BIOLUMINESCENCE GENE EXPRESSION WITH A LENTIVIRAL VECTOR IN AIRWAYS OF CYSTIC FIBROSIS MICE

Patricia Cmielewski[1,2] David Parsons[1,3]

1. Research
2. Department of Paediatrics, University of Adelaide, SA
3. Centre for Stem Cell Research, University of Adelaide, SA

Introduction

Non-invasive bioluminescence imaging has allowed for rapid *in-vivo* quantification of long-[illegible] gene transfer in experimental animals. We studied the sustaina[illegible] viral (LV) reporter [illegible] fibrosis mice.

Methods

[illegible] received LPC one hour prior to an empty vector (LV-MT). Bioluminesce[illegible] was measured at 1 wk & 1, 3, 6, 8, 12, 15, 18 and 21 months after LV do[illegible] Circulating antibodies to the Luc transgene were analysed in sera by El[illegible]

Results

Nas[illegible] blu[illegible]

There was no diff[illegible] lung luminescence between the LPC and PBS pre-treated mi[illegible] bioluminescence was detected in the airways of mice treated with LPC/LV-MT (Fig. 2). At later time points, the low sample size due to animal attrition influenced mean expression levels. Ther[illegible] significant increase in the presence of circulating antibodies to the Luc transgene in those mice that received LPC prior to LV[illegible] compared to b[illegible] to Luc persisted from 1 month to 21 months, peaking at 3 months, following a single gene therapy dose of LPC/LV-Luc.

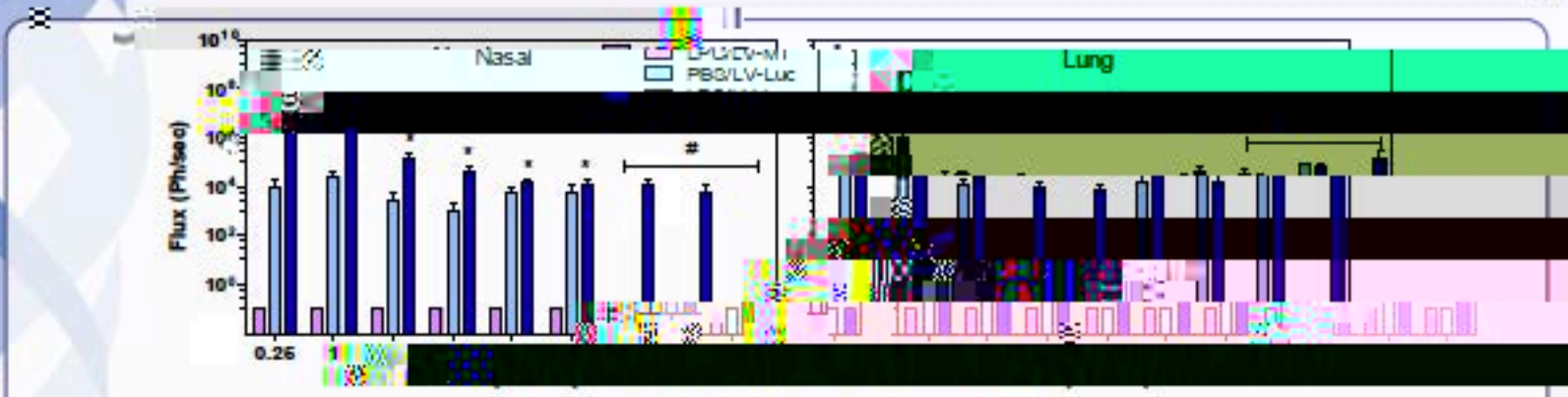

Fig. 1. a) Nasal and b) Lung LV-luciferase luminescence.
Mean +/- SEM,*p<0.05, RM ANOVA, n=3-12, # n too low for analysis.

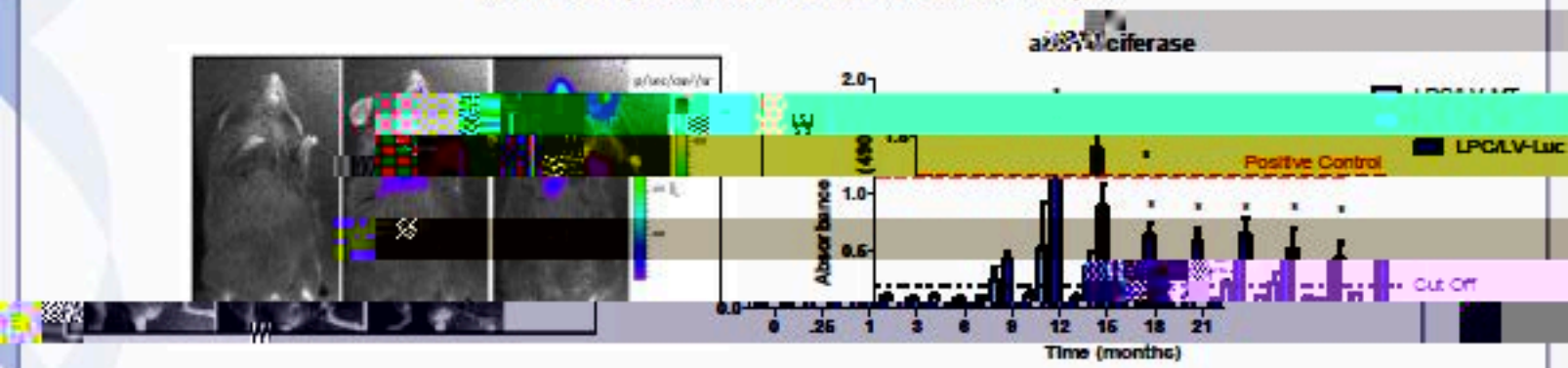

Fig. 2. LV-luciferase luminescence

Fig. 3. Circulating antibodies to the transgene Luciferase.

Conclusions

Lentiviral luciferase gene expression was significantly improved in mouse nasal airways using LPC pre-treatment. However, pre-treatment made no difference to luciferase expression in the lungs of CF mice. The presence of circulating antibodies to luciferase for longer than 18 months suggests an immune response to a sustained long term [illegible]

Ackno[illegible]

Dr Don Anson for LV vector