



IN-CLASS

ACTIVITY

Critical Thinking Questions

1. α -ketoglutarate and OAA
2. Yes
3. α -ketoglutarate and OAA
4. Pyruvate
5. Glutamate and pyruvate
6. Transamination
7. Citrulline and ornithine
8. Carbamoyl synthetase is irreversible and is regulated by N-acetylglutamate. Other reactions in the urea cycle are regulated by concentration.
9. Nitrogens come from ammonia (from oxidative deamination of glutamate) and from aspartate.
10. Carbon fragments are oxidized to CO_2 and H_2O or are used in gluconeogenesis.
11. After deamination, carbon skeletons can be made into a variety of TCA intermediates or acetyl-CoA or acetoacetate. Amino acid carbon skeleton that are converted to acetyl-CoA or acetoacetate are ketogenic because they result in ketone bodies. The remainder are glucogenic, because they could be funneled from TCA to gluconeogenesis without loss of TCA intermediates.
12. During starvation, amino acids are metabolized to generate either ATP or glucose. Therefore in the case of starvation or high protein diet, more transamination will occur resulting in more ammonia to be excreted as urea.