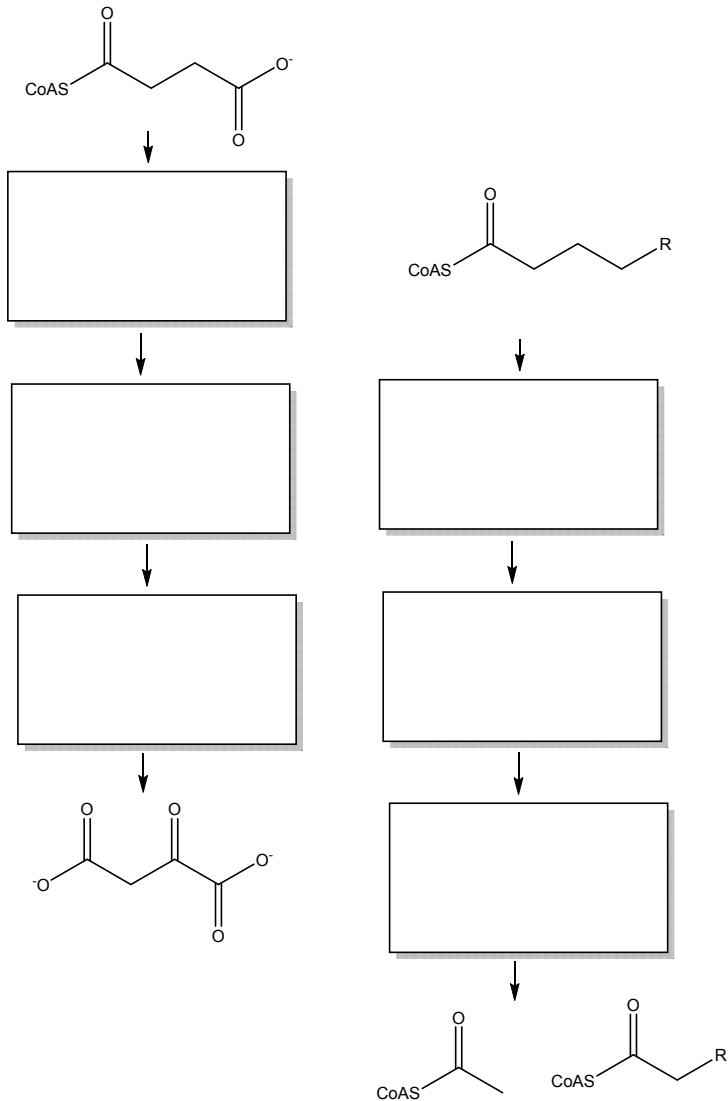


Discussion Exercise 11: Motifs in Metabolic Chemistry

Skill 1: Recognize reaction similarities between pathways

- There are a limited number of reactions in metabolic chemistry
- Recognize similarities!

Problem 1: Fill in the blanks for this portion of the citric acid cycle. Fill in the blanks for the intermediates in beta-oxidation. Compare the pathways.



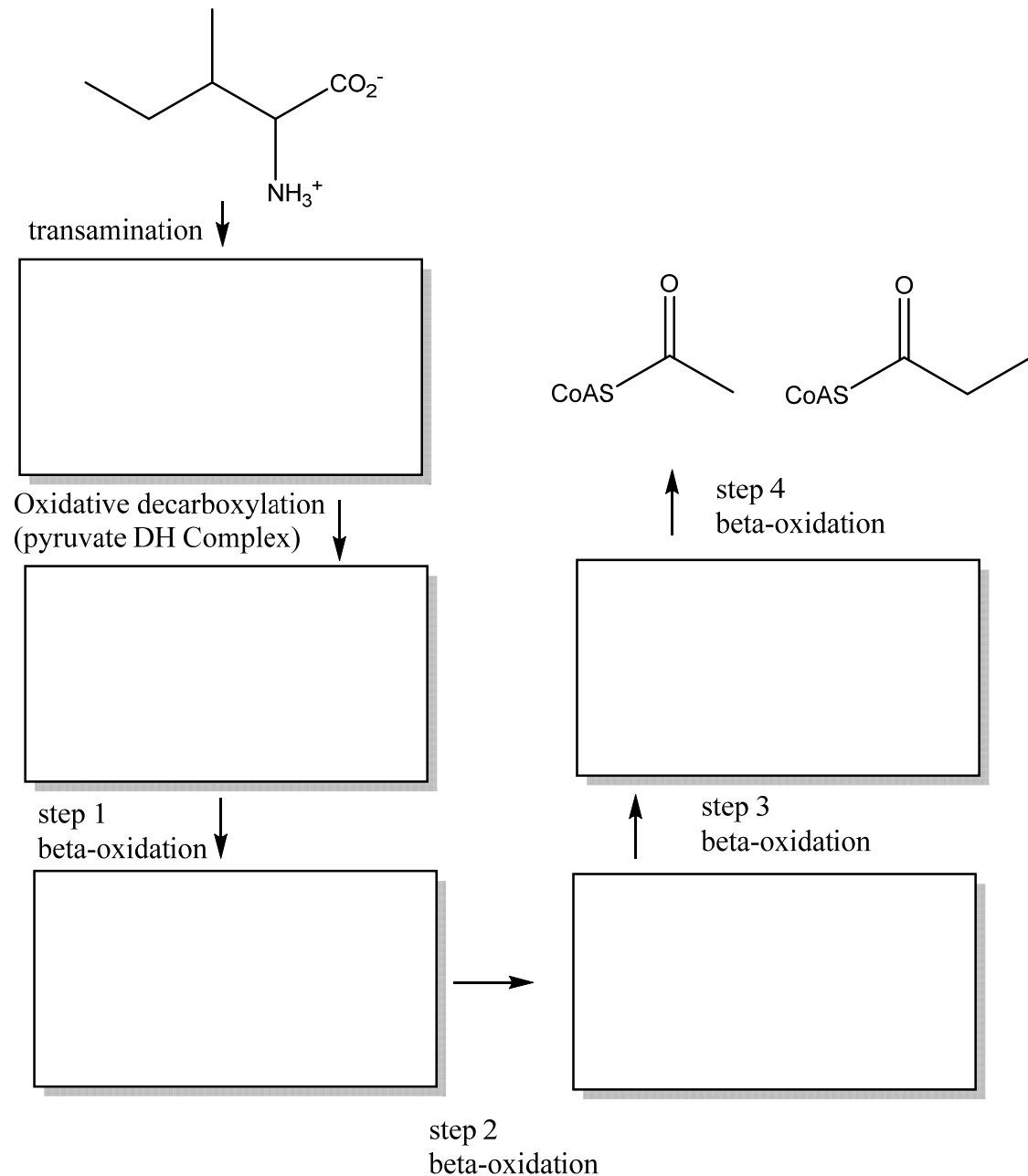
Problem 2. Find one other reaction we have learned that is analogous to

- A. pyruvate carboxylase (anaplerotic reaction)
- B. α -ketoglutarate dehydrogenase
- C. aldolase (a retroaldol reaction)

Skill 2: Draw a mechanism for a reaction pathway based on your knowledge of other pathways

- Pathways follow certain recurring patterns
- You can guess whether ATP or a cofactor will be needed in a reaction based on the chemistry of other reactions you have seen

Problem 3. Fill in the intermediates for the catabolism of isoleucine given these pathway hints. Use problems 1 and 2 for help.



Problem 4. Fill in the intermediates for the catabolism of valine given these pathway hints. Use problems 1 and 2 for help.

