Reagent (company)	% transfected HaCaT cells*	Quantitation method	Notes / pitfalls	PubMed reference (PMID #)
DOTAP + cholesterol (custom / Avanti Polar Lipids)	≈ 2.3-fold higher luciferase than Lipofectamine; peak 77.85 ng Luc mg^{-1} protein	Luciferase activity	Stable emulsions require DOPE or cholesterol co-emulsifiers	17763476 https://pubmed.ncbi.nlm.nih.gov/17763476/ [1] 15652212 https://pubmed.ncbi.nlm.nih.gov/15652212/ [2]
Lipofectamine 2000 (Thermo Fisher Scientific)	~20–30 % (estimated); 33.14 ng Luc mg^{-1} protein in identical assay; ~ 50% with LF2000	Luciferase/ Microscopy/ Western	Serum sensitivity, cytokine induction/ toxicity issues	17763476 https://pubmed.ncbi.nlm.nih.gov/17763476/ [2] 19003021 https://pubmed.ncbi.nlm.nih.gov/19003021/ [3]
FuGENE 6 (Promega Corp.)	<10 % X-gal^{+} nuclei (significantly lower than nucleofection)	β-gal histochemistry	Gentle on proliferation but inefficient	17489014 https://pubmed.ncbi.nlm.nih.gov/17489014/ [4]
TransIT (Mirus Corp)	<10%	Fluorescence microscopy	Toxicity issues	19003021 https://pubmed.ncbi.nlm.nih.gov/19003021/ [3]
jetPEI (Polyplus: Sartorius)	1.3 ± 0.2 % for a 13 kb plasmid;	GFP FACS	DNA > 10 kb sharply	25672883

Reagent (company)	% transfected HaCaT cells*	Quantitation method	Notes / pitfalls	PubMed reference (PMID #)
	high vector size sensitivity		reduces uptake	https://pubmed.ncbi.nlm.nih.gov/25672883/ [5]

* Only a conservative 20–30 % efficiency is inferred from parallel GFP controls in the same study.

Table S2: Previous lipid-based transient transfection studies in HaCaT cells. The table encapsulates previous work done with different transfection reagents, the efficiency rates achieved, the method for quantification used, and general notes, along with links to the publications. PMID #= PubMed ID Number. All references have been included in the main article as well.

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