DNA-transfection of A549 human lung adenocarcinoma cell line using "Biontex K2® Transfection System"

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Material and Methods

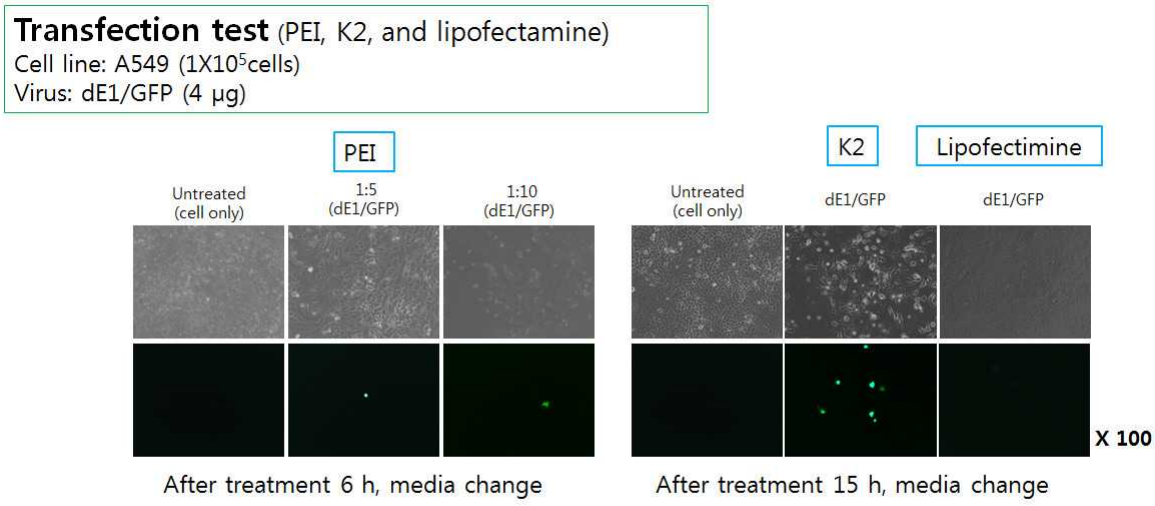
Cell culture

Human lung adenocarcinoma (A549) cells were cultured in Dulbecco's modified Eagle's medium (DMEM; Invitrogen GIBCO-BRL) supplemented with 10% fetal bovine serum, L-glutamine (2 mM), penicillin (100 IU/ml), and streptomycin (50 µg/ml) in the presence of 5% CO_2 at 37 °C. For the transfection, cells were seeded into 6-well plate. Transfection was performed when cells had reached a confluency of 50 %.

Cell transfection

Cells were treated with K2 Multiplier, 2 h before DNA transfection. For viral generation, recombinant adenoviral plasmid DNAs (4 µg) were digested with *Pac*I. K2 Transfection reagent (13.5 µl) was mixed with DMEM serum-free medium (86.5 µl). Viral plasmid DNAs (20 µl) were mixed with DMEM serum-free medium (80 µl). DNA solution was added to the solution containing the K2 Transfection reagent and mixed by gently pipetting up and down, followed by 20 minutes incubation at room temperature. After, transfection solution was dripped slowly onto the medium and mixed by gently swaying the well-plate. Transfections were incubated at 37 °C and 5% CO_2 for 15 h. Transfection efficiency was estimated by fluorescence microscopy.

Results



1. K2 transfection system (DNA:K2=1:3)
2. lipofectamine transfection system (lipofectamine: lipofectamine plus= 12:15)

Conclusion

The viral plasmid DNAs were transfected into A549 cells using K2 transfection system. The fluorescence microscopy results show that K2 exhibits higher transfection efficiency than the PEI and Lipofectamine. However, cell killing effect was also higher than Lipofectamine. Altogether, our results suggest that K2 transfection reagent may become a promising transfection agent for viral plasmid DNA.