New Product

New Transfection Reagent for Effective Gene Silencing

GeneSilencer™ siRNA Transfection Reagent

Small interfering RNA (siRNA) is emerging as an important tool for inhibiting gene expression in mammalian cells. In order to help researchers fully take advantage of this powerful technique, a new reagent, GeneSilencer™, is now available for efficient transfection of functional siRNAs into diverse cell lines.

Why Transfect siRNA?

RNA interference (RNAi) is characterized by targeted mRNA degradation after introduction of sequence-specific double stranded RNA (dsRNA) into cells. Although cellular uptake of long dsRNA by organisms such as *C. elegans* and *Drosophila* has proven to be an effective method to induce RNAi, it tends to result in non-specific gene suppression in vetebrate cells due in part to interferon response. Recently, it has been discovered that short (less than 30 nucleotides) dsRNAs, referred to as small interfering RNAs (siRNA), can cause gene-specific silencing in mammalian cells (1,2,3). In addition, the RNAi effect caused by siRNA can be detectable even after many cell divisions. These properties make siRNA transfection a useful tool for gene silencing in mammalian cells.

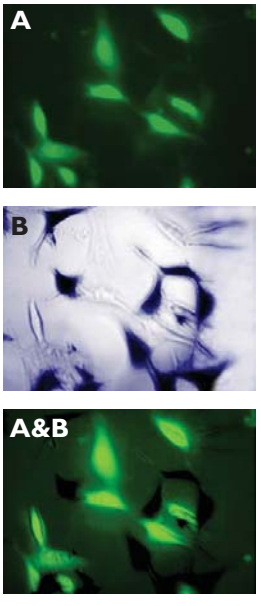
Efficient siRNA Transfection.

Because most commercially available wide-spectrum transfection reagents deliver poor results with siRNA, we formulated GeneSilencer, a cationic lipid based reagent that has been extensively screened in many mammalian cell lines in order to achieve:

- Efficient delivery of siRNA
- Functional gene silencing post siRNA delivery
- Compatibility with diverse growth conditions (with and without serum)
- Low cytotoxicity

These qualities combined with the easy-to-use protocol make GeneSilencer the ideal choice for siRNA transfection.

Figure 1. β-galactosidase Gene Silencing by siRNA Transfection into NIH 3T3 Cells



NIH 3T3 cells stably expressing ß-galactosidase were transfected with the fluorescent anti-*lacZ* siRNA oligos using the GeneSilencer™ Transfection Reagent. Approximately 50% of the cells were transfected with siRNA (green fluorescence). When stained with X-Gal, only cells that were not transfected with siRNAs stain positive for ß-galactosidase (blue color). Cells that took up siRNA (green fluorescence) did not show any visible X-Gal staining, demonstrating that anti-*lacZ* siRNA oligos delivered with GeneSilencer efficiently suppress ß-galactosidase expression.

New Product

Superior Gene Silencing.

To ensure efficient and functional siRNA delivery we have tested the GeneSilencer™ reagent with several siRNA fragments in various cell lines. Figure 1 shows that anti-*lacZ* siRNAi oligos, when transfected with the GeneSilencer™ reagent, effectively suppress ß-galactosidase expression in NIH 3T3 cells. In addition, when compared with other commercially available transfection reagents, GeneSilencer™ consistently offers superior transfection efficiencies and more effective gene silencing (Figures 2, 3).

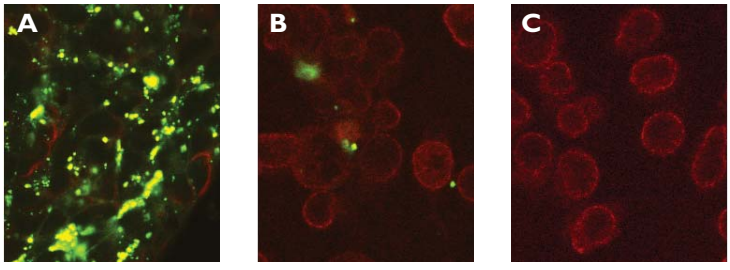
Silence Your Gene Today.

Get superior transfection results and functional RNA interference with the GeneSilencer reagent. Call GTS for more information or order today.

References

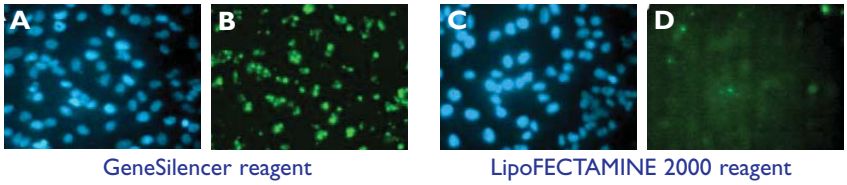
1. Elbashir, S.M. *et al.* (2001) *Nature* **411**: 494-498.
2. Caplen, N.J. *et al.* (2001) *Proc Natl Acad Sci* USA **98**: 9742-9747.
3. Sharp, P.A. (2001) *Genes and Development* **15**: 485-490.

Figure 2. Lamin Gene Silencing by siRNA Transfection into HeLa Cells



Logarithmically growing HeLa cells were transfected with anti-human lamin siRNA oligomers that have been fluorescently labeled with FITC (green). Two commercially available transfection reagents were used: (A) GeneSilencer (GTS), (B) Oligofectamine (Invitrogen), and (C) saline solution. The experiment was performed following the manufacturers' protocols. The images were taken 36 hours post transfection and all siRNAs that have not been taken up were washed away. Fluorescently-labeled anti-lamin antibody (red) was used to examine lamin protein levels inside the transfected cells. The highest amounts of lamin were found in the saline control (C), whereas the lowest amounts were detected in the experiment where GeneSilencer reagent was used (A).

Figure 3. Transfection of FITC-labeled anti-Lamin siRNA into HeLa Cells



HeLa cells were transfected with fluorescent siRNA that target the human lamin transcript. Two different transfection reagents were used and nuclei were stained with DAPI (A and C). In B, the uptake of fluorescent siRNA oligomers was shown using the GeneSilencer siRNA Transfection Reagent (DAPI control was shown under A). In D, Lipofectamine 2000 from Invitrogen was used as the transfection reagent for the uptake of fluorescent siRNA (DAPI control was shown under C).

Product	Quantity	Catalog no.	Price
GeneSilencer™ siRNA	**Transfection Reagent**		
	0.75 ml (200 rxn.)	T500750	$275
	5 x 0.75 ml (5 x 200 rxn.)	T505750	$1165

*Each transfection is for delivering 200 ng of siRNA.

Click to Learn More