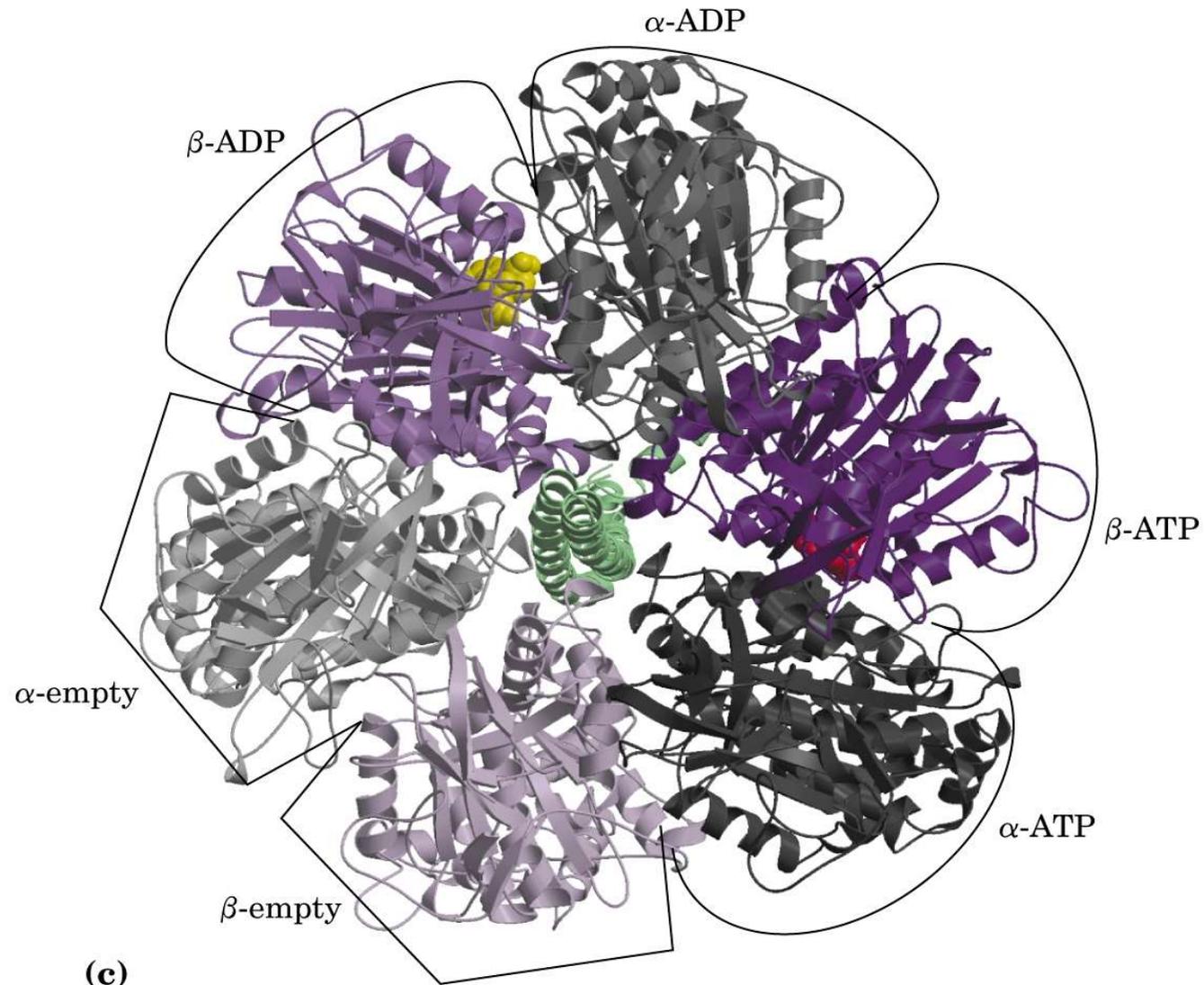
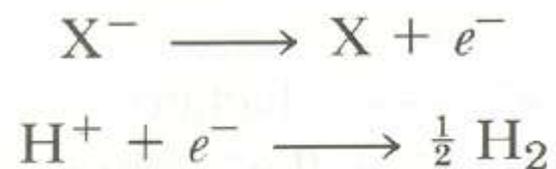
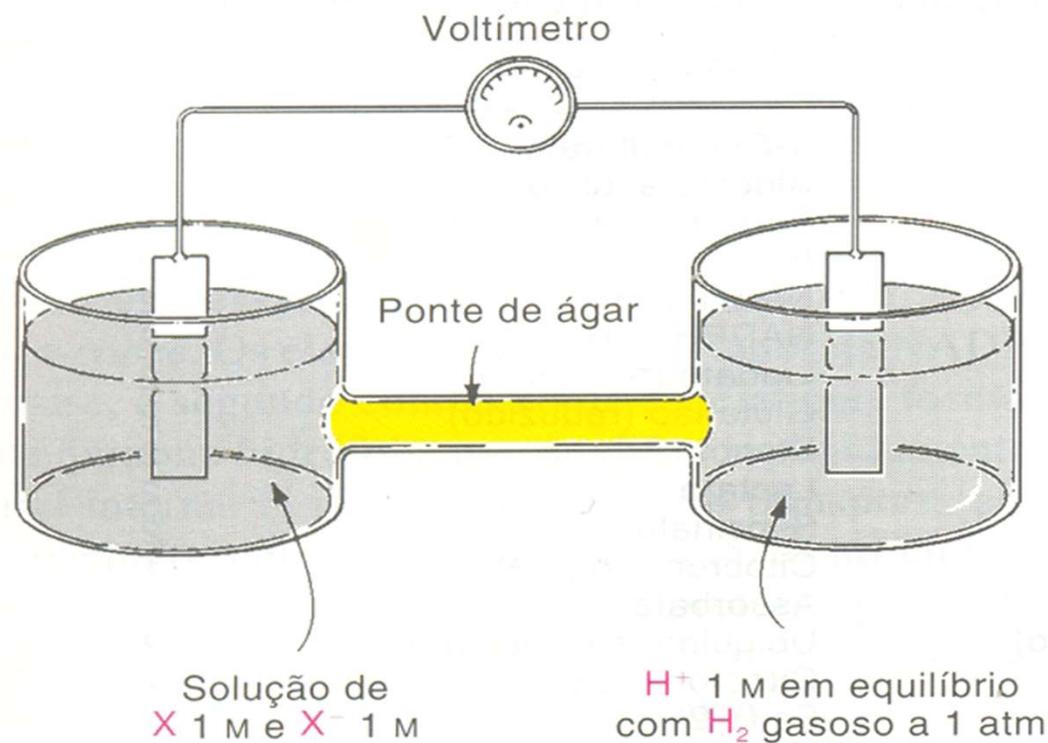


Fosforilação oxidativa

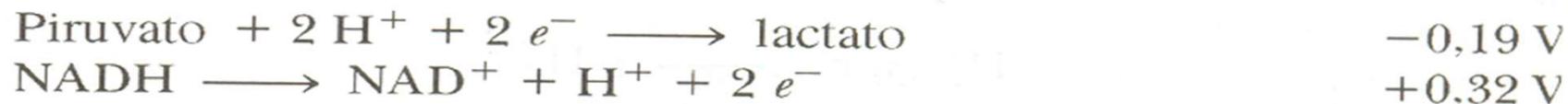
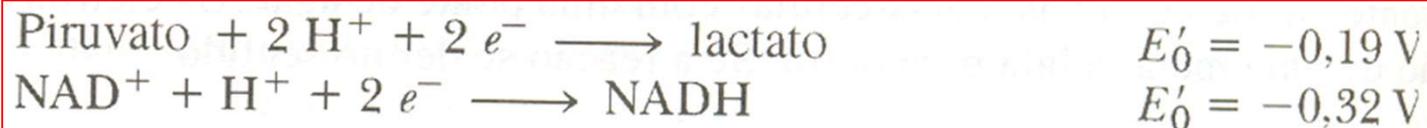


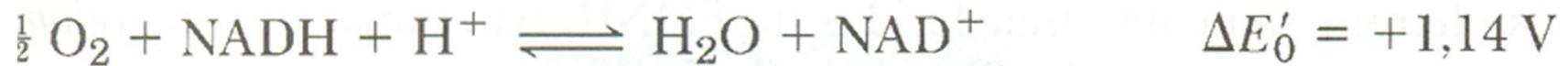
Potenciais de oxirredução



Oxidante	Redutante	n	E' ₀ (V)
Succinato + CO ₂	α-Cetoglutarato	2	-0,67
Acetato	Aldeído acético	2	-0,60
Ferredoxina (oxidada)	Ferredoxina (reduzida)	1	-0,43
2H ⁺	H ₂	2	-0,42
NAD ⁺	NADH + H ⁺	2	-0,32
NADP ⁺	NADPH + H ⁺	2	-0,32
Lipoato (oxidado)	Lipoato (reduzido)	2	-0,29
Glutatião (oxidado)	Glutatião (reduzido)	2	-0,23
Aldeído acético	Etanol	2	-0,20
Piruvato	Lactato	2	-0,19
Fumarato	Succinato	2	0,03
Citocromo <i>b</i> (+3)	Citocromo <i>b</i> (+2)	1	0,07
De-hidroascorbato	Ascorbato	2	0,08
Ubiquinona (oxidado)	Ubiquinona (reduzida)	2	0,10
Citocromo <i>c</i> (+3)	Citocromo <i>c</i> (+2)	1	0,22
Fe (+3)	Fe (+2)	1	0,77
1/2 O ₂ + 2 H ⁺	H ₂ O	2	0,82

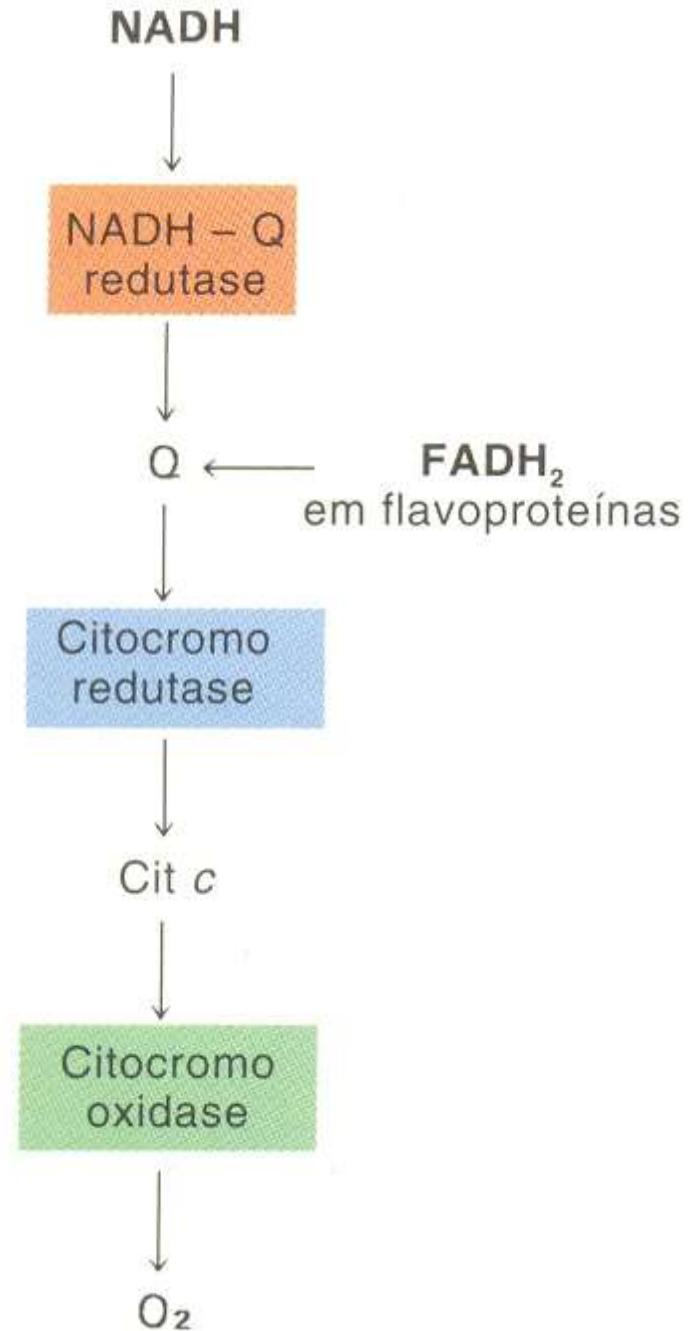
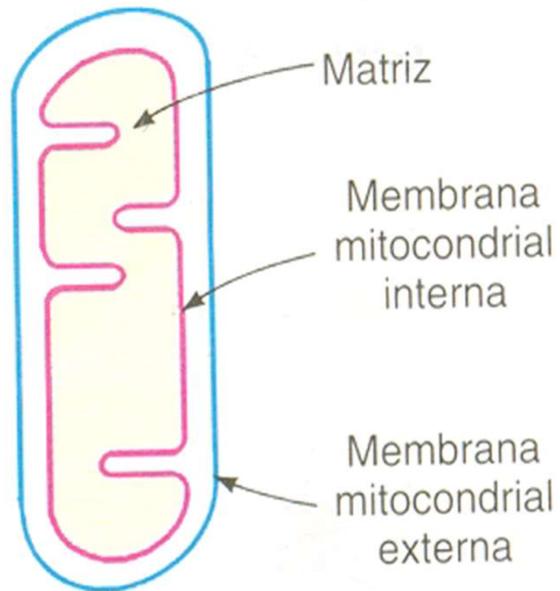
Nota: E'₀ refere-se ao potencial-padrão de óxido redução (pH 7, 25°C) e *n* é o número de elétrons transferidos. E'₀ se refere à reação parcial escrita como oxidante + e⁻ → redutor.



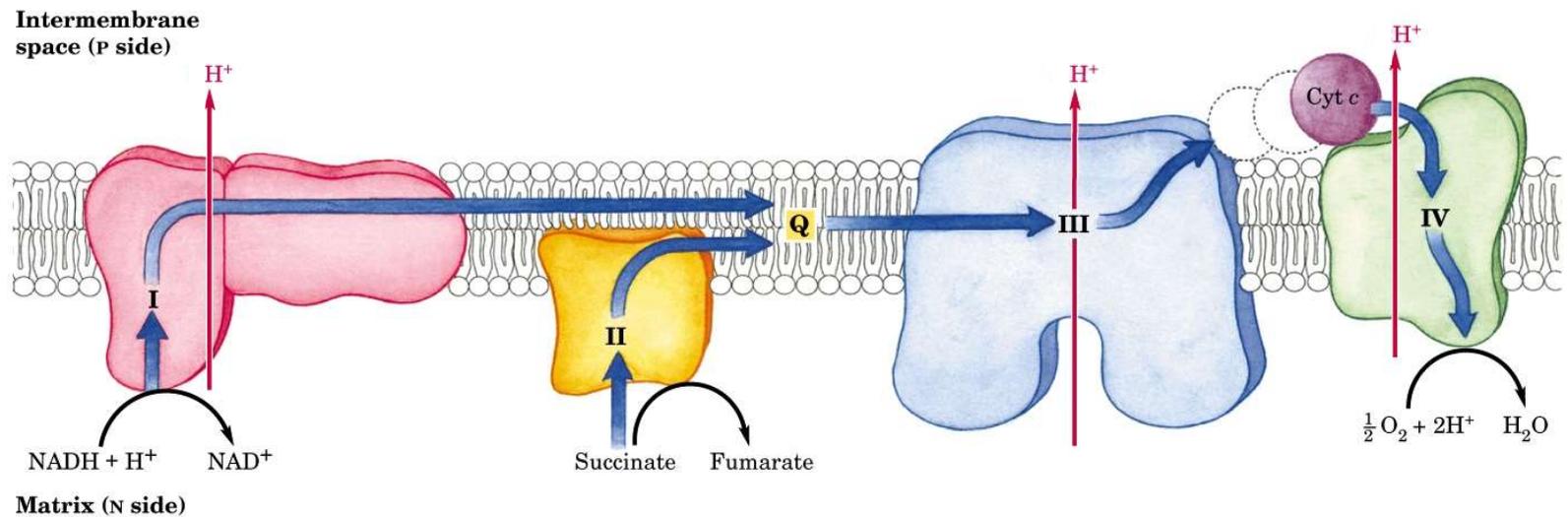


$$\begin{aligned} \Delta G^{\circ'} &= -nF\Delta E'_0 = -2 \times 23,06 \times 1,14 \\ &= -52,6 \text{ kcal/mol} \end{aligned}$$

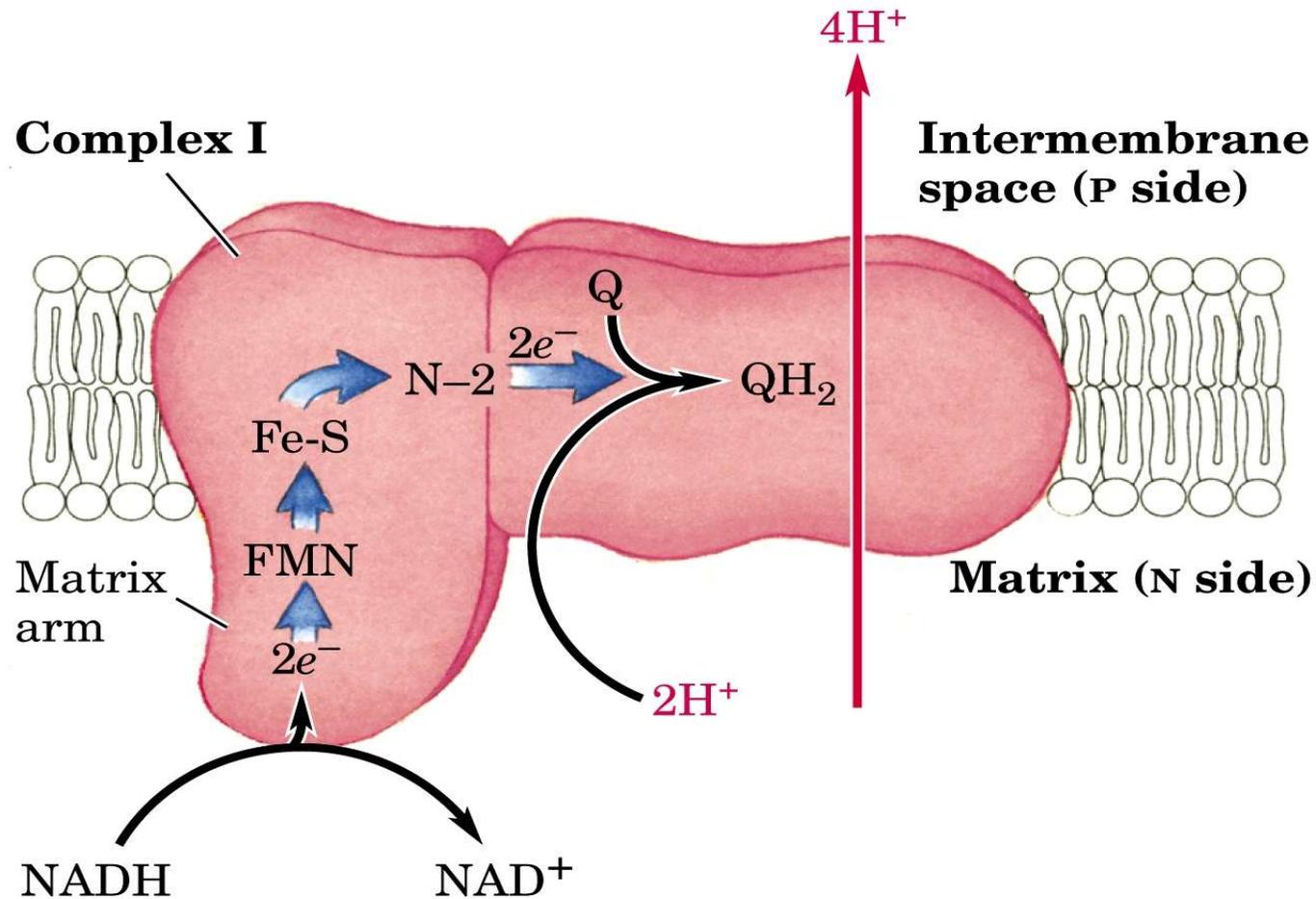
Cadeia Respiratória



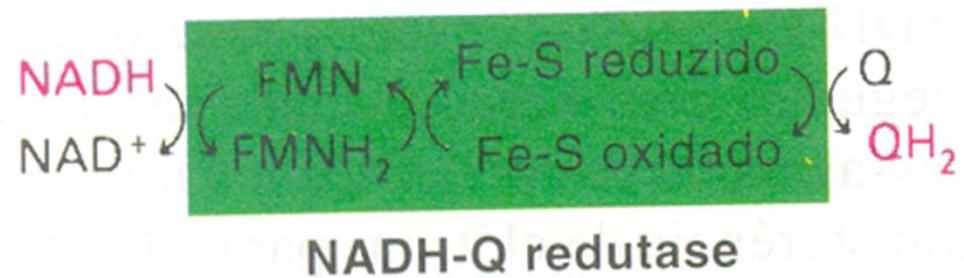
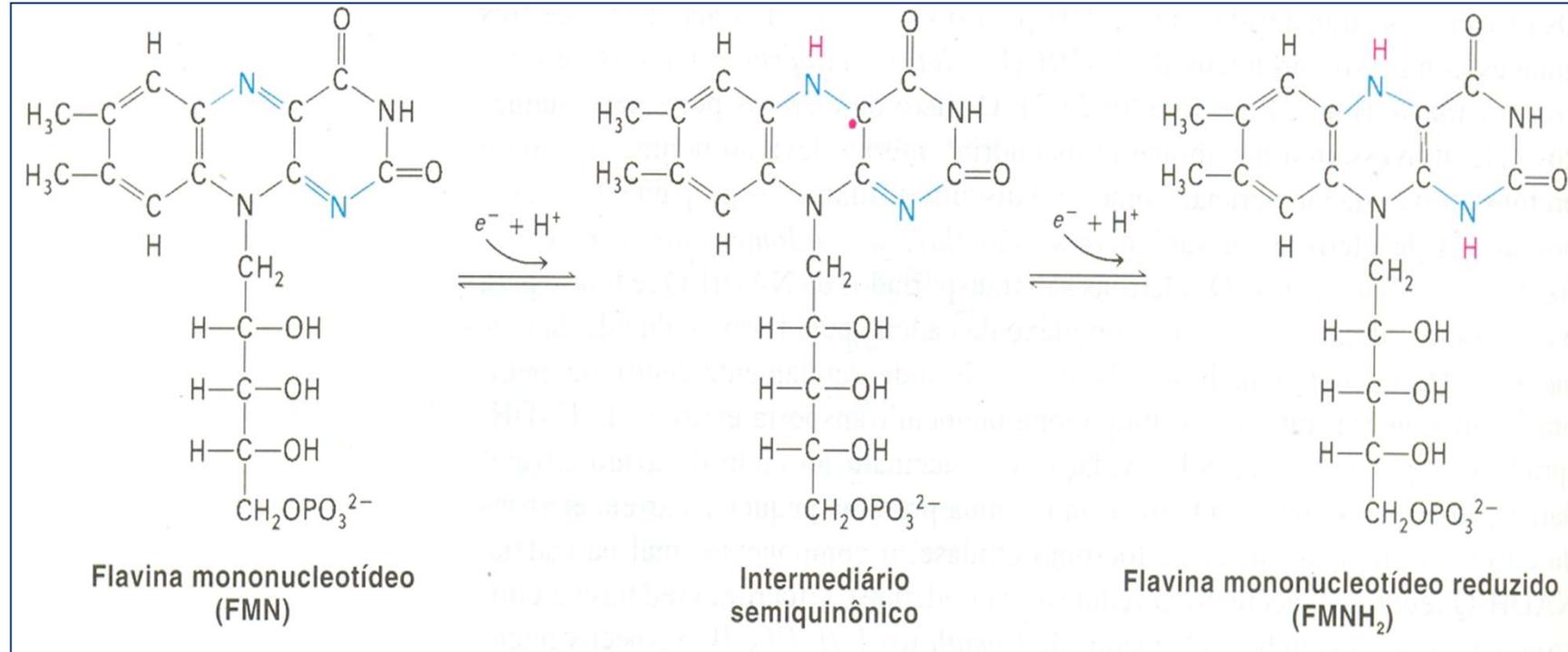
Sequência de carreadores de elétrons



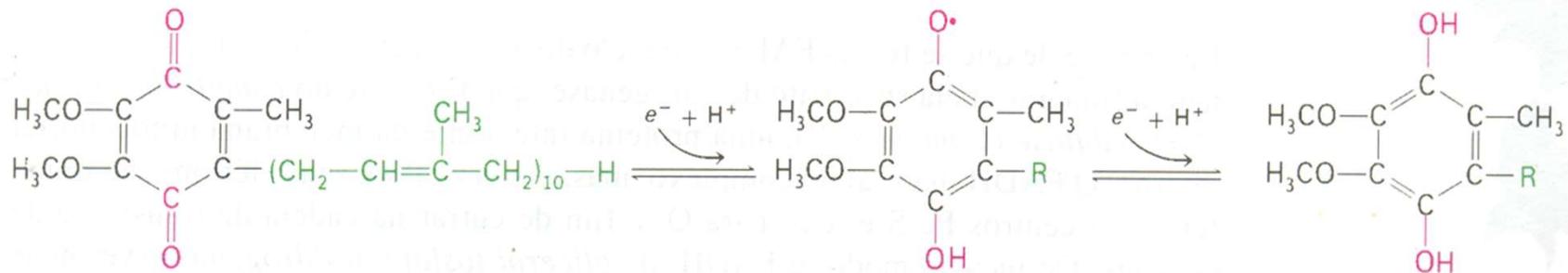
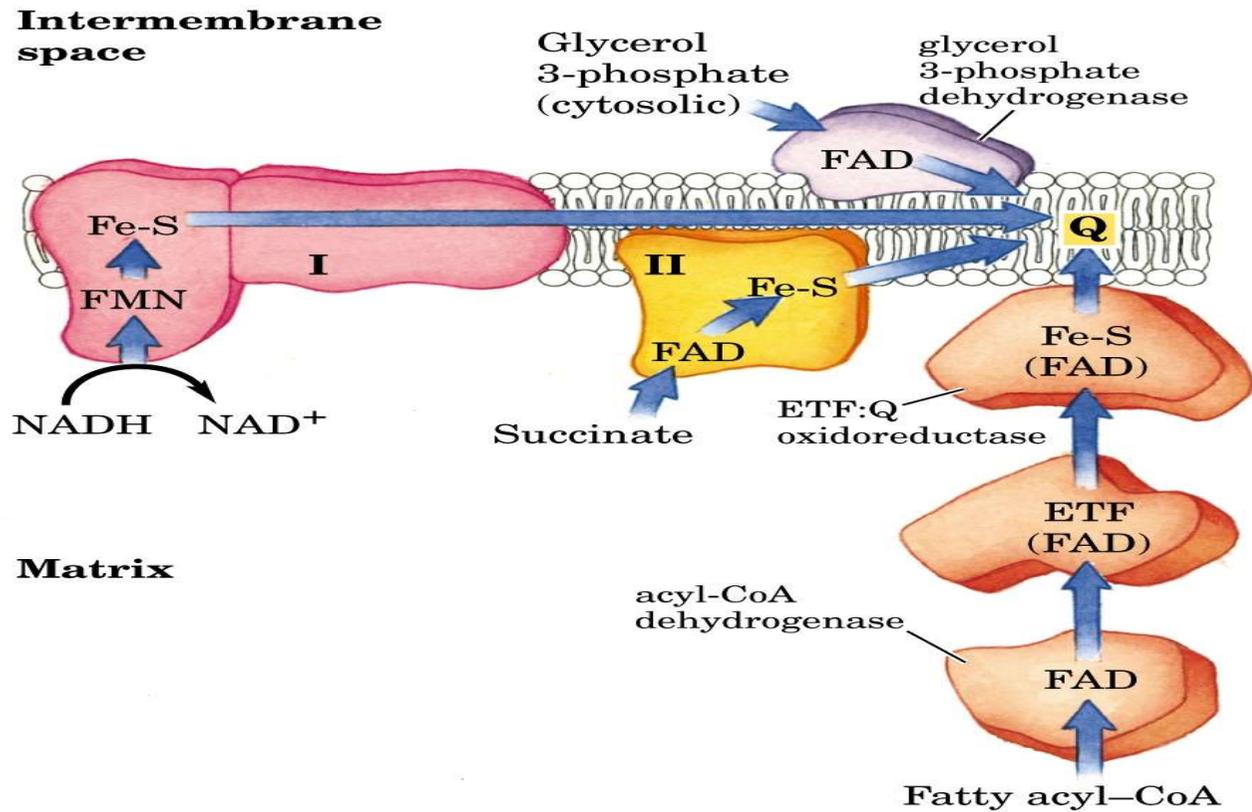
Complexo I (NADH-Q redutase)



Grupos prostéticos do Complexo I



Ubiquinona (transportador móvel)

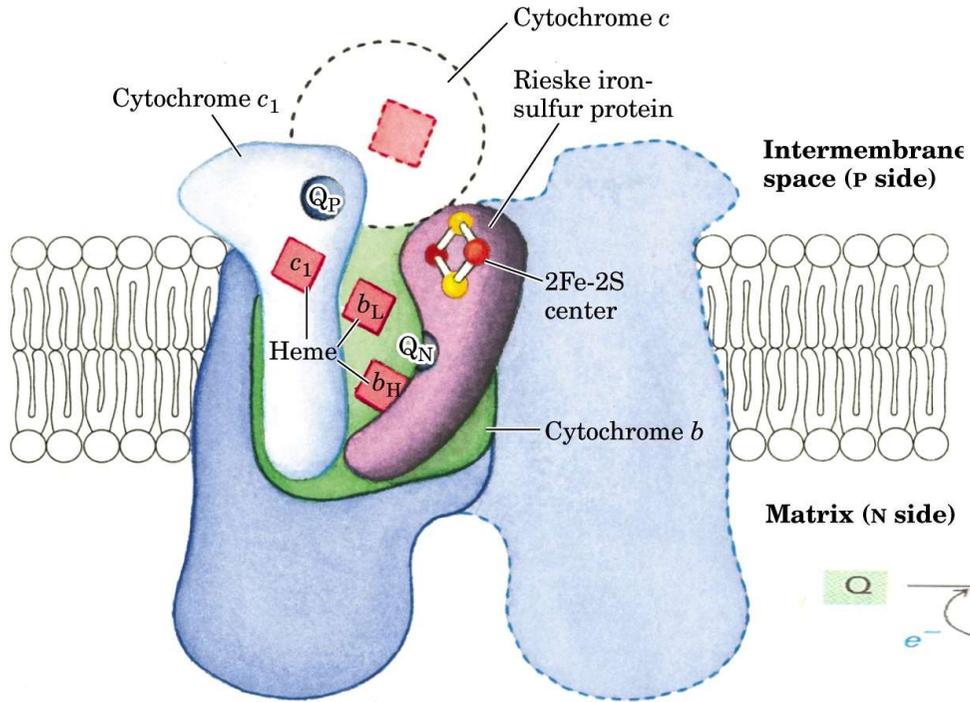


Forma oxidada da coenzima Q
(Q, ubiquinona)

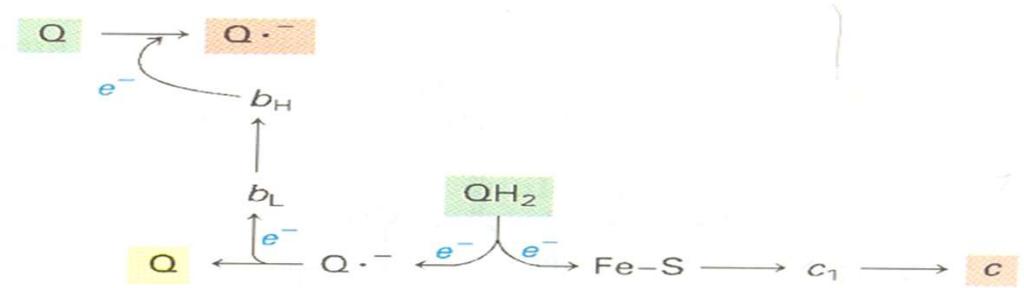
Intermediário
semiquinônico (Q^{•-})

Forma reduzida de coenzima Q
(QH₂, ubiquinol)

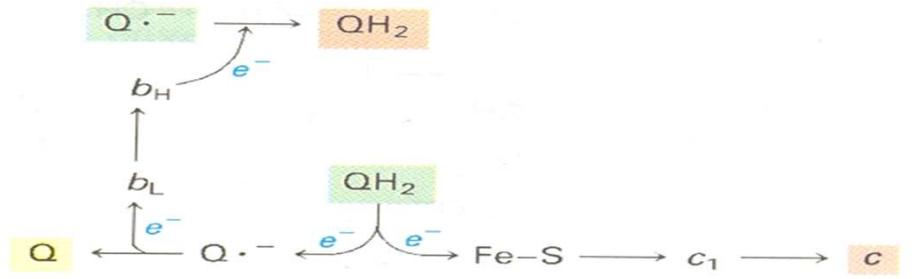
Citocromo redutase (complexo III)



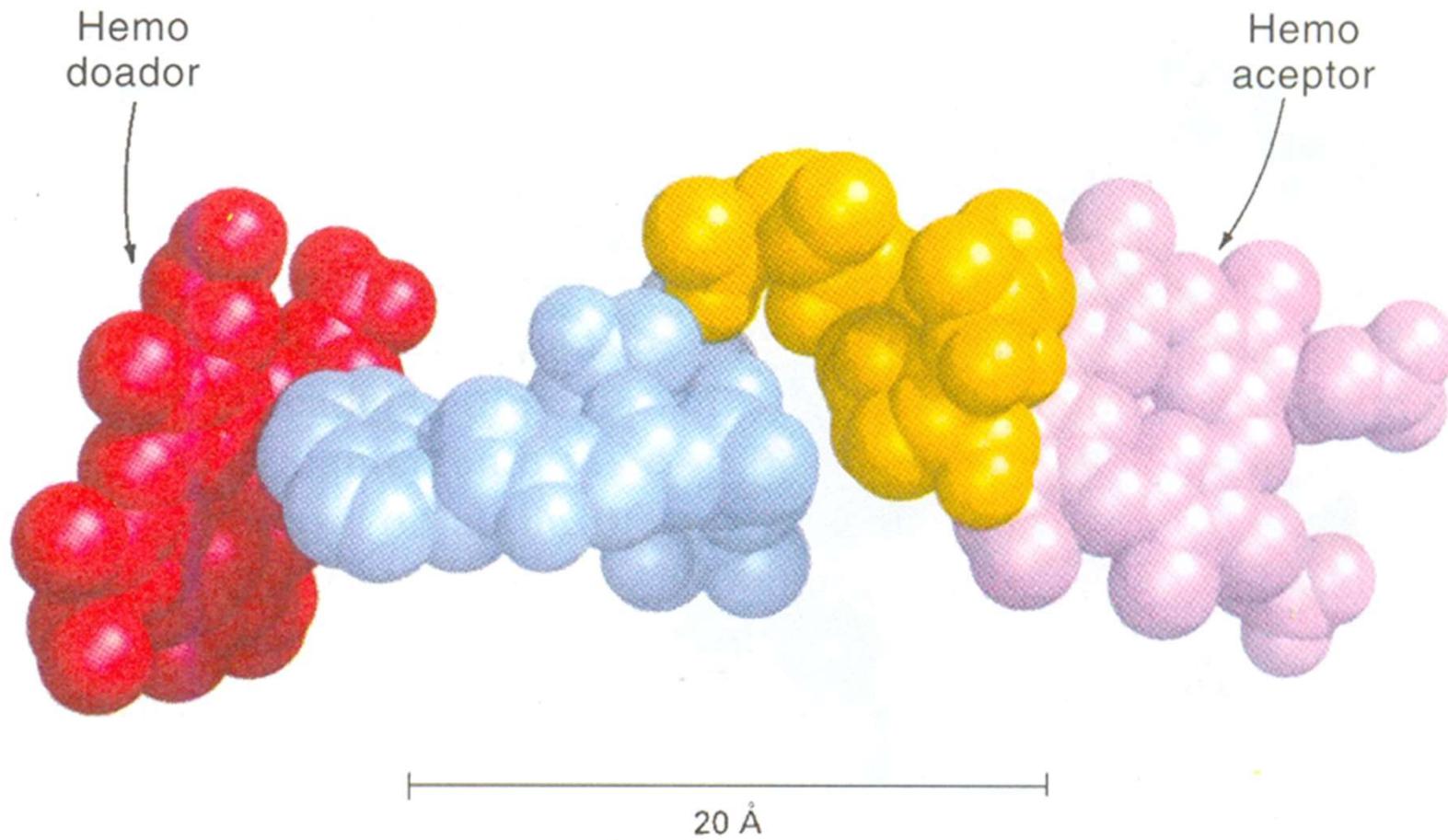
(b)



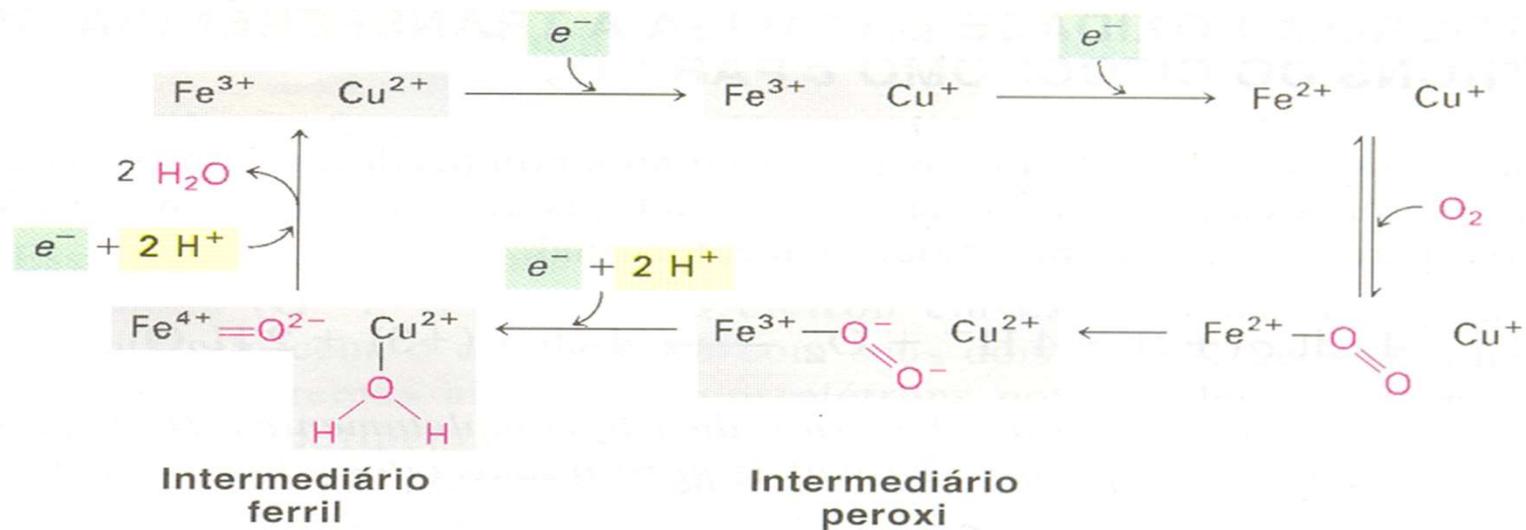
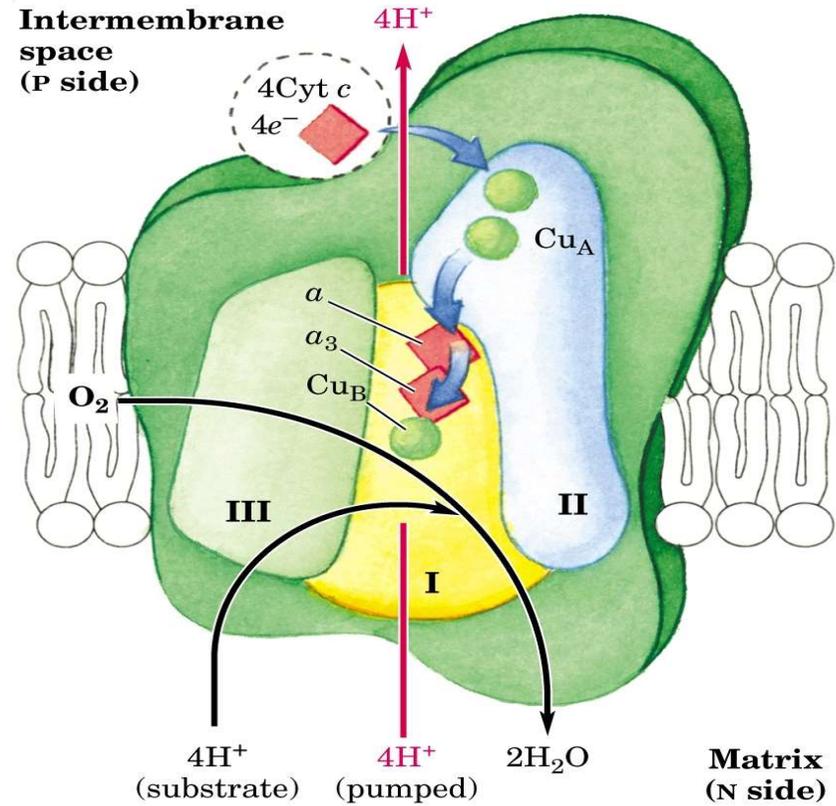
A



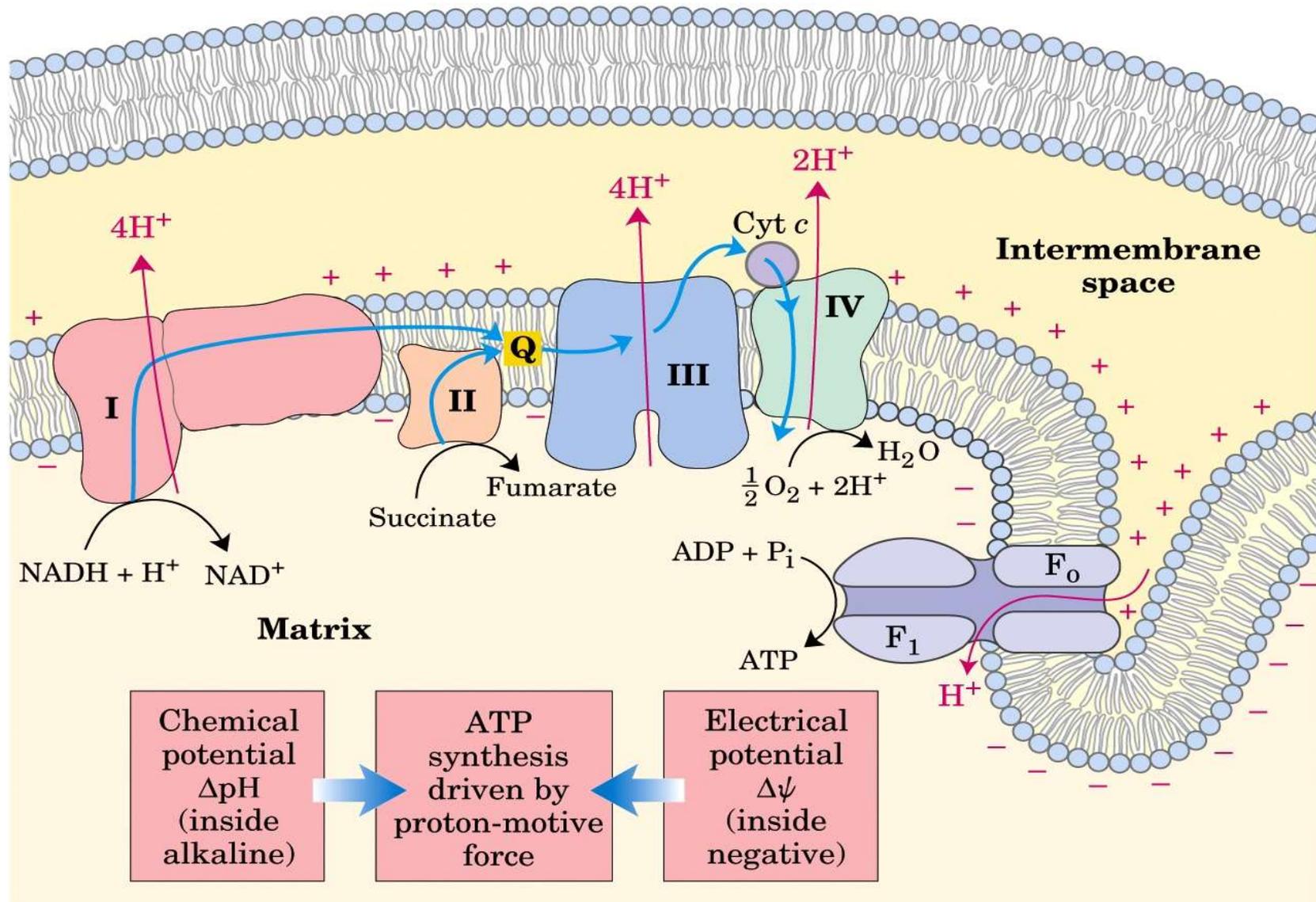
Citocromo C (transportador móvel)



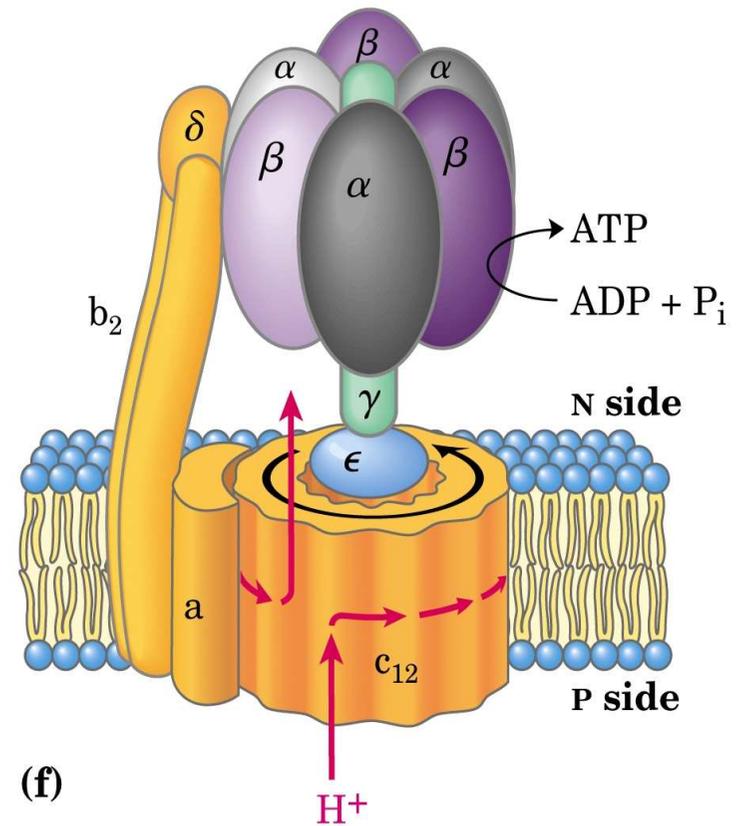
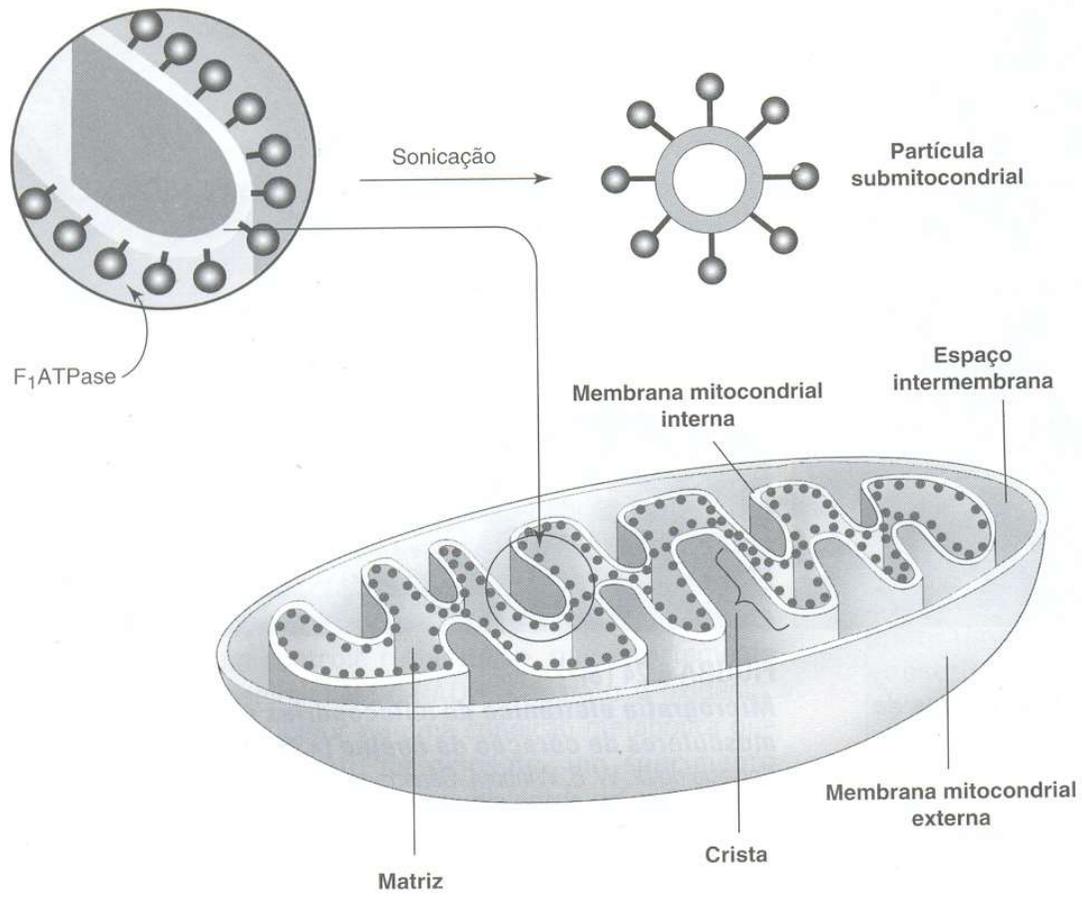
Complexo IV (Citocromo oxidase)



A oxidação e a fosforilação estão acopladas por uma força próton-motriz

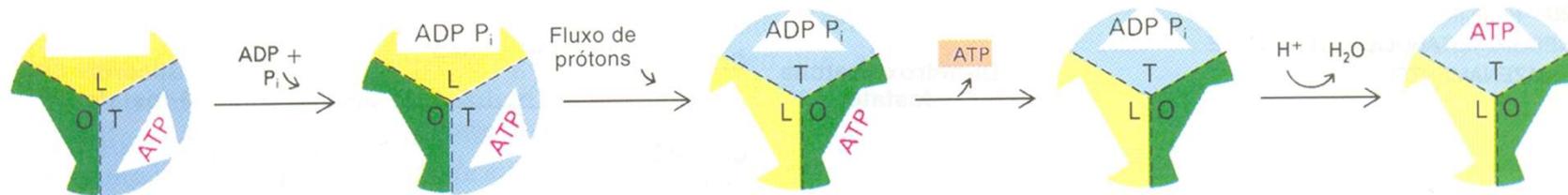


ATP sintase (ATPase)

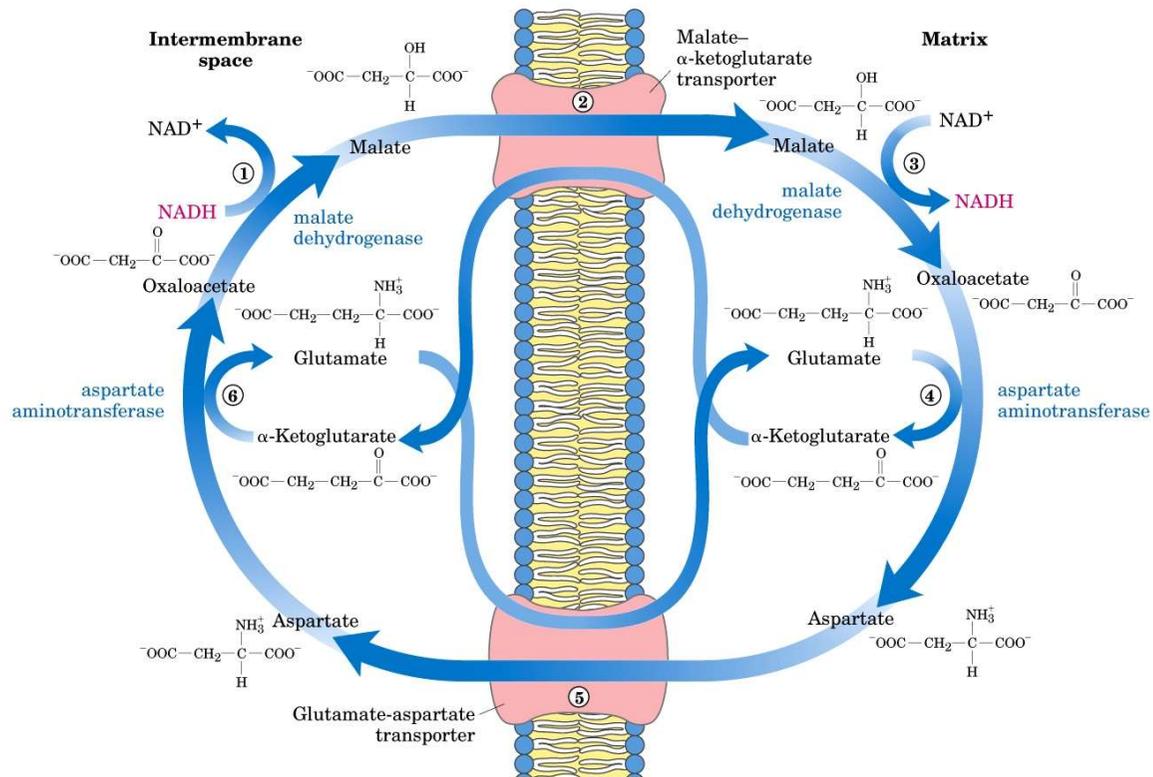
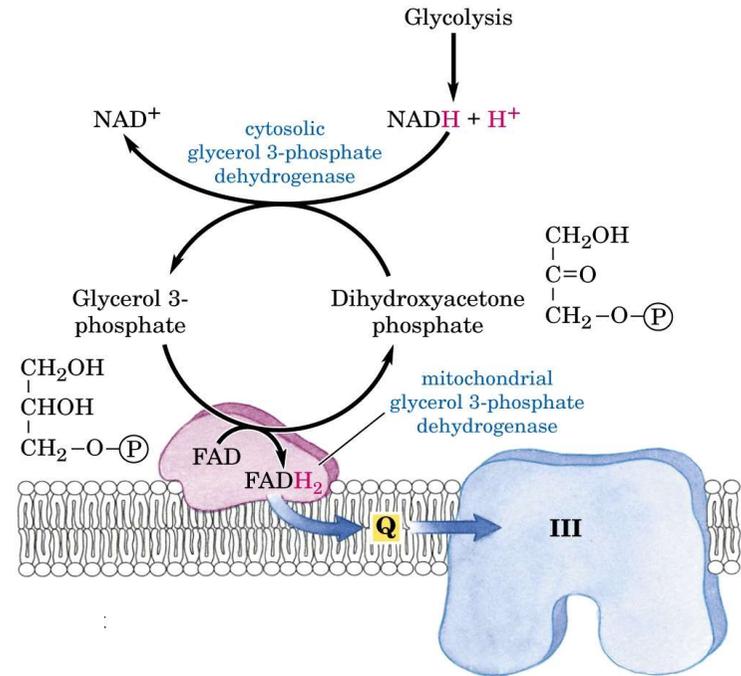


(f)

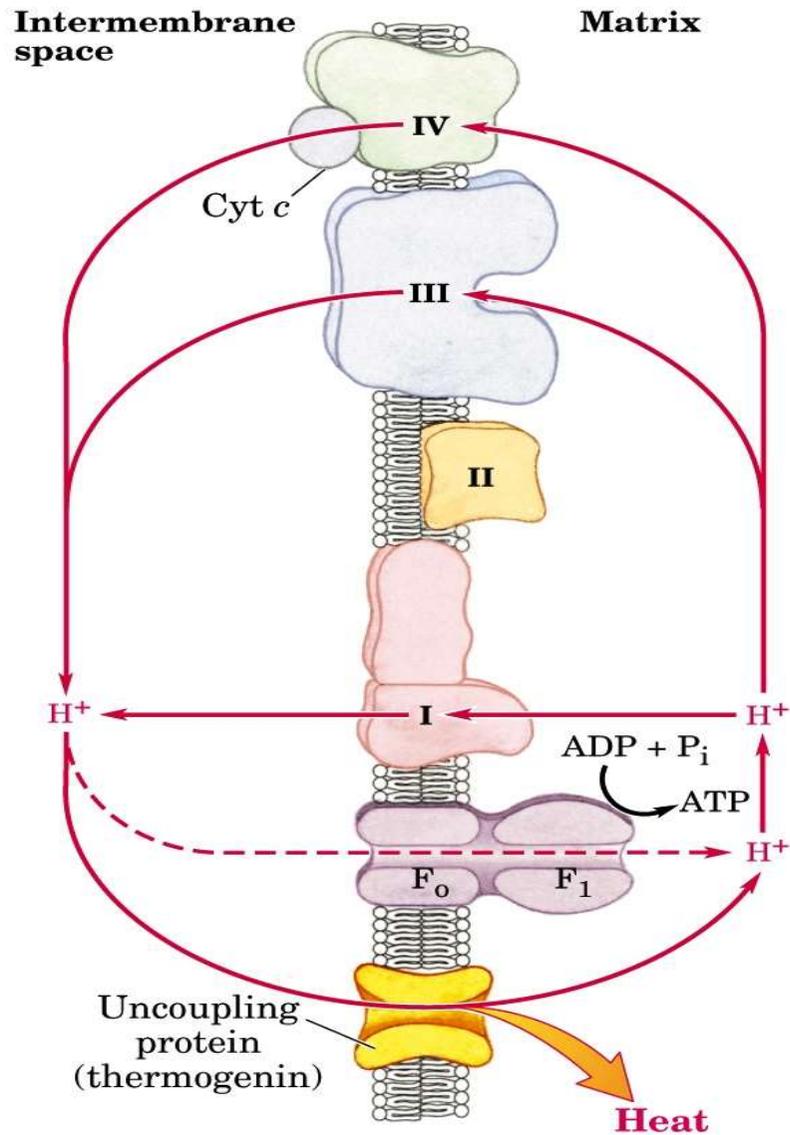
Modelo proposto para síntese de ATP



Lançadeiras



Desacoplamento da cadeia respiratória (geração de calor)



Gradiente de prótons, uma forma interconvertível de energia

