**GV3101 (pSoup-p19) ElectroCompetent Agrobacterium**

**Description**
Intact Genomics (ig®) GV3101 (pSoup-p19) Electro-Competent Agrobacterium cells are optimized for the highest transformation efficiencies, ideal for applications with cDNA or gDNA library construction. The GV3101 (pSoup-p19) strain has resistance to rifampicin, gentamicin, and tetracycline (see genotype). The GV3101 Ti plasmid has the T-DNA region deleted and transformation with a binary vector containing the missing T-region restores the T-DNA binary system function. The pSoup plasmid aids in replication of pGreen, 62SK, and pGs2 series plasmids. Addition of p19 inhibits RNA silencing of foreign genes, resulting in improved stability of heterologous gene transcripts. This system is used for Agrobacterium-mediated transformation of dicots such as Arabidopsis thaliana, tobacco, potato, and monocots like corn.

**Specifications**
- Competent cell type: Electrocompetent
- Species: *A. tumefaciens*
- Strain: GV3101 (pSoup-p19)
- Format: Tubes
- Transformation efficiency: ≥ 1 x 10^7 CFU/µg pCAMBIA1391z DNA

**Reagents Included**
- GV3101 (pSoup-p19) Electrocompetent Agrobacterium
- DNA (pCAMBIA1391z, 500 pg/µl)
- Recovery medium

**Genotype**
C58 (rtfR), Ti pMP90 (pTiC58DT-DNA) (gentR), pSOUP-p19 (tetR), Nopaline

**Quality Control**
Transformation efficiency is tested by using the pCAMBIA1391z control DNA supplied with the kit and using the protocol in this manual. Transformation efficiency should be ≥1 x 10^7 CFU/µg pCAMBIA1391z DNA. Untransformed cells are tested for appropriate antibiotic sensitivity.

**General Guidelines**
Follow these guidelines when using GV3101 (pSoup-p19) ElectroCompetent Agrobacterium:
- 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 1µg of plasmid into a given volume of competent cells.

\[
\text{TE} = \frac{\text{Colonies}}{\text{µg of DNA}} \times \frac{\text{DNA}}{\text{µg}}
\]

For the pCAMBIA1391z control, add 1 µl of (500 pg/µl) DNA to the chilled microcentrifuge tubes on ice.

1. Place sterile cuvettes and 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 25 µl of cells to each DNA tube on ice and mix gently by tapping 4-5 times. For the pCAMBIA1391z control, add 1 µl of (500 pg/µl) DNA to the 25 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. Pipette 26 µl of the cell/DNA mixture into a chilled electroporation cuvette without introducing bubbles. Quickly flick the cuvette downward with your wrist to deposit the cells across the bottom of the well and then electroporate.
6. Immediately add 974 µl of Recovery Medium or any other medium of choice to the cuvette, pipette up and down three times to re-suspend the cells. Transfer the cells and Recovery Medium to an Eppendorf tube.
7. Incubate tubes at 30 °C for 3 hours at 200 RPM.
8. Dilute the cells as appropriate then spread 20-200 µl cells onto a pre-warmed selective plate. For the pCAMBIA1391z control, you may plate 100 µl of undiluted transformation mix onto a YT plate containing 15 µg/ml rifampicin and 50 µg/ml kanamycin. Use sterilized spreader or autoclaved ColiRoller™ plating beads to spread evenly.
9. Incubate the plates for 2 - 3 days at 30 °C.

**Transformation Protocol**
Use this procedure to transform GV3101 (pSoup-p19) ElectroCompetent Agrobacterium. Do not use these cells for chemically transformation.

1. Place sterile cuvettes and 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 25 µl of cells to each DNA tube on ice and mix gently by tapping 4-5 times. For the pCAMBIA1391z control, add 1 µl of (500 pg/µl) DNA to the 25 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. Pipette 26 µl of the cell/DNA mixture into a chilled electroporation cuvette without introducing bubbles. Quickly flick the cuvette downward with your wrist to deposit the cells across the bottom of the well and then electroporate.
6. Immediately add 974 µl of Recovery Medium or any other medium of choice to the cuvette, pipette up and down three times to re-suspend the cells. Transfer the cells and Recovery Medium to an Eppendorf tube.
7. Incubate tubes at 30 °C for 3 hours at 200 RPM.
8. Dilute the cells as appropriate then spread 20-200 µl cells onto a pre-warmed selective plate. For the pCAMBIA1391z control, you may plate 100 µl of undiluted transformation mix onto a YT plate containing 15 µg/ml rifampicin and 50 µg/ml kanamycin. Use sterilized spreader or autoclaved ColiRoller™ plating beads to spread evenly.
9. Incubate the plates for 2 - 3 days at 30 °C.

**Electroportation Settings**
- Mode: Exponential protocol
- Voltage (V): 1,800 V
- Capacitance: 25 uFD
- Resistance: 200 Ohms
- Cuvette: 1 mm

**Storage**
- pCAMBIA1391z control DNA: - 20 °C
- Recovery medium: 4 °C

**Electroportation Settings**
- Mode: Exponential protocol
- Voltage (V): 1,800 V
- Capacitance: 25 uFD
- Resistance: 200 Ohms
- Cuvette: 1 mm

**Quality Control**
Transformation efficiency is tested by using the pCAMBIA1391z control DNA supplied with the kit and using the protocol in this manual. Transformation efficiency should be ≥1 x 10^7 CFU/µg pCAMBIA1391z DNA. Untransformed cells are tested for appropriate antibiotic sensitivity.

**General Guidelines**
Follow these guidelines when using GV3101 (pSoup-p19) ElectroCompetent Agrobacterium:
- 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 1µg of plasmid into a given volume of competent cells.

\[
\text{TE} = \frac{\text{Colonies}}{\text{µg of DNA}} \times \frac{\text{DNA}}{\text{µg}}
\]

For the pCAMBIA1391z control, add 1 µl of (500 pg/µl) DNA to the chilled microcentrifuge tubes on ice.

1. Place sterile cuvettes and 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 25 µl of cells to each DNA tube on ice and mix gently by tapping 4-5 times. For the pCAMBIA1391z control, add 1 µl of (500 pg/µl) DNA to the 25 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. Pipette 26 µl of the cell/DNA mixture into a chilled electroporation cuvette without introducing bubbles. Quickly flick the cuvette downward with your wrist to deposit the cells across the bottom of the well and then electroporate.
6. Immediately add 974 µl of Recovery Medium or any other medium of choice to the cuvette, pipette up and down three times to re-suspend the cells. Transfer the cells and Recovery Medium to an Eppendorf tube.
7. Incubate tubes at 30 °C for 3 hours at 200 RPM.
8. Dilute the cells as appropriate then spread 20-200 µl cells onto a pre-warmed selective plate. For the pCAMBIA1391z control, you may plate 100 µl of undiluted transformation mix onto a YT plate containing 15 µg/ml rifampicin and 50 µg/ml kanamycin. Use sterilized spreader or autoclaved ColiRoller™ plating beads to spread evenly.
9. Incubate the plates for 2 - 3 days at 30 °C.
Related Products
- GV3101 Chem. Competent Agrobacterium (Cat.# 1082-12)
- LBA4404 Chem. Competent Agrobacterium (Cat.# 1085-12)
- EHA105 ElectroCompetent Agrobacterium (Cat.# 1284-12)
- Agrobacterium Combo Pack (Cat.# 1290-24)
- T4 DNA Ligase (Cat.# 3212)

Technical Support
Intact Genomics is committed to supporting the worldwide scientific research community by supplying the highest quality reagents. Each new lot of our products is tested to ensure they meet the quality standards and specifications designated for the product. Please follow the instructions carefully and contact us if additional assistance is needed. We appreciate your business and your feedback regarding the performance of our products in your applications.