Creation of a Lentiviral Vector Series for Stable and Regulated Transduction

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Introduction: Gene transfer based on lentiviral vectors allows the stable integration of exogenous genes into the genome of target cells, turning these vectors a powerful tool that allows stable expression of transgenes *in vitro* and *in vivo*. Currently, no plasmids for lentivírus are available that allow cloning of different genes to be regulated for different promoters, regulated by tetracycline and also, that permit the analysis of the expression through a IRES. **Objetive**: Generate a series of lentiviral vectors containing: a malleable structure to cloning of different target genes in a multicloning site (mcs); unique sites to exchange promoters; TRE element to regulate the transgene expression with molecules such as tetracycline or doxicycline, and internal ribosome entry site followed by one of two reporter genes: GFP or DsRed. The series of vectors were named pLR1, pLR2 and pLR3. **Methods and Results**: Vectors were cloned using standard molecular biology methods. This vector serie contain a RSV promoter flanked by a TRE element and a multicloning site. Also, the pLR2 plasmid has the IRES-GFP sequence after the mcs while pLR3 has IRES-DsRed for the generation of a bicistronic mRNA. Efficacy of the vectors was confirmed by transfection and viral transduction. **Conclusion:** The functional efficiency of each element used in the different plasmid structures transforms the plasmid serie into a powerful biotechnology tool for stable gene transfer.

Key words: lentiviral vector, transduction, plasmid
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