

Other types of mutations

- **biochemical mutations**
 - changes in metabolic capabilities
 - **auxotrophs**
 - have mutations in biosynthetic pathways
 - cannot synthesize product of pathway
 - require product of pathway as nutrient in minimal growth media
 - **prototrophs**
 - grow in minimal media without supplements
- **resistance mutations**
 - resistance to pathogen, chemical, or antibiotic