

PolyJet™ In Vitro DNA Transfection Reagent

----- A Protocol for Generation of Lentivirus from 293T cell

- 100 µl
- 500 µl
- 1000 µl



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

Introduction:

Based on our innovative polymer synthesis technology, PolyJet™ DNA In Vitro Transfection Reagent is formulated to be a powerful transfection Reagent that ensures effective and reproducible transfection with less cytotoxicity. PolyJet™ reagent was shown to deliver DNA to various established cell lines as well as primary cells. PolyJet™ reagent was shown to generate lentivirus with extremely high titers from 293T cells.

Important Transfection Guidelines:

- For high titer of lentivirus, 293T cell must be healthy. Please grow the 293T cell per supplier's instruction.
- For high efficiency, transfect cells at high density. ~90% confluency is highly recommended.
- To lower cytotoxicity, transfect cells in presence of serum (10%) and antibiotics.
- Use serum-free DMEM with High Glucose to dilute PolyJet™ reagent and DNA. The diluent must be serum-free.

Procedures for Transfecting 293T Cells:

Cell Seeding (see Table 1):

Cells should be plated 18 to 24 hours prior to transfection so that the monolayer cell density reaches to the optimal ~90% 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 (>5%) with antibiotics usually do not have inhibitory effect on transfection efficiency. For some specific 293 cells, maximal transfection efficiencies are observed in the presence of serum and antibiotics. We recommend using complete serum/antibiotics-containing medium initially.

Table 1. A Guideline for Seeding 293T Cells Prior to Transfection in Different Culture Formats.

Culture Dishes	Surface Area (cm ²)	Number of Cells to Seed
T75 Flask	75	3.0 – 6.0 × 10 ⁶
100 mm Dish	58	2.2 – 4.4 × 10 ⁶
60 mm Dish	21	0.9 – 1.8 × 10 ⁶
35 mm Dish	9.6	3.5 – 7.0 × 10 ⁵
6-well Plate	9.6	4.0 – 8.0 × 10 ⁵
12-well Plate	3.5	1.5 – 3.0 × 10 ⁵
24-well Plate	1.9	0.8 – 1.6 × 10 ⁵
48-well Plate	1.0	4.0 – 8.0 × 10 ⁴

Preparation of PolyJet™ -DNA Complex and Transfection Procedures

The following protocol is given for transfection in 10 cm dish. For other culture formats, scale up or down per culture dish's surface. The optimal transfection conditions are given in the standard protocol described below.

- Cell confluency should be ~90 % at the day of transfection
- For each 10 cm dish, add 5.0 ml of complete medium with serum and antibiotics freshly 30~60 minutes before transfection.
- For each dish, dilute total 10 µg of DNA (5 µg lenti-vector plasmid plus 10 µg lentivirus packaging mix) with optimal ratio) into 500 µl of serum-free DMEM with High Glucose. Vortex to mix.
- For each dish, dilute 30 µl of PolyJet™ reagent into 500 µl of serum-free DMEM with High Glucose. Vortex gently to mix.

Note: Never use Opti-MEM to dilute DNA and PolyJet™ reagent because it will disrupt transfection complex.

- Add the diluted PolyJet™ 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 followed by incubation of 10 minutes at room temperature to allow PolyJet™-DNA complexes to form.

Note: Never keep the DNA/PolyJet™ complex longer than 20 minutes

- Add the 1000 µl PolyJet™/DNA complex drop-wise onto the medium in each dish and homogenize the mixture by gently swirling the plate.
- Check transfection efficiency and virus titer 24 to 72 hours post transfection. >48 hours gives better titers.

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