

18.3 Pathways of Amino Acid Degradation. Understand the concept of glucogenic and ketogenic amino acids (Fig 18-15). All amino acids with 6 or more contiguous carbons are at least partly ketogenic.

One carbon metabolism (689-694) is extremely important and should be studied carefully. Be able to recognize THF structures, see Fig 18-17 and online handouts. Know structure and synthesis of SAM (Fig 18-18). Homocysteine is bad (not in book). Be able to draw biotin and know that B-12 or cobalamin is also a "one carbon cofactor."

Pyruvate Family: Know the lower four enzymes in Fig 18-19. Page 692:

Serine Hydroxymethyl Transferase

Glycine Cleavage Enzyme

Serine Dehydratase

Alanine Aminotransferase

Acetyl CoA Family: Know the first reaction in Fig 18-23 and the online handout about epinephrine synthesis (879). Understand PKU and mixed function oxidases (696-7).

18-23 page 696 Phenylalanine Hydroxylase – backward NADPH

Mixed Function 697, rest of pathway 879

α -Ketoglutarate Family: Know reactions in Fig 18-26 except His pathway. Page 698

Arginase

Ornithine delta-aminotransferase

Spont cyclization

Proline oxidase

L-Glutaminase followed by Glu DH

Succinyl CoA Family: Know how Thr and homocysteine go to Succinyl CoA. 699

B-12, Methylmalonyl CoA Mutase remember odd chain fatty acids!

Cystathionine Struc Fig 22-14 page 865

Branched Chain Family: Understand that these are metabolized in muscle, adipose, etc. by enzymes that resemble fatty acid beta oxidation enzymes. Lack of DH Complex leads to Maple Syrup Urine Disease.

No real details here but parallel to fatty acid beta ox are important

Read Box 18-2. Apparent ethylene glycol poisoning turns into MMA, methylmalonic academia. Murder case solved!

Know AsN and Asp go to OAA.

Obvious. Fig 18-29 page 702