

Topic: Enzyme(Nomenclature & Classification)

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Group – A

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Nomenclature and Classification

- Enzymes are often classified by placing them in categories according to the reactions that they catalyze:
- Oxidoreductase
- Transferase
- Hydrolase
- Lyase
- Isomerase
- Ligase

Classification of Enzymes

- Oxidoreductases catalyze redox reactions
- Reductases
- Oxidases
- Transferases transfer a group from one molecule to another
- Transaminases catalyze transfer of an amino group
Kinases transfer a phosphate group

- Hydrolases cleave bonds by adding water
 - Phosphatases
 - Peptidases
 - Lipases
- Lyases catalyze removal of groups to form double bonds or the reverse break double bonds
 - Decarboxylases
 - Synthases

- Isomerases catalyze intramolecular rearrangements

-Epimerases

-Mutases

- Ligases catalyze a reaction in which a C-C, C-S, C-O, or C-N bond is made or broken

Nomenclature of Enzymes

- In most cases, enzyme names end in –ase The common name for a hydrolase is derived from the substrate
 - Urea: remove -a, replace with -ase = urease
 - Lactose: remove -ose, replace with -ase = lactase
- Other enzymes are named for the substrate and the reaction catalyzed
 - Lactate dehydrogenase
 - Pyruvate decarboxylase
- Some names are historical - no direct relationship to substrate or reaction type
 - Catalase
 - Pepsin
 - Chymotrypsin
 - Trypsin