

# GenJet™ In Vitro DNA Transfection Reagent for Epithelial Cell (Ver. II)

----- An General Protocol for Transfecting Epithelial Cell

- 100 µl
- 500 µl
- 1000 µl



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This product is for laboratory research ONLY and not for diagnostic use

## Introduction:

GenJet™ In Vitro DNA Transfection Reagent (Ver. II) is upgraded version of GenJet™ In Vitro DNA Transfection Reagent. With a new chemistry, more DNA condensing groups were released in the new version compared with old version GenJet™, leading to 3-10 times more efficient in DNA delivery. GenJet™ (Ver. II) for epithelial cell was pre-optimized and conditioned for transfecting epithelial cell.

## Procedures for Transfecting Epithelial Cell:

### Step I. Cell Culture Before Transfection

Cells should be plated 18 to 24 hours prior to transfection so that the monolayer cell density reaches to the optimal ~85% confluency at the time of transfection. Complete culture medium with serum and antibiotics is freshly added to each well 30-60 minutes before transfection.

**Note:** High serum levels (10%) with antibiotics usually do not have inhibitory effect on transfection efficiency. We recommend using complete serum/antibiotics-containing medium as a starting point. For maximal efficiency and lower cytotoxicity, perform transfection on cells with high density. We recommend transfecting on cells with ~90% confluency.

### Step II. Preparation of GenJet™-DNA Complex and Transfection

#### Procedures:

**For different cell types, the optimal ratio of GenJet™ (µL):DNA (µg) is 3:1. To ensure the optimal size of GenJet™/DNA complex particles, we recommend using serum-free DMEM with High Glucose to dilute DNA and GenJet™ Reagent.**

**Note: Never use serum containing medium (such as Opti MEM) to dilute DNA and GenJet™ reagent. The diluent must be serum-free.**

The following protocol is given for transfection in 24-well plates, refer to **Table 1** for transfection in other culture formats. The optimal transfection conditions for epithelial cell line as well as a general starting point for optimization are given in the standard protocol described below.

- For each well, add 0.5 ml of complete medium with serum and antibiotics freshly 30-60 minutes before transfection.
- For each well, dilute 0.5 µg of DNA into 25 µl of serum-free DMEM with High Glucose. Vortex gently and spin down briefly to bring drops to the bottom of the tube.
- For each well, dilute 1.5 µl of GenJet™ reagent into 25 µl of serum-free DMEM with High Glucose. Vortex gently and spin down briefly to bring drops to the bottom of the tube.
- Add the diluted GenJet™ reagent **immediately** to the diluted DNA solution all at once. (**Important: do not mix the solutions in the reverse order !**)
- Vortex- mix the solution immediately and spin down briefly to bring drops to the bottom of the tube.

- Incubate for ~15 minutes at room temperature to allow GenJet™/DNA complexes to form.
- Note:** Never keep the GenJet™/DNA complex longer than 20 minutes.
- Add the 50 µl GenJet™/ DNA mixture drop-wise onto the medium in each well and homogenize the mixture by gently swirling the plate.
- Remove GenJet™/DNA complex-containing medium and replace with fresh complete serum/antibiotics containing medium ~5 hours post transfection.
- Check transfection efficiency 24 to 48 hours post transfection.

**Table 1. Recommended Amounts for Different Culture Vessel Formats**

| Culture Dish  | Volume (ml) | Plasmid DNA (µg) | Diluent Volume (mL) | GenJet™ Reagent (µL) |
|---------------|-------------|------------------|---------------------|----------------------|
| 48 well plate | 0.3         | 0.25             | 2 x 0.015           | 0.75                 |
| 12 well plate | 0.75        | 0.75             | 2 x 0.038           | 2.25                 |
| 6-well plate  | 1.0         | 1                | 2 x 0.05            | 3.0                  |
| 35 mm dish    | 1.0         | 1                | 2 x 0.05            | 3.0                  |
| 60 mm dish    | 2.8         | 2.5              | 2 x 0.10            | 7.5                  |
| 10 cm dish    | 5.0         | 3 - 4            | 2 x 0.25            | 9 - 12               |
| T75 flask     | 8.0         | 9 - 12           | 2 x 0.40            | 27 - 36              |
| 250 ml flask  | 18          | 25 - 40          | 2 x 0.8             | 75 - 120             |

**Storage:** GenJet™ DNA In Vitro Transfection Reagent is stable for up to 12 months at +4 °C. This item shipped at ambient temperature