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Gluconeogénesis

Fundamentos de Bioquímica

Marga Rodríguez Espejo

GLUCONEOGÉNESIS

Es la ruta por la que se sintetiza glucosa a partir de precursores no glúcidos:

- LACTATO: músculo esquelético activo cuando Glicolisis > fosforilación oxidativa
- AMINOACIDOS: degradación de proteínas de la dieta o proteínas de músculo esquelético.
- GLICEROL: hidrólisis triacilglicéridos en células adiposas.

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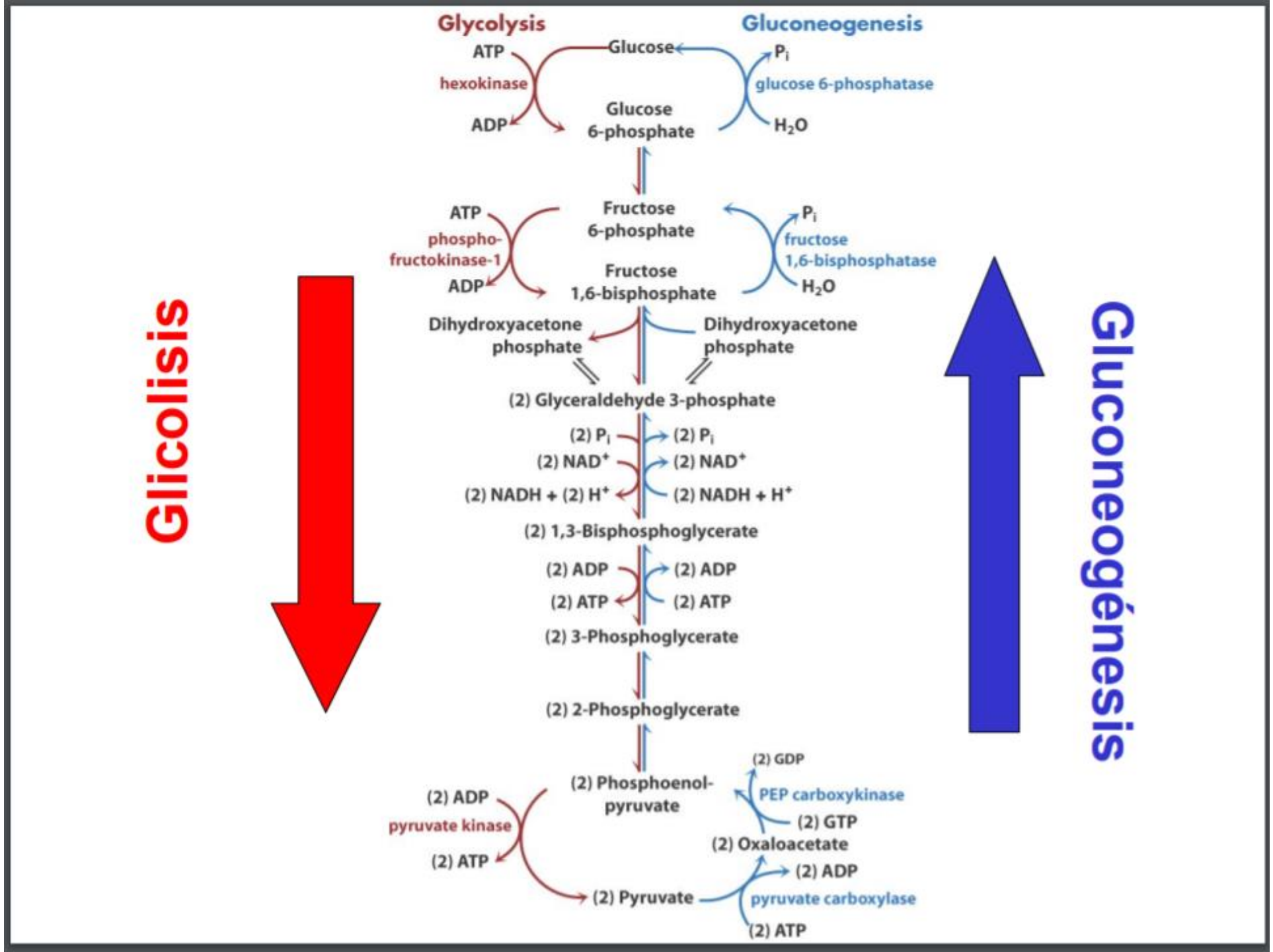
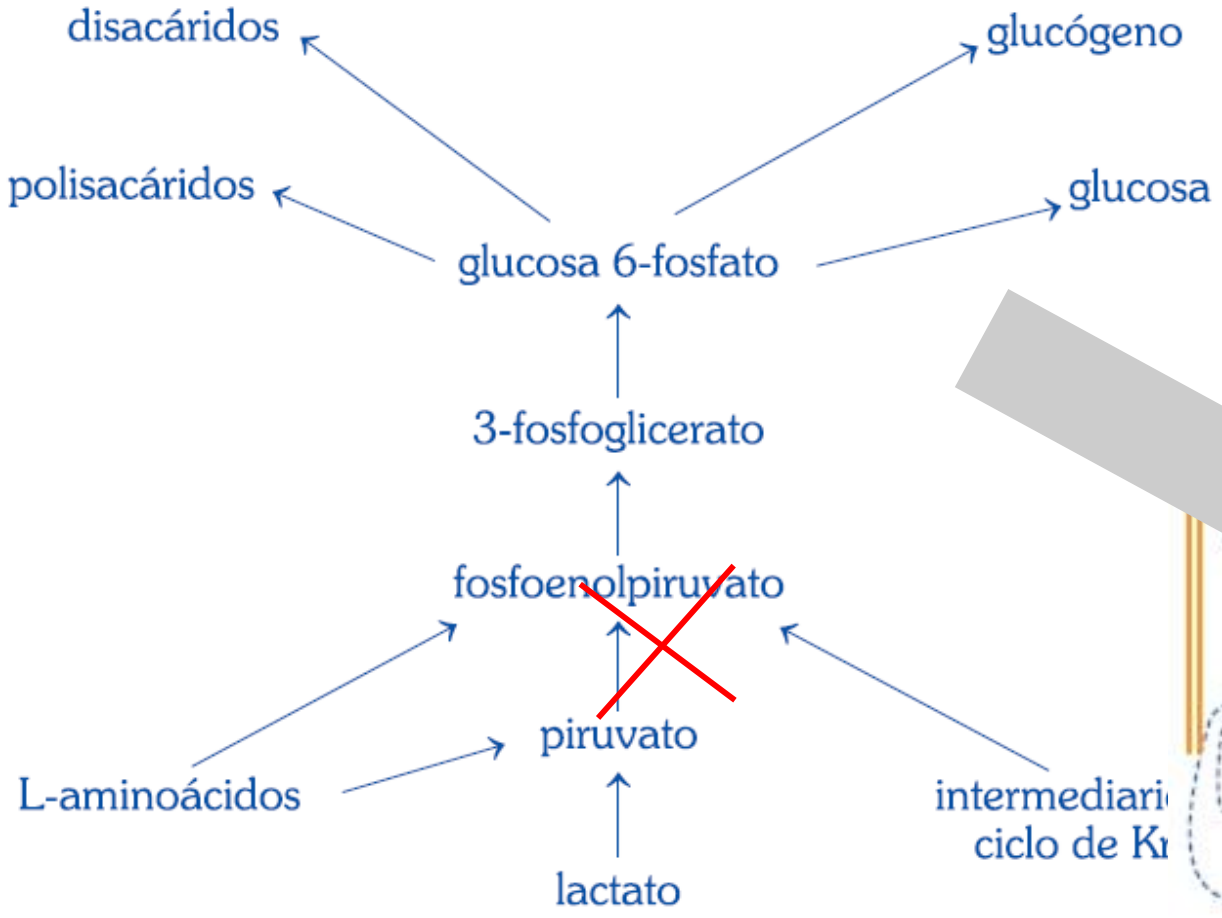
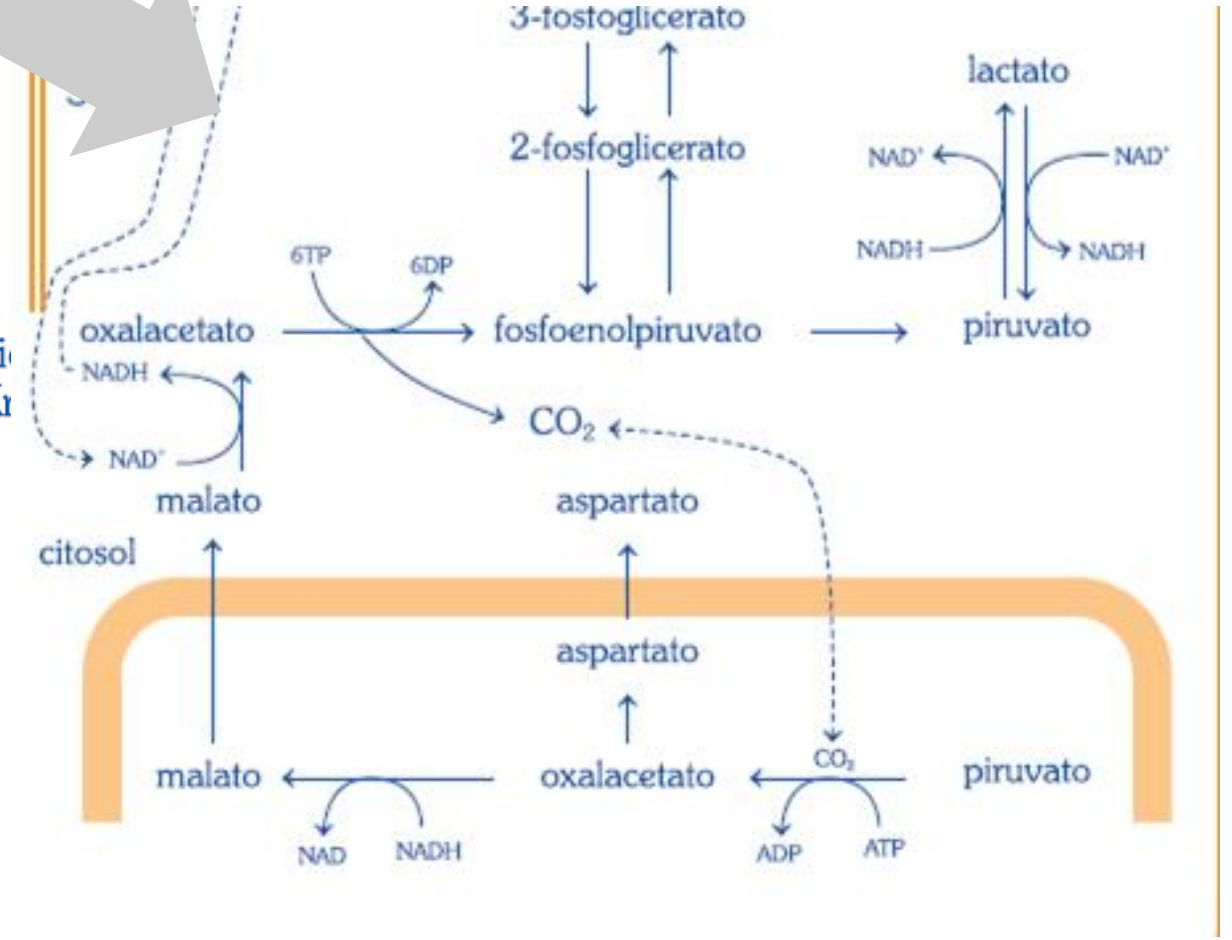




Biotina
Magnesio
AvetilCoA



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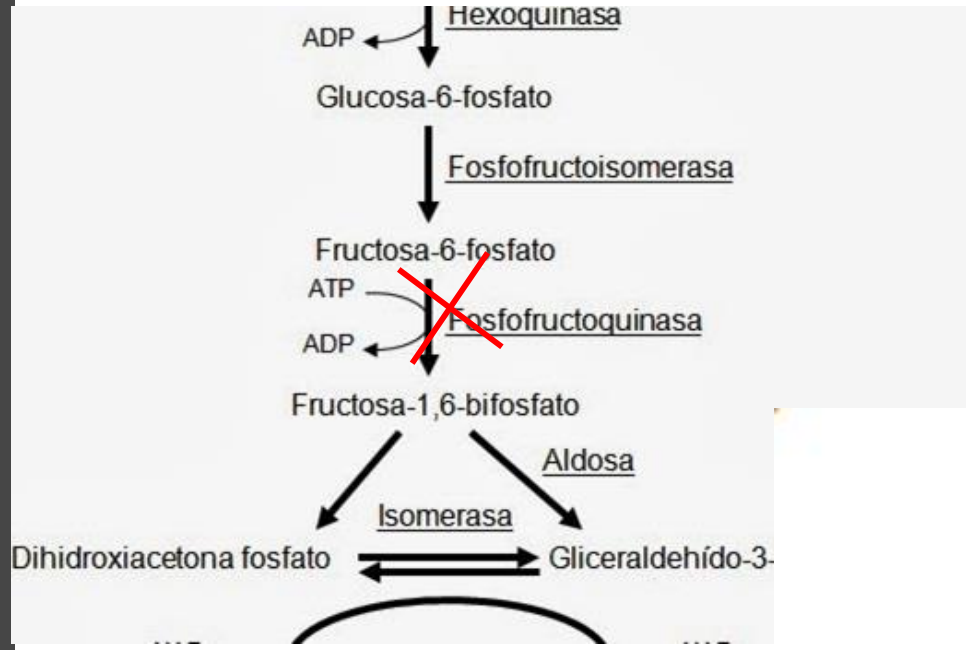

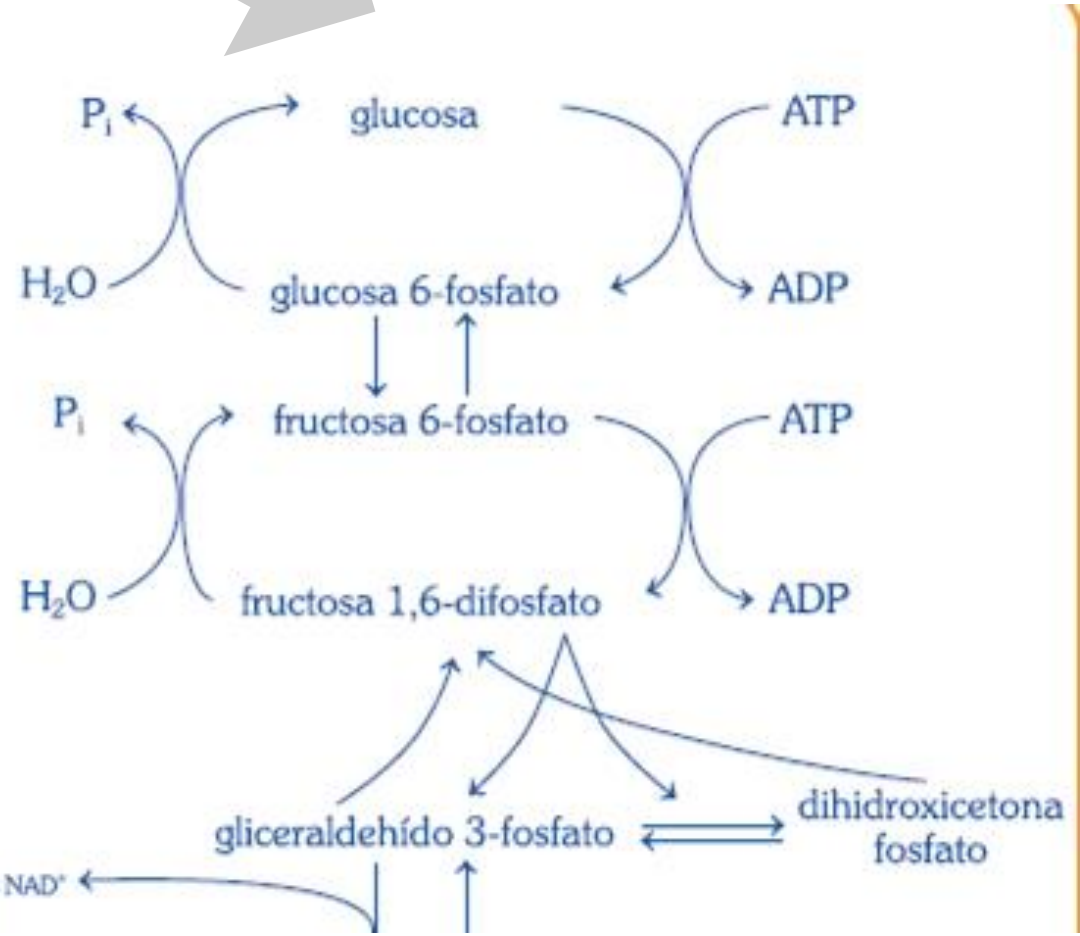

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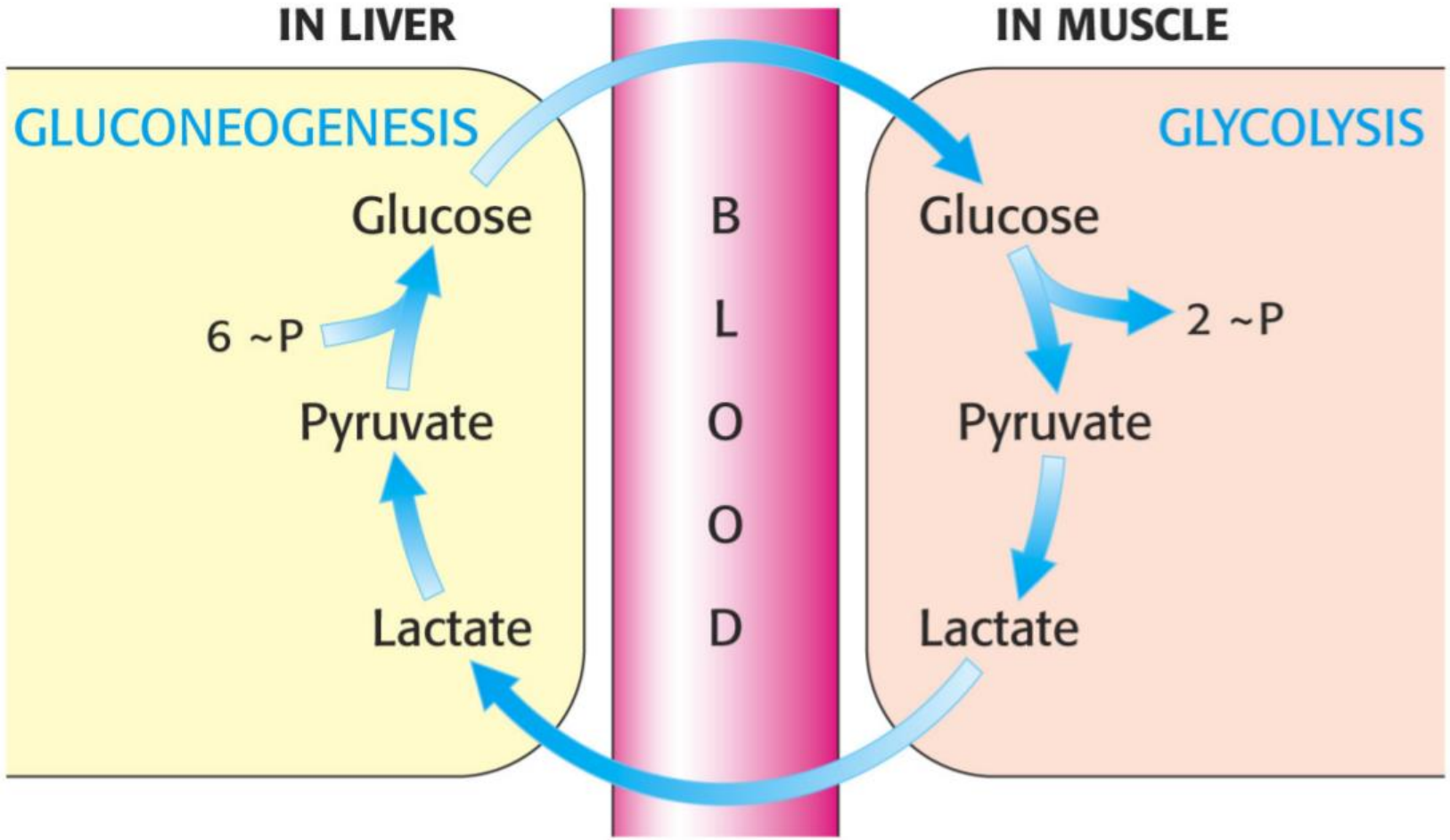

GLUCONEOGENESIS HIGADO/RIÑON → GLUCOSA EN SANGRE → CEREBRO, MUSCULO ESQUELETICO, MUSCULO CARDIACO

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Aminoácidos precursores de glucosa

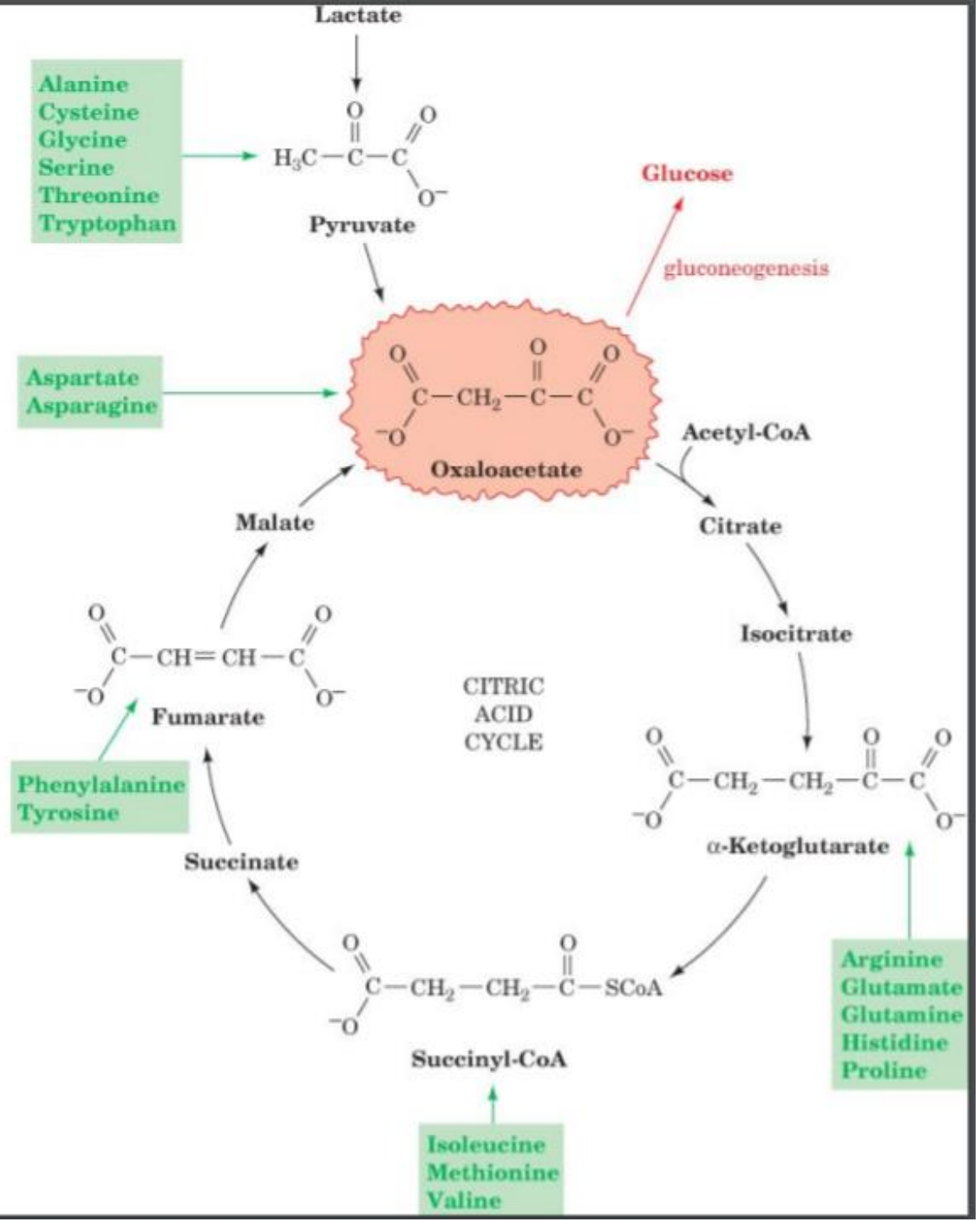
table 20–3

Glucogenic Amino Acids, Grouped by Site of Entry*

Pyruvate	**Succinyl-CoA**
Alanine	Isoleucine†
Cysteine	Methionine
Glycine	Threonine
Serine	Valine
Tryptophan†	
α-Ketoglutarate	**Fumarate**
Arginine	Phenylalanine†
Glutamate	Tyrosine†
Glutamine	
Histidine	**Oxaloacetate**
Proline	Asparagine
	Aspartate

*These amino acids are precursors of blood glucose or liver glycogen because they can be converted to pyruvate or citric acid cycle intermediates. Only leucine and lysine are unable to furnish carbon for net glucose synthesis.

†These amino acids are also ketogenic (see Fig. 18–19).



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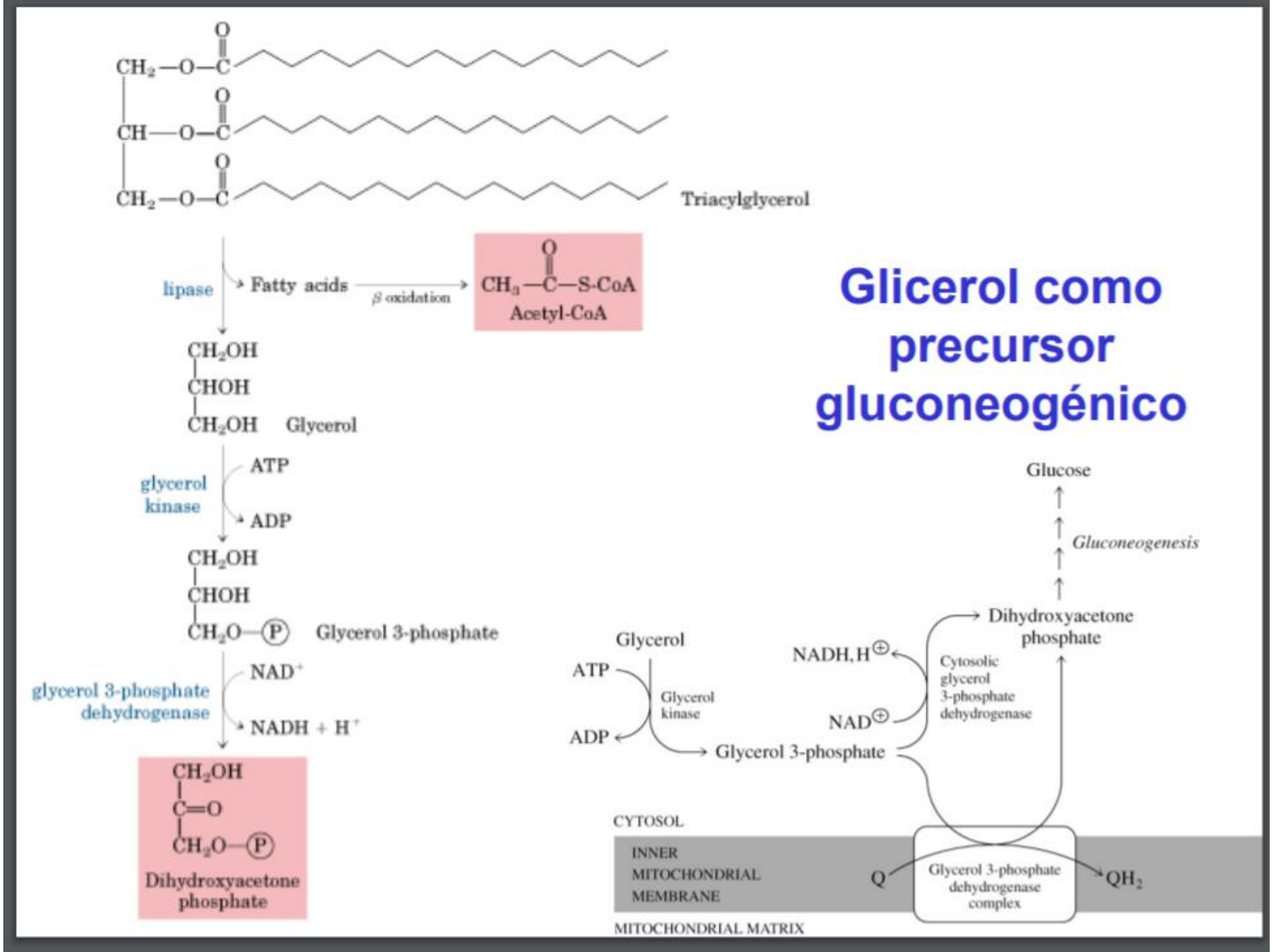
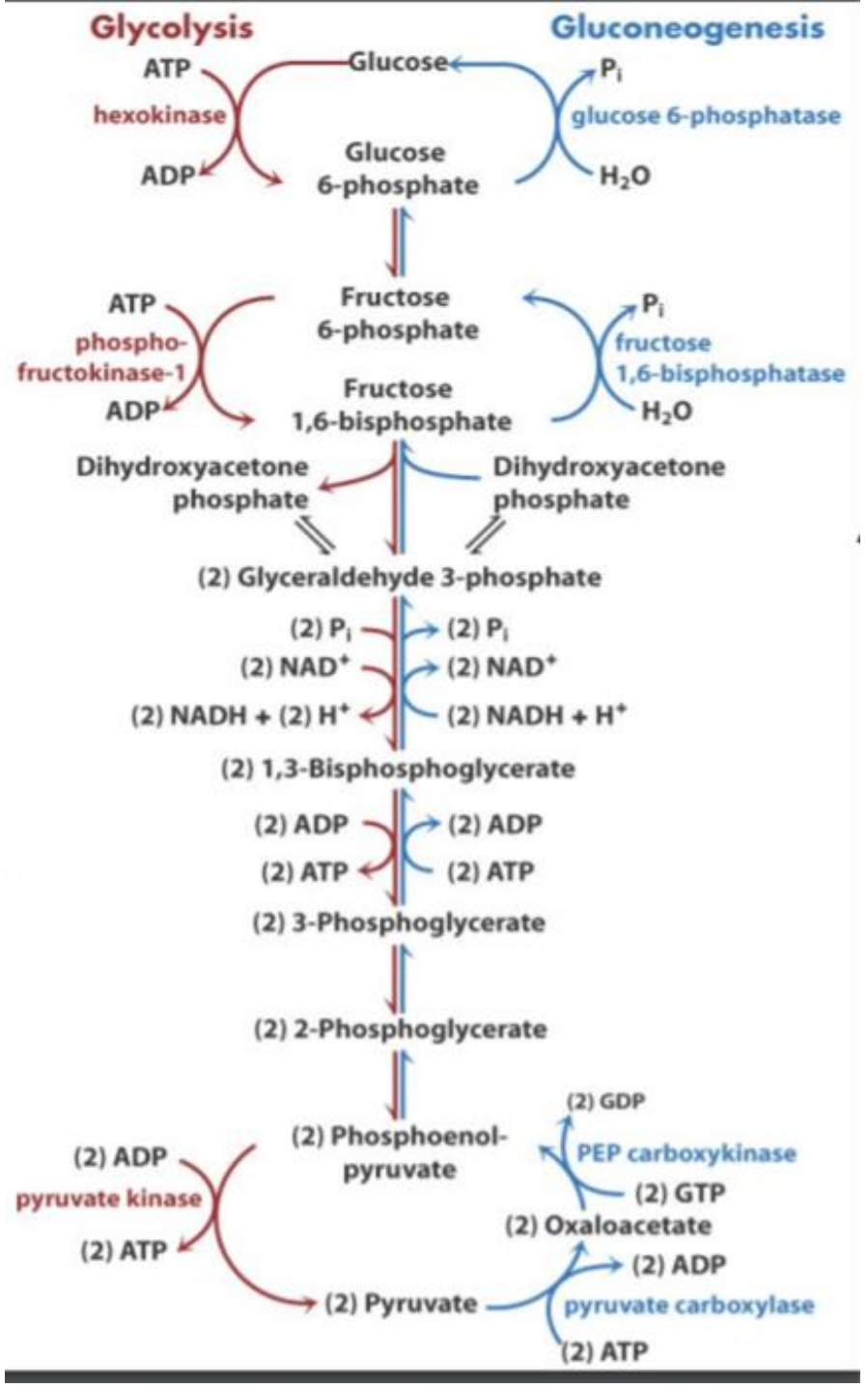
Glicerol como precursor gluconeogénico



Regulación de la ruta

- la piruvato carboxilasa
- la fructosa 1,6-bisfosfatasa
- la glucosa 6-fosfatasa



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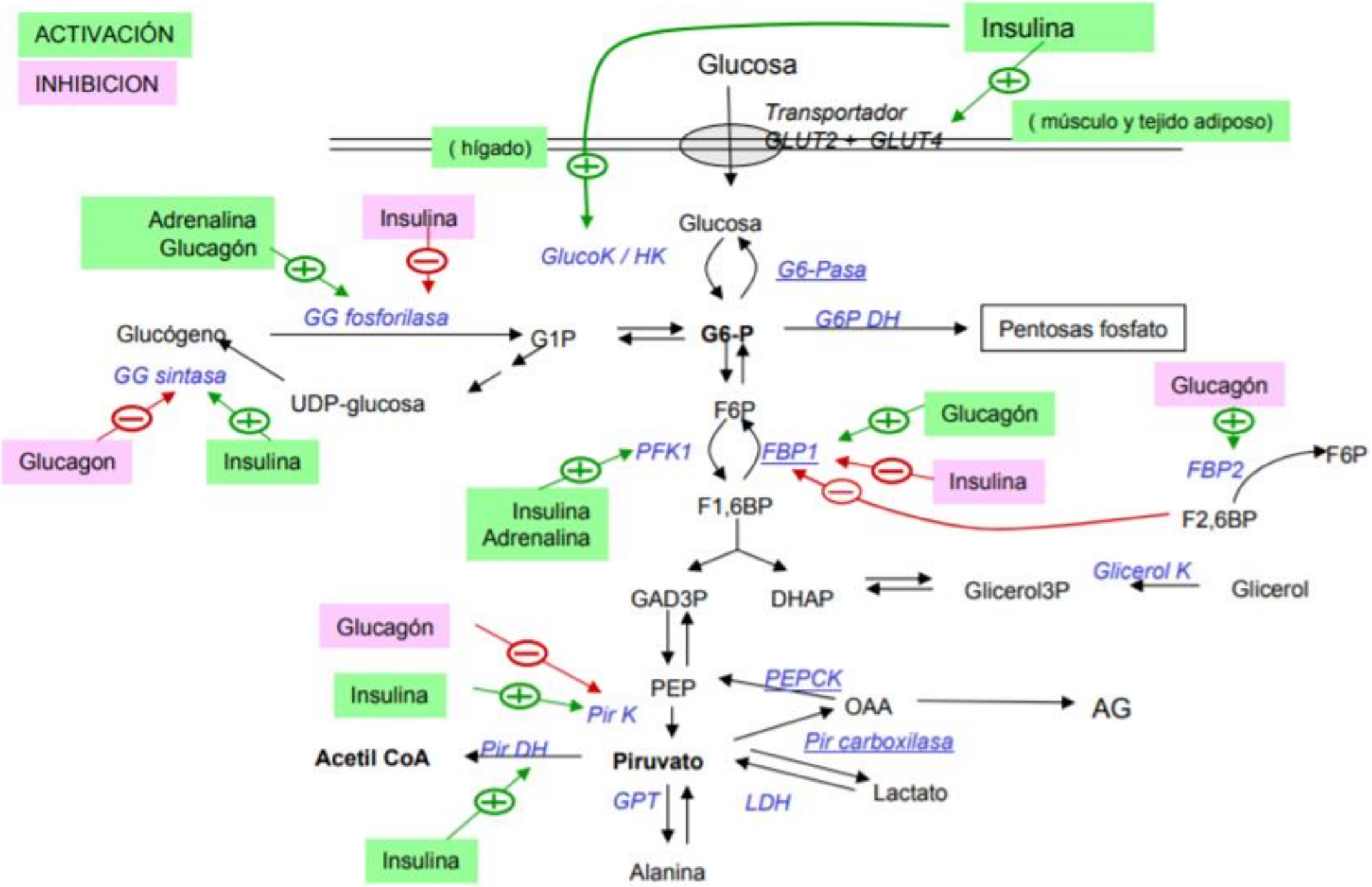

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Gracias