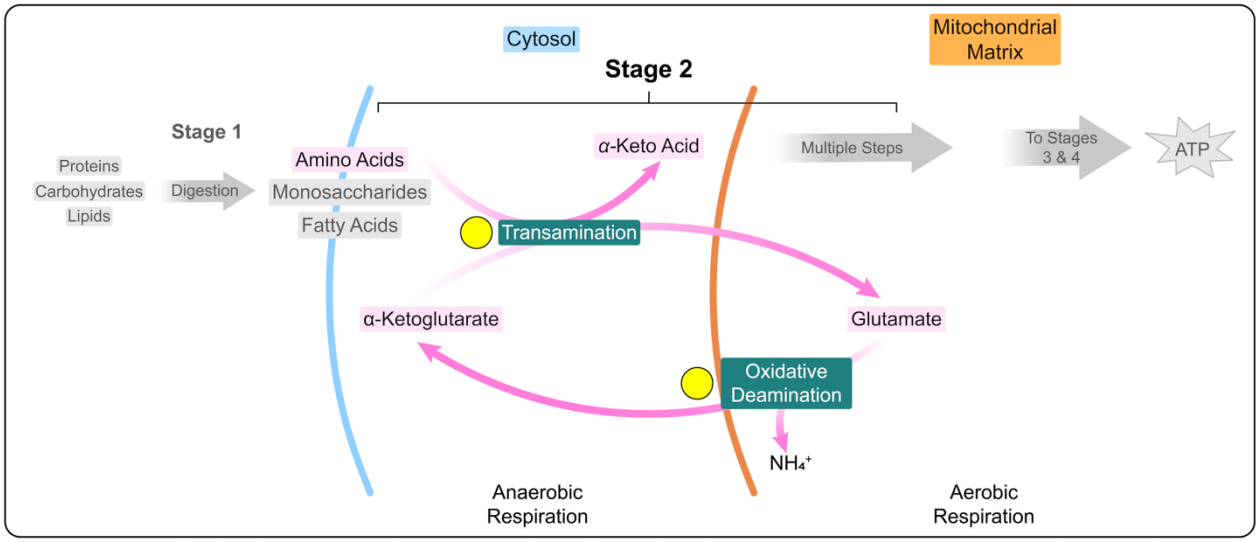
CONCEPT: AMINO ACID CATABOLISM: AMINO GROUP

- The first stage of amino acid catabolism is the removal of the amino group in the liver; this is a _____ step process.

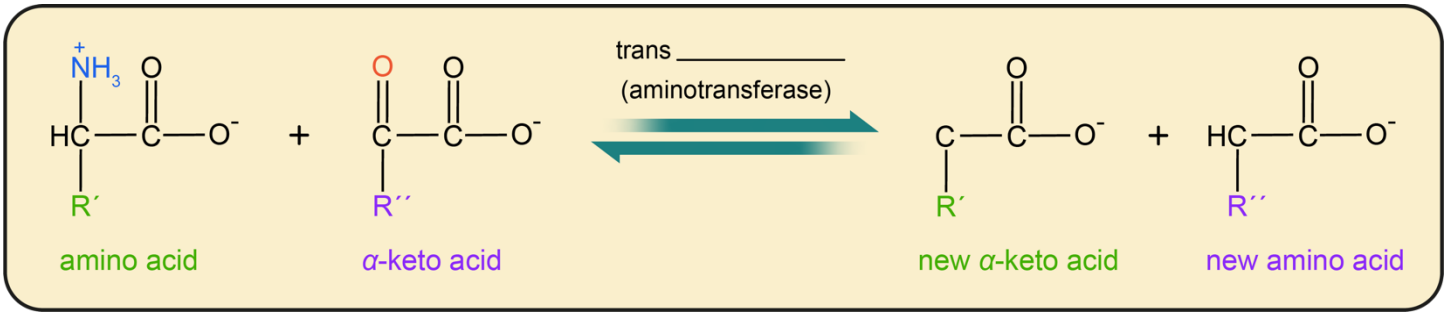
  (a) **Transamination**: removal of _____ group, occurs in the _____.

  (b) **Oxidative Deamination**: formation of ammonium ion (_____), occurs in the mitochondria.



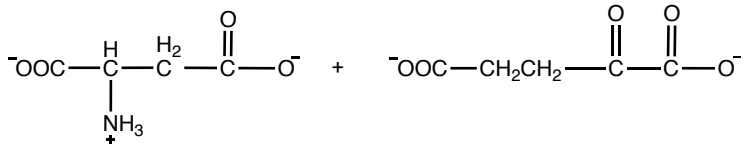
(a) Transamination

- A reversible reaction, _____ group of amino acid and _____ group of α-keto acid are exchanged.



□ α-keto acid is usually _____, produces _____ as the new amino acid.

EXAMPLE: Complete a transamination reaction for aspartate.



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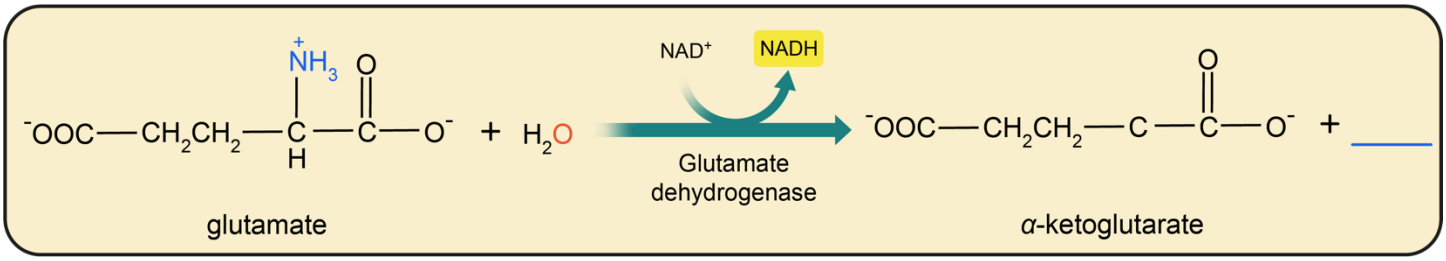
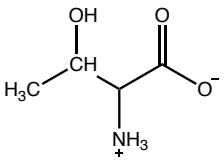
b Oxidative Deamination

- Glutamate is _____ back to α-ketoglutarate by NAD^+, forming _____ ion.
  - □ NH_4^+ ion then enters the _____ cycle.



EXAMPLE: Complete a transamination and oxidative deamination reactions for threonine.



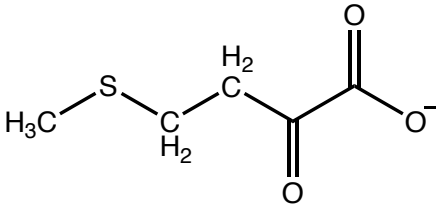
PRACTICE: What amino acid yields the following a-keto acid through transamination?

a) Lysine

b) Methionine

c) Cysteine

d) Glutamate



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PRACTICE: Draw α-keto acid produced by transamination of glutamine.