Abstract: Gene therapy is one of the most exciting ways of genetic and hereditary diseases treatments. Of all many aspects of gene therapy process, delivering the transgene into the target cells is the critical one. Therefore, nowadays many gene delivery vehicles are considered to be manipulated. Beside, due to high stability in different conditions, low immunogenicity, simple genetic structure and production in large scale, bacteriophages are an appropriate alternative option for gene therapy and gene delivery vehicles. In this experiment M13 phage particles ability of internalization and expression of transgene is examined.

Material and methods: GFP gene sequence is cloned into pCMV-Script EX phagemid vector and after amplification and packaging of phage particles, they transfected to AGS cell line. Finally efficiency of internalization and expression of the GFP is examined by PCR and fluorescence microscopy.

Results: Low expression of GFP gene in AGS cells, indicates that M13 phage has no tropism to transfect eukaryotic cells.

Conclusion: Despite most of other gene delivery vehicles, bacteriophages have no tropism to eukaryotic cells, so coupling of different targeting moieties on the phage particles surface, might lead to efficient internalization to the target cells. This finding established application of bacteriophages as a unique class of gene carriers into eukaryotic cells.