



## The murine leukemia virus pseudotype and in-vitro evaluation of antiviral drugs

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**Background and Aims:** Despite the success of many conventional methods of screening antiviral drugs and agents, noticeable problems related to safety, Long term measurement, Laborious and high cost has been limited their use in evaluating a wide range of antiviral drugs. The aim of this project was to Produce of replication-incompetent Murine Leukemia Virus ( MLV) pseudotype as a valuable in vitro pharmacodynamic screening technique for evaluation of antiviral drugs. The MLV is most striking member of orthoretrovirinae genus of gammaretroviruses and is belonging to the simple retroviruses.

**Methods:** Transient cotransfection of three vector plasmids include a gag-pol plasmid (pCLECO), an envelope plasmid (pMD2.G) and the expression vector plasmid (pBABE-GFP) were carried out on HEK293T cells by overnight calcium phosphate treatment on 6-well culture plates that had maximum of 70% confluence/plate on the day of transfection.

**Results:** The viral supernatants were harvested 48 h after transfection, filtered through 0.45  $\mu\text{m}$  filters and concentrated by poly ethylene glycol and titred by transduction and infection on several class of eukaryotic cells. The flow cytometry technique and flourescent microscopy were used for analysis of results and expression levels of green fluourescent protein (GFP) in transfected and transduced cells.

**Conclusions:** Because of that pseudotype viruses can be designed to demonstrate the main features of the parental virus, flexibility, safety and their don,t change to the wild-type virus during screening process, one of their applications is assay of antiviral property of drugs and compounds.In this project, produced MLV pseudotype virus was used for assay of antiretroviral activity of different antiviral compounds and drugs . On the other hand, an MLV-based system serves as an ideal model to investigate the specificity of anti HIV drugs.

**Keywords:** Murine leukemia virus; Transfection; Transduction; Antiviral drugs