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ACTION

(54) Title: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT *IN VIVO* BY THE POLY-L-GLUTAMATE (PLG) SYSTEM

(57) Abstract: Plasmid DNA delivered by injection / electroporation to the skeletal muscle can be expressed, and physiologic levels of transgene could be achieved into the circulation. Nevertheless, stabilization of naked DNA may be required and necessary in some cases, as prolonged storage at different temperatures before usage, injection into a large number of animals, etc. It is imperative that the associated compound should not be toxic to the cells (e.g. muscle cells) or cause breakage of plasmid DNA. It would be preferable for the coated DNA to have a similar or increased uptake into the target cells. Low molecular weight polyL-glutamate compounds have all the desired properties. It was determined that mole/mole ratio DNA/PLG is the optimum concentration for gene therapeutic applications to the skeletal muscle, resulting in increased expression of the transgene, with no damage to the target tissue. Furthermore, stabilization of plasmid DNA by PLG has never been observed or described in the literature.

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