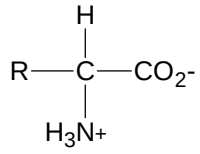
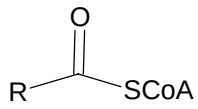
Amino Acid Breakdown

STEP I:

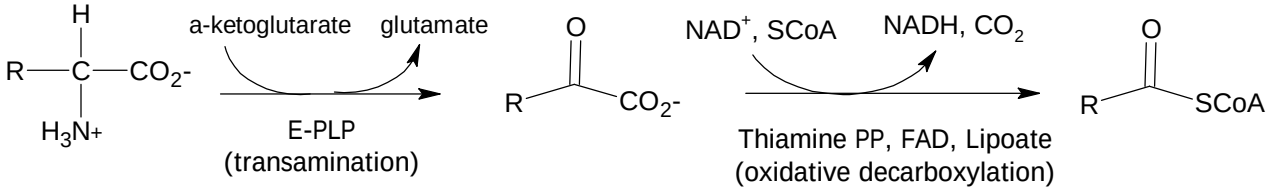
Amino Acids have the general structural motif of:



Convert the amino acid of interest to



using the following transformations:



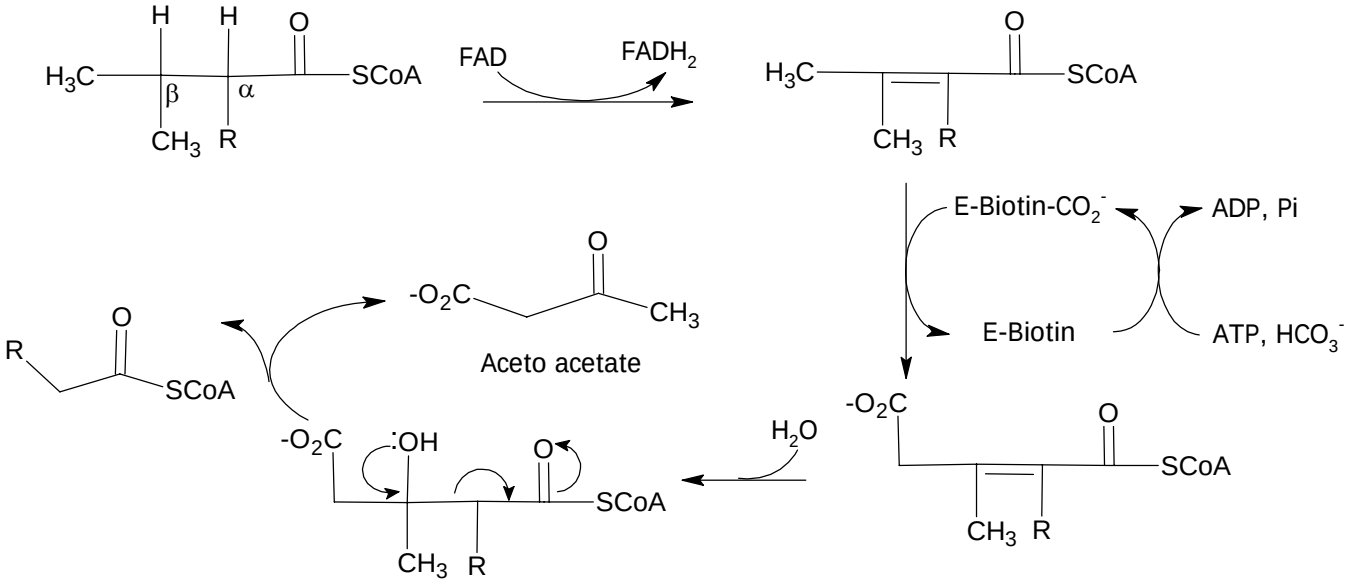
STEP II:

Identify the LONGEST carbon chain backbone.

Examine the number of β-hydrogens on the longest carbon chain and follow the breakdown outline in the analysis below.

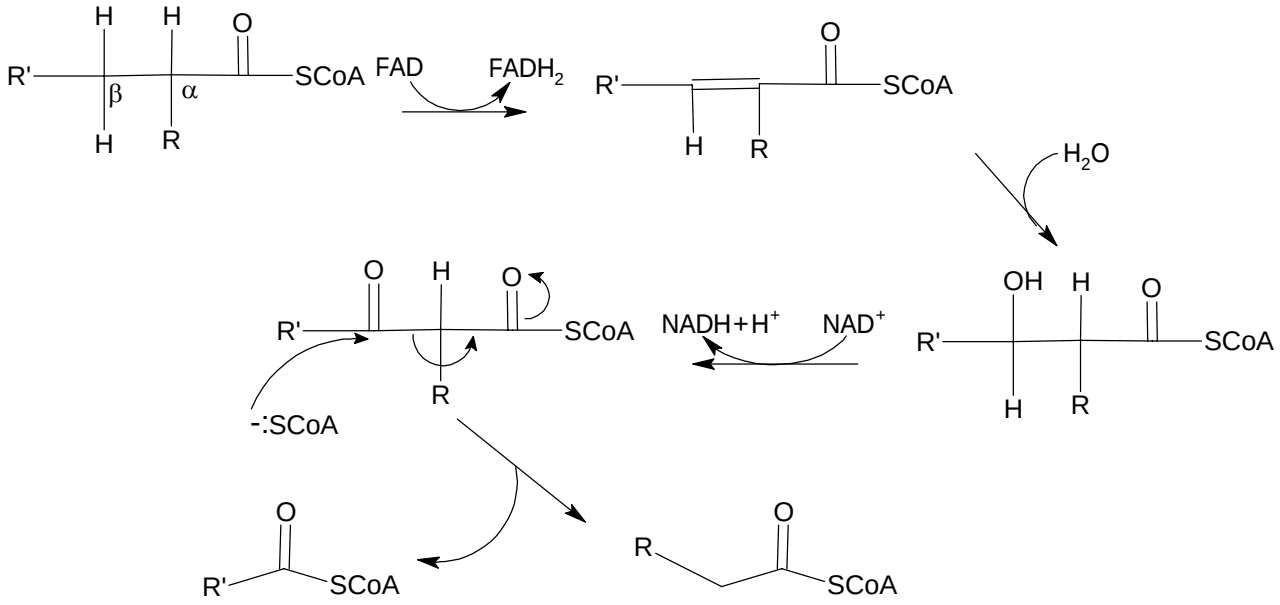
Note: Whenever there is a β-keto-acid present, spontaneous β-decarboxylation occurs.

CASE I - one β-hydrogen (analogous to Leucine breakdown)



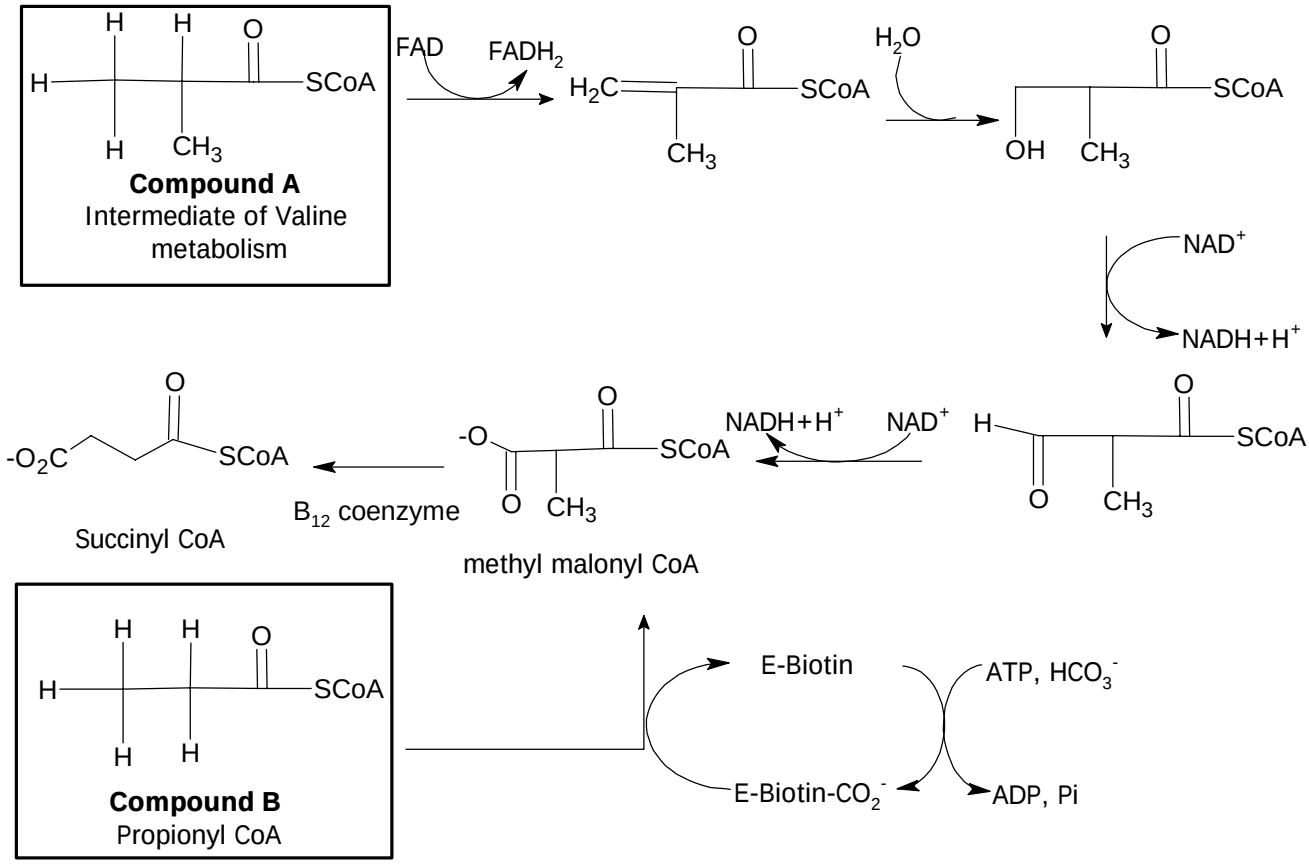
Amino Acid Breakdown

CASE II - two β-hydrogens (analogous to Isoleucine and fatty acid breakdown)



CASE III - three β-hydrogens (analogous to valine breakdown)

Only two molecules fit this category.

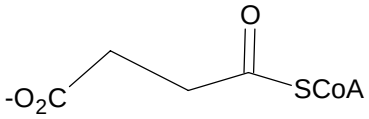


Amino Acid Breakdown

STEP III:

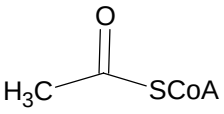
Repeat Step II until your obtain one of the following molecules.

Glycogenic

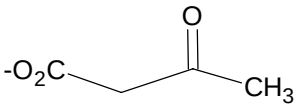


Succinyl CoA

Ketogenic



Acetyl CoA



Aceto acetate