**Improved gene expression in hard-to-transfect cells with jetOPTIMUS® Transfection Reagent**

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**Abstract**

DNA transfection remains a limiting factor for many researchers working with primary cells and specific cell lines. Considering the limiting steps in these hard-to-transfect cell types and based on our knowledge and expertise in transfection, we have addressed this issue by developing a novel DNA transfection reagent, jetOPTIMUS®. This reagent improves DNA delivery and intracellular transport ending by higher gene expression in hard-to-transfect primary cells and cell lines. This reagent associates higher transfection efficiency and lower toxicity compared to the best commercially available competitors. DNA transfection reagent jetOPTIMUS® is easy to use and provides highly reproducible results.

**jetOPTIMUS® development**

High-throughput screening of a proprietary chemical compounds library was performed to select new molecules leading to superior transfection efficiency while maintaining excellent cell viability in different cell types. After hit identification and validation, we optimized their chemistry through structure/activity relationship (SAR) studies to select the best one, jetOPTIMUS®.

**Transfection efficiency**

Transfection efficacy was assessed by FACS analysis 24 h after transfection of plasmid DNA encoding for EGFP (pCMV-EGFP) with jetOPTIMUS®, Lipofectamine® 2000 and Lipofectamine® 3000 in primary cells and cancer cell lines.

**GFP expression**

GFP expression was assayed by fluorescence microscopy in HeLa cells 24 h after transfection with jetOPTIMUS®.

**Cell viability**

Cell viability was assessed by XTT analysis in HeLa cells 24 h after transfection of EGFP plasmid (pCMV-EGFP) with jetOPTIMUS® in 24-well plates. GFP expression (fluorescence) was assayed by FACS also 24 h after transfection.

**Best-in-class DNA transfection reagent**

Transfection with jetOPTIMUS® preserves cell viability and morphology of sensitive cells as it requires lowest amount of DNA and volume of reagent while reaching high transfection efficiency in physiological conditions. This reagent associates higher transfection efficiency and lower toxicity compared to other commercially available delivery solutions. DNA transfection using jetOPTIMUS® is straightforward and provides highly reproducible results.

- Highly efficient: Reach maximal gene expression in many cell types
- Cost-effective: Use lowest required volume and DNA quantity
- Biologically relevant: Keep an excellent cell viability & morphology
- Time-saving: Transfect with an optimized ready-to-use protocol

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