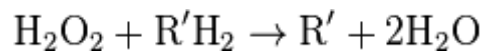


## CONCEPT: PEROXISOMES

- Peroxisomes are organelles that contain \_\_\_\_\_ chemical reactions
  - Uses oxygen to produce hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>)
    - **Catalase** is the enzyme that uses H<sub>2</sub>O<sub>2</sub> is then used to oxidize other toxic molecules (ex: ethanol)
  - Around 50 enzymes function in various biochemical pathways
    - Lipid synthesis including **plasmogens** (phospholipids with glycerol attached with a ether bond)
    - In plants it is the place of the *glyoxylate cycle* which converts fatty acids to carbohydrates
    - **Beta oxidation** (breakdown of fatty acids) occurs here

**EXAMPLE:** Oxidizing toxic molecules using hydrogen peroxide



- Peroxisomes are \_\_\_\_\_ in the ER
  - Bud off and fuse with other buds to form new peroxisomes
- **SKL sorting signal** exists on **peroxin** proteins that reside in the peroxisomes
  - Defects in import of perioxosomal proteins can cause severe diseases (Zellweger syndrome)

**PRACTICE:**

1. What is the function of a peroxisome?
  - a. Maintain acidity of the cell
  - b. Contain toxic reactions
  - c. Protein synthesis
  - d. Protein glycosylation