

Claims

We claim:

1. A method of treating a neuromuscular disorder in a human subject in need thereof comprising the step of administering to the human subject a recombinant adeno-associated virus (rAAV) rAAVrh74.MCK.GALGT2, wherein:

the route of administration is an intramuscular route and the dose of the rAAV administered is about 3×10^{11} vg/injection to about 5×10^{12} vg/injection,

the route of administration is an intramuscular route and the dose of the rAAV administered is about 3×10^{11} vg/injection,

the route of administration is an intramuscular route and the dose of the rAAV administered is about 1×10^{12} vg/injection,

the route of administration is an intramuscular route and the dose of the rAAV administered is about 5×10^{12} vg/injection,

the route of administration is inter-arterial limb perfusion and the dose of the rAAV administered is about 6×10^{12} vg/kg/limb to about 4.8×10^{13} vg/kg/limb,

the route of administration is inter-arterial limb perfusion and the dose of the rAAV administered is about 6×10^{12} vg/kg/limb,

the route of administration is inter-arterial limb perfusion and the dose of the rAAV administered is about 1.2×10^{13} vg/kg/limb,

the route of administration is inter-arterial limb perfusion and the dose of the rAAV administered is about 2.4×10^{13} vg/kg/limb,

the route of administration is inter-arterial limb perfusion and the dose of the rAAV administered is about 4.8×10^{13} vg/kg/limb,

the route of administration is systemic intravenous administration and the dose of the rAAV administered is about 2×10^{14} vg/kg to about 6×10^{15} vg/kg,

the route of administration is systemic intravenous administration and the dose of the rAAV administered is about 4×10^{14} vg/kg to about 6×10^{15} vg/kg,

the route of administration is systemic intravenous administration and the dose of the rAAV administered is about 4×10^{14} vg/kg,

the route of administration is systemic intravenous administration and the dose of the rAAV administered is about 8×10^{14} vg/kg,

the route of administration is systemic intravenous administration and the dose of the rAAV administered is about 2×10^{15} vg/kg, or

the route of administration is systemic intravenous administration and the dose of the rAAV administered is about 6×10^{15} vg/kg.

2. The method of claim 1, wherein the neuromuscular disorder is Duchenne Muscular Dystrophy (DMD); Becker Muscular Dystrophy; Congenital Muscular Dystrophy (MDC) 1A, 1B, 1C and 1D; Limb Girdle Muscular Dystrophy (LGMD) 1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H, 2A, 2B, 2C, 2D, 2E, 2F, 2G 2H, 2I, 2J, 2K, 2L, 2M, 2N, 2O and 2Q; Bethlem Myopathy; Ullrich Congenital Muscular Dystrophy; Muscle Eye Brain Disease; Fukuyama Congenital Muscular Dystrophy; Walker Warburg Syndrome; Myotonic Dystrophy; Myasthenic syndromes; Congenital Myasthenias; Inclusion Body Myopathy; Inclusion Body Myositis; Emery Dreifuss Muscular Dystrophy; Distal Muscular Dystrophy; Dermatomyositis; Centronuclear Myopathy; Facioscapulohumeral Muscular Dystrophy; Myoshi Myopathy; Mitochondrial Myopathy; Nemaline Myopathy; Nonaka Myopathy; Myasthenia Gravis; and Polymyositis.

3. The method of claim 1 wherein the neuromuscular disorder is a muscular dystrophy.

4. The method of claim 3 wherein the muscular dystrophy is Duchenne Muscular Dystrophy.

5. The method of claim 3 wherein the muscular dystrophy is Congenital Muscular Dystrophy 1A.

6. The method of claim 3 wherein the muscular dystrophy is Limb Girdle Muscular Dystrophy 2D.

7. The method of claim 1 whereby there is an improvement in the human subject in absolute muscle specific force; force decrement during eccentric muscle contractions; serum CK level; serum cardiac troponin level; serum MMP9 level; grip strength; limb torque; limb mobility or flexibility; ambulation; 6 minute walk test; knee flexor or extensor strength; maximal voluntary isometric muscle contraction; North Star Ambulatory Assessment; muscle mass, fat reduction, or edema by limb T2-weighted MRI measures; muscle contractures; limb joint angle; heart function (heart rate, cardiac output, percent fractional shortening, stroke volume); respiration (including respiratory rate, blood oxygenation, need for supplemental oxygen); muscle necrosis; muscle regeneration; muscle wasting; muscle inflammation; muscle calcification; muscle central nucleation; muscle size or myofiber size; lifespan; and dystrophin or laminin alpha 2 surrogate protein expression (utrophin, plectin 1, laminin alpha 5, agrin).

8. The rAAV.rh74.MCK.GALGT2 comprising the GALGT2 gene cassette set out in SEQ ID NO: 2.