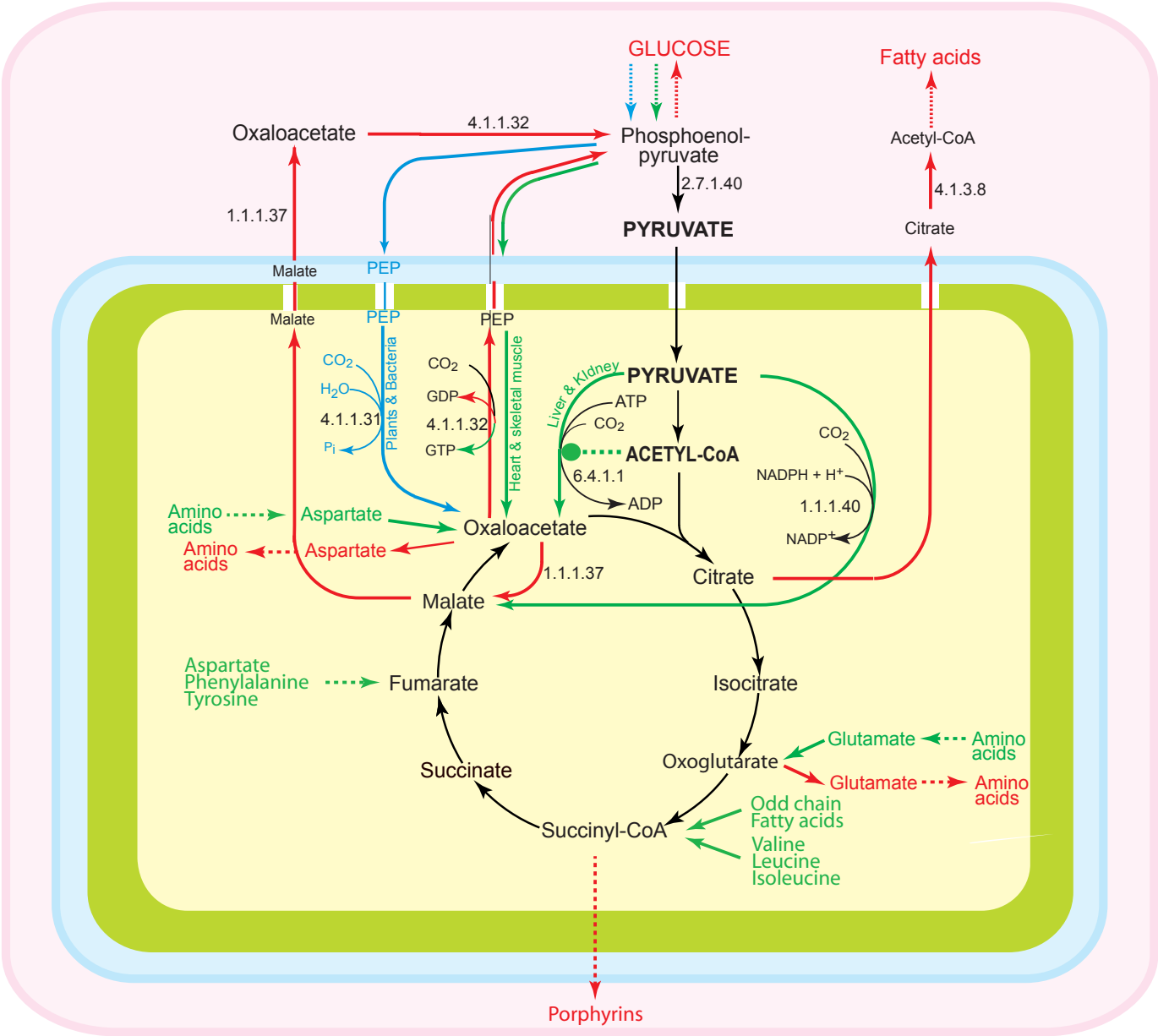
ANAPLEROTIC (REPLENISHING) REACTIONS OF THE TCA CYCLE



The TCA Cycle is the main source of energy for cells. However, half of the intermediates on which the cycle depends are also the origin of pathways leading to important metabolites such as fatty acids , amino acids or porphyrins. If any of these intermediates are thus diverted the integrity of the cycle is broken and the TCA Cycle can no longer function. Production of essential energy can only be resumed if the diverted intermediate or a subsequent intermediate which leads to oxaloacetate can be replenished by *anaplerotic* (re-filling) reactions.

ENZYMES

1.1.1.37	Malate dehydrogenase	4.1.1.31	Phospho*enol*pyruvate carboxylase
1.1.1.40	Malate dehydrogenase (oxaloacetate decarboxylating) - $NADP^+$	4.1.1.32	Phospho*enol*pyruvatecarboxykinase (GTP)
2.7.1.40	Pyruvate kinase	4.1.3.8	ATP citrate (*pro-S*)- lyase
		6.4.1.1	Pyruvate carboxylase

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