

CLAIMS

1. Use of nonreplicative recombinant viral vectors which are capable of being recognized by the receptors of human and animal target muscle cells and are capable of infecting these target cells comprising a nucleic acid sequence encoding a polypeptide for the production of a drug composition which is administered by the intravenous or intraarterial route for the treatment of diseases affecting the muscle cells, said nucleotide sequence is under the control of a promoter recognized by polymerases of said muscle cells and wherein said polypeptide is expressed in said muscle cells.
2. Use of vectors according to Claim 1, characterized in that these vectors are selected from defective adenoviruses, the genomes of which lack the essential sequences necessary for the replication of the adenoviruses.
3. Use of vectors according to Claim 2, wherein said defective adenoviruses lack the E1A and E1B transactivators, and where appropriate, the E3 region.
4. Use of vectors according to Claim 1, wherein the nucleic acid sequence is included in a defective adenovirus genome comprising all of the essential sequences necessary for the encapsidation of these adenoviruses.
5. Use of vectors according to Claim 1, wherein the nucleic acid sequence is constituted by all or part of a functional gene for dystrophin.
6. Use of vectors according to Claim 5 for the treatment of Duchenne's muscular dystrophy.
7. Use of vectors according to Claim 1, wherein the nucleic acid sequence codes for a protein or polypeptide having thrombolytic properties.

8. Use of vectors according to Claim 7 for the treatment of cardiac diseases.

9. A recombinant vector comprising a defective genome of an adenovirus, comprising all of the essential sequences necessary for the encapsidation of said adenovirus, and in which is inserted a nucleic acid sequence under the control of a promoter selected from the group of: a promoter from the Rous Sarcoma Virus Long Terminal Repeat, a promoter of the IE gene of Cytomegalovirus, a Mouse Mammary Tumor Virus inducible promoter and an E1A early promoter wherein said inserted nucleic acid sequence is expressed in target muscle cells.

10. The recombinant vector according to claim 9, wherein said promoter is the strong promoter of the E1A early region of the genome of the adenoviruses.

11. The recombinant vector according to claim 9, wherein the nucleic acid sequence is constituted by all or part of a functional gene for dystrophin.

12. The recombinant vector according to claim 9, wherein the nucleic acid sequence codes for a protein or polypeptide having thrombolytic properties.

13. A pharmaceutical composition comprising the recombinant vector according to any one of Claims 9 to 12.

14. A method for producing a recombinant vector according to any one of Claims 9 to 12 comprising the steps of:

(a) producing a recombinant viral construct by inserting a nucleic acid sequence encoding a product to be expressed in target muscle cells into a defective genome of an adenovirus;

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(b) transforming a higher eukaryotic cell line carrying a distinct nucleotide sequence capable of complementing the part of the adenovirus genome which is lacking in said vector and which is essential for its replication, said distinct nucleotide sequence being preferably incorporated into the genome of the cells of said cell line; and

(c) recovering the recombinant vector from the culture of said cell line.