

Terms

Mutant/variant/strain	Genetically different offspring of a wild type
Phenotype	Observable properties of an organism
Genotype	Organisms actual DNA seq.
Mutation	Any heritable change in the DNA seq.
Allele	Different forms of the same gene
Copy/ Duplication	Similar gene sequences occurring in different chromosomal locations
Silent Mutations	Mutations that occur without changing the phenotype

Naming

Strain	<i>E.coli</i> AB1234	Initials followed by numbers
Genes	<i>hisA</i>	gene function followed by individual gene
Mutations	<i>hisA4</i> $\Delta his4$	# → allele position affected Δ =deletion
Mutations	H14Q	
Phenotypes	His ⁻ His ⁺ Rif ^r	

Naming cannot refer to organisms phenotype

Types of Mutants

Auxotrophic Mutant	Mutations in genes whose products are required to make an essential growth substance. *Mutated gene that encodes for a biosynthetic enzyme
Prototroph Mutant	Original strain from which the mutant was derived can make the substance
Catabolic Mutant	Mutant that cannot use a particular substance for growth that can be used by the WT. *Mutated gene that encodes for a catabolic enzyme
Conditional-Lethal Mutants	Cells with mutations that inactivate essential genes but only under certain conditions
Resistant Mutants	Mutants resistant to substances that kill the WT

Conditional-Lethal Mutants

Temperature Sensitive Mutant:	● Nonpermissive ● Permissive
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