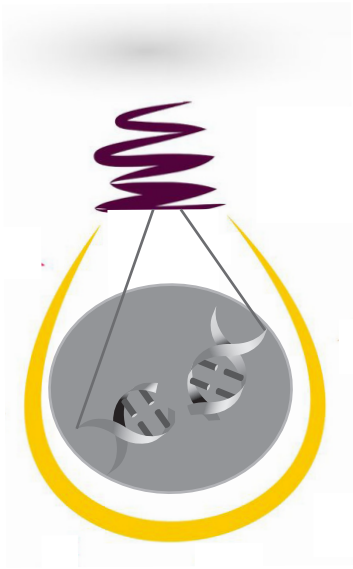
OZBIOSCIENCES
The art of delivery systems

Transfection Reagents
For Knocking-down gene expression



Gene Silencing Applications

High Throughput Screening
In vivo Transfection
3D Transfection

A Broad Range of Solutions for

Gene silencing constitutes a powerful tool to study gene's function and a promising approach for new therapeutic treatments. Short RNA duplexes (siRNA, shRNA and dsRNA) are extremely selective by interacting and inducing the degradation of their specific mRNA targets and thereby inhibiting the resulting protein expression. OZ Biosciences transfection reagents introduce the siRNA duplexes in a variety of cells with a very high efficiency leading to exceptional knockdown effects with low doses of siRNA.

Gene silencing reagent selection guide

	Cell Lines	Primary & hard-to-transfect cells	Stem Cells	*in vivo* applications	3D matrices
Lullaby®	++	+	+	+	-
Lullaby® Stem	+	+	++	ND	-
SilenceMag	++	++	+	+	-
in vivo SilenceMag	-	-	-	++	-
si3D-Fect™ & si3D-FectIN™	+	+	+	-	++

Lullaby® & Lullaby® Stem

- Allows to reach up to 90% gene silencing with high reproducibility
- No toxicity due to reagent biodegradability and low siRNA/miRNA amount required
- Off-target effects minimized
- Suitable for siRNA, miRNA, shRNA, dsRNA, etc.
- Applicable to a broad range of cells
- Serum compatible & Non toxic

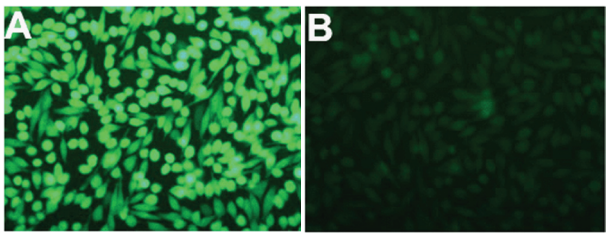


Figure 1: GFP silencing in HeLa cells. GFP-expressing HeLa cells (A) transfected with 1µL Lullaby® + 5nM siRNA (B). GFP extinction was monitored 72h post-transfection.

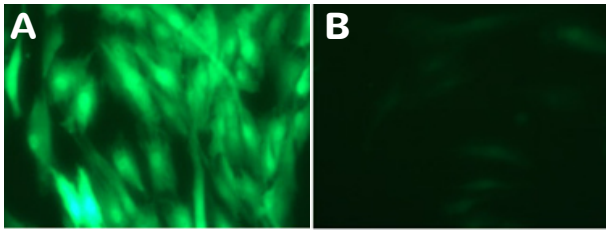


Figure 2: GFP-stably transduced human AFSC (A) 48h after transfection with 1µL Lullaby® Stem + 2 nM siRNA targeting GFP.

«We collected a library of 26 transfection reagents [...] our preferred reagent is Lullaby from OZ Biosciences. We have used this reagent in over 20 cell lines and have found it essential in enabling siRNA screens in hard to transfect cell lines with minimal toxicity». *Strategic siRNA Screening Approaches to Target Cancer at the Cancer Research UK Beaston Institute - Shanks E. et al, Combinatorial Chemistry & High Throughput Screening. 2017.*

«Multiple sequential transfection of a large variety of cells with Lullaby siRNA transfection reagent». *Jenks AD. et al, Cell Reports. 2018.*

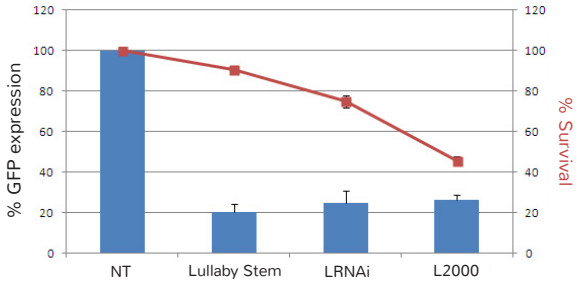


Figure 3: Human MSC stably expressing GFP were transfected with 10 nM of siRNA directed against GFP and Lullaby® Stem or with competitor reagents.

Gene Silencing Applications

PRIMARY & HARD-TO-TRANSFECT CELLS

SilenceMag & *in vivo* SilenceMag

SilenceMag reagents use the magnetic force to enhance transfection efficiency on primary cells and hard-to-transfect cells or target silencing into tissues. Based on the Magnetofection™ technology, SilenceMag and *in vivo* SilenceMag reagents give high protein knockdown at very low doses of siRNA in numerous cell types and tissues.

- Increased silencing efficiency
- Minimized toxicity
- Low siRNA/miRNA doses required
- Targeted silencing (magnetically-driven)

Additionnal benefits for *in vivo* applications:

- Reduction of the systemic dissemination of siRNA/ miRNA during injection
- Penetration of the siRNA/miRNA into tissues

«90% gene silencing in Primary human endothelial colony forming Cells».
Hubert L. et al, J Thromb Haemost. 2014

«Kidney-specific *Csf2* knockdown. *In vivo* gene silencing achieved by transfecting siRNA using *in vivo* SilenceMag».
Fujiu K et al, Nature Medicine. 2017

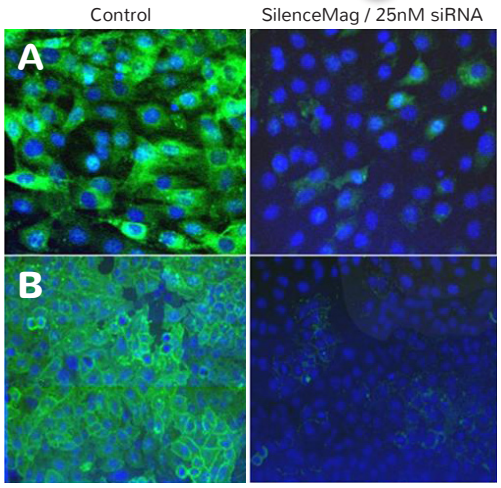
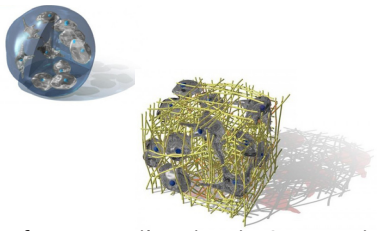


Figure 4: NIH-3T3 (A) and Hep2 (B) cells were treated with 5 µL SilenceMag and 25nM siRNA targeting GAPDH gene. GAPDH expression was monitored 72h after transfection.

3D TRANSFECTION

si3D-Fect™ & si3D-FectIN™

3D matrices not only add a third dimension to the cells' environment, they also allow creating significant differences in cellular phenotype and behaviour. In this way, 3D matrices bearing complexes formed with si3D-Fect™ or si3D-FectIN™ reagent and siRNA are colonized by cells to be transfected in a more natural environment.



- Highly efficient for gene silencing in 3D matrices
- Dedicated to short nucleic acid sequences (siRNA, miRNA...)
- Long term gene silencing
- Universal (primary cells and cell lines)
- si3D-Fect™ is ideal for any 3D scaffolds (sponges, matrices, inserts)
- si3D-FectIN™ is ideal for any gel and hydrogel

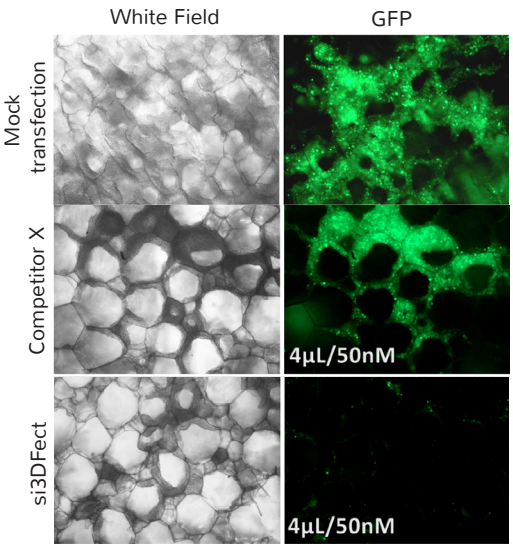


Figure 5: HEK-293 stably transfected with GFP plasmid were used to compare si3D-Fect efficiency to a commercial reagent with low amount of reagent.

OZ Biosciences supplies several solutions for gene silencing applications:

- Gene silencing in cell lines & stem cells - Lullaby® & Lullaby® Stem transfection reagents
- Ideal for siRNA transfection efficiency in hard-to-transfect cells - SilenceMag reagent
- Enhancement of gene silencing for *in vivo* applications - *in vivo* SilenceMag reagent
- siRNA transfection in 3D scaffolds - si3D-Fect™ reagent
- siRNA transfection in any gels or hydrogels - si3D-FectIN™ reagent

Performing mRNA Transfections?
OZ Biosciences offers optimal mRNA delivery solutions:

- Transfection of mRNA in primary cells & cell lines - RmesFect reagent
- Transfection of mRNA in stem cells - RmesFect Stem reagent

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