



ClearColi[®] Technology Eliminates Endotoxin at the Source

Exclusively from Lucigen

- *E. coli* strain engineered to remove endotoxic LPS
- Ideal for endotoxin-free protein production
- Reduce false positives in cytokine assays
- Eliminate expensive endotoxin-removal steps



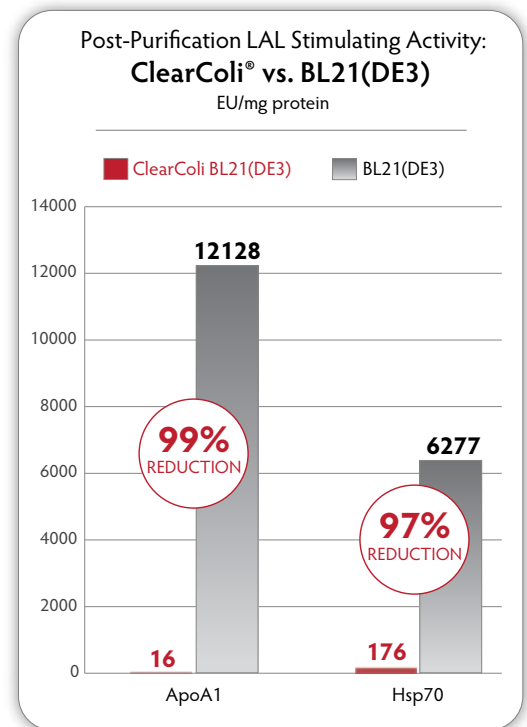
A better way to eliminate endotoxin contamination

Proteins prepared from ClearColi[®] cells are virtually free of endotoxic activity. Instead of removing lipopolysaccharide (LPS) contamination from your protein preparations, eliminate LPS at the source. ClearColi cells are the first commercially available competent cells with a modified LPS that virtually eliminates endotoxic response. ClearColi cells lack outer membrane agonists for hTLR4/MD-2 activation, virtually eliminating this response compared with *E. coli* wild-type cells.

ClearColi BL21(DE3)

- Human cell immunogenicity and toxicity assays
- Therapeutic protein production
- Membrane and lipid-binding protein production

ClearColi[®] vs. Standard Expression Strain >97% Reduction in Endotoxin Levels



See lucigen.com/clearcoli for more information.

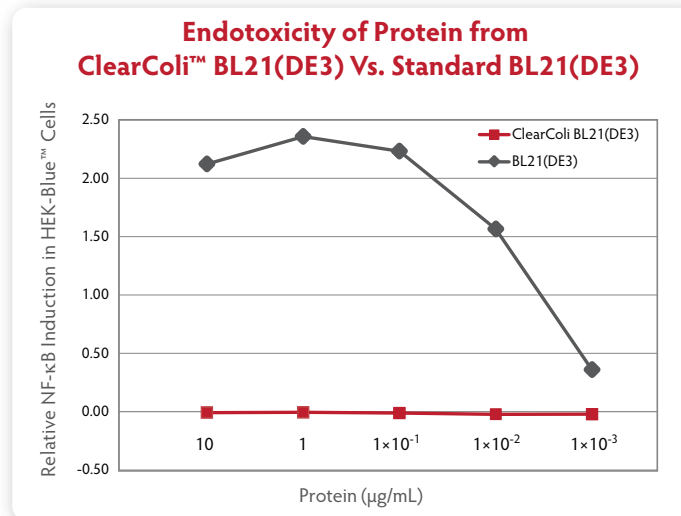
GENOTYPES:

BL21(DE3) Strain: F⁻ *ompT hsdS_B (r_B - m_B-) gal dcm lon λ(DE3 [lacI lacUV5-T7 gene 1 ind1 sam7 nin5]) msbA148 ΔgutQ ΔkdsD ΔlpxL ΔlpxM ΔpagP ΔlpxP ΔeptA*



Protein Production

Endotoxicity of Protein from ClearColi™ BL21(DE3) Vs. Standard BL21(DE3)



Comparison of endotoxic response from protein derived from ClearColi BL21(DE3) and traditional BL21(DE3) competent cells. ApoA1 protein was expressed from a T7-promoter based plasmid in both cell types, followed by a simple Ni-column purification step and without any subsequent endotoxin removal steps. The purified proteins were then tested for Toll-Like Receptor (TLR) stimulation by assessing NF-κB activation in HEK293 cells expressing human TLR4. Protein derived from ClearColi BL21(DE3) cells demonstrated no activation at concentrations 5 orders of magnitude greater than the protein from traditional BL21(DE3) cells.

Products	Size	Cat. No.	Price
ClearColi® BL21(DE3) Electrocompetent Cells	12 rxns (DUO)	60810-1	\$288
	24 rxns (DUO)	60810-2	\$525

ORDER INFORMATION

Each ClearColi BL21(DE3) Electrocompetent Cell Kit contains: ClearColi BL21(DE3) Electrocompetent Cells in DUO packaging (2 transformations per tube), Expression Recovery Medium (lactose minus), pUC19 Positive Control Plasmid.

Expression Recovery Medium (lactose minus) is also available separately.

Citations

Mamat, Uwe, et al. "Detoxifying *Escherichia coli* for endotoxin-free production of recombinant proteins." *Microbial Cell Factories* 14.1 (2015): 57.

Rueda, Fabián, et al. "Production of functional inclusion bodies in endotoxin-free *Escherichia coli*." *Applied Microbiology and Biotechnology* 98.22 (2014): 9229-9238.

ClearColi Licensing Information:

ClearColi™ Competent cells are subject to US Patent 8,303,964 and other US and foreign pending patents. Lucigen Corporation ("Lucigen") has a license from Research Corporation Technologies (RCT) to sell ClearColi competent cells to third-parties for non-commercial research purposes only. A separate license is required for any commercial use. For more specifics on licensing requirements, visit ClearColi.com.