CLAIMS

1 . Use of (i) a viral vector comprising a transgene encoding acid alpha-glucosidase (GAA) and (ii) a corticosteroid in the manufacture of a medicament for treating Pompe disease in a human patient in need thereof.

2. The use of claim 1, wherein:

(i) the corticosteroid is to be administered to the patient in one or more doses that commence within 48 weeks of administration of the viral vector to the patient, optionally wherein the corticosteroid is to be administered to the patient in one or more doses that commence within 36 weeks or 24 weeks of administration of the viral vector to the patient; or

(ii) the corticosteroid is to be administered to the patient in one or more doses that commence within 12 weeks of administration of the viral vector to the patient, optionally wherein the corticosteroid is to be administered to the patient in one or more doses that commence within 10 weeks, 8 weeks, 6 weeks, or 4 weeks of administration of the viral vector to the patient, optionally wherein the corticosteroid is to be administered to the patient in one or more doses that commence on the same day as administration of the viral vector to the patient.

3. Use of a viral vector comprising a transgene encoding GAA in the manufacture of a medicament for treating Pompe disease in a human patient in need thereof and who has been previously administered a corticosteroid.

4. The use of any one of claims 1-3, wherein:

(i) the viral vector is to be administered to the patient in an amount of from 1 x 10^{13} vg/kg to 3 x 10^{14} vg/kg, optionally wherein the viral vector is to be administered to the patient in an amount of from 1 x 10^{13} vg/kg to 6 x 10^{13} vg/kg, from 1 x 10^{13} vg/kg to 5 x 10^{13} vg/kg, from 1 x 10^{13} vg/kg to 4 x 10^{13} vg/kg, from 1 x 10^{13} vg/kg to 3 x 10^{13} vg/kg, from 2 x 10^{13} vg/kg to 6 x 10^{13} vg/kg, from 2 x 10^{13} vg/kg to 5 x 10^{13} vg/kg, or from 2 x 10^{13} vg/kg to 4 x 10^{13} vg/kg;

(ii) the viral vector is to be administered to the patient in an amount of from 3 x 10^{13} vg/kg to 6 x 10^{13} vg/kg;

(iii) the patient is one year old or older at the time of administration of the viral vector, optionally wherein the patient is 18 years old or older at the time of administration of the viral vector;

(iv) the patient is from one year old to 40 years old at the time of administration of the viral vector; or

(v) the use further comprises monitoring the patient for development of transaminasemia, hyperbilirubinemia, or one or more symptoms thereof, optionally wherein the patient is monitored for the development of transaminasemia, hyperbilirubinemia, or one or more symptoms thereof by evaluating a parameter in a blood sample obtained from the patient, wherein a finding that the parameter is above a reference level identifies the patient as having transaminasemia, hyperbilirubinemia, or one or more symptoms thereof.

5. The use of claim 4, wherein the parameter comprises the level of aspartate aminotransferase, alanine aminotransferase, and/or bilirubin in the blood sample.

6. Use of a viral vector comprising a transgene encoding GAA in the manufacture of a medicament for treating Pompe disease in a human patient in need thereof, wherein the viral vector is to be administered to the patient in accordance with the following:

(a) monitoring the patient who has been administered the viral vector in an amount of from 1 x 10^{13} vg/kg to 3 x 10^{14} vg/kg for development of transaminasemia, hyperbilirubinemia, or one or more symptoms thereof, and, if the patient exhibits transaminasemia, hyperbilirubinemia, or one or more symptoms thereof,

(b) (i) a corticosteroid is to be further administered to the patient, (ii) a corticosteroid is to be further re-administered to the patient, wherein the patient had previously been treated with a corticosteroid upon administration of the viral vector, or (iii) the dosage and/or frequency of a corticosteroid that is being provided to the patient is to be increased.

7. Use of a viral vector comprising a transgene encoding GAA in the manufacture of a medicament for treating Pompe disease in a human patient in need thereof, wherein the viral vector is to be administered to the patient in accordance with the following:

(a) determining that the patient who has been administered the viral vector in an amount of from 1 x 10^{13} vg/kg to 3 x 10^{14} vg/kg exhibits transaminasemia, hyperbilirubinemia, or one or more symptoms thereof, and

(b) (i) a corticosteroid is to be further administered to the patient, (ii) a corticosteroid is to be further re-administered to the patient, wherein the patient had previously been treated with a corticosteroid upon administration of the viral vector, or (iii) the dosage and/or frequency of a corticosteroid that is being provided to the patient is to be increased.

8. The use of claim 6 or 7, wherein the viral vector is to be administered to the patient in an amount of from 1 x 10^{13} vg/kg to 6 x 10^{13} vg/kg, from 1 x 10^{13} vg/kg to 5 x 10^{13} vg/kg, from 1 x 10^{13} vg/kg to 4 x 10^{13} vg/kg, from 1 x 10^{13} vg/kg to 3 x 10^{13} vg/kg, from 2 x 10^{13} vg/kg to 6 x 10^{13} vg/kg, from 2 x 10^{13} vg/kg to 5 x 10^{13} vg/kg, or from 2 x 10^{13} vg/kg to 4 x 10^{13} vg/kg.

9. The use of any one of claims 6-8, wherein:

(i) the viral vector is to be administered to the patient in an amount of from 3 x 10^{13} vg/kg to 6 x 10^{13} vg/kg;

(ii) the patient is one year old or older at the time of administration of the viral vector, optionally wherein the patient is 18 years old or older at the time of administration of the viral vector; or

(iii) the patient is from one year old to 40 years old at the time of administration of the viral vector.

10. Use of a corticosteroid in the manufacture of a medicament for treating or preventing transaminasemia or hyperbilirubinemia in a human patient that has Pompe disease and who has been

previously administered a viral vector comprising a transgene encoding GAA in an amount of from 1 x 10^{13} vg/kg to 3 x 10^{14} vg/kg.

11. The use of claim 10, wherein:

(i) the viral vector has previously been administered to the patient in an amount of from 1 x 10^{13} vg/kg to 3 x 10^{14} vg/kg, optionally wherein the viral vector has previously been administered to the patient in an amount of from 2 x 10^{13} vg/kg to 7 x 10^{13} vg/kg, from 2 x 10^{13} vg/kg to 4 x 10^{13} vg/kg, or from 5 x 10^{13} vg/kg to 7 x 10^{13} vg/kg;

(ii) the viral vector has previously been administered to the patient in an amount of from 3 x 10^{13} vg/kg to 6 x 10^{13} vg/kg;

(iii) the patient is one year old or older at the time of administration of the viral vector, optionally wherein the patient is 18 years old or older at the time of administration of the viral vector; or

(iv) the patient is from one year old to 40 years old at the time of administration of the viral vector.

12. The use of any one of claims 1-11, wherein:

(i) the viral vector is to be administered to the patient in a single dose comprising the amount;

(ii) the viral vector is to be administered to the patient in two or more doses that, together, comprise the amount;

(iii) the viral vector is to be administered to the patient in two or more doses that each, individually, comprise the amount;

(iv) the viral vector is selected from the group consisting of adeno-associated virus (AAV), adenovirus, lentivirus, retrovirus, poxvirus, baculovirus, herpes simplex virus, vaccinia virus, and a synthetic virus;

(v) the transgene encoding GAA is operably linked to a promoter that induces expression of the transgene in a muscle and/or neuronal cell;

(vi) the GAA is operably linked to an enhancer that induces expression of the transgene in a muscle and/or neuronal cell;

(vii) the viral vector is to be administered to the patient by way of intravenous, intrathecal, intracisternal, intracerebroventricular, or intramuscular administration; or

(viii) the corticosteroid is prednisolone.

13. The use of claim 12, wherein:

(i) the two or more doses are separated from one another by one year or more;

(ii) the two or more doses are to be administered to the patient within 12 months of one another;

(iii) the viral vector is an AAV, optionally wherein the AAV is an AAV1, AAV2, AAV3, AAV4, AAV5, AAV6, AAV7, AAV8, AAV9, AAVrh10, or AAVrh74 serotype;

(iv) the promoter is a muscle MCK promoter, MCK promoter, chicken beta actin promoter, CMV promoter, myosin light chain-2 promoter, alpha actin promoter, troponin 1 promoter, Na^+/Ca^{2+} exchanger promoter, dystrophin promoter, alpha7 integrin promoter, brain natriuretic peptide promoter, alpha B-

crystallin/small heat shock protein promoter, alpha myosin heavy chain promoter, or atrial natriuretic factor promoter;

(v) the enhancer is a CMV enhancer, a MEF2 enhancer, or a MyoD enhancer;

(vi) the corticosteroid is to be administered to the patient in a single dose; or

(vii) the corticosteroid is to be administered to the patient in a plurality of doses.

14. The use of claim 13, wherein:

(i) the viral vector is a pseudotyped AAV, optionally wherein the pseudotyped AAV is AAV2/8 or AAV2/9;

(ii) the corticosteroid is to be administered to the patient in an amount of from 0.1 mg/kg/dose to 2 mg/kg/dose; or

(iii) the corticosteroid is to be administered to the patient in an amount of from 1 mg to 120 mg.

15. The use of claim 14, wherein:

(i) the corticosteroid is to be administered to the patient in an amount of 0.5 mg/kg/dose, optionally wherein the corticosteroid is to be administered to the patient in an amount of 1 mg/kg/dose or 2 mg/kg/dose;

(ii) the corticosteroid is to be administered to the patient in an amount of 30 mg;

(iii) the corticosteroid is to be administered to the patient in an amount of 60 mg; or

(iv) the corticosteroid is to be administered to the patient in an amount of 120 mg.

16. The use of claim 14 or 15, wherein the corticosteroid is to be administered to the patient in one or more doses per day, week, or month.

17. The use of claim 16, wherein the corticosteroid is to be administered to the patient in one or more doses per day, optionally wherein the corticosteroid is to be administered to the patient in one dose per day, in two doses per day, three doses per day, four doses per day, or five doses per day.

18. The use of claim 17, wherein the corticosteroid is to be administered to the patient in one dose per day.

19. The use of any one of claims 12-18, wherein:

(i) the corticosteroid is to be administered to the patient in an amount of from 1 mg/day to 120 mg/day;

(ii) the corticosteroid is to be administered to the patient in an amount of 30 mg/day;

(iii) the corticosteroid is to be administered to the patient in an amount of 60 mg/day;

(iv) the corticosteroid is to be administered to the patient in an amount of 120 mg/day;

(v) the corticosteroid is to be administered to the patient by way of a unit dosage form comprising 5 mg of the corticosteroid;

(vi) the corticosteroid is to be administered to the patient by way of a unit dosage form comprising 10 mg of the corticosteroid;

(vii) the corticosteroid is to be administered to the patient by way of a unit dosage form comprising 15 mg of the corticosteroid;

(viii) the corticosteroid is to be administered to the patient by way of a unit dosage form comprising 30 mg of the corticosteroid; or

(ix) the corticosteroid is to be administered to the patient by way of oral administration.

20. The use of any one of claims 1-19, wherein:

(i) the patient does not have a history of transaminasemia or hyperbilirubinemia, optionally wherein the patient does not have a history of any underlying liver disease;

(ii) the patient is from one year old to 40 years old at the time of administration of the viral vector;

(iii) the patient exhibits a symptom selected from feeding difficulties, failure to thrive, hypotonia, progressive weakness, respiratory distress, severe enlargement of the tongue, and thickening of the heart muscle;

(iv) the patient is undergoing GAA enzyme replacement therapy;

(v) upon administration of the viral vector to the patient, the patient exhibits endogenous GAA activity of from 50% to 200% of the endogenous GAA activity of a human of the same gender and similar body mass index that does not have Pompe disease; or

(vi) upon administration of the viral vector to the patient, the patient exhibits a reduction in glycogen in skeletal muscle, cardiac muscle, and/or neuronal tissue.

21. The use of any one of claims 4-20, wherein:

(i) the patient is determined to exhibit transaminasemia or one or more symptoms thereof by a finding that the patient exhibits one or more transaminases in a liver function test that is increased relative to a reference level, optionally wherein the one or more transaminases comprises the level of aspartate aminotransferase and/or alanine aminotransferase;

(ii) the patient is determined to exhibit transaminasemia or one or more symptoms thereof by a finding that the patient exhibits an alanine transaminase level is greater than 50 U/L in a liver function test; or

(iii) the patient is determined to exhibit transaminasemia or one or more symptoms thereof by a finding that the patient exhibits an aspartate aminotransferase level is greater than 50 U/L in a liver function test.

22. A kit comprising a viral vector comprising a transgene encoding GAA and a package insert, wherein the package insert instructs a user of the kit to administer the viral vector to a patient having Pompe disease in accordance with the use of any one of claims 1-21.

23. A kit comprising a corticosteroid and a package insert, wherein the package insert instructs a user of the kit to administer the corticosteroid to a patient to treat or prevent transaminasemia or hyperbilirubinemia in accordance with the use of any one of claims 1-21.