BioAspect NoShock HIT Competent Cells

Size: 1-8 mL (20 - 160 Reactions).

Cat. Nos. BA-RH117-J, BA-RH117, BA-RH117-J80, BA-RH118, BA-RH118-J80, BA-RH119, BA-RH119-J80, BA-RH217, BA-RH217-J40, BA-RH617-J, BA-RH617, BA-RH617-J80, BA-RH618, BA-RH618-J80, BA-RH619, BA-RH619-J80, BA-RH717-J, BA-RH717, BA-RH717-J80, BA-RH718, BA-RH718-J80

Store at -80°C upon arrival; do not use a "frost-free" freezer; do not store in liquid nitrogen. The transformation efficiency is stable for at least 1 year if the cells are properly stored at -80°C.

Description

Due to the unique production process cells can be transformed in 1-10 minutes just by incubation on ice with the DNA. No heat shock with the subsequent lengthy recovery step is needed. The protocol is derived from the original method of the competent cell preparation based on the treatment of *Escherichia coli* cells with inorganic salts and polyethylene glycol (1). NoShock HIT Competent Cells are suitable for all standard procedures like cloning, blue-white screening and protein expression. Just choose the appropriate strain that fits your needs. This is a rapid foolproof protocol that will transform your lab workflow.

Package contents

E. coli competent cells

pUC19 DNA (100 pg/µL): 5 µL

Genotypes of the *E. coli* strains

BioAspect NoShock HIT-DH5α Competent Cells:

F$^-$ Φ80d *lac*ZΔM15 Δ(*lac*ZYA-*arg*F)U169 *hsd*R17(r_k^- m_k^+) *rec*A1 *end*A1 *rel*A1 *deo*R λ$^-$

BioAspect NoShock HIT-JM109 competent cells:

*end*A1, *rec*A1, *gyr*A96, *thi*, *hsd*R17 (r_k^-, m_k^+), *rel*A1, *sup*E44, Δ(*lac-pro*AB) [F' *tra*D36, *pro*AB, *laq*I^{q}ZΔM15]

BioAspect NoShock HIT-Blue competent cells:

endA1 supE44 thi-1 hsdR17 recA1 gyrA96 relA1 lac [F′ *proAB lacI^{q}ZΔM15* Tn*10* (Tet^r)]

BioAspect NoShock HIT-21 competent cells:

F$^-$ *ompT hsdS*B ($r_B^-m_B^-$) *gal dcm* (DE3)

Quality Control

BioAspect NoShock HIT Competent Cells are tested for the transformation efficiency using the pUC19 DNA.

Transformation Procedure Schematic Representation

See detailed protocol on the next page.

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Transformation Procedure Protocol

1. Thaw the cells completely with room temperature tap water or water bath. Aliquot the cells into the microcentrifuge tubes chilled on ice making aliquots of 50 µL. Leave the tubes intended for use on ice and immediately place the rest back into the -80 ˚C freezer. No special freezing procedure is required. These tubes can be used later using the same thawing procedure without the loss of the transformation efficiency. It is not recommended, though, to pass the cells through more than 3 freeze-thaw cycles.
2. Add DNA solution. Keep the volume of DNA solution less than 10% of the volume of cell suspension.
3. Vortex for 1 second.
4. Place tube back on ice for 1-10 min. Transformation efficiency starts to decrease with incubation longer than 10 min and is about two times less after 30-60 min of incubation.
5. Plate the suspension. Use dry plates with the selective medium pre-warmed to room temperatures or higher (up to 37 ˚C). Using cold plates will reduce the transformation efficiency several times. Standard LB medium with the appropriate antibiotics is recommended.
6. (*Optional*) BioAspect Plating Beads (Cat. No. BA-RG001) can be used at this step for better plating results.
7. Incubate the plates at 37 ˚C overnight.

Notes:

1. To obtain the highest transformation efficiency, it is advisable to use DNA that is free of salts, protein, ethanol, phenol and detergents.
2. The same protocol can be used for the transformation after the ligation reaction. There is no need to dilute the transformation mixture, just keep the volume of the aliquot added to the cells less than 10 % of the total suspension volume. Transformation with the ligation mixtures may still produce fewer colonies than the transformation with the same amount of the pure supercoiled plasmid DNA.
3. Any microcentrifuge tubes can be used.
4. Do not let the cells stand on ice for more than 10 min. It is best to immediately place the unused portions of the cell suspension back to the -80 ˚C freezer. No special freezing procedure is required.
5. pUC19 control DNA is supplied to check the transformation efficiency. Transformation efficiency is defined as the number of colony forming units (cfu) obtained after the transformation by 1 µg of the supercoiled plasmid DNA.

Example: 900 µL of medium is added to 100 µL of competent cells transformed with 100 pg of plasmid. 100µL (corresponding to 10 pg of added DNA) of this mixture is further diluted 10 times and 100 µL of this dilution (corresponding to 1 pg of added DNA) is plated. If 100 colonies are observed, then the transformation efficiency is: 100 cfu per 1 pg or 10^8 cfu per 1 µg.

6. The following final concentrations of antibiotics are recommended: ampicillin (50 µg/mL); kanamycin (25 µg/mL); tetracycline (12.5 µg/mL). Higher concentrations of antibiotics may decrease the transformation efficiency.

Reference:

1. Zhiming Tu , Guangyuan He* , Kexiu X. Li et al, An improved system for competent cell preparation and high efficiency plasmid transformation using different Escherichia coli strains. Electronic Journal of Biotechnology ISSN: 0717-3458, Vol.8 No.1, Issue of April 15, 2005, 114-120.

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BioAspect NoShock HIT competent cells products.

Catalog Number	Product Name	Size (N Reactions)	Strain	Efficiency
BA-RH117-J	HIT-Blue JUMBO 107	40	XLBlue-strain	> 5 X 10^6
BA-RH117	HIT-Blue Value 108	20	XLBlue-strain	> 5 X 10^7
BA-RH117-J80	HIT-Blue Value 107 (Economy Package)	160	XLBlue-strain	> 5 X 10^7
BA-RH118	HIT-Blue High 108	20	XLBlue-strain	> 1 X 10^8
BA-RH118-J80	HIT-Blue High 108 (Economy Package)	160	XLBlue-strain	> 1 X 10^8
BA-RH119	HIT-Blue Super 109	20	XLBlue-strain	> 5 X 10^8
BA-RH119-J80	HIT-Blue Super 109 (Economy Package)	160	XLBlue-strain	> 5 X 10^8
BA-RH217	HIT-21 Value 107	10	BL21-strain	> 5 X 10^6
BA-RH217-J40	HIT-21 JUMBO 40 Value 107 (Economy Package)	80	BL21-strain	> 5 X 10^6
BA-RH617-J	HIT-DH5alpha JUMBO 107	40	DH5alpha-strain	> 5 X 10^7
BA-RH617	HIT-DH5alpha Value 108	20	DH5alpha-strain	> 5 X 10^7
BA-RH617-J80	HIT-DH5alpha Value 108 (Economy Package)	160	DH5alpha-strain	> 5 X 10^7
BA-RH618	HIT-DH5alpha High 108	20	DH5alpha-strain	> 1 X 10^8
BA-RH618-J80	HIT-DH5alpha High 108 (Economy Package)	160	DH5alpha-strain	> 1 X 10^8
BA-RH619	HIT-DH5alpha Super 109	20	DH5alpha-strain	> 5 X 10^8
BA-RH619-J80	HIT-DH5alpha Super 109 (Economy Package)	160	DH5alpha-strain	> 5 X 10^8
BA-RH717-J	HIT-JM109 JUMBO 107	40	JM109-strain	> 5 X 10^7
BA-RH717	HIT-JM109 Value 108	20	JM109-strain	> 5 X 10^7
BA-RH717-J80	HIT-JM109 Value 108 (Economy Package)	160	JM109-strain	> 5 X 10^7
BA-RH718	HIT-JM109 High 108	20	JM109-strain	> 1 X 10^8
BA-RH718-J80	HIT-JM109 High 108 (Economy Package)	160	JM109-strain	> 1 X 10^8

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