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# United States Patent [19]

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[54] **DELIVERY OF EXOGENOUS DNA SEQUENCES IN A MAMMAL**

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[52] **U.S. Cl.** ..... **514/44**; 435/69.1; 435/172.3

[58] **Field of Search** ..... 514/44

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[57] **ABSTRACT**

Polynucleotide sequences, comprising DNA and RNA molecules can be directly administered, for example by injection, to tissues, such as muscle, and expressed as a protein, polypeptide or polypeptide. The polynucleotides can be contained within liposomes or the polynucleotides can free from association with transfection-facilitating proteins, viral particles, liposomal formulations, charged lipids and calcium phosphate precipitating agents.

**20 Claims, 9 Drawing Sheets**