Host Gene Descriptions

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ara	Mutation causes inability to utilize arabinose	recBCD	Exonuclease V. Mutation in recB or recC reduces general recombination to one hundredth of its normal level and affects DNA repair
endA	DNA-specific endonuclease I. Mutation shown to improve yield and quality of DNA from plasmid minipreps	recJ	Exonuclease involved in alternate recombination pathways of *E. coli*. Mutation impairs recombination.
galK	Mutation causes inability to utilize galactose	relA	Relaxed phenotype; mutation permits RNA synthesis in the absence of protein synthesis
gyrA	DNA gyrase subunit A; mutation results in resistance to naladixic acid	rpsL	30S ribosomal subunit protein S12. Mutation makes cells resistant to streptomycin; also written strA
hfl	High frequency lysogeny. Mutation increases λ lysogeny by inactivating a specific protease	sbcBC	Exonuclease I. Permits general recombination in recBC mutant hosts. Mutation impairs recombination.
lacI	Repressor protein of lac operon. LacIq is a mutant of lacI that overproduces the repressor protein	supE	Suppressor of amber (UAG) mutations. Some phage require a mutation in this gene in order to grow
lacY	Galactoside permease (M protein). Mutation causes inability to utilize lactose	supF	Suppressor of amber (UAG) mutations. Some phage require a mutation in this gene in order to grow
lacZ	ß-D-galactosidase; lactose utilization. Cells with lacZ mutations produce white colonies in the presence of X-gal; wild-type produces blue colonies	thi-1	Mutants require vitamin B1 (thiamin) for growth in minimal media
lacZDM15	A specific N-terminal deletion which permits the α-complementation segment present on the pBluescript phagemid or Lambda ZAP II vector to make a functional lacZ protein	traD36	Mutation inactivates conjugal transfer of F′ episome
malA	Mutations causes inability to utilize maltose	umuC	Component of SOS repair pathway. Mutation increases stability of DNA containing long inverted repeats
proAB	Mutants require proline for growth in minimal media	uvrC	Component of UV excision pathway. Mutation increases stability of DNA containing long inverted repeats
recA	Gene central to general recombination and DNA repair. Mutation eliminates general recombination and renders bacteria sensitive to UV light	xylA	Mutation causes inability to utilize xylose

Other Descriptions	
Amp^r	Ampicillin resistance
Cam^r	Chloramphenicol resistance
Kan^r	Kanamycin resistance
Rif^r	Rifamycin resistance
Tet^r	Tetracycline resistance
Str^r	Streptomycin resistance
Δ	Indicates a deletion of the genes following it
Tn10	A transposon that normally codes for Tet^r
Tn5	A transposon that normally codes for Kan^r
spi $^-$	Red$^-$gam$^-$ mutant derivatives of λ with the ability to form plaques on *E. Coli* P2 lysogens
amy	Strains with this phenotype express amylase

Restriction & Modification Systems	
dam	DNA adenine methylase. Mutation blocks methylation of adenine residues in the recognition sequence 5′- G*ATC -3′ (*methylated).
dcm	DNA cytosine methylase. Mutation blocks methylation of internal cytosine residues in the recognition sequences 5′- C*CAGG -3′ or 5′- C*CTGG -3′ (*methylated).
hsdM	*E. coli* (or EcoK) DNA methylase. Mutation blocks sequence-specific adenine methylation in the sequence $A^{N}6$*ACNNNNNNGTGC OR GC$^{N}6$*ACNNNNNNGTT (*methylated). DNA isolated from a HsdM$^-$ strain will be restricted by a HsdR$^+$ host.
hsdR	*E. coli* (or EcoK) restriction endonuclease. Absense of this activity permits the introduction of DNA propagated from non-*E. coli* sources.
hsdS	Specificity determinant for *hsdM* and *hsdR*. Mutation eliminates HsdM and HsdR activity.
mcrA	*E. coli* restriction system. Mutation prevents McrA restriction of methylated DNA of sequence 5′- C*CGG (*internal cytosine methylated). Formerly known as *rglA*.
mcrCB	*E. coli* restriction system. Mutation prevents McrCB restriction of methylated DNA of sequence 5′- G^5*C, 5′- G^{5h}*C, or 5′- G^{N4}*C (*methylated cytosine). Formerly known as *rglB*.
mrr	*E. coli* restriction system. Mutation prevents Mrr restriction of methylated DNA of sequence 5′- G*AC or C*AG (*methylated adenine). Mutation also prevents McrF restriction of methylated cytosine sequences.