

HOW TO MAKE GLUCONEOGENESIS EASY TO LEARN & REMEMBER

Mnemonics and Creative Study Techniques



WHAT IS GLUCONEOGENESIS?

Gluconeogenesis is the synthesis of glucose from non-carbohydrate sources such as pyruvate, lactate, glycerol, and amino acids. This vital metabolic pathway maintains blood glucose levels during fasting, prolonged exercise, or when dietary carbohydrates are limited. It primarily occurs in the liver and kidneys, ensuring your brain and red blood cells always have the glucose they need to function.



KEY ENZYMES & SUBSTRATES WITH MNEMONICS



Enzymes Mnemonic: "Please Pay For Goodness' Glucose"

- P: Pyruvate carboxylase
- P: PEP carboxykinase
- F: Fructose-1,6-bisphosphatase
- G: Glucose-6-phosphatase



Substrates Mnemonic: "People Like Great Glucose"

- Pyruvate
- Lactate
- Glycerol
- Glucogenic amino acids

SIMPLIFIED GLUCONEOGENESIS PATHWAY

Pyruvate → Oxaloacetate → PEP: Pyruvate carboxylase converts pyruvate to oxaloacetate, then PEP carboxykinase transforms it into phosphoenolpyruvate (PEP).

PEP → Fructose-1,6-bisphosphate → Fructose-6-phosphate: Shared glycolytic steps run in reverse, then Fructose-1,6-bisphosphatase removes a phosphate group.

Glucose-6-phosphate → Glucose: The final step! Glucose-6-phosphatase releases free glucose into the bloodstream, completing the pathway.

THANK YOU & KEEP LEARNING!

Keep practicing mnemonics and stay curious about metabolism!

