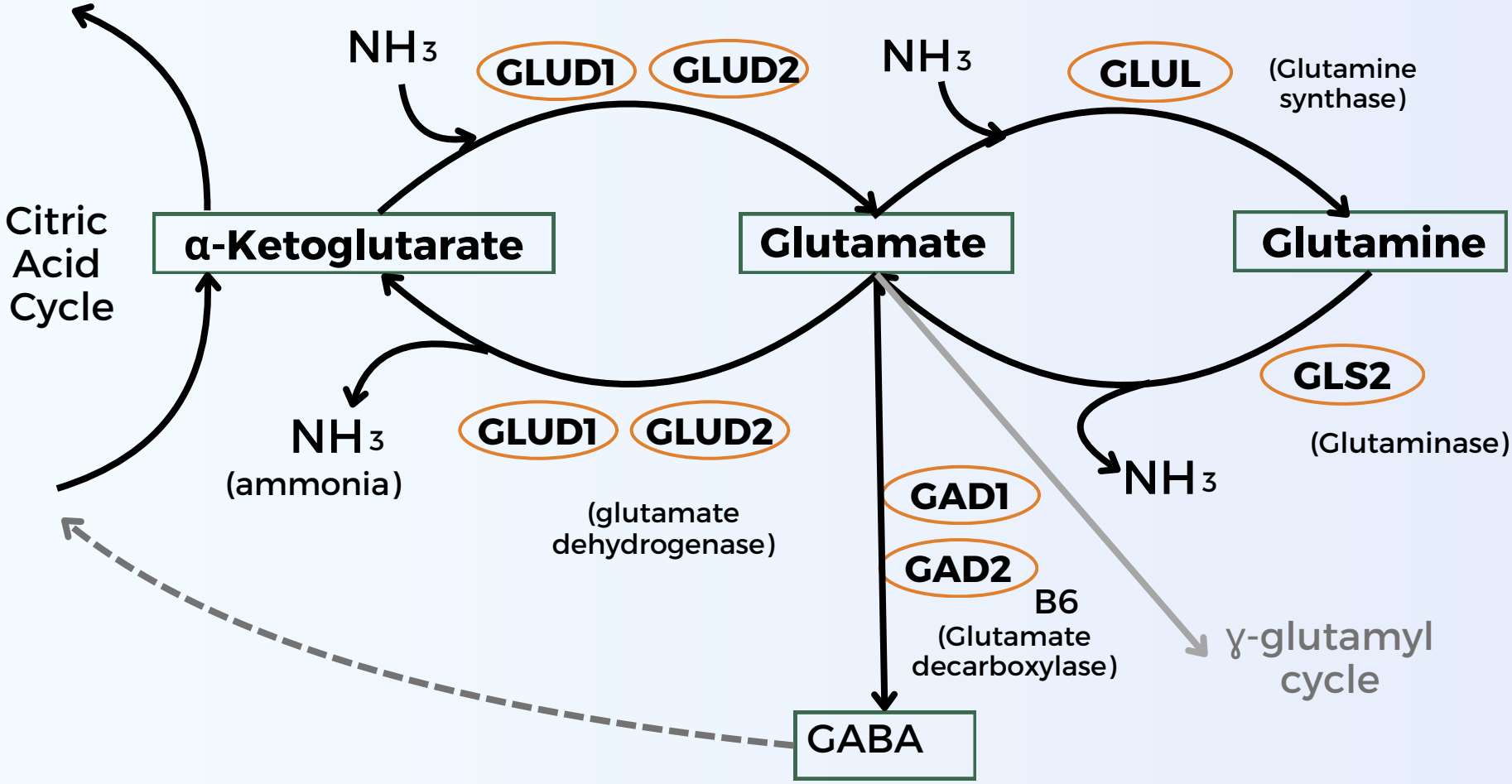
Glutamate Synthesis Pathway



Genetic Lifehacks
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Reference:
PMC7710541
PMC5852604
PMC7078983

Glutamate Synthesis Genes

GLUL

- Glutamate-ammonia ligase
- Also known as GS, glutamine synthase
- Enzyme that catalyzes the synthesis of glutamine from glutamate and ammonia
- Widely expressed in all tissue

GLUD1

- Glutamate dehydrogenase 1
- Also known as GDH, GDH1
- A mitochondrial matrix enzyme that catalyzes the oxidative deamination of glutamate to alpha-ketoglutarate and ammonia. from glutamate and ammonia
- Widely expressed in all tissue

GLUD2

- Glutamate dehydrogenase 2
- Also known as GDH2
- This enzyme catalyzes the reversible oxidative deamination of glutamate to alpha-ketoglutarate.
- Widely expressed in all tissue

GAD1

- Glutamate decarboxylase 1
- Also known as GAD
- Enzyme that catalyzes the production of gamma-aminobutyric acid GABA from glutamate.
- Primarily expressed in the brain

GAD2

- Glutamate decarboxylase 2
- Also known as GAD65
- Enzyme that catalyzes the production of gamma-aminobutyric acid GABA from glutamate.
- Primarily expressed in the brain

GLS2

- Glutaminase 2
- Also known as GLS
- Enzyme that catalyzes the hydrolysis of glutamine to glutamate and ammonia.
- Primarily expressed in the liver and brain

Reference:
NIH Gene database