METAFECTENE™ PRO TRANSFECTION EFFICIENCY ON CHINESE HAMSTER OVARY CELLS

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Introduction

The Chinese hamster Ovary (CHO) cells are known to be difficult to transfect. In order to increase the transfection efficiency, we have compared three different commercially available reagents (including the Metafectene™ Pro) for the transfection of a membrane protein in CHO cells. To avoid any legal conflict, we have named the two other reagents "Reagent A" and "Reagent B".

Method

The CHO cells cultured in DMEM (supplemented with 5 % fetal calf serum, 200 µg/ml active geneticin and 2 mM glutamine) were split into a 6-well plate and transfected at 60-80% confluency, according to the manufacturer's guidelines for each reagent. The DNA (0.5µg) expressing a G-protein in fusion with a fluorescent protein (CFP) has been mixed with each transfection reagent at a ratio of 1:3. The transfection mixes has been left in contact with cells during 48 hours, and the number of transfected cells was quantified visually using fluorescence microscopy.

Transfection with Metafectene™ Pro

Two solutions have been prepared: solution A: 0.5µg of DNA + 50µl of serum free DMEM, solution B: 1.5µl Metafectene™ Pro + 50µl of serum free DMEM. These two solutions have been combined and incubated 15-20 minutes at room temperature. Then, the mix has been added to the cells cultured in supplemented DMEM, and the plates were swirled with extreme care. The cells are incubated during 48 hours before the assessment of the transfection level.

Results and Discussion

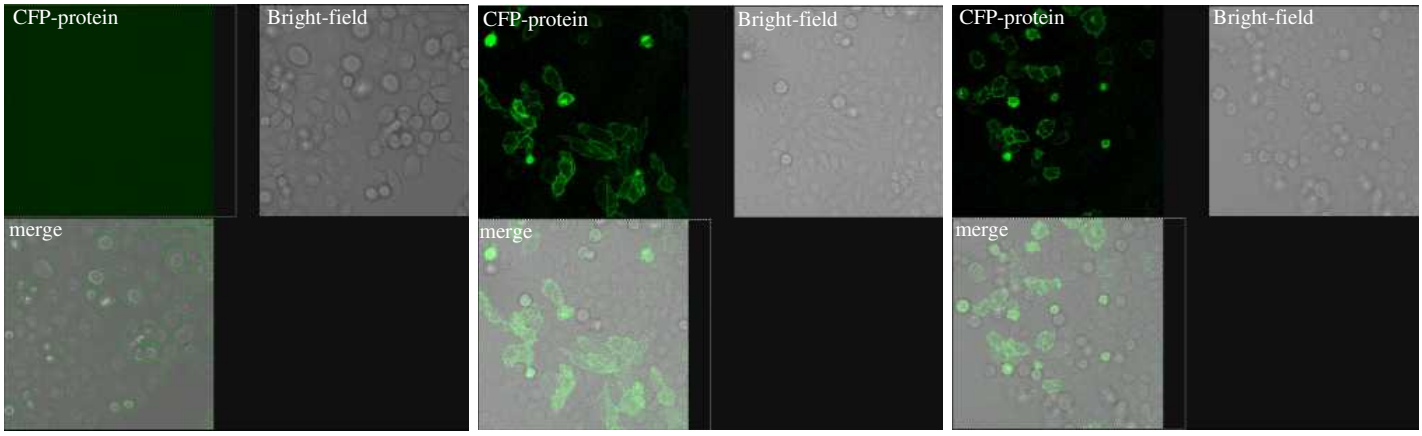
The cells transfected with the reagent A did not show any fluorescence although the same amount of cells was present in the well (Figure 1). The reagent A is though not an efficient reagent for the transfection of CHO cells. In contrast, the reagent B and the Metafectene™ Pro gave good transfection efficiencies. However, the shape of the cells is modified. CHO cells are known to be elongated normally. In the presence of the reagent B, the cells became round compared to the non-transfected ones, whereas they are unchanged when the Metafectene™ Pro is used for the transfection. That might reflect a higher toxicity of the reagent B, compared to the Metafectene™ Pro.

Conclusion

The Metafectene™ Pro is an efficient reagent for the transfection of CHO cells. Moreover, it appears to be less toxic than others for cells when left in the culture media for 48 hours.

Appendix

Figure 1: CHO cells transfected with three different reagents. CHO cells were transfested with a G-protein-CFP using three different reagents.



Reagent A | Metafectene™ Pro | Reagent B