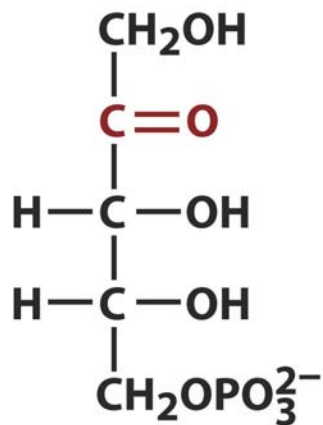




Ribulose-5-phosphate (Ru5P)

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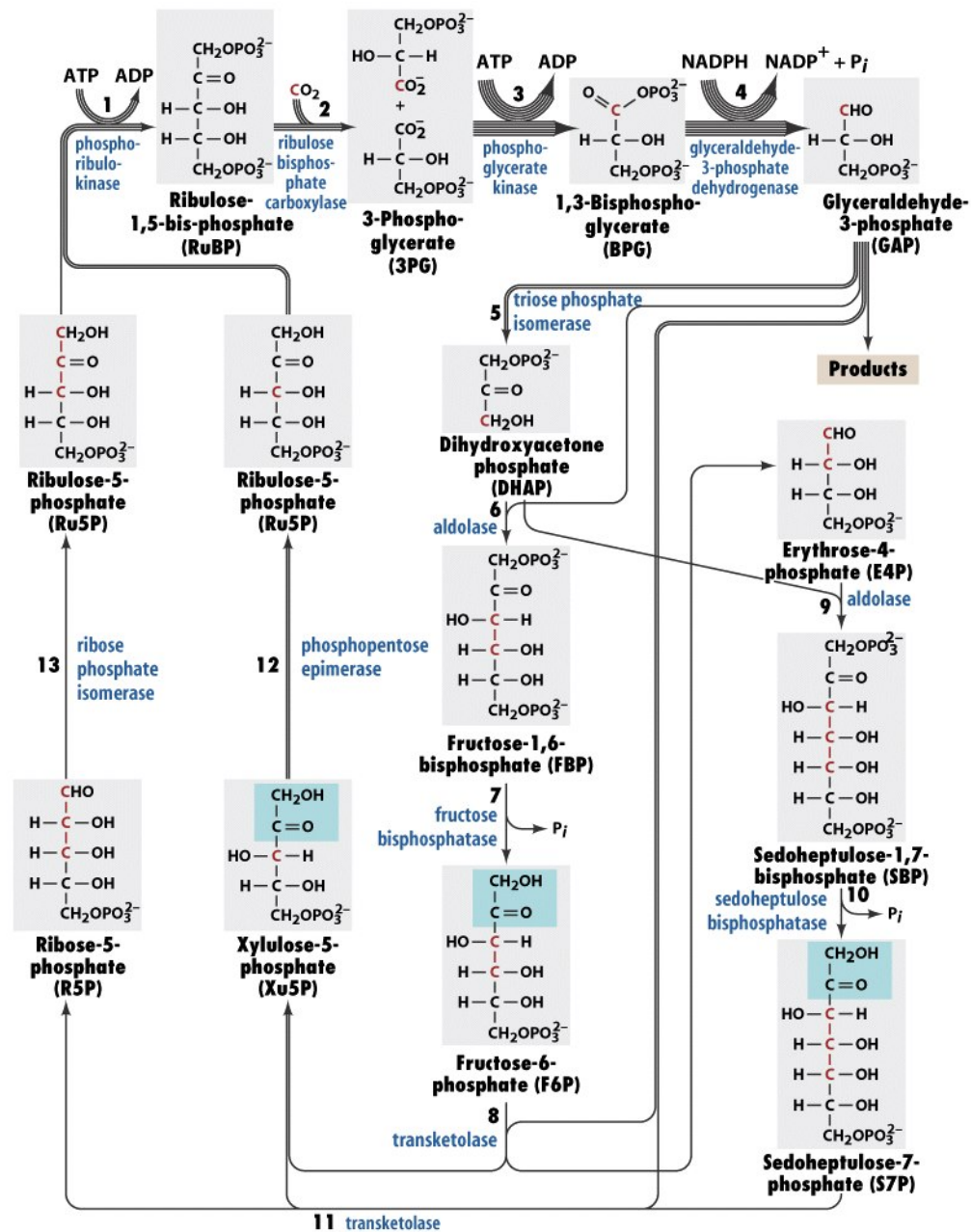
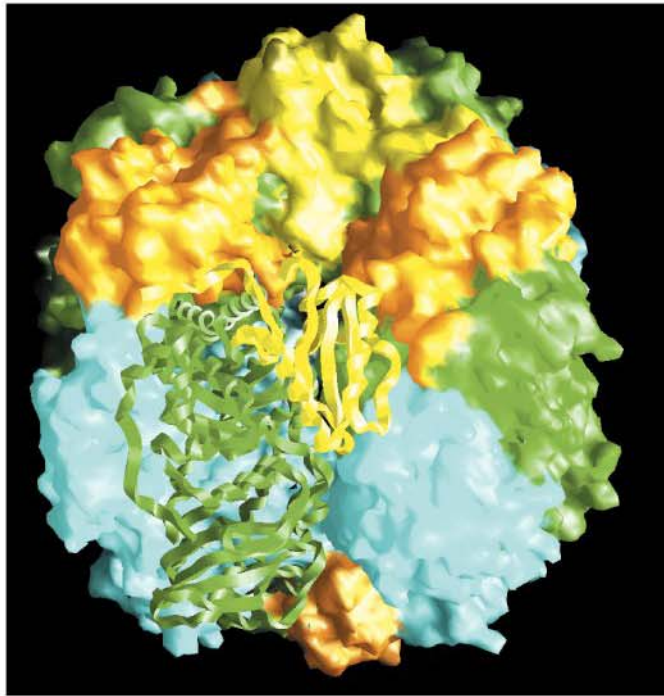
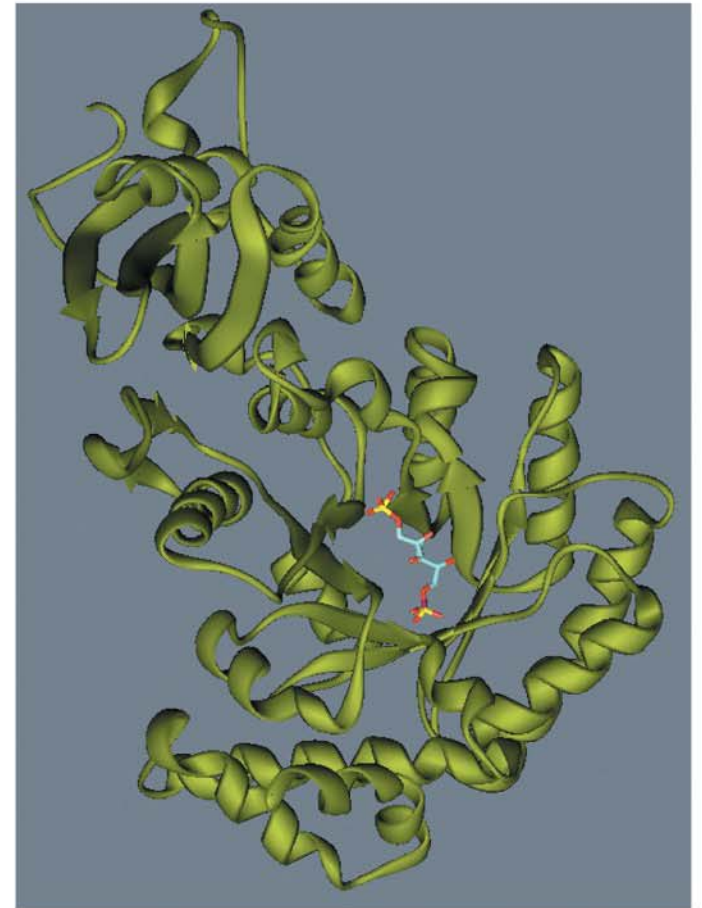
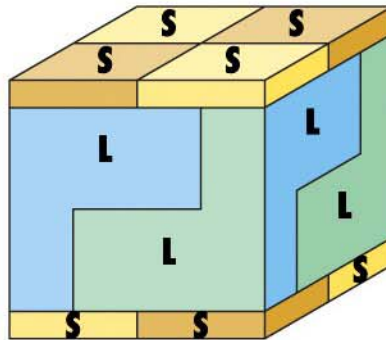


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(a)

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(b)

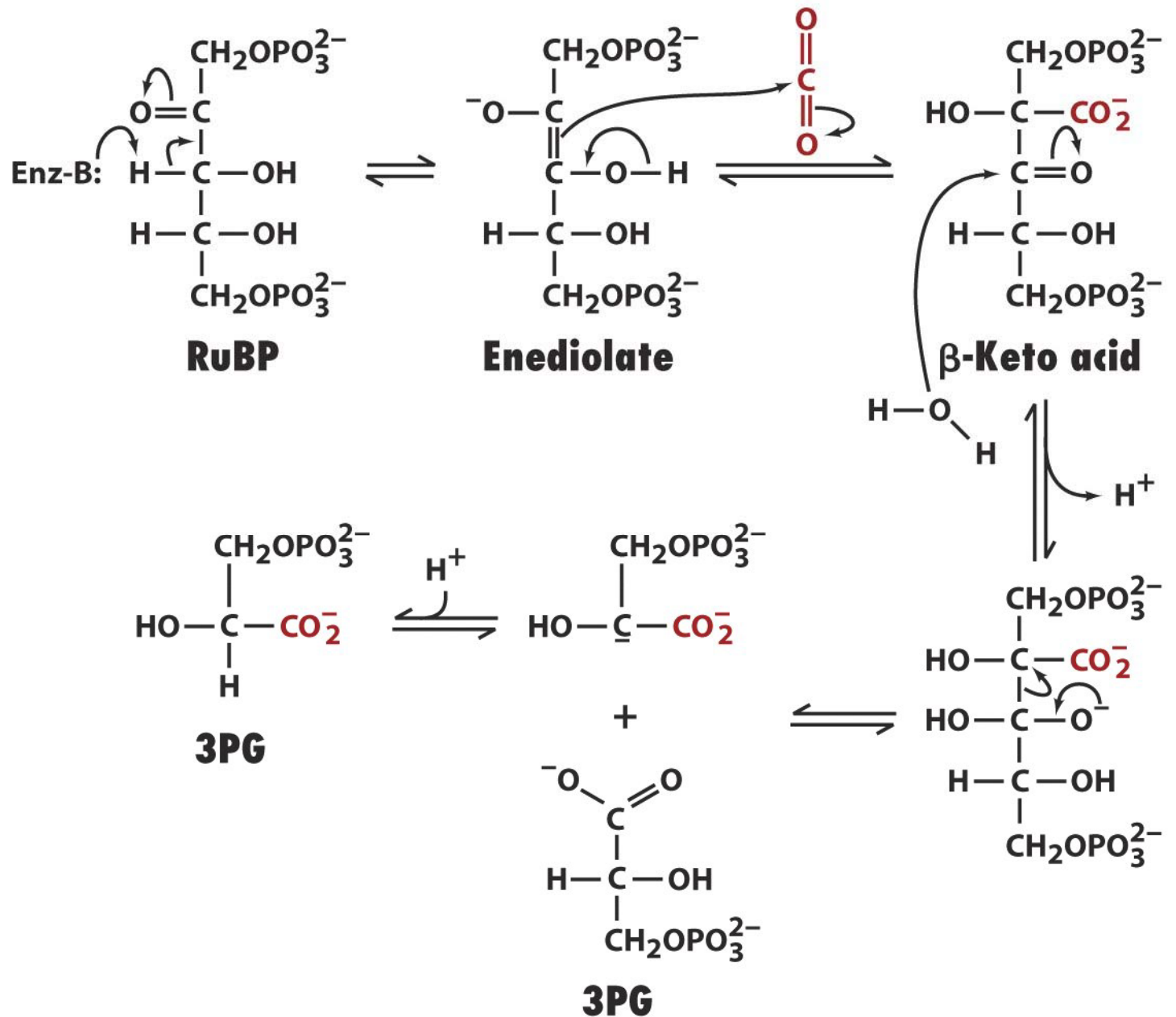
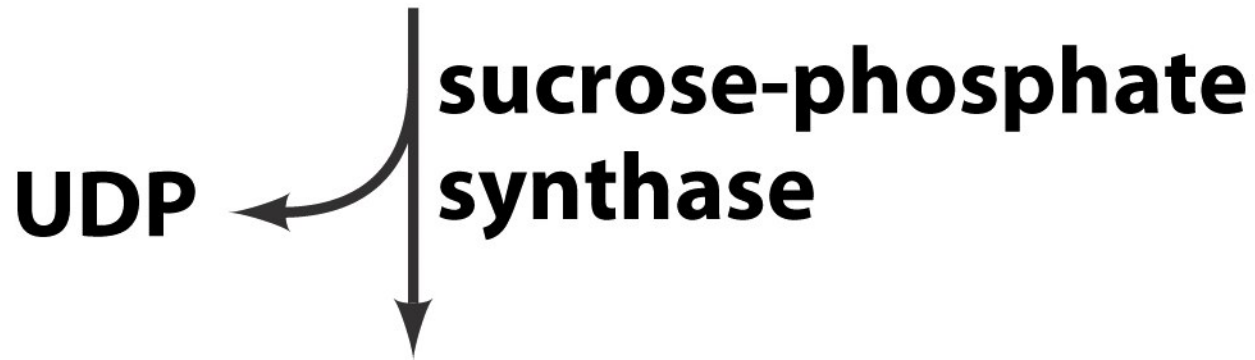
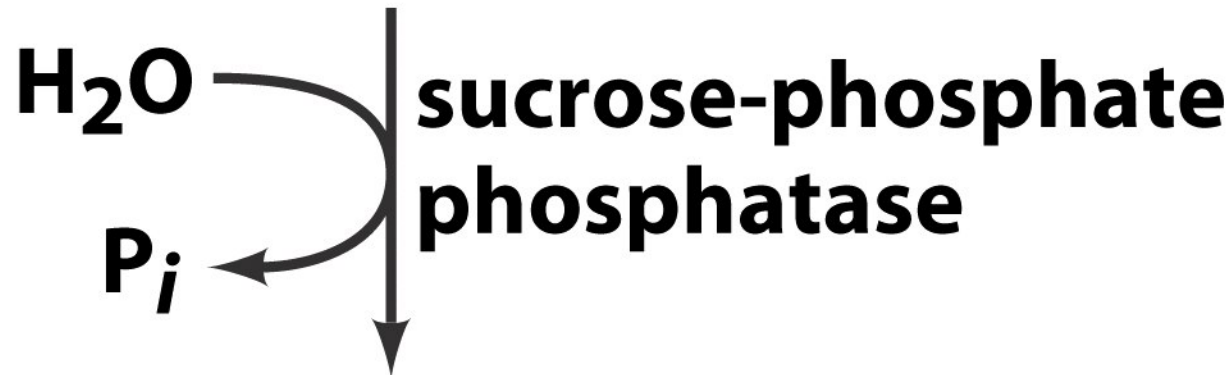


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UDP-Glucose + F6P



Sucrose-6-phosphate



Sucrose

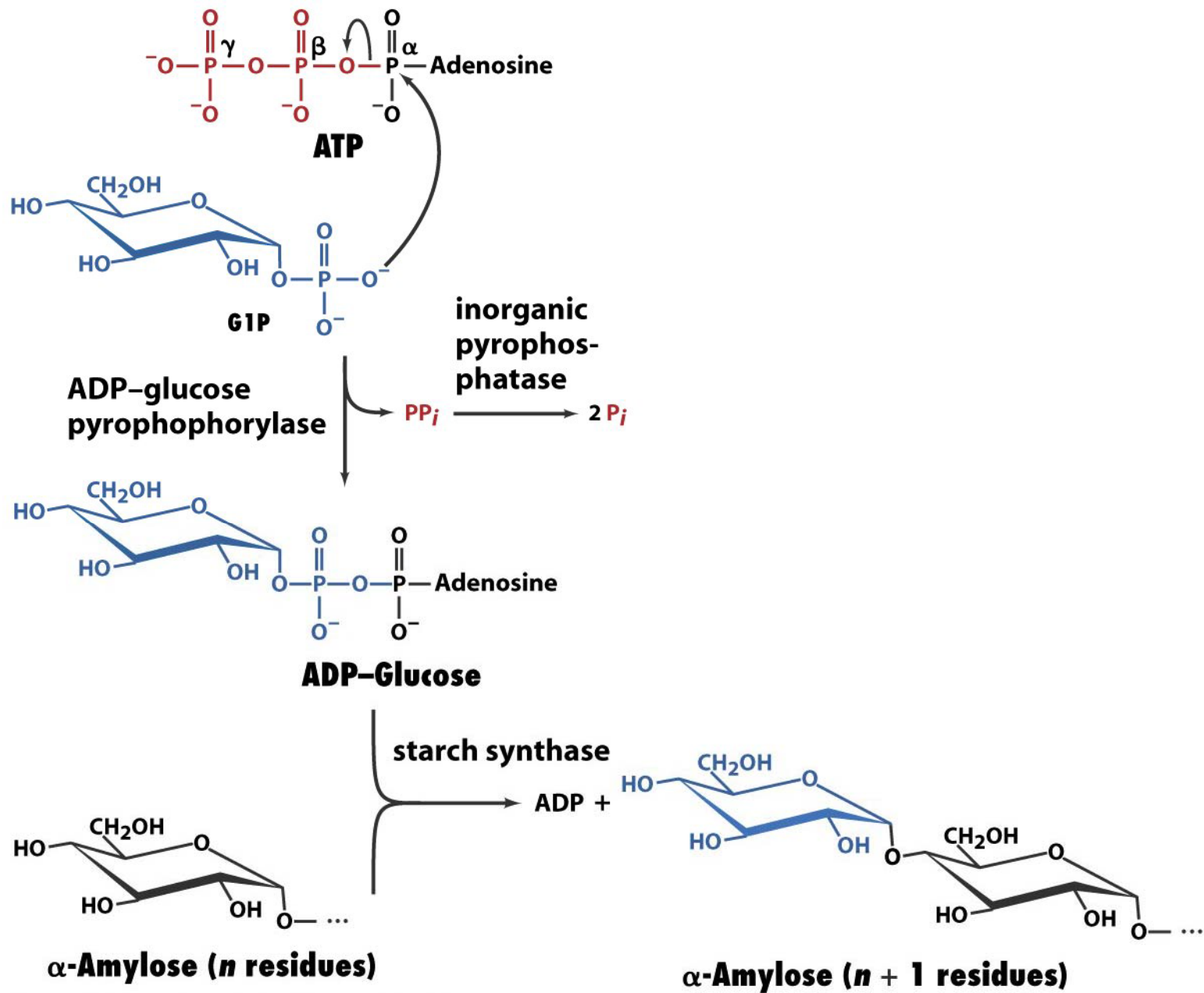


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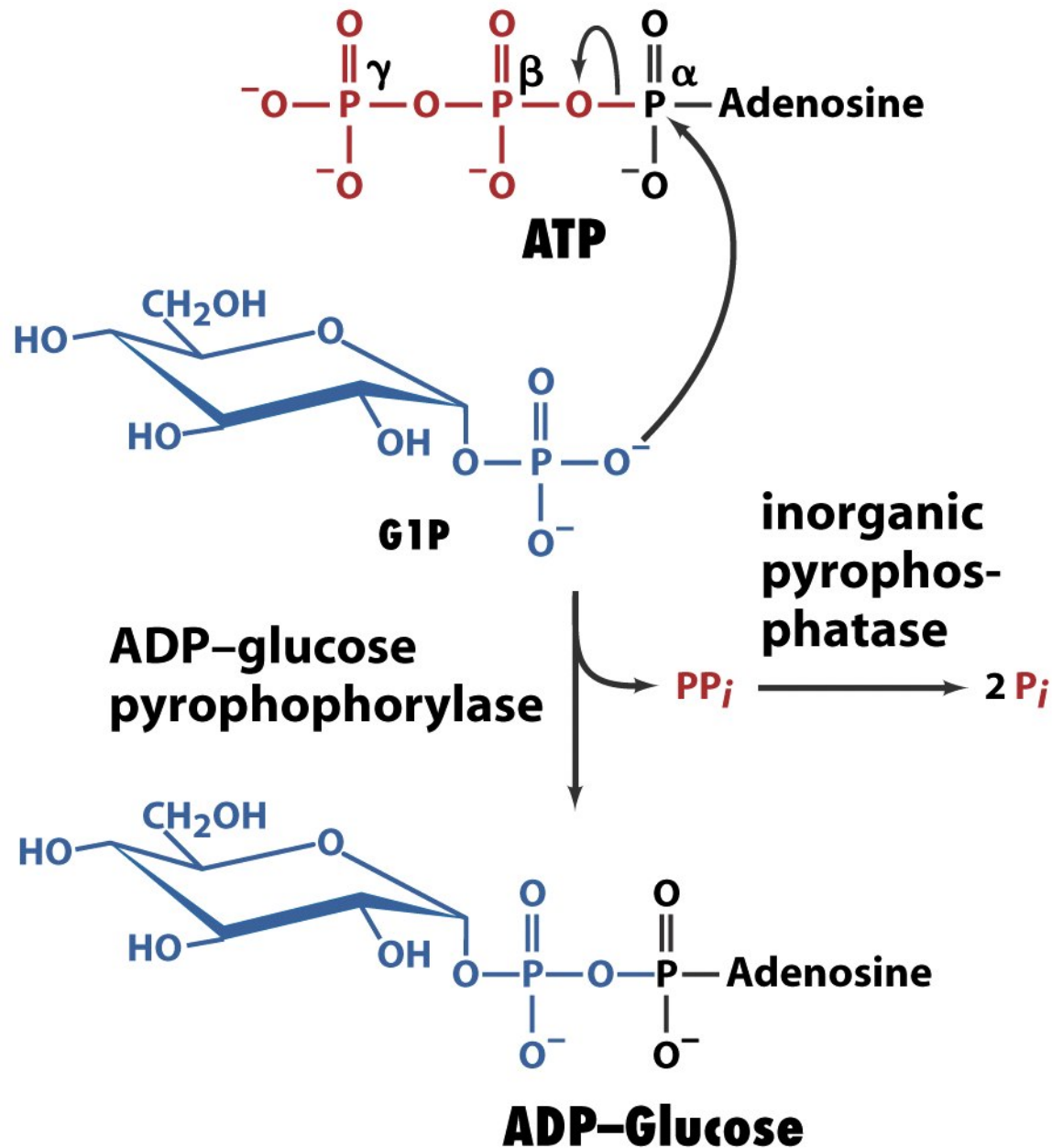
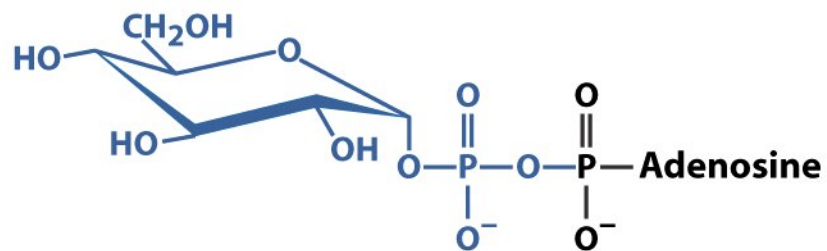
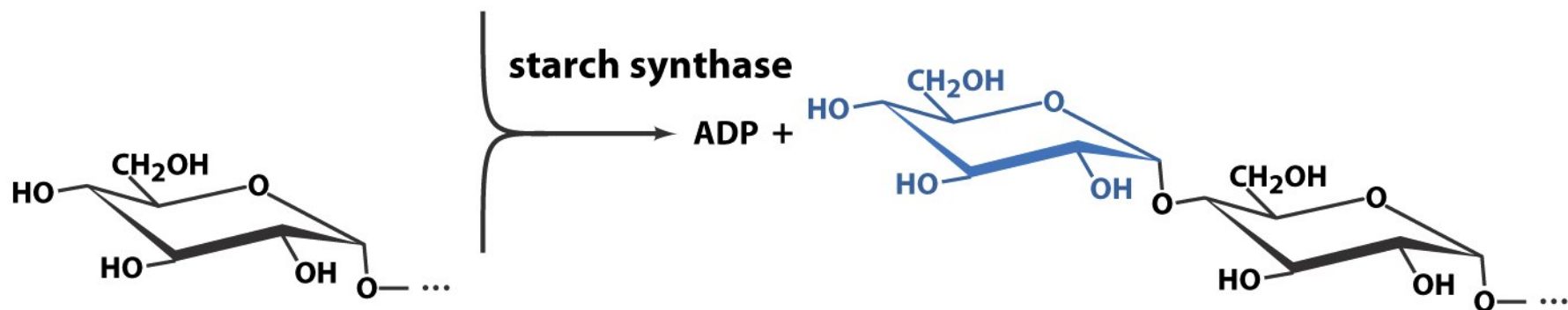


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ADP-Glucose

starch synthase



α -Amylose (n residues)

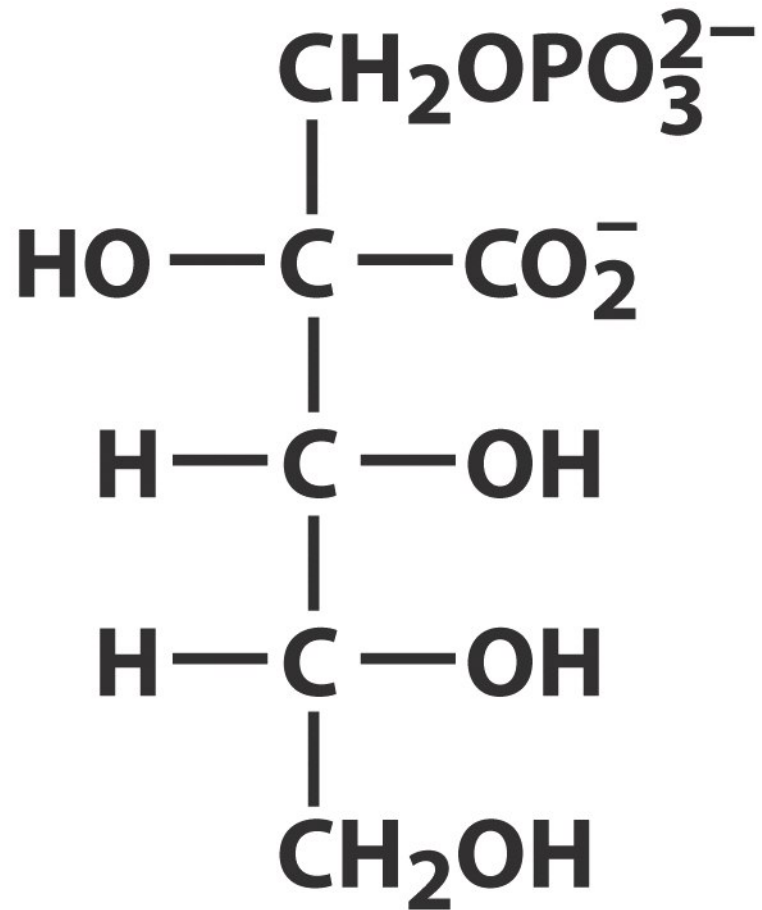
α -Amylose ($n + 1$ residues)

Table 18-1 Standard and Physiological Free Energy Changes for the Reactions of the Calvin Cycle

Step ^a	Enzyme	$\Delta G^{\circ'}$ (kJ · mol ⁻¹)	ΔG (kJ · mol ⁻¹)
1	Phosphoribulokinase	-21.8	-15.9
2	Ribulose biphosphate carboxylase	-35.1	-41.0
3 + 4	Phosphoglycerate kinase + glyceraldehyde-3-phosphate dehydrogenase	+18.0	-6.7
5	Triose phosphate isomerase	-7.5	-0.8
6	Aldolase	-21.8	-1.7
7	Fructose biphosphatase	-14.2	-27.2
8	Transketolase	+6.3	-3.8
9	Aldolase	-23.4	-0.8
10	Sedoheptulose biphosphatase	-14.2	-29.7
11	Transketolase	+0.4	-5.9
12	Phosphopentose epimerase	+0.8	-0.4
13	Ribose phosphate isomerase	+2.1	-0.4

^aRefer to Fig. 18-24.

Source: Bassham, J.A. and Buchanan, B.B., in Govindjee (Ed.), *Photosynthesis*, Vol. II, p. 155, Academic Press (1982).



2-Carboxyarabinitol-1-phosphate (CA1P)

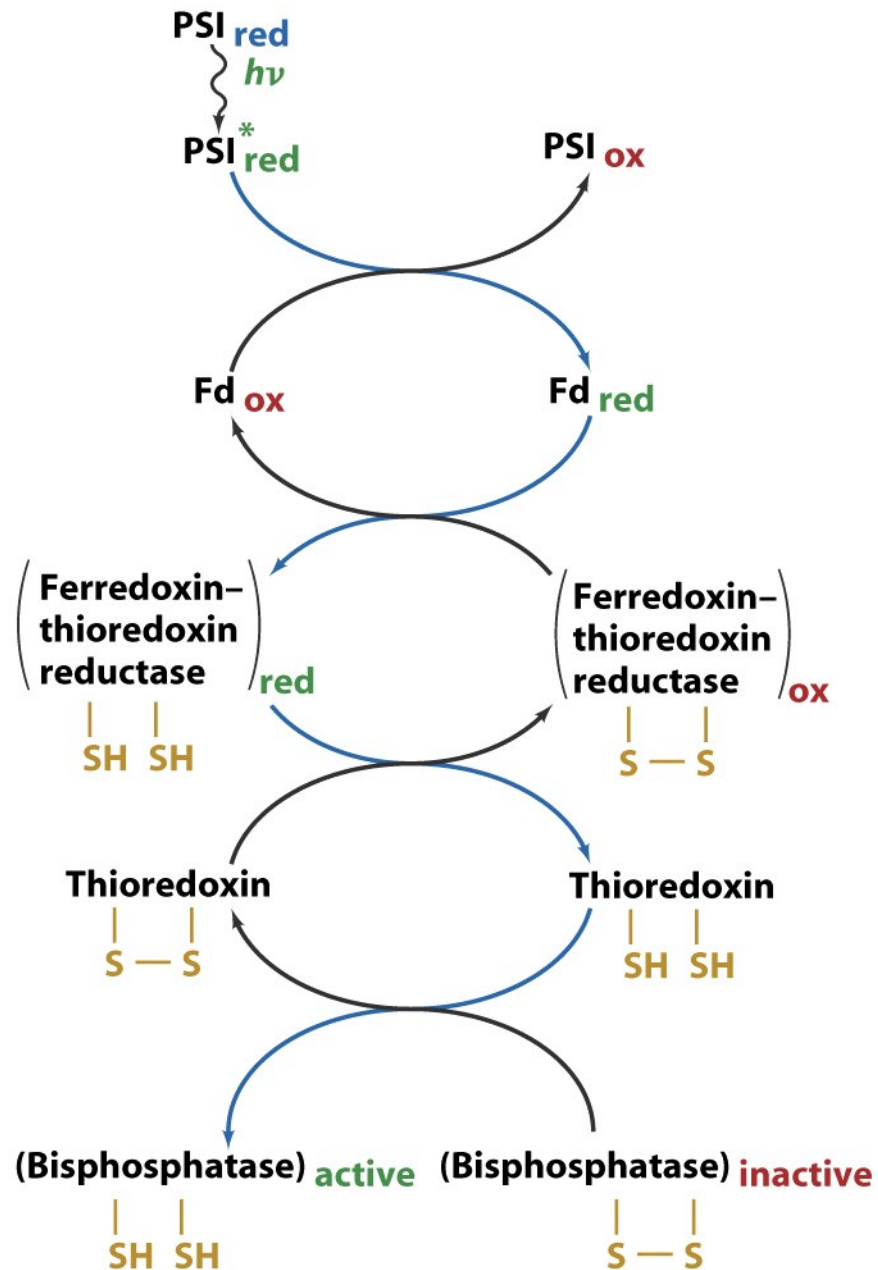


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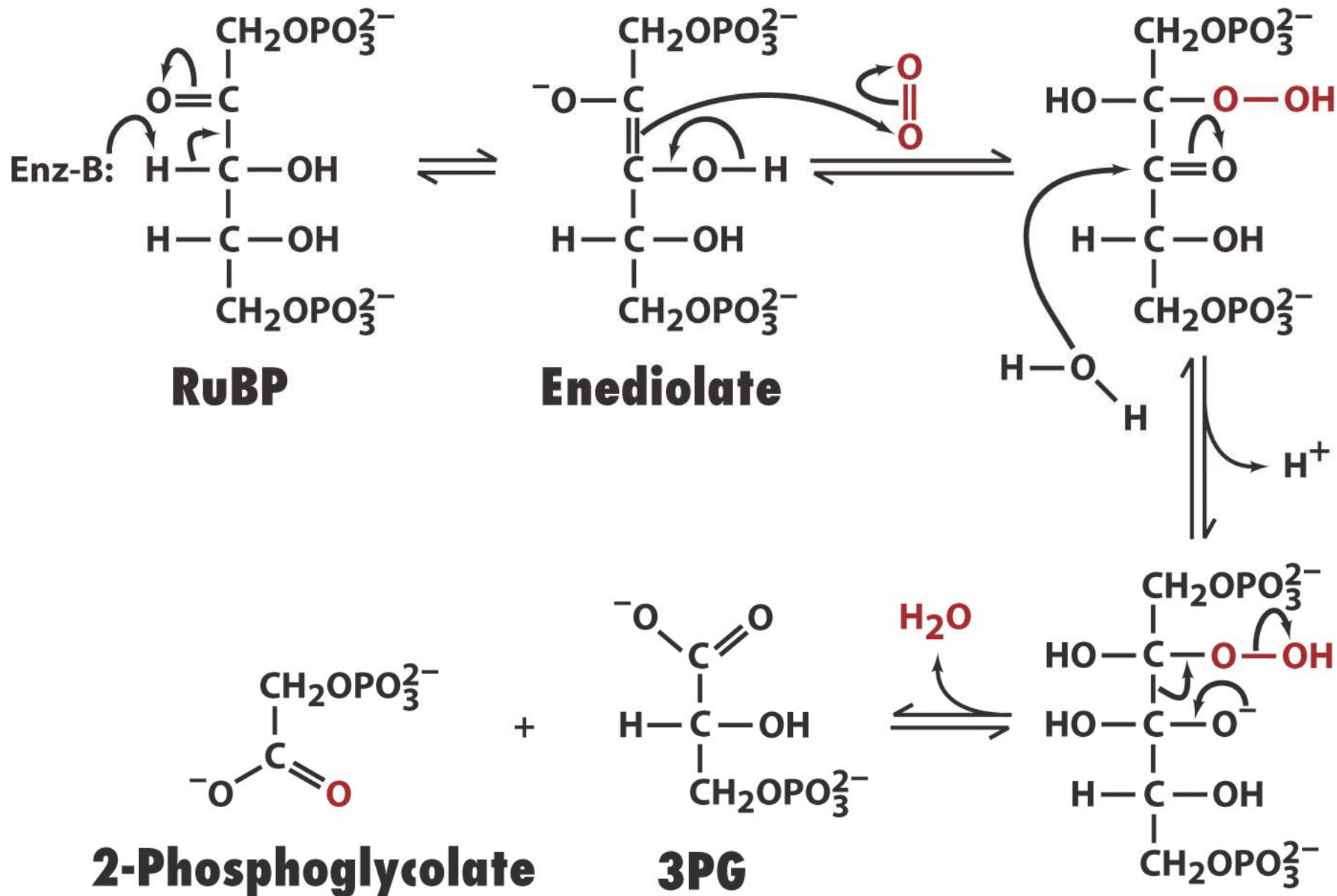


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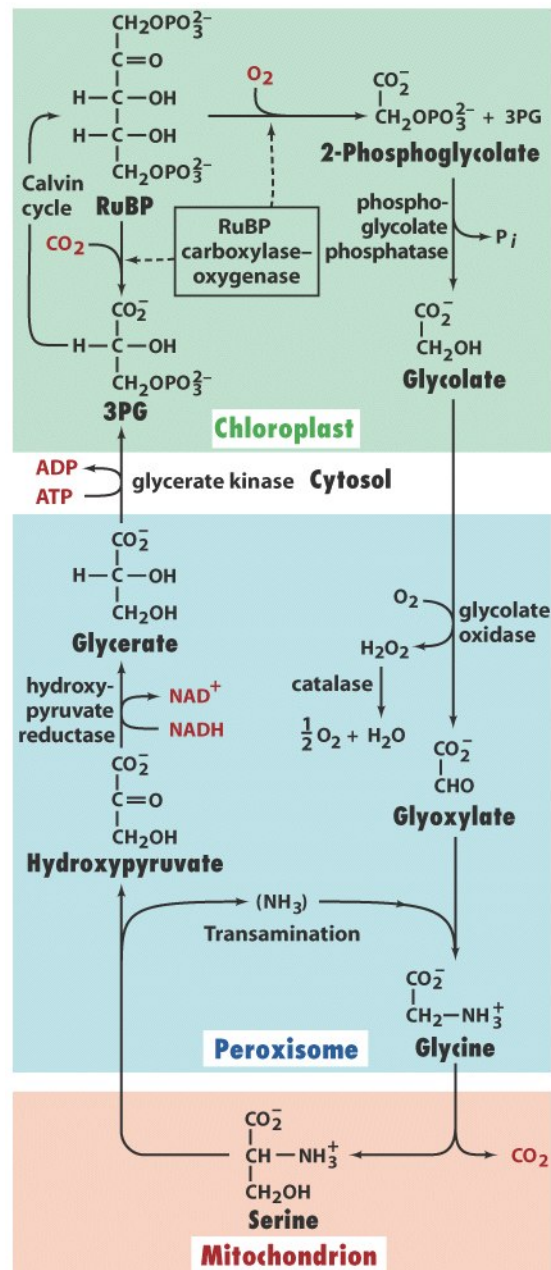


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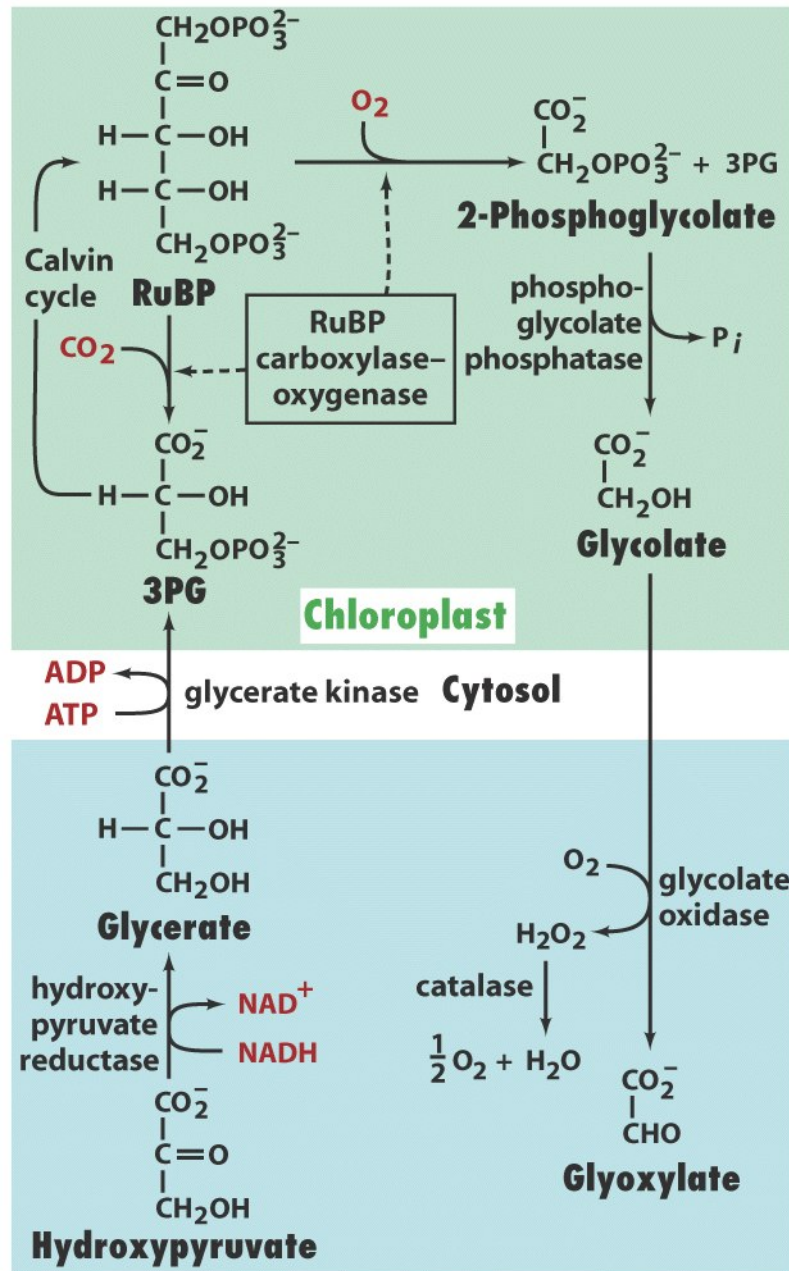


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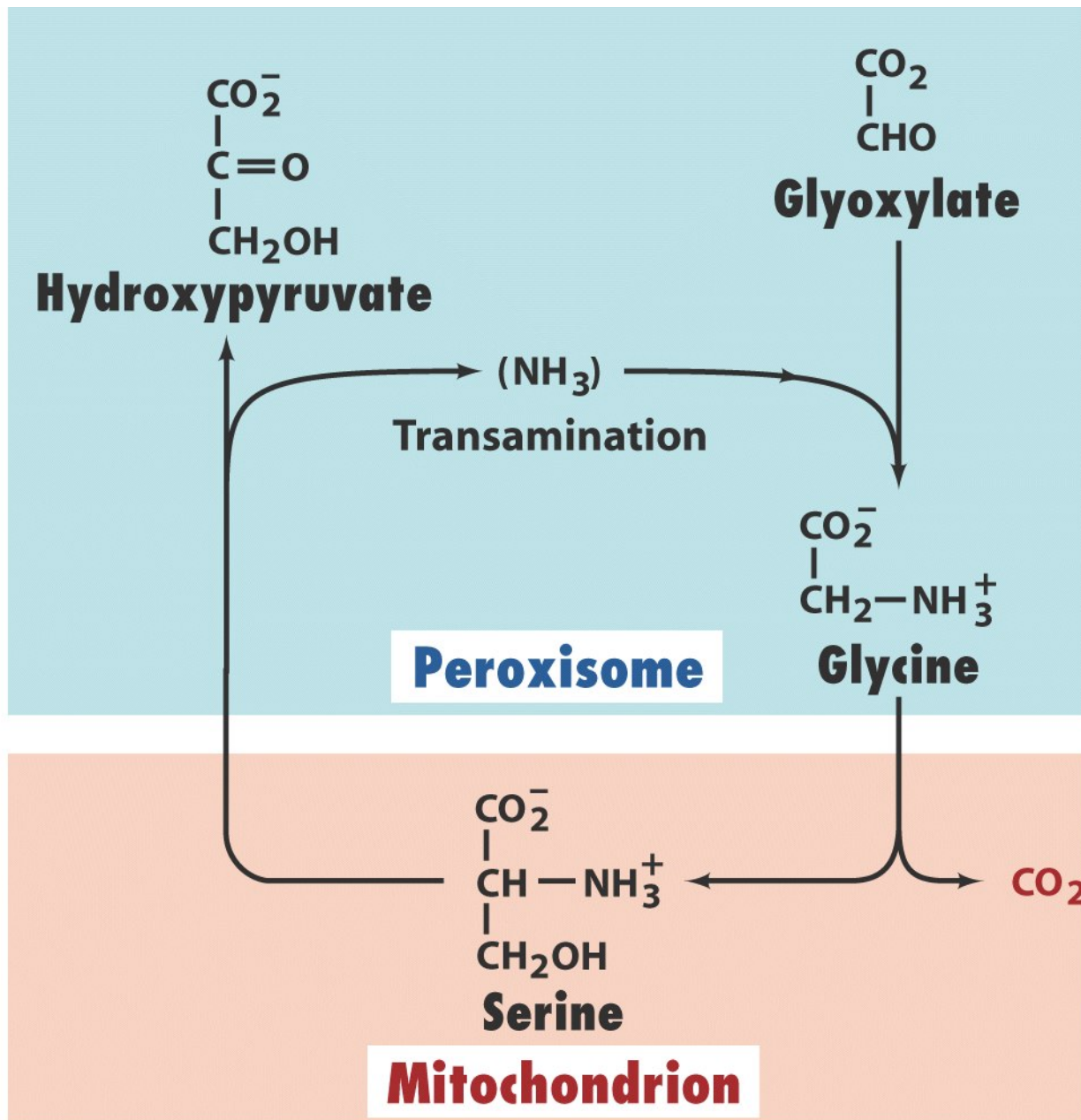


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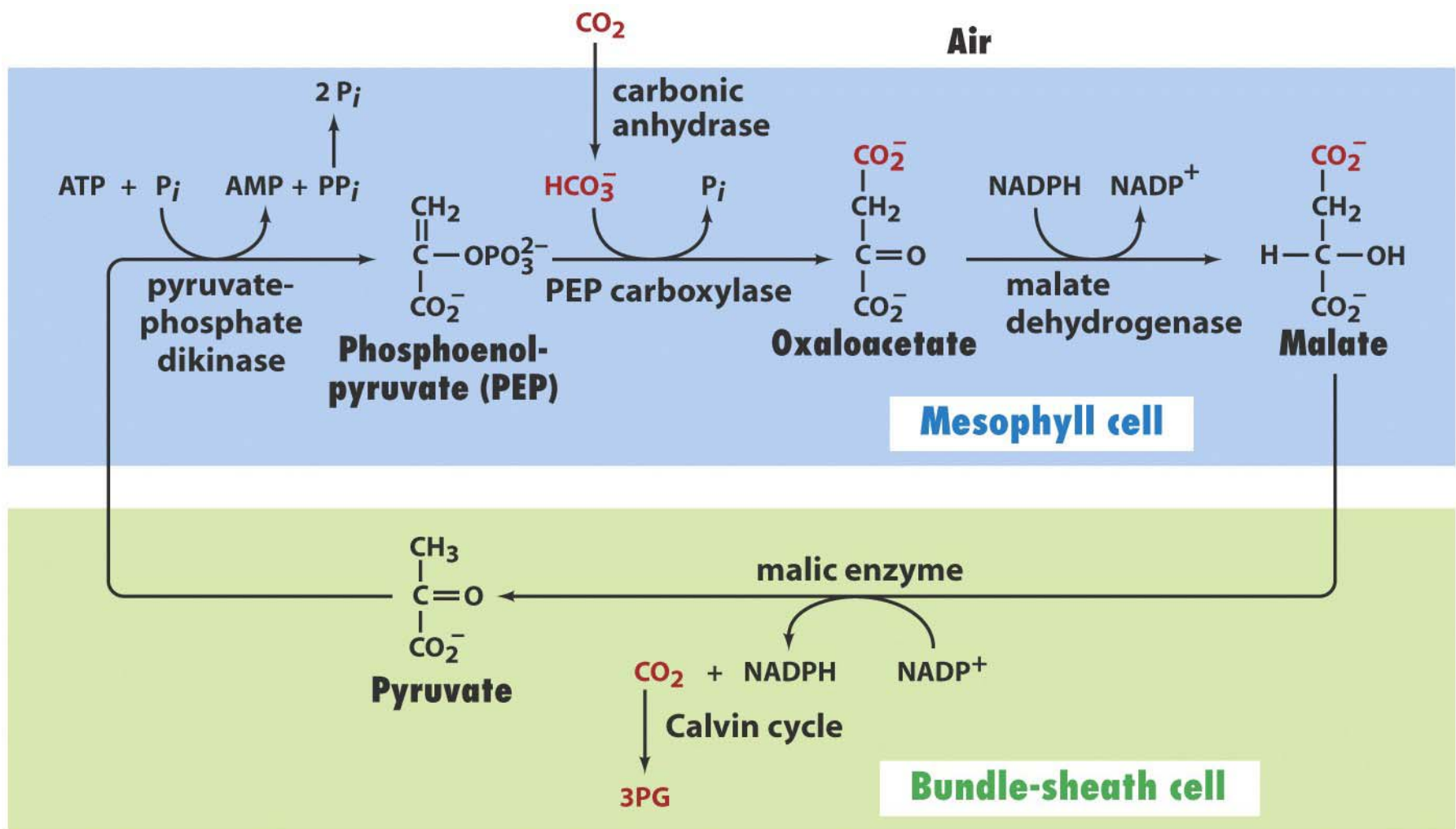


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