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Lungs *In Vivo* Transfection Reagent (cat# 5080, 5081, 5082, 5083) *In Vivo* Transfection Protocol

Cat. No. 5080	Size: 0.5 ml	Cat. No. 5082	Size: 8.0 ml
Cat. No. 5081	Size: 1.5 ml	Cat. No. 5083	Size: 25 ml

Contents and Shipping:

Lungs *in vivo* transfection reagent is supplied in liquid form at a concentration of 1.5 mg/ml. Shipped at ambient temperature. Transfection Enhancer reagent is supplied in liquid form at a concentration of 1 mg/ml.

Description:

Lungs transfection reagent is a nanoparticle liposome-based formulation optimized for *in vivo* administration with targeted biomolecules delivery into lungs and lung tumors. Transfection reagent is a proprietary, animal-origin-free formulation with high transfection efficiency of small RNA (siRNA, shRNA, microRNA) and plasmid DNA.

Storage:

Store reagent at 4°C upon receipt. If stored properly, reagent is stable for 6 months.

Product Qualification:

Reagents are tested for functional activity, absence of nuclease contamination and microbial contamination.

Reagent Properties:

Transfection complexes are stable in serum for at least 8 hours.
Efficient delivery to the lung tissue and lung tumors via intranasal and inhalation administration.
Minimal toxicity.

Recommended Modes of Administration:

Intranasal administration.
Inhalation administration.

Intended Use:

For research use only. Not intended for any diagnostic or therapeutic use.

SDS:

SDS documents are available online at altogen.com

General Guidelines:

Handle animals and conduct experiments according to national regulations and approvals by the local IACUC and ethics committee. Please note that mouse and rat administrations may require skills, experience, and associated equipment (e.g. restraining device). All persons handling animals should be properly trained.

Guidelines for Small RNA (siRNA, shRNA, microRNA) Administration:

Prepare siRNA stock solution in DNase- and RNase-free water.

Recommended dose of siRNA (per injection):

- 1-2 µg siRNA with chemical modification (resistant to nuclease degradation *in vivo*), or
- 25-30 µg standard, non-modified siRNA

Recommended Protocol (for 1 injection):

1. Dilute 30 µg of plasmid DNA and/or 1-2 µg of siRNA (chemically modified) in 35 µl RNase-/DNase-free water. Vortex gently.
2. Add 35 µl of diluted DNA (and/or RNA) to the sterile tube containing 35 µl Transfection Reagent.
3. Incubate for 10-15 minutes at room temperature.
4. Add 10 µl of Transfection Enhancer Reagent. Vortex gently.
5. Incubate for 2-3 minutes at room temperature.
6. Perform direct intranasal administration (40 µl per each mouse nostril), or add required amount of sterile solution of 5% glucose (w/v) to perform inhalation administration (please see individual inhaler protocol for recommended settings typically available in the inhaler manual).
7. Please note that delivery efficiency can be significantly increased by performing secondary administration (at least 8-12 hours after first administration).
8. Assay for target gene expression. Maximum mRNA expression effect is typically observed 8-24 hours after administration, while maximum effect on protein level is achieved 18-36 hours post-administration.

Dosing:

Animal body weight (g)	Transfection Reagent (µl) / per single administration
10 – 20 g (mouse)	35 µl
20 – 50 g (small rodents)	70 µl
50 – 100 g (small rodents)	105 µl
150 – 200 g (small rodents)	140 µl
200 – 250 g (small rodents)	175 µl
250 – 300 g (rat)	210 µl
300 – 350 g (rat)	245 µl
350 – 400 g (rat)	280 µl

Certificate of Analysis:

Transfection reagent was tested *in vivo* and passed QC. Transfection reagent was tested for absence of nuclease contamination and microbial contamination. Rev. May 1, 2025.

Limited Use Label License:

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