

GenMute™ siRNA Transfection Reagent



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----- A General Protocol for Transfecting
siRNA to Mammalian Cells

- 100 µl
- 500 µl
- 1000 µl

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

Introduction:

GenMute™ Reagent is a novel biodegradable polymer based siRNA and DNA transfection reagent. With our proprietary pH Dependent Conformational Change (PDCC) technology, the biodegradable polymer was chemically modified by addition of pre-screened hydrophobic groups to side chain, making GenMute™ Reagent a versatile and most powerful gene delivery tool. GenMute™ Reagent have been validated to effectively and reproducibly transfect single siRNA, miRNA mimics, DNA or co-transfect DNA/siRNA, DNA/miRNA mimics to variety of mammalian cells.

Important Guidelines for Transfection:

- For maximum gene silencing, we recommend using GenMute™ Transfection Buffer (1x) to dilute siRNA/DNA and GenMute™ Reagent.
- While the standard protocols for siRNA transfection and siRNA/DNA co-transfection are being given below, optimization is often needed for maximal gene silencing.
- For a standard DNA transfection or reverse siRNA transfection protocol, please visit the link: www.signagen.com/genmute

PART I. Standard siRNA Transfection of Adherent Cells

Step I. Preparation of Working Solution of GenMute™ Transfection Buffer (1x):

GenMute™ Transfection Buffer (5x) is provided as 5x concentrated stock solution. To make working solution, dilute one part of the stock solution with 4 parts of ddH₂O into a sterile bottle. The working solution is stable at 4 °C~RT for 12 months.

Step II. Cell Seeding:

Cells should be plated 18 to 24 hours prior to transfection so that the monolayer cell density reaches to the optimal ~50% 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: GenMute™ reagent is NOT interfered by serum and antibiotics, therefore serum and antibiotic containing medium can be used during the entire experiment.

Table 1. A Guideline for siRNA transfection per cell culture vessel

Culture Dish	Growth Medium (ml)	Transfection Buffer (µL)	siRNA (pmoles) Final 5.0 or 50 nM	GenMute™ Reagent (µL)
24-well	0.5	50	2.5 / 25	1.2 ~ 2.0
12-well	0.75	75	3.75 / 38	2.0 ~ 3.3
6-well	1.0	100	5.0 / 50	2.4 ~ 4.0
60 mm	3.0	300	15 / 150	7.2 ~ 12
10 cm / Flask 75	8.0	800	40 / 400	20 ~ 33

Step III. siRNA Transfection Protocol:

For optimal siRNA-mediated silencing, we recommend using 1~100 nM siRNA. As a starting point, we recommend using 5.0 nM siRNA which usually gives satisfactory silencing result for most adherent cell lines or primary cells. For hard-to-transfection cells, we recommend using a final siRNA concentration of 50 nM. (bold & underlined in **Table 1**).

The following conditions are given per well in a 6 well plate. For other culture format, please refer to **Table 1**.

- For each well, add 1.0 ml of complete medium with serum and antibiotics freshly 30~60 minutes before transfection.
- Dilute 5.0 or **50** pmoles siRNA (final concentration of 5.0 or **50** nM respectively per well) into 100 µl of working solution of GenMute™ Transfection Buffer prepared in **Step I**. Vortex to mix followed by brief spin to bring drops to the bottom of the tube.

Note: For maximum gene silencing, dilute siRNA and GenMute™ reagent with GenMute™ Transfection Buffer (1x).

We strongly suggest reconstituting siRNA stock solution at 10 µM, so add 0.5 or 5.0 µl siRNA stock solution per well of 6-well plate to make final 5.0 and 50 nM siRNA respectively.

- Add 2.4 µl or **4.0 µl** (for hard-to-transfect cells, bold and underlined in **Table 1**) GenMute™ reagent, mix by pipetting up and down.
- Incubate for ~15 minutes at RT to let transfection complex form.
- Note: Never keep the complex longer than 30 minutes.**
- Add the transfection mix to the cells drop wise. Gently rock the plate back and forth and return the plate to CO₂ incubator.
- Replace transfection medium by cell growth medium ~5 hours after transfection when necessary.
- Gene silencing is usually measured 24~72 hours post transfection.

PART II. A Standard Protocol for DNA/siRNA Co-transfection

Step I. Preparation of Working Solution of GenMute™ Transfection Buffer:

GenMute™ Transfection Buffer (5x) is provided as 5x concentrated stock solution. To make working solution (1x), dilute one part of the stock solution with 4 parts

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----- A General Protocol for Co-transfecting
DNA/siRNA to Mammalian Cells

- 100 µl
- 500 µl
- 1000 µl

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of ddH₂O into a sterile bottle. The working solution is table at 4 °C~RT for 12 months.

Step II. Cell Seeding:

Cells should be plated 18 to 24 hours prior to transfection so that the monolayer cell density reaches to the optimal ~70% confluency at the time of transfection. Complete culture medium with serum and antibiotics is freshly added to each well 30~60 min before transfection.

Note: GenMute™ reagent is NOT interfered by serum and antibiotics, therefore serum and antibiotic containing medium can be used during the entire experiment.

Table 2. A Guideline for DNA & siRNA Co-transfection Per Cell Culture Vessel

Culture Dish	Growth Medium (ml)	Transfection Buffer (µL)	Plasmid DNA (µg)	siRNA (pmoles) Final 10 nM	GenMute Reagent (µL)
24-well	0.5	50	0.25	5	1.5
12-well	0.75	75	0.375	7.5	2.25
6-well	1.0	100	0.5	10	3
60 mm	3.0	300	1.5	30	9
10 cm / flask 75	8.0	800	4.0	80	24

Step III. DNA & siRNA co-transfection protocol:

For DNA/siRNA co-transfection experiment, we recommend using 0.3~0.5 µg DNA and 1~20 nM siRNA per well in a 6-well plate. As a starting point, we recommend using 0.5 µg DNA and 10 pmoles siRNA (final concentration 10 nM) per well of a 6-well plate which usually give satisfactory knockdown effect. The following conditions are given per well of a 6 well plate. For other culture format, please refer to **Table 2**.

- For each well, add 1.0 ml of complete medium with serum and antibiotics freshly 30~60 minutes before transfection.
- Dilute 0.5 µg DNA and 10 pmoles siRNA (final 10 nM) into 100 µl of working solution of GenMute™ Transfection Buffer. Mix by pipetting up and down.

Note: For optimal transfection efficiency and maximum gene silencing, GenMute™ Transfection Buffer is a must for diluting siRNA/DNA and GenMute™ reagent.

We strongly suggest preparing siRNA stock solution at 10 µM, so add 1.0 µl siRNA stock solution per well of 6-well plate to make final 10 nM of siRNA.

- Add 3 µl GenMute™ reagent immediately, mix by pipetting up and down.
- Incubate for ~15 min at RT to let transfection complex form.

Note: Never keep the complex longer than 30 minutes.

- Add the transfection complex to the cells drop wise.
- Gently rock the plate back and forth and return the plate to the incubator.
- Replace transfection medium by cell growth medium ~5 hours after transfection when necessary.
- Gene silencing is usually measured 24~72 hours post transfection.

Storage: GenMute™ siRNA Transfection Reagent is stable for up to 12 months at 4 °C. This item shipped at ambient temperature