

Discussion Exercise 4: Six classes of enzymes

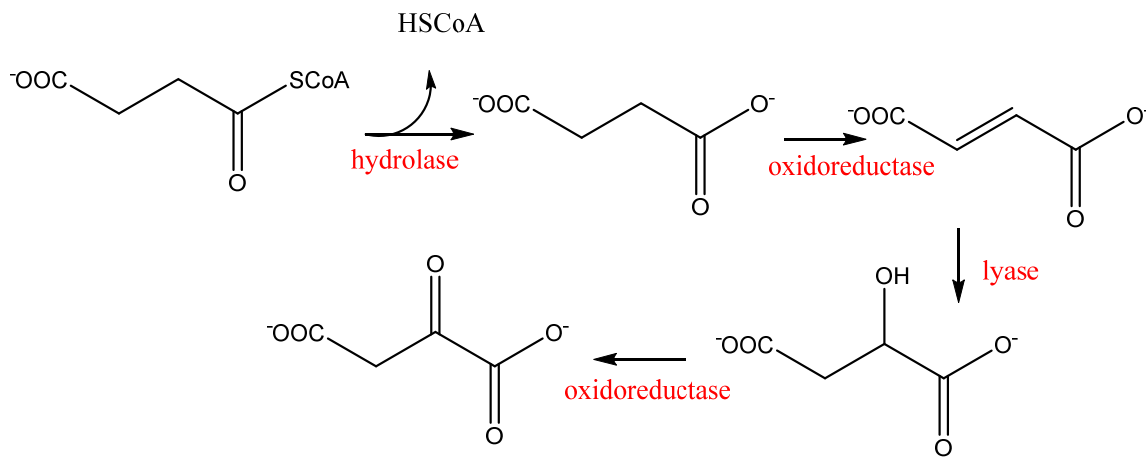
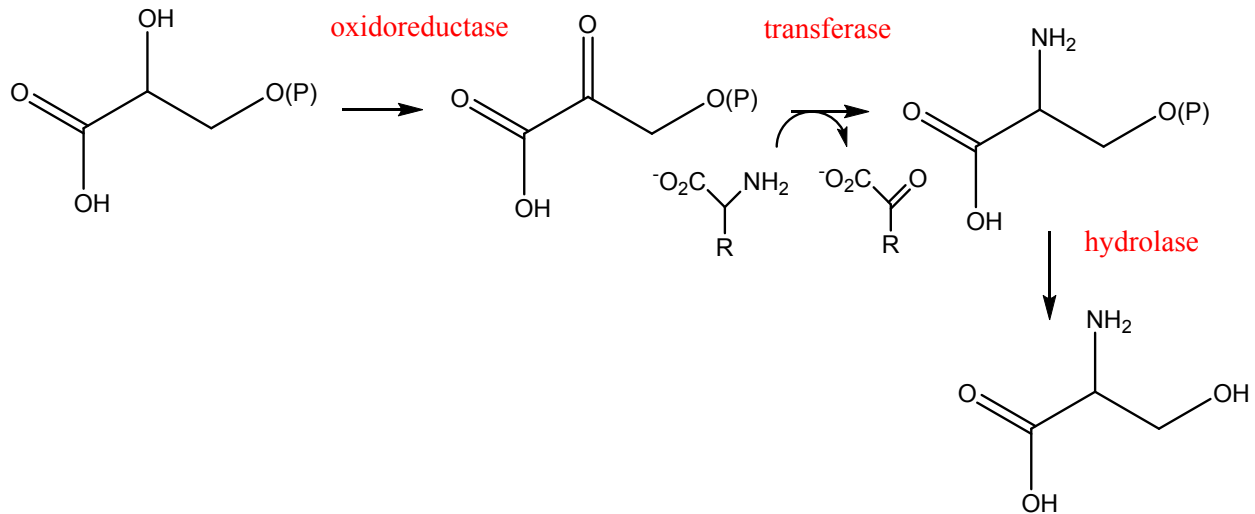
Skill 1: Predict the class of an enzyme based on its name

Problem 1: To which EC class do each of the following enzymes belong?

- A. Hexokinase **TRANSFERASE**
- B. Glucose-6-phosphate isomerase **ISOMERASE**
- C. Glyceraldehyde-3-phosphate dehydrogenase **OXIDOREDUCTASE**
- D. phosphoglycerate mutase **ISOMERASE**

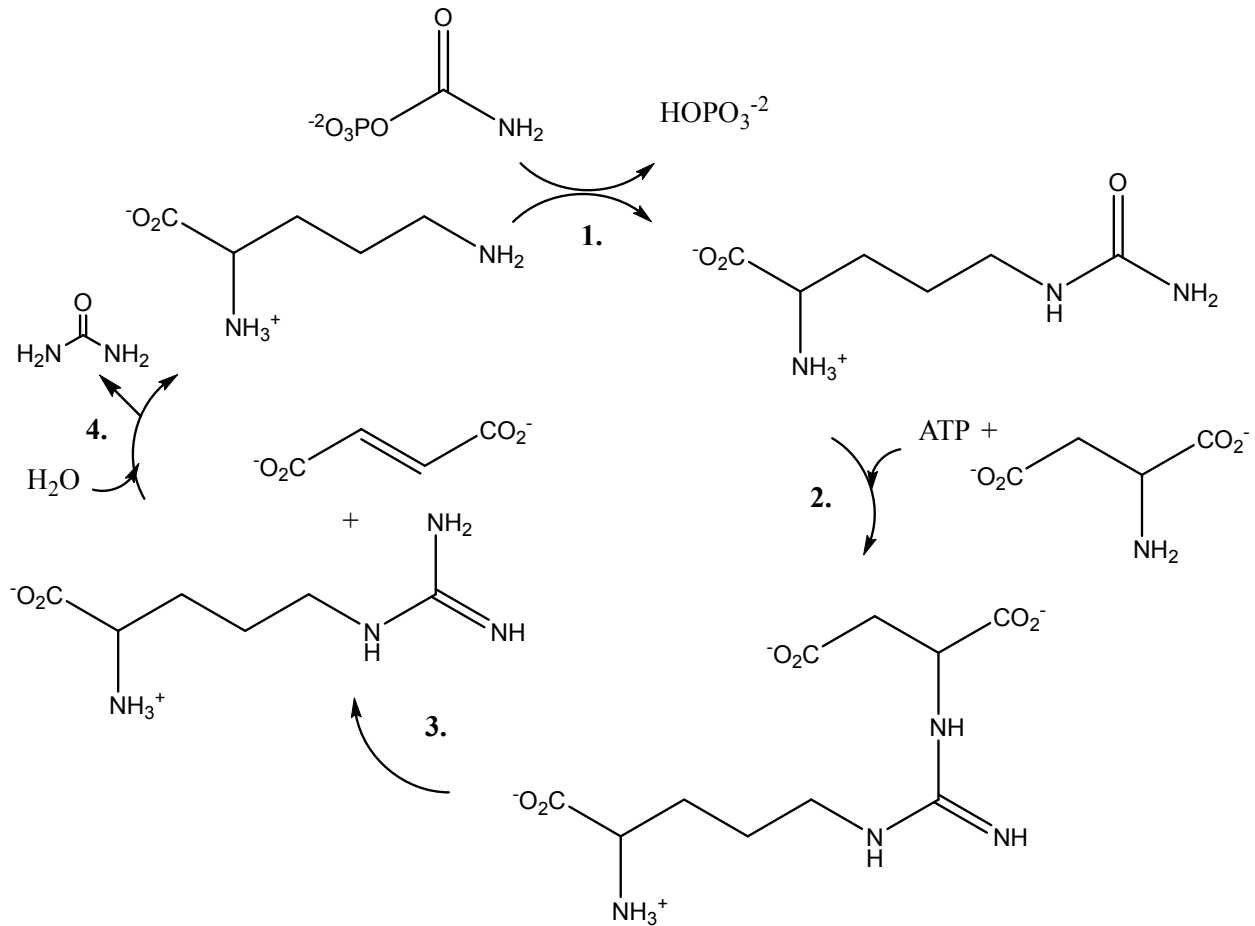
Skill 2: Predict the enzyme class given a chemical reaction

Problem 2: An enzyme from which class will catalyze the following reactions?



Skill 3: Predict the name of an enzyme based on a reaction

Problem 3: Match the following enzyme names with the appropriate reaction of the urea cycle: Arginase, argininosuccinate lyase, argininosuccinate synthetase, ornithine transcarbamoylase.



1. ornithine transcarbamoylase (notice the transfer of CONH_2 from phosphate to ornithine)
2. argininosuccinate synthetase (notice the use of ATP)
3. argininosuccinate lyase (notice that arginine is lost with formation of a $\text{C}=\text{C}$)
4. Arginase (notice that this is a hydrolysis—incorporation of water)