

- ✦ 50% transfection efficiency in HUVEC
- ✦ As efficient as electroporation
- ✦ Easy-to-use protocol
- ✦ Good cell viability
- ✦ Compatible with serum and antibiotics

jetPEI™-HUVEC is a powerful transfection reagent optimized for the transfection of primary human endothelial cells such as HUVEC (Human umbilical vein endothelial cells). Transfection efficiencies up to 50% have been obtained with this reagent. jetPEI™-HUVEC is also recommended for the transfection of vascular endothelial cells and is well-suited for such fragile primary cells.

✦ **Optimization of the experimental conditions for high transfection efficiency**

The effect of serum concentration and incubation time on transfection efficiency was analyzed in HUVEC (Fig. 1). Transfection experiments performed in low (2%) or high (30%) concentrations of serum have shown that jetPEI™-HUVEC is most efficient when the cells are grown in low serum concentrations. Gene expression is optimal after 4 h incubation with DNA/jetPEI™-HUVEC complexes.

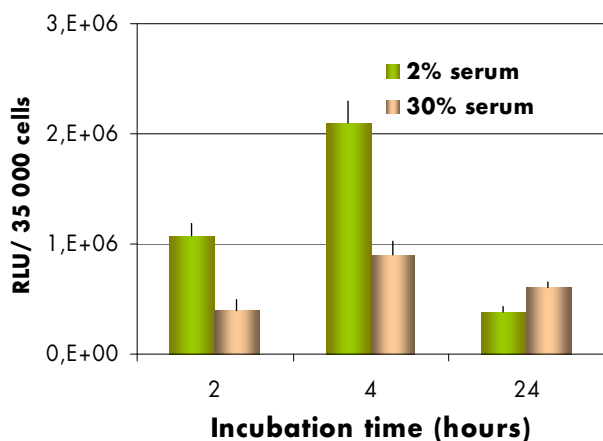


Fig. 1. Effect of low (2%) versus high (30%) serum concentrations on transfection efficiency of jetPEI™-HUVEC. HUVEC were transfected for 2, 4 or 24 h with 2 µg of pCMVluc plasmid DNA and 4 µl of jetPEI™-HUVEC in 24-well plates. Luciferase activity was measured 24 h after transfection.

✦ **jetPEI™-HUVEC is more efficient than jetPEI™ on HUVEC**

Compared to jetPEI™ transfection reagent, jetPEI™-HUVEC provides significantly higher transfection efficiencies in HUVEC cells (Fig 2). Indeed, jetPEI™-HUVEC induces less cellular toxicity than jetPEI™. Using the optimal conditions for jetPEI™-HUVEC, transfection efficiencies of 50% have been obtained as observed with a fluorescent protein reporter gene (Fig 3).

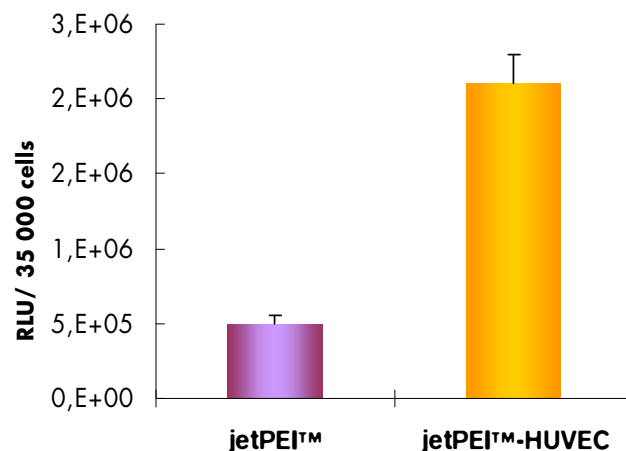


Fig. 2. Transfection efficiency and toxicity of jetPEI™ and jetPEI™-HUVEC in HUVEC. Cells were incubated for 4 h with transfection complexes in 2% serum medium. Luciferase activity was measured 24 h after transfection.

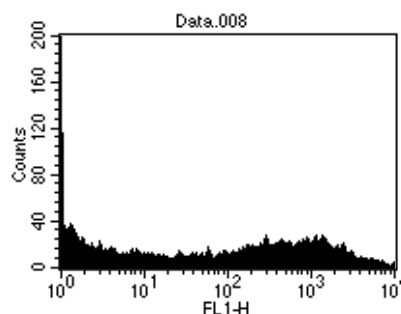


Fig. 3. FACS analysis of HUVEC cells transfected with a plasmid encoding the EGFP fluorescent protein using jetPEI™-HUVEC. Transfection was performed in 24-well plate with 2 µg of plasmid and 4 µl of jetPEI™-HUVEC (N/P =5) and in 2% serum. Complexes were incubated for 4 h with the cells. FACS analysis to quantify EGFP expression was performed 24 h after transfection.

+ jetPEI™-HUVEC is more efficient than other transfection reagents on HUVEC

jetPEI™-HUVEC compares favorably to other non-viral transfection reagents whether cationic lipids or polyamine (Fig. 4).

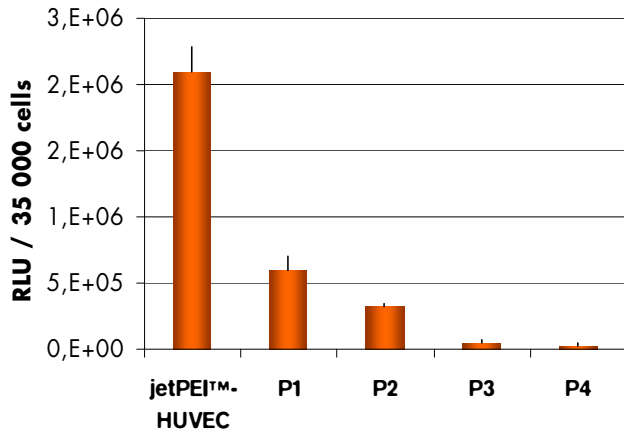


Fig. 4. Comparison of transfection efficiency of jetPEI™-HUVEC and other commercially available reagents. Cells were transfected using optimal conditions established for each reagent.

+ Easy-to-use protocol

jetPEI™-HUVEC protocol is as simple as jetPEI™'s: Mix DNA with the reagent to form complexes and simply add the mixture to cells. jetPEI™-HUVEC is compatible with the use of serum and antibiotics. No media changes or washes are required. Protein expression is analyzed 24 to 72 hours post-transfection.

Product	Cat N°	Reagent	Amount of NaCl sol.*
jetPEI™-HUVEC	108-01N	0.1 ml	5 ml
	108-05N	0.5 ml	50 ml

0.5 ml of jetPEI™-HUVEC is sufficient to perform 125 transfections in 24-well plate (2 µg of DNA per well) or 30 transfections in 60-mm dishes).

For additional information, you may contact our technical support at www.polyplus-transfection.com

INTELLECTUAL PROPERTY:

The use of polyethylenimine (PEI) or polypropylenimine (PPI) or cationic polymers similar in structure thereto for transfecting cells, as well as compositions comprising these cationic polymers and at least one nucleic acid, are the subject matter of U.S. Patent No. 6,013,240, EP Patent No. 0770140 and foreign equivalents, for which Polyplus-transfection™ is the worldwide exclusive licensee.