CopyCutter™ EPI400™ Competent Cells

Clone toxic targets and unstable DNA using your favorite vectors

epicentre®
Exclusively available thru Lucigen.

- Stabilize difficult targets by tightly controlling (reducing) plasmid copy number
- Compatible with popular, high-copy number cloning and expression vectors
- Clone and maintain at low copy, then induce copy number to obtain high plasmid DNA yields
- Choose from high efficiency chemically competent or electrocompetent formats

Toxic DNA inserts encode proteins that interfere with normal bacterial cellular functions and inhibit cell growth. As a result, the clone dies or is overtaken by "empty" or mutated plasmids that grow faster. Sequences with strong secondary structure and AT- or GC-rich sequences are often unstable at high copy number and are selected against, again resulting in mutated or lost clones.

One solution to these cloning challenges is to use a lower-copy-number vector, but such vectors may not fit into your workflow, and will make DNA purification more difficult.

CopyCutter™ EPI400™ cells significantly lower the copy number of a wide variety of popular, high-copy number vectors so you can clone and maintain "toxic" genes or unstable DNA sequences in your favorite vectors (Table 1). To improve plasmid DNA yields, simply induce the copy number with CopyCutter™ Induction Solution prior to plasmid purification.

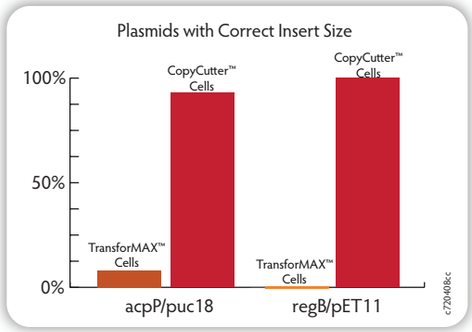

Figure 1. Toxic gene products were successfully cloned in CopyCutter™ EPI400™ Electrocompetent Cells. E. coli ACP (acyl carrier protein, inhibits cell growth) and phage T4 regB (RNA endonuclease that cleaves bacterial RNA, highly toxic to *E. coli*) were cloned into high-copy vectors pUC18 or pET11 respectively. Full-length ACP clones in TransforMAX™ EC100™ cells contained multiple point mutations when sequenced.

E. coli Host Cells	Growth Condition	Approximate Number of Vector Copies Per Cell		
		pUC19 (Amp)	pBR322 (Amp)	pET9 (Kan)
TransforMAX™ EC100™ cells	Normal	~216	~71	~33
CopyCutter™ EPI400™ cells	Uninduced	~9	~17	~9
CopyCutter™ EPI400™ cells	Induced	~200	~66	~19

Table 1. Plasmid Copy Number in CopyCutter™ EPI400™ and TransforMAX™ EC100™ E. coli Cells. Vector copy number per cell was calculated from molar amounts of plasmid DNA isolated from at least 10^{10} ampicillin or kanamycin resistant cells. Cultures were grown overnight in selective media (EC100 and EPI400-uninduced) or induced for 4 hours with the CopyCutter™ Induction Solution.

Products	Size	Cat. No.	Price
CopyCutter™ EPI400™ Chemically Competent E. coli	10 × 50 µL	C400CH10	$183
CopyCutter™ EPI400™ Electrocompetent E. coli	10 × 50 µL	C400EL10	$245
CopyCutter™ Induction Solution	25 mL	CIS40025	$75

COMPONENTS

The EPI400™ Cells contain 10 tubes, each containing 50 µL of cells (enough cells for 10 transformations), CopyCutter™ Induction Solution and pUC19 control DNA. The CopyCutter™ Induction Solution is provided at a 1,000X concentration and is filter sterilized.

Lucigen Corporation
Phone: 608 831 9011
Toll Free: 888 575 9695
Fax: 608 831 9012
www.lucigen.com
custserv@lucigen.com
techsupport@lucigen.com

bsi. ISO 13485 Medical Devices Quality Management
FM 598408

For research or investigational use only. F306-US0218

Lucigen®
Simplifying Genomics