Competent Cells for Cloning

What packaging works best for you?

We have your competent cells. Whatever your application, our competent cells can make your cloning faster and more efficient—even if you're cloning difficult or unstable DNA. We can customize our strains for you in the following formats:

- 96-well
- SOLOPACK (single-use aliquots)
- Volumes customized for your application

Proven performers

Here are some of our most popular competent cells. For details about genotypes and other cells, see the reverse side of this fact sheet.

Generate large libraries
ElectroTen-Blue® Electroporation-Competent Cells (> 3 x 10^{10} transformants/µg)
Created to transform large DNA molecules with high efficiency, these cells exhibit the high electroporation efficiency (Hee) phenotype. The Hee phenotype improves survival of these cells during electroporation treatment, dramatically improving transformation efficiency. The high cloning efficiency makes this strain an ideal host for generating large, more representative libraries.

Transform large DNA with high efficiency
XL10-Gold Ultracompetent Cells (> 5 x 10^{9} transformants/µg)
Created for transformation of large DNA molecules with high efficiency, these cells exhibit the Hte phenotype, which increases the transformation efficiency of large and ligated DNA molecules. In addition, the XL10-Gold strain allows blue-white color screening, permits cloning of methylated DNA and produces high-quality miniprep DNA. XL10-Gold ultracompetent cells are the host cells of choice for cloning experiments that require high transformation efficiencies.

Clone difficult and unstable DNA
SURE® Electroporation-Competent Cells (> 1 x 10^{10} transformants/µg)
Designed to facilitate cloning of DNA containing secondary structures by removing genes involved in the rearrangement and deletion of these DNAs. The UV repair system (uvrC) and the SOS repair pathway (umuC) are both involved in repairing DNA lesions. Removal of these genes results in a 10- to 20-fold increase in the stability of DNA containing long inverted repeats. Another set of E. coli proteins, the SbcC and RecJ proteins, are involved in certain types of recombination. Mutations in these genes greatly increases stability of Z-DNA structures.

Please visit
www.agilent.com/genomics/custom_manufacturing
for more information or to request a quote.

Genotypes

Host Strain	
ABLE® C STRAIN	*E. coli* C lac(LacZω⁻) [Kan^r McrA⁻ McrCB⁻ McrF⁻ Mrr⁻ HsdR (r_K^- m_K^-)] [F′ *pro*AB *lac*I^q*ZΔM15* Tn*10* (Tet^r)]
ABLE® K STRAIN	*E. coli* C lac(LacZω⁻) [Kan^r McrA⁻ McrCB⁻ McrF⁻ Mrr⁻ HsdR (r_K^- m_K^-)] [F′ *pro*AB *lac*I^q*ZΔM15* Tn*10* (Tet^r)]
AG1 STRAIN	*recA1 endA1 gyrA96 thi-1* (r_K^- m_K^-) *supE44 relA1*
BL21-GOLD STRAIN	*E. coli* B F⁻ dcm+ Hte *ompT hsdS*(r_B^- m_B^-) *gal endA* Tet^r [a]
BL21-GOLD(DE3) STRAIN	*E. coli* B F⁻ dcm+ Hte *ompT hsdS*(r_B^- m_B^-) *gal λ* (DE3) *endA* Tet^r [a]
BL21-GOLD(DE3)pLysS STRAIN	*E. coli* B F⁻ dcm+ Hte *ompT hsdS*(r_B^- m_B^-) *gal λ* (DE3) [pLysS Cam^r]* *endA* Tet^r [a]
BL21 STRAIN	*E. coli* B F⁻ dcm *ompT hsdS*(r_B^- m_B^-) *gal*
BL21(DE3) STRAIN	*E. coli* B F⁻ dcm *ompT hsdS*(r_B^- m_B^-) *gal λ*(DE3)
BL21(DE3)pLysS STRAIN	*E. coli* B F⁻ dcm *ompT hsdS*(r_B^- m_B^-) *gal λ*(DE3) [pLysS Cam^r]*
BL21-CODONPLUS® (DE3)-RIPL STRAIN	*E. coli* B F⁻ *ompT hsdS*(r_B^- m_B^-) *dcm*+ Tet^r *gal λ*(DE3) *endA* Hte [*argU proL* Cam^r] [*argU ileY leuW* Strep/Spec^r]
BL21-CODONPLUS® RIL STRAIN	*E. coli* B F⁻ *ompT hsdS*(r_B^- m_B^-) *dcm*+ Tet^r *gal endA* Hte [*argU ileY leuW* Cam^r]*,[a]
BL21-CODONPLUS®(DE3)-RIL STRAIN	*E. coli* B F⁻ *ompT hsdS*(r_B^- m_B^-) *dcm*+ Tet^r *gal λ*(DE3) *endA* Hte [*argU ileY leuW* Cam^r]*,[a]
BL21-CODONPLUS® RP STRAIN	*E. coli* B F⁻ *ompT hsdS*(r_B^- m_B^-) *dcm*+ Tet^r *gal endA* Hte [*argU proL* Cam^r]*,[a]
BL21-CODONPLUS® (DE3)-RP STRAIN	*E. coli* B F⁻ *ompT hsdS*(r_B^- m_B^-) *dcm*+ Tet^r *gal λ*(DE3) *endA* Hte [*argU proL* Cam^r]*,[a]
BL21-CODONPLUS® (DE3)-RIL-X STRAIN	*E. coli* B F⁻ *ompT hsdS*(r_B^- m_B^-) *dcm*+ Tet^r *gal λ*(DE3) *endA* Hte *metA::Tn5*(Kan^r) [*argU ileY leuW* Cam^r]*,[a]
BL21-CODONPLUS® (DE3)-RP-X STRAIN	*E. coli* B F⁻ *ompT hsdS*(r_B^- m_B^-) *dcm*+ Tet^r *gal λ*(DE3) *endA* Hte *metA::Tn5*(Kan^r) [*argU proL* Cam^r]*,[a]
ELECTROTEN-BLUE® STRAIN	*Δ(mcrA)183 (mcrB-hsdSMR-mrr)173 endA1 supE44 thi-1 recA1 gyrA96 relA1 lac* Kan^r Hee [*F′ proAB lac*I^q*ZΔM15Tn10*(Tet^r)]**
JM101 STRAIN	*supE thi*-1 Δ(*lac-proAB*) [F′ *traD36 proAB lac*I^q*ZΔM15*]
JM109 STRAIN	e14⁻(McrA⁻) *recA1 endA1 gyrA96 thi-1 hsdR17* (r_K^- m_K+) *supE44 relA1* Δ(*lac-proAB*) [F′ *traD36 proAB lac*I^q*ZΔM15*]
JM110 STRAIN	*rpsL* (Str^r) *thr leu thi-1 lacY galK galT ara tonA tsx dam dcm supE44 Δ(lac-proAB)* [F′ *traD36 proAB lac*I^q*ZΔM15*]
NM522 STRAIN	*supE thi-1 Δ(lac-proAB) Δ(mcrB-hsdSM)*5 (r_K^- m_K^-) [F′ *proAB lac*I^q*ZΔM15*]
SCS1 STRAIN	*recA1 endA1 gyrA96 thi-1 hsdR17* (r_K^- m_K+) *supE44 relA1*
SCS110 STRAIN	*rpsL* (Str^r) *thr leu endA thi-1 lacY galK galT ara tonA tsx dam dcm supE44 Δ(lac-proAB)* [F′ *traD36 proAB lac*I^q*ZΔM15*]
SURE® STRAIN	e14⁻(McrA⁻) *Δ(mcrCB-hsdSMR-mrr)171 endA1 supE44 thi-1 gyrA96 relA1 lac recB recJ sbcC umuC::Tn5* (Kan^r) *uvrC* [F′ *proAB lac*I^q*ZΔM15* Tn*10* (Tet^r)]
SURE® 2 STRAIN	e14⁻(McrA⁻) *Δ(mcrCB-hsdSMR-mrr)171 endA1 supE44 thi-1 gyrA96 relA1 lac recB recJ sbcC umuC::Tn5* (Kan^r) *uvrC* [F′ *proAB lac*I^q*ZΔM15* Tn*10* (Tet^r) Amy Cam^r]*
TG1 STRAIN	*supE thi-1 Δ(lac-proAB) Δ(mcrB-hsdSM)*5(r_K^- m_K^-) [F′ *traD36 proAB lac*I^q*ZΔM15*]
XL1-BLUE STRAIN	*recA1 endA1 gyrA96 thi-1 hsdR17 supE44 relA1 lac* [F′ *proAB lac*I^q*ZΔM15* Tn*10* (Tet^r)]
XL1-BLUE MR STRAIN	*Δ(mcrA)183 Δ(mcrCB-hsdSMR-mrr)173 endA1 supE44 thi-1 recA1 gyrA96 relA1 lac*
XL1-BLUE MRF′ STRAIN	*Δ(mcrA)183 Δ(mcrCB-hsdSMR-mrr)173 endA1 supE44 thi-1 recA1 gyrA96 relA1 lac* [F′ *proAB lac*I^q*ZΔM15* Tn*10* (Tet^r)]
XL1-BLUE MRF′ KAN STRAIN	*Δ(mcrA)183 Δ(mcrCB-hsdSMR-mrr)173 endA1 supE44 thi-1 recA1 gyrA96 relA1 lac* [F′ *proAB lac*I^q*ZΔM15* Tn*5* (Kan^r)]
XL2-BLUE STRAIN	*recA1 endA1 gyrA96 thi-1 hsdR17 supE44 relA1 lac* [F′ *proAB lac*I^q*ZΔM15* Tn*10* (Tet^r) Amy Cam^r]*
XL2-BLUE MRF′ STRAIN	*Δ(mcrA)183 Δ(mcrCB-hsdSMR-mrr)173 endA1 supE44 thi-1 recA1 gyrA96 relA1 lac* [F′ *proAB lac*I^q*ZΔM15* Tn*10* (Tet^r) Amy Cam^r]*
XL10-GOLD® STRAIN	Tet^r *Δ(mcrA)183 Δ(mcrCB-hsdSMR-mrr)173 endA1 supE44 thi-1 recA1 gyrA96 relA1 lac Hte* [F′ *proAB lac*I^q*ZΔM15* Tn*10* (Tet^r) Amy Cam^r]*
XL10-GOLD® KAN STRAIN	Tet^r *Δ(mcrA)183 Δ(mcrCB-hsdSMR-mrr)173 endA1 supE44 thi-1 recA1 gyrA96 relA1 lac Hte* [F′ *proAB lac*I^q*ZΔM15* Tn*10* (Tet^r) Tn*5* (Kan^r) Amy]
XL1-RED STRAIN	*endA1 gyrA96 thi-1 hsdR17 supE44 relA1 lac mutD5 mutS mutT* Tn*10* (Tet^r)

PR7000-0483
Published in USA, May 3, 2016
Publication Number 5990-8743EN