MegaTran 2.0 -
An Efficient and Economical DNA Transfection Reagent
Application Guide

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Package Content and Storage Conditions

SKU	Components	Storage Condition	Shipping Condition
TT210002	1 vial of MegaTran 2.0, 0.5 mL	+4ºC	Room temperature
TT210003	1 vial of MegaTran 2.0, 1 mL	+4ºC	Room temperature
TT210003P5	5 vials of MegaTran 2.0, 1 mL	+4ºC	Room temperature

NOTE: FOR RESEARCH PURPOSES ONLY. NOT FOR DIAGNOSTIC OR THERAPEUTIC USAGE.

Related Products

Expression cDNA clones/vectors **-** Tagged and untagged, ready for transfection
shRNA plasmids- Human, Mouse and Rat
CRISPR vectors, gene knockout kits

For technical assistance, contact OriGene at 1-888-267-4436 (301-340-3188 outside the US) or write to us at techsupport@origene.com

Introduction

MegaTran 2.0 is an efficient and versatile reagent for gene delivery that can be used for in vitro transfections. It is a non-lipid polymer-based reagent, making it an excellent choice of transfection reagent for broad cell spectrum. MegaTran 2.0 effectively condenses DNA for highly efficient gene-delivery via endosomal uptake and protects the transfected DNA from lysosomal degradation.
The major advantages of MegaTran 2.0 include:

- **High efficiency**: Ideal for transient or stable transfection in cell lines.
- **Simple application**: Perform better with serum-containing media; no requirement for media changes at time of transfection.
- **Very affordability**: economical choice for plasmid DNA transfection.

Experimental Procedures

Important Guidelines for Transfection using MegaTran 2.0:

1. MegaTran 2.0 was formulated for DNA transfection ONLY!
2. For high efficiency and lower toxicity, transfect cells at high density. 70~80% confluency is highly recommended at the time of transfection.
3. To lower cytotoxicity, transfect cells in the presence of serum (10%) and antibiotics

A General Protocol for Transfecting Adherent Cells

A sample protocol is listed here for experiments performed in 24-well plates. If performing experiments in other cell culture plates, simply multiply the suggested quantities by the relative surface area of your plate.

Step I. Cell Seeding:

Cells should be plated 18 to 24 hours prior to transfection so that the monolayer cell density reaches to the optimal 80% confluency at the time of transfection.

Note: High serum levels (>5%) with antibiotics usually do not have inhibitory effect on transfection efficiency.

Step II. Transfection

For most cell types, the optimal ratio of MegaTran 2.0 : DNA is around 3:1 (uL:ug). We recommend the MegaTran 2.0 (uL):DNA (ug) ratio of 3:1 as a starting point which usually gives satisfactory transfection efficiency with invisible cytotoxicity. To ensure the optimal size of complex particles, we recommend using serum-free DMEM to dilute DNA and MegaTran 2.0 Reagent. **Note: Don't use Opti-MEM!**

The following protocol is for transfection in 24-well plates, refer to **Table 1** for transfection in other culture formats.

1. Change fresh media: Replace with 0.5 mL of complete medium containing serum and antibiotics 30~60 minutes before transfection.
2. For each well, dilute 0.5 µg of DNA into 50 µl of serum-free DMEM. Gently pipette up and down or vortex briefly to mix.
3. Add 1.5 µl of MegaTran 2.0 reagent into the diluted DNA (not the reverse order). Gently pipette up and down or vortex briefly to mix. Incubate for 10~15 minutes at room temperature to allow transfection complexes to form.

   Note: Never use Opti-MEM to dilute MegaTran 2.0 reagent and DNA, it contains serum and will disrupt transfection complex formation.

   Note: Never keep the MegaTran 2.0/DNA complexes longer than 20 minutes at room temperature.

4. Add the mixture prepared in step 3 drop-wise onto cells. Gently rock the plate back-and-forth and from side-to-side to distribute the complex evenly. Incubate cells at 37°C.
5. 12~18 hours post transfection, remove transfection complex-containing media and

replace with fresh complete serum/antibiotics containing media. **For sensitive cells, to lower the cytotoxicity, change the media 5 hours after adding the transfection complex.**

6. Check transfection efficiency 24 to 48 hours post transfection.

Culture Dish	Culture Media (mL)	Plasmid DNA (ug)	Diluent Volume (uL)	MegaTran 2.0 Volume (uL)
48-well	0.3	0.25	50	0.75
12-well	0.75	0.75	76	2.25
6-well	1.0	1	100	3.0
35 mm dish	1.0	1	100	3.0
60 mm dish	2.8	2.5	200	7.5
10 cm dish	5.0	5	500	15

Table 1. Recommended Amounts for Different Culture Plates