

CpG-free plasmids confer reduced inflammation and sustained pulmonary gene expression.

ABSTRACT

Pulmonary delivery of plasmid DNA (pDNA)/cationic liposome complexes is associated with an acute unmethylated CG dinucleotide (CpG)-mediated inflammatory response and brief duration of transgene expression. We demonstrate that retention of even a single CpG in pDNA is sufficient to elicit an inflammatory response, whereas CpG-free pDNA vectors do not. Using a CpG-free pDNA expression vector, we achieved sustained (≥ 56 d) in vivo transgene expression in the absence of lung inflammation.

Keyword: CpG; Gene therapy; Inflammation; Lung; Plasmids.