

# Competent E. coli Strains from NEB

	NEB Turbo	NEB 5-alpha	NEB 5-alpha F1 <sup>q</sup>	NEB 10-beta	dam <sup>-</sup> /dcm <sup>-</sup>	NEB Express	NEB Express I <sup>q</sup>	T7 Express	T7 Express I <sup>q</sup>	T7 Express lysY	T7 Express lysY/I <sup>q</sup>	T7 Express Crystal
Library Construction <sup>1</sup>	+	+	+	+	+	+	+	+	+	+	+	+
Plasmid Preparation <sup>2</sup>	+	+	+	+	+	+	+	+	+	+	+	+
Cloning/Subcloning	+	+	+	+	+	-	-	-	-	-	-	-
Dam <sup>-</sup> /Dcm <sup>-</sup>	-	-	-	-	+	-	-	-	-	-	-	-
Single-stranded Phage <sup>3</sup>	+	-	+	-	-	-	-	-	-	-	-	-
Blue/White Screening	+	+	+	+	-	-	-	-	-	-	-	-
RecA <sup>-</sup>	-	+	+	+	-	-	-	-	-	-	-	-
Protease-deficient <sup>4</sup>	-	-	-	-	-	+	+	+	+	+	+	+
LacI <sup>q</sup> (for Plac regulation)	+	-	+	-	-	-	+	-	+	-	+	-
Kunkel Mutagenesis	-	-	-	-	-	-	-	-	-	-	-	-
Drug Resistance <sup>5</sup>	tet	none	tet	str	cam str	none	cam	none	cam	cam	cam	none

## Footnotes

1. Restriction-deficient strain.
2. Strain has a mutation in the endA gene which eliminates the major nonspecific endonuclease.
3. Strain contains F<sup>'</sup>.
4. See strain description for details.
5. cam = chloramphenicol; kan = kanamycin; nal = nalidixic acid; str = streptomycin; tet = tetracycline

## Strains for CLONING and SUBCLONING

NEB Turbo Competent E. coli (High Efficiency) (NEB #C2984)  
F<sup>'</sup> proA<sup>+</sup>B<sup>+</sup>lacI<sup>q</sup>ΔlacZM15/fhuA2Δ(lac-proAB)glnVzgb-210::Tn10(Tet<sup>R</sup>)endA1 thi-1 Δ(hsdS-mcrB)5

NEB 5-alpha Competent E. coli (High Efficiency) (NEB #C2987)  
fhuA2D(argF-lacZ)U169phoA glnV44f80D(lacZ)M15 gyrA96 recA1 relA1 endA1 thi-1 hsdR17

NEB 5-alpha F1<sup>q</sup> Competent E. coli (High Efficiency) (NEB #C2992)  
F<sup>'</sup> proA<sup>+</sup>B<sup>+</sup>lacI<sup>q</sup>Δ(lacZ)M15 zzzf::Tn10(Tet<sup>R</sup>)/fhuA2Δ(argF-lacZ)U169phoA glnV44 f80 D(lacZ)M15 gyrA96 recA1 relA1 endA1 thi-1 hsdR17

NEB 10-beta Competent E. coli (High Efficiency) (NEB #C3019)  
araD139Δ(ara-leu)7697fhuA lacX74galK( 80Δ(lacZ)M15)mcrA galUrecA1 endA1 nupG rpsL (Str<sup>R</sup>) Δ(mrr-hsdRMS-mcrBC)

dam<sup>-</sup>/dcm<sup>-</sup> Competent E. coli (NEB #C2925)  
ara-14leuB6fhuA31 lacY1 tsx78glnV44galK2galT22mcrAdcm-6hisG4rfdB1 R(zgb210::Tn10)Tet<sup>R</sup>endA1 rpsL136(Str<sup>R</sup>)dam13::Tn9(Cam<sup>R</sup>)xylA-5mtl-1 thi-1 mcrB1 hsdR2

Characteristics	Strain
Fastest Growth – Colonies Visible After 8 Hours	NEB Turbo Competent <i>E. coli</i>
Versatile Cloning Strain	NEB 5-alpha Competent <i>E. coli</i>
Toxic Gene Cloning	NEB 5-alpha F1 <sup>q</sup> Competent <i>E. coli</i>
Large Plasmid and BAC Cloning	NEB 10-beta Competent <i>E. coli</i>
Dam/Dcm Methyltransferase Free Plasmid Growth	dam <sup>-</sup> /dcm <sup>-</sup> Competent <i>E. coli</i>

## Strains for PROTEIN EXPRESSION (Protease-deficient Strains)

NEB Express Competent E. coli (High Efficiency) (NEB #C2523)  
fhuA2[lon]ompTgal sulA11R(mcr-73::miniTn10--Tet<sup>R</sup>)2[dcm]R(zgb-210::Tn10--Tet<sup>R</sup>) endA1 D(mcrC-mrr)114::IS10

NEB Express I<sup>q</sup> Competent E. coli (High Efficiency) (NEB #C3037)  
MiniFlacI<sup>q</sup>(Cam<sup>R</sup>)/fhuA2[lon]ompTgal sulA11R(mcr-73::miniTn10--Tet<sup>R</sup>)2[dcm] R(zgb-210::Tn10--Tet<sup>R</sup>) endA Δ(mcrC-mrr)114::IS10

T7 Express Competent E. coli (High Efficiency) (NEB #C2566)  
fhuA2lacZ::T7 gene1 [lon]ompTgal sulA11R(mcr-73::miniTn10--Tet<sup>R</sup>)2[dcm] R(zgb-210::Tn10--Tet<sup>R</sup>) endA1 D(mcrC-mrr)114::IS10

T7 Express I<sup>q</sup> Competent E. coli (High Efficiency) (NEB #C3016)  
MiniFlacI<sup>q</sup>(Cam<sup>R</sup>)/fhuA2lacZ::T7 gene1 [lon]ompTgal sulA11R(mcr-73::miniTn10--Tet<sup>R</sup>)2 [dcm] R(zgb-210::Tn10--Tet<sup>R</sup>) endA1 D(mcrC-mrr)114::IS10

T7 Express lysY Competent E. coli (High Efficiency) (NEB #C3010)  
MiniFlysY(Cam<sup>R</sup>)/fhuA2lacZ::T7 gene1 [lon]ompTgal sulA11R(mcr-73::miniTn10--Tet<sup>R</sup>)2 [dcm] R(zgb-210::Tn10--Tet<sup>R</sup>) endA1 D(mcrC-mrr)114::IS10

T7 Express lysY/I<sup>q</sup> Competent E. coli (High Efficiency) (NEB #C3013)  
MiniFlysYlacI<sup>q</sup>(Cam<sup>R</sup>)/fhuA2lacZ::T7 gene1 [lon]ompTgal sulA11R(mcr-73::miniTn10--Tet<sup>R</sup>)2 [dcm] R(zgb-210::Tn10--Tet<sup>R</sup>) endA1 D(mcrC-mrr)114::IS10

T7 Express Crystal Competent E. coli (High Efficiency) (NEB #C3022)  
fhuA2lacZ::T7 gene1 [lon]ompTgal sulA11R(mcr-73::miniTn10--Tet<sup>R</sup>)2 [dcm] R(zgb-210::Tn10--Tet<sup>R</sup>) endA1 metB1 D(mcrC-mrr)114::IS10

Characteristics	Strain
Most Popular Expression Strain	NEB Express Competent <i>E. coli</i>
Control of IPTG Induced Expression	NEB Express I <sup>q</sup> Competent <i>E. coli</i>
Most Popular T7 Expression Strain	T7 Express Competent <i>E. coli</i>
Control of IPTG Induced Protein Expression	T7 Express I <sup>q</sup> Competent <i>E. coli</i>
Tight Control of Protein Expression by Inhibition of T7 RNA Polymerase	T7 Express lysY Competent <i>E. coli</i>
Highest Level of Expression Control	T7 Express lysY/I <sup>q</sup> Competent <i>E. coli</i>
For Crystallography Experiments/SeMet Labeling	T7 Express Crystal Competent <i>E. coli</i>