



# K599 Chemically Competent Agrobacterium

## Manual

<b>Catalog #</b>	<b>1087-06</b>	<b>1087-18</b>
<b>Package Size</b>	6x50 µl	18x50 µl



### Important!

#### **-80°C Storage Required**

- \* Immediately inspect packages
- \* Freeze upon receipt



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### Description:

Intact Genomics (ig®) K599 Chemically Competent Agrobacterium cells are made from a specific strain of *Agrobacterium rhizogenes*, *Agrobacterium rhizogenes* (str R) pRi2659 (agropine type). K599 was originally isolated from cucumber exhibiting hairy root disease symptoms and has been widely used for hairy root transformation(1). *Agrobacterium rhizogenes* is a soil-borne gram-negative bacterium that can infect most dicotyledons, a few monocotyledons and some gymnosperms. K599 Chemically Competent Agrobacterium are optimized for the highest transformation efficiencies and are useful for transgenic operations of corn, soybean (wild soybean), cotton, peanut, dandelion, cowpea and other plants. K599 *Agrobacterium rhizogenes* strain contains pRi2659 agrobacterium-type Ri plasmid and displays streptomycin resistance.

### Specifications:

**Competent cell type:** Chemically Competent

**Species:** *A. rhizogenes*

**Strain:** K599

**Format:** Tubes

**Transformation efficiency:**  $\geq 1 \times 10^4$  cfu/ $\mu$ g pIG7spe DNA

**Blue/white screening:** No

**Shipping condition:** Dry ice

### Product Components:

- ig® K599 Chemically Competent Agrobacterium
- DNA (pIG7spe, 500 pg/ $\mu$ l)
- Recovery medium

**Note:** Liquid nitrogen is required.

### Storage:

- K99 Chemically Competent Agrobacterium Cells: -80 °C
- pIG7spe control DNA: -20 °C
- Recovery medium: 4 °C

## Quality Control:

Transformation efficiency is tested by using the pIG7spe control DNA supplied with the kit and using the protocol in this manual. Transformation efficiency should be  $\geq 1 \times 10^4$  CFU/ $\mu\text{g}$  pIG7spe DNA. Untransformed cells are tested for appropriate antibiotic sensitivity.

## General Guidelines:

Follow these guidelines when using K599 Chemically Competent Agrobacterium cells:

- Handle competent cells gently as they are highly sensitive to changes in temperature or mechanical lysis caused by pipetting.
- Thaw competent cells on ice, and transform cells immediately following thawing. After adding DNA, mix by tapping the tube gently. Do not mix cells by pipetting or vortexing.

## Calculation of Transformation Efficiency:

Transformation Efficiency (TE) is defined as the number of colony forming units (cfu) produced by transforming  $1\mu\text{g}$  of plasmid into a given volume of competent cells.

$$\text{TE} = \text{Colonies}/\mu\text{g}/\text{Plated}$$

Transform  $1\mu\text{l}$  of ( $500\text{ pg}/\mu\text{l}$ ) pCAMBIA1391z control plasmid into  $50\mu\text{l}$  of cells, add  $950\mu\text{l}$  of Recovery Medium. Recover for three hours and plate  $100\mu\text{l}$ . Count the colonies on the plate in two days. If you count 5 colonies, the TE is calculated as follows:

$$\text{Colonies} = 5$$

$$\mu\text{g of DNA} = 0.0005$$

$$\text{Dilution} = 100/1000 = 0.1$$

$$\text{TE} = 5/.0005/.1 = 1 \times 10^5$$

### Transformation Protocol:

Use this procedure to transform ig<sup>®</sup> K599 Chemically Competent Agrobacterium cells. Do not use these cells for electrocompetent transformation.

- 1) Place microcentrifuge tubes on ice.
- 2) Remove competent cells from the -80 °C freezer and thaw completely on wet ice (10-15 minutes).
- 3) Aliquot 1 µl ( 10pg -1 µg) of DNA to the chilled microcentrifuge tubes on ice.
- 4) When the cells are thawed, add 50µl of cells to each DNA tube on ice and mix gently by tapping 4-5 times. For the pIG7spe control, add 1 µl of (500 pg/ µl) DNA to the 50 µl of cells on ice. Mix well by tapping. Do not pipette up and down or vortex to mix, this can harm cells and decrease transformation efficiency.
- 5) Keep tubes on ice for 5 minutes, and then transfer to liquid nitrogen for 5 minutes.
- 6) Incubate tubes for additional 5 minutes in 37°C water bath.
- 7) Immediately add 950µl of Recovery Medium or any other medium of choice to the tube, pipette up and down three times to re-suspend the cells.
- 8) Incubate tubes at 30 °C for 3 hours at 200 RPM.
- 9) Dilute the cells as appropriate then spread 20-200 µl cells onto a pre-warmed selective plate. For the pIG7spe control, you may plate 100 µl of undiluted transformation mix onto a YT plate containing 50 µg/ml kanamycin. Use sterilized spreader or autoclaved ColiRoller™ plating beads to spread evenly.
- 10) Incubate the plates for 2 - 3 days at 30 °C.

### Related Products:

- GV3101 Chem. Competent Agrobacterium (Cat.# 1082-12)
- EHA105 Chem. Competent Agrobacterium (Cat.# 1084-12)
- K599 Electrocompetent Agrobacterium (Cat.# 1271-12)
- Agrobacterium Chemical Combo Pack (Cat.# 1090-24)
- T4 DNA Ligase (Cat.# 3212)

### Ordering Information:

- Order online within the USA. Place orders on **www.intactgenomics.com** using our secure Shopping Cart.
- Order by email, phone, or fax.  
Email: **sales@intactgenomics.com**  
Phone: (314) 942-3655 | Toll-free : 855-835-7172 | Fax: (314) 942-3656
- Order via our distributors.

### References:

1. Combard, A.; Brevet, J.; Borowski, D.; Cam, K.; Tempé, J. Physical map of the T-DNA region of *Agrobacterium rhizogenes* strain NCPPB2659. *Plasmid* 1987, 18, 70–75.

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Our hours are Monday - Friday, 8AM to 5PM, U.S. Central Standard Time.

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