

Hieff Trans™ PEI Master Transfection Reagent

Product description

This product is a high-performance cationic polymer-based transfection reagent, designed for efficient plasmid DNA transfection in a wide range of adherent and suspension cell types. It is particularly optimized for HEK293 cells (both suspension and adherent cultures), where it demonstrates outstanding performance in protein expression and viral packaging applications. The reagent can significantly increase AAV and other viral vector yields while effectively improving viral particle integrity.

Carefully formulated and optimized, this reagent features a defined molecular structure and uniform molecular weight, ensuring consistent and highly efficient transfection results across experiments. Its unique formulation promotes the rapid formation of stable polymer-DNA complexes and facilitates efficient intracellular release of DNA, enabling excellent transfection efficiency with minimal cytotoxicity. This makes it an ideal and reliable choice for various cell-based studies requiring high transfection performance and reproducibility.

Specifications

Cat NO.	40819ES01 / 40819ES03 / 40819ES10 / 40819ES60
Size	100 µL / 1 mL / 10 mL / 100 mL

Components

Name	40819ES01	40819ES03	40819ES10	40819ES60
Hieff Trans™ PEI Master Transfection Reagent	100 µL	1 mL	10 mL	100 mL

Storage

This product should be stored at 2~8°C for 2 years.

Instructions

1. Cell Seeding

Based on cell condition, select an appropriate seeding density. It is recommended to seed cells at $1\text{--}1.5 \times 10^6$ cells/mL so that the cell density reaches $2\text{--}3 \times 10^6$ cells/mL on the day of transfection.

2. Transfection Complex Preparation (for 1 L culture system as example)

1) DNA-to-reagent ratio: 1 µg plasmid DNA to 0.5–1 µL transfection reagent.

2) Plasmid dilution: Dilute 2 mg plasmid DNA in 25 mL serum-free medium and mix gently.

3) Reagent dilution: Dilute 1 mL Hieff Trans™ PEI Master Transfection Reagent in 25 mL serum-free medium and mix gently.

4) Complex formation: Add the 25 mL diluted plasmid solution into the 25 mL diluted transfection reagent solution. Mix gently by vortexing, then incubate at room temperature for 20 min to form plasmid-PEI complexes. Keep on standby.

Table 1. Transfection Complex Parameters (for reference only)

Parameter	Recommended Condition	Range
Nucleic acid amount (per million cells)	1 µg	0.5 µg – 2 µg
Nucleic acid to transfection reagent ratio (µg:µL)	1:0.5	1:0.5 – 1:1
Transfection complex volume (% of culture volume)	5%	1% – 10%
Complex incubation time	20 min	15 min – 60 min
Complex medium (free of serum or other additives)	Serum-free medium	Serum-free medium, PBS

3. Transfection of Cells

- 1) Directly add 50 mL of the prepared plasmid-PEI complex uniformly into the cell culture.
- 2) Continue culturing cells at 37°C with 5% CO₂, and harvest the virus 72 hours post-transfection.

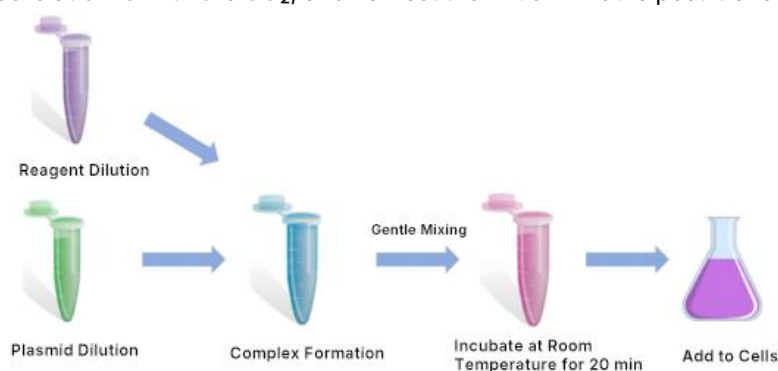


Figure 1. Schematic illustration of the Hieff Trans™ PEI Master Transfection Reagent workflow.

Table 2. Transfection Reagent Usage for Different Culture Scales (for reference only)

Cell Culture Parameters			Transfection Parameters		
Cell Density	Culture Volume	Total Cell Number	Complex Volume	DNA Amount	Transfection Reagent Volume
2E6 cells/mL	30 mL	6E7 cells	1.5 mL	60 µg	60 µL
	1 L	2E9 cells	50 mL	2 mg	2 mL
	100 L	2E11 cells	5 L	200 mg	200 mL
2.5E6 cells/mL	30 mL	7.5E7 cells	1.5 mL	75 µg	75 µL
	1 L	2.5E9 cells	50 mL	2.5mg	2.5 mL
	100 L	2.5E11 cells	5 L	250 mg	250 mL

Notes

1. To improve transfection efficiency, it is recommended to adapt suspension cells to serum-free culture conditions for several days prior to transfection.
2. High-quality plasmid DNA (e.g., endotoxin-free, protein-free, and RNA-free) is recommended for transfection.
3. For your safety and health, wear a lab coat, disposable gloves, and perform operations in a fume hood.