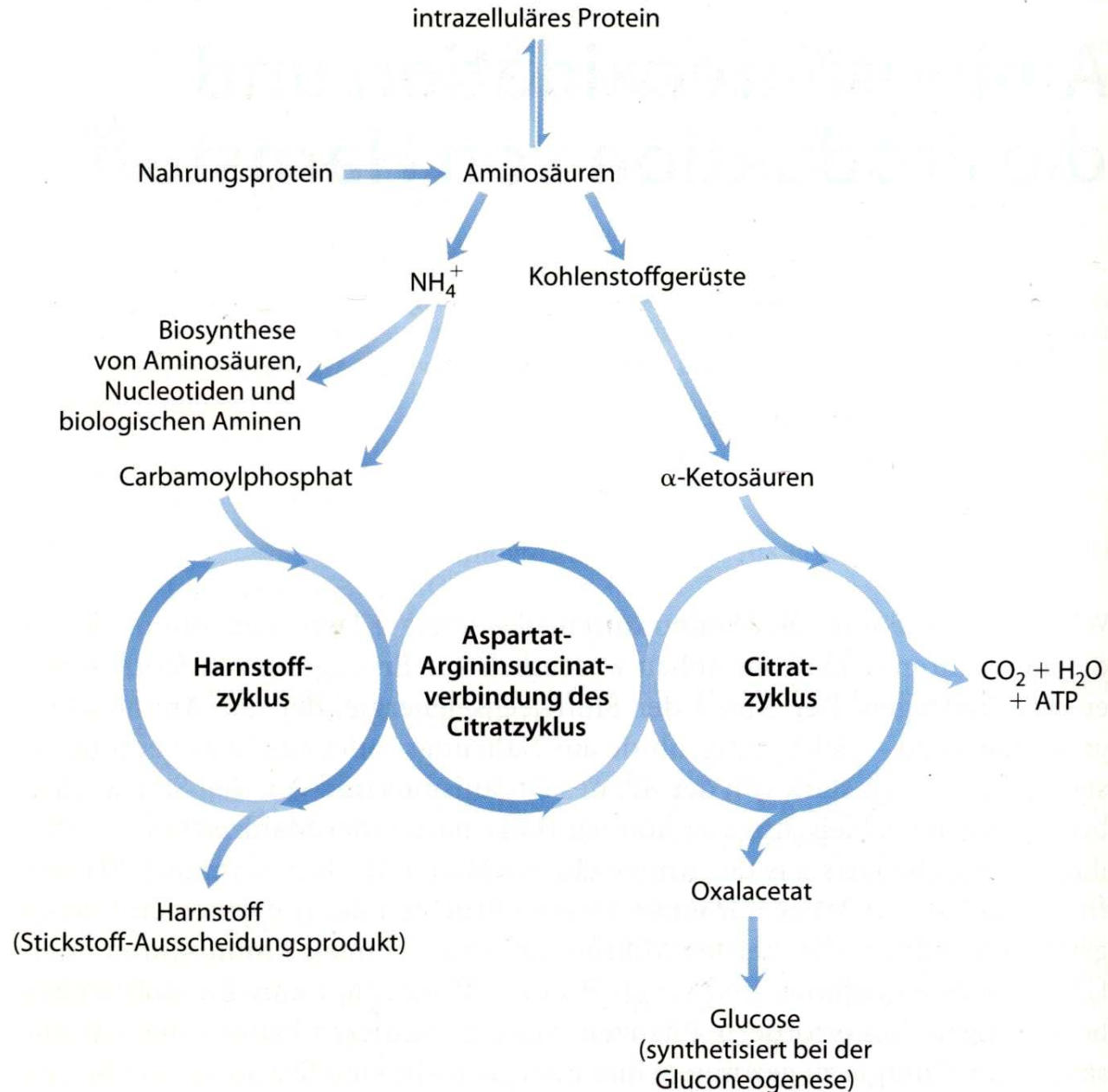
Reduktionsäquivalente: FADH₂ und NADH (Katabolismus)





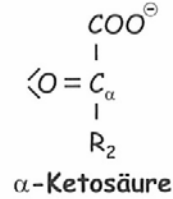
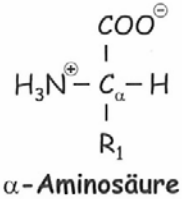
Übersicht über den Intermediärstoffwechsel



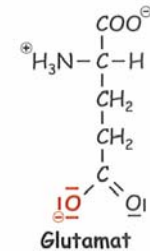
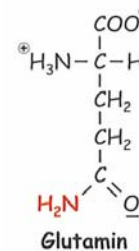
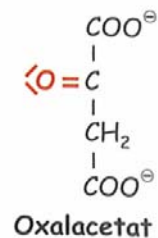
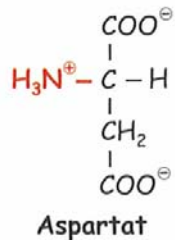
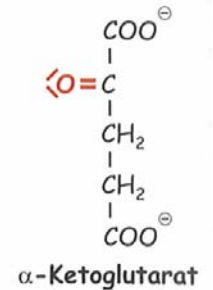
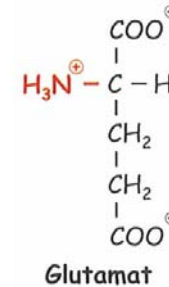
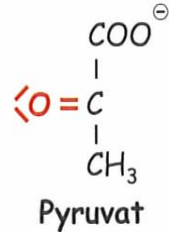
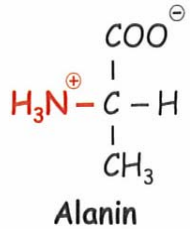


nichtessentiell	essentiell
Alanin	Histidin
Arginin	Isoleucin
Asparagin	Leucin
Aspartat	Lysin
Cystein	Methionin
Glutamat	Phenylalanin
Glutamin	Threonin
Glycin	Tryptophan
Prolin	Valin
Serin	
Tyrosin	

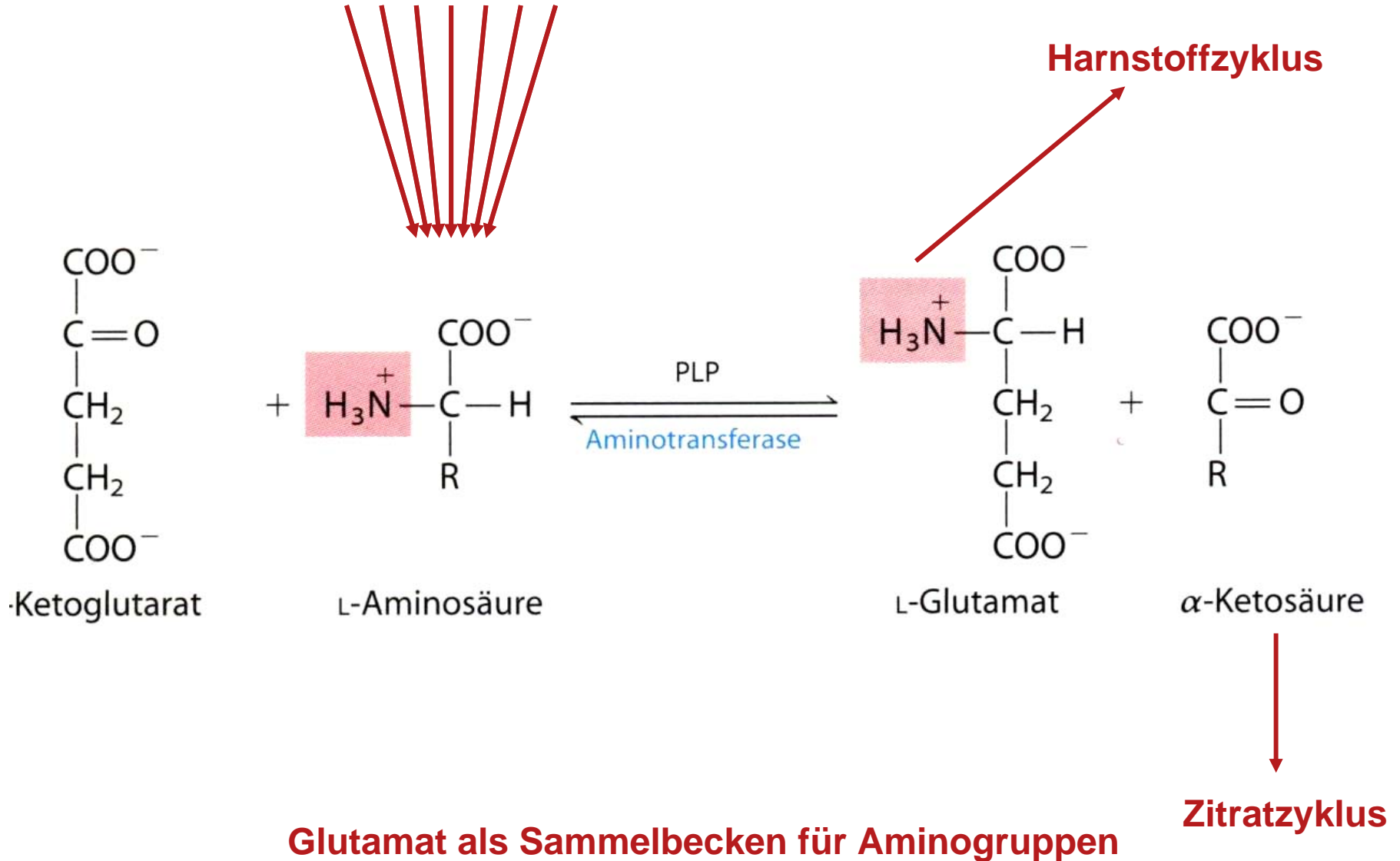
Wichtigste Aminosäuren und deren Verwandte



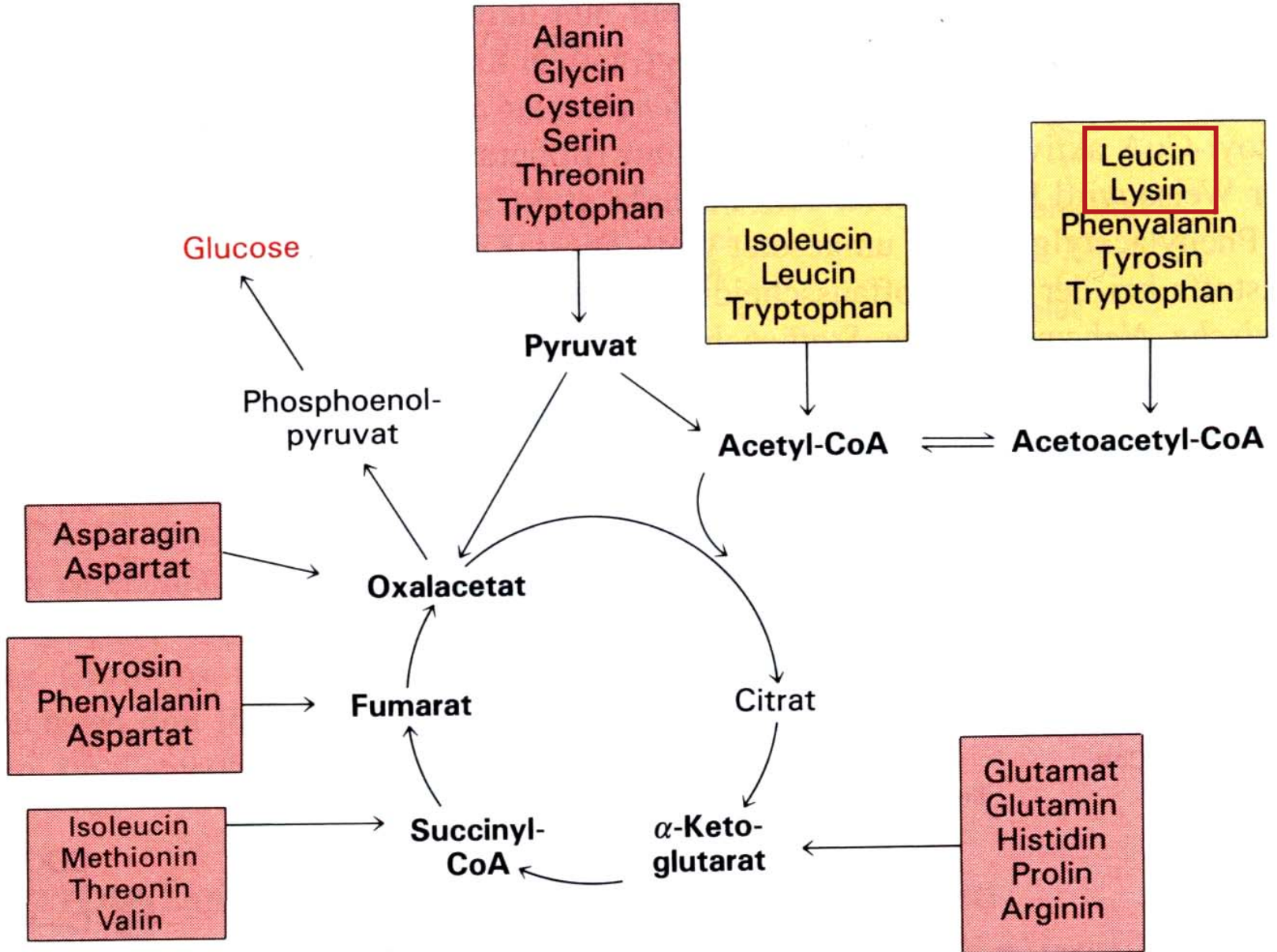
Fast alle As werden über Alanin, Aspartat, Glutamat und Glutamin abgebaut



Aminosäuren



Glukogene und ketogene Aminosäuren



Übersicht über den Intermediärstoffwechsel

