

GenJet™ Plus In Vivo DNA Transfection Reagent



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----- A Protocol for In Vivo Transfection

- ☐ 100 µL
☐ 500 µL
☐ 1000 µL

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

GenJet™ Plus DNA In Vivo Transfection Reagent is an advanced formulation developed from our GenJet™ DNA In Vitro Transfection Reagent and further enhanced with several proprietary peptides. This novel chemistry significantly increases the number of DNA-condensing functional groups compared with the original formulation, resulting in improved plasmid DNA delivery efficiency. In addition, a shielding peptide is covalently linked to the reagent backbone to minimize interference from the in vivo environment, leading to highly efficient systemic gene delivery. GenJet™ Plus has been demonstrated to achieve superior Renilla luciferase expression in multiple organs, including the lung, spleen, liver, and kidney.

Reagents Required but Not Supplied with GenJet™ Plus Transfection Reagent:

Sterile isotonic 10% (w/v) glucose solution in water.

Important: Formation of small, stable GenJet™/DNA complexes is only possible in the absence of high salt concentrations. Therefore, ionic solutions such as PBS, saline, or cell culture media must not be used for dilution. We strongly recommend using sterile isotonic 10% (w/v) glucose solution to dilute both GenJet™ Plus Reagent and plasmid DNA, resulting in a final glucose concentration of 5%.

Brief Protocol for In Vivo Transfection in Mice

The following protocol is designed for intravenous administration via the mouse tail vein using 50 µg of plasmid DNA complexed with GenJet™ Plus Reagent in a final volume of 400 µL.

Important: To prevent precipitation of GenJet™/DNA complexes, the final DNA concentration should not exceed 0.5 µg/µL.

1. Prepare the DNA solution: Dilute 50 µg of plasmid DNA in 100 µL of sterile 10% glucose solution. Add sterile water to obtain a final volume of 200 µL containing 5% glucose. Mix gently by vortexing and briefly centrifuge.

Note: The amount of DNA and injection volume should be adjusted according to the size of the animal and the route of administration. Maintain an optimal GenJet™ Plus Reagent-to-DNA ratio of 2:1 (µL:µg). Adjust the reagent volume accordingly. Recommended DNA doses for mice are provided in [Table 1](#).

2. Prepare the GenJet™ Plus solution: Dilute 100 µL of GenJet™ Plus Reagent in 100 µL of sterile 10% glucose solution to obtain a final volume of 200 µL containing 5% glucose. Mix gently by vortexing and briefly centrifuge.

3. Form the GenJet™/DNA complexes: Immediately add the entire 200 µL GenJet™ Plus solution to the 200 µL DNA solution in a single step.

Note: Do not add the DNA solution to the GenJet™ Plus solution. Always add the GenJet™ Plus solution to the DNA solution.

4. Vortex the mixture immediately for 2–3 seconds and briefly centrifuge to ensure that all liquid is collected at the bottom of the tube.
5. Incubate the GenJet™/DNA complex for 10 minutes at room temperature.

Note: Do not incubate the GenJet™/DNA complex at room temperature for longer than 15 minutes.

4. Inject 300 µL of the transfection complex into the mouse via the tail vein immediately after incubation.
5. Monitor transgene expression at the desired time point. Robust gene delivery and transgene expression are typically observed within 12–48 hours, depending on the route of administration and the target organ.

Table 1. Recommended DNA Amounts for In Vivo Transfection in Mice According to the Route of Administration

Animals	Injection Site	DNA Amount Suggested	Injection Volume Suggested
Adult mouse	Tail vein	50 µg	200–300 µL
	Retroorbital	60 µg	200 µL
	Portal vein	100 µg	500 µL
	Intraperitoneal	100 µg	600 µL
	Brain ventricle	1 µg	5 µL
	Heart	50 µg	200 µL
	Lung instillation	50 µg	400 ~ 600 µL
	Subcutaneous tumor	20 µg	100 µL

Storage: GenJet™ Plus DNA In Vitro Transfection Reagent is stable for up to 24 months at +4 °C. This item shipped at ambient temperature