



USER GUIDE

## **ARROW 58sec Competent Cell**

Cat : A5818010, A5818100, A5819100, A5828010, A5828100  
A5838010, A5838100, A5848010, A5848100

Qty : 100ul/vials

# Content and Storage

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## Contents

Cat	Product	Strain	Qty	Notes
A5818010	ARROW 58sec DH5a	DH5a	100µl x 10 vials	~1x10 <sup>8</sup> transformants/µg pUC19
A5818100	ARROW 58sec DH5a	DH5a	100µl x 100 vials	~1x10 <sup>8</sup> transformants/µg pUC19
A5819100	ARROW 58sec DH5a	DH5a	100µl x 100 vials	~1x10 <sup>9</sup> transformants/µg pUC19
A5828010	ARROW 58sec 109	JM109	100µl x 10 vials	~5x10 <sup>7</sup> transformants/µg pUC19
A5828100	ARROW 58sec 109	JM109	100µl x 100 vials	~5x10 <sup>7</sup> transformants/µg pUC19
A5838010	ARROW 58sec Blue	XI-Blue	100µl x 10 vials	~5x10 <sup>7</sup> transformants/µg pUC19
A5838100	ARROW 58sec Blue	XI-Blue	100µl x 100 vials	~5x10 <sup>7</sup> transformants/µg pUC19
A5848010	ARROW 58sec 21	Bl21 (DE3)	100µl x 10 vials	~5x10 <sup>6</sup> transformants/µg pUC19
A5848100	ARROW 58sec 21	Bl21 (DE3)	100µl x 100 vials	~5x10 <sup>6</sup> transformants/µg pUC19

## Storage

**ARROW 58sec Competent cells must be stored in a stable -70°C to -80°C refrigerator.**

## Product Overview

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### Fastest 58sec

*ARROW 58sec competent cells provide the fastest true single-step transformation process world-wide. (1 tube, from transformation to plating)*

### Hight efficiency

*10<sup>7</sup>-10<sup>9</sup> transformats/µg pUC19 plasmid E.coli DNA transformation efficiency reaches 10<sup>7</sup> ~ 10<sup>9</sup> transformants/µg pUC19DNA. (varies according to strains and plasmid size)*

## Non-Heart Shock, Non-Recovery Transformation Protocol

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*Attention : prior to transformation, dry plating beads and agar plates should be warmed to 37°C (strongly recommended)*

# Non-Heart Shock, Non-Recovery Transformation Protocol, continued

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Prepare ice bucket, 37°C plating beads and selective plates.  
Thaw competent cell vial with room-temp. tap water or water bath for 10~20 seconds until 1/3 thawed.



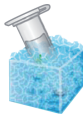
Vector

Add DNA whose volume is less than 10% of volume of cells.  
Vortex 1 second.



Vortex

Place on ice for 58 sec ~10 minutes



58 sec

Plate Transfer onto 37°C dry selection plate media.



Immediately incubate plate at 37°C  
(16-18 hours for ARROW-DH5a, 8-24 hours for ARROW-109).  
Observe growth of transformed colonies.

## Notes

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1. ARROW 58sec Competent cells provide best efficiency when cells are about 1/3-volume thawed state (cells in completely thawed state will cause a~ 3 fold decrease in transformation efficiency).
2. Vortexing for 1 second will not affect the efficiency (HIT cells can withstand high speed vortex)

## Notes, continued

3. *Modify protocol for large plasmids (>6 kb) and cDNA libraries: 20-min ice bath followed by 1-min 42°C water bath and another 20-min ice bath. Efficiency will increase 2-5 fold.*
4. *Further incubation with either SOC or LB medium is not required.*
5. *Plating using plating beads 37°C and selective plates improves the transformation efficiency up to 3 fold when compared with room temperature plating beads.*
6. *The antibiotic concentrations are recommended as: Amp\_50 µg/ml, Kan\_25 µg/ml, Tra\_12.5 µg/ml for ARROW-DH5α and JM109 Strains. Higher antibiotic concentrations will decrease the efficiency. Lower concentration will increase the number of satellite colonies.*
7. *ARROW-DH5α and JM109: Warning-over incubation at 37°C for 18-24 hours will result in satellite (pseudopositive) colonies appearing.*

Genotypes	Applications	ARROW-DH5α	ARROW-109	ARROW-Blue	ARROW-21
		F-(80d lacZ M15) (lacZYA-argF) U169 hsdR17 (r- m +) recA1 endA1 relA1 deoR	F traD36 proA+proB+ lacq (lacZ M15) (lac-proAB) hsdR17 recA1 endA1 relA1	hsdR17 (rk- mk+), recA1, endA1, gyrA96, thi-1, supE44, relA1 lac [F proAB, lacqZDM15Tn10(Tet <sup>r</sup> )]	E.coli B, F-, dcm, ompT, hsdS(rB-mB-), gal (DE3)
<b>endA</b>	Prevents plasmid degradation during extraction	Yes	Yes	Yes	No
<b>recA</b>	Prevents DNA recombination	Yes	Yes	Yes	No
<b>hsd</b>	Enhances transformation efficiency of selected PCR DNA strands and cDNA libraries	Yes	Yes	Yes	Yes
<b>deoR</b>	Enhances transformation efficiency of high MW plasmids and cosmids	Yes	No	No	No
<b>LacZ M15</b>	Blue-White screening	Yes	Yes	Yes	No
<b>Lon</b>	Lon Protease Deficient, Improves Protein Yield	No	No	No	Yes
<b>ompT</b>	OmpT Protease Deficient, Improves Protein Yield	No	No	No	Yes

## Q&A

### ***I can't see any colonies on my plate, is there something wrong with my ARROW 58sec Competent cells?***

Competent cells are batch tested at manufacture. They are also temperature controlled AT ALL TIMES during shipping and storage. ALWAYS USE THE CONTROL PLASMID supplied to provide a reference transformation experiment. If the control DNA is not transforming and you are sure the cells have been stored correctly, you have followed the correct protocol, then it's time to contact your distributor .

### ***What are the major differences between ARROW 58sec Competent cells strains?***

Competent cells strains are common public lab strains. For reference strain and genotype check individual listing. ARROW-DH5α is a strain which has been engineered for cloning large plasmids and library construction. ARROW-109 is a strain that grows faster and is excellent in blue/white and robotic screening. ARROW-Blue is also popular for regular cloning and Blue/White screening. ARROW-21 is ideal for protein expression.

### ***Can I transform directly with my ligation product?***

It depends on the efficiency required. If you require high efficiency you should always remove any ligase enzyme, PEG or detergent that may be present. These are known inhibitors of transformation. Recommended clean up methods are hiyield Gel/PCR Extraction Kit or precipitate the DNA directly. Resuspend in TE or distilled water. Checking your ligation product on an agarose gel is always a good idea, both for extraction purity and ligation. For regular cloning, it is usually sufficient to dilute the ligation solution three fold and add 1ul. Do NOT use more than 10ng total DNA/transformation, otherwise your transformation efficiency will start to drop sharply. Do not add more than 10% volume of ligation products to total volume ARROW 58sec competent cells.