Claims

1. A rhGAA composition derived from CHO cells, wherein the rhGAA is expressed having an amino acid sequence that is at least 95% identical to that described by SEQ ID NO: 1; and wherein 50% or more of the rhGAA produced by the CHO cells binds to cation-independent manose-6-phosphate receptor (CIMPR) or 50% or more of the rhGAA produced by the CHO cells contains an N-glycan carrying mono-M6P or bis-M6P.

2. The rhGAA composition of claim 1, wherein 90% to 100% of the rhGAA binds to cation-independent manose-6-phosphate receptor (CIMPR) or 90% to 100% or more of the rhGAA contains an N-glycan carrying mono-M6P or bis-M6P.

3. The rhGAA composition of claim 1 wherein the average content of N-glycans carrying M6P ranges from 0.5 to 7.0 mol/mol rhGAA.

4. The rhGAA composition of claim 1 wherein the average content of N-glycans carrying M6P ranges from 1.0 to 4.0 mol/mol rhGAA.

5. The rhGAA composition of claim 1 wherein the average content of N-glycans carrying M6P ranges from 5.0 to 6.0 mol/mol rhGAA.

6. The rhGAA composition of claim 1, wherein on average the N-glycans contain greater than 3 mol/mol of M6P and greater than 4 mol/mol sialic acid.

7. The rhGAA composition of claim 1, wherein on average 40 to 60% of the N-glycans on the rhGAA are complex type N-glycans; wherein no more than 6.5% of N-glycans on the rhGAA are hybrid-type N-glycans, and wherein no more than 15% of the high mannose-type N-glycans on the rhGAA are non-phosphorylated, at least 10% of the high mannose-type N-glycans on the rhGAA are mono-M6P phosphorylated, and/or at least 2% of the high mannose-type N-glycans on the rhGAA are bis-M6P phosphorylated.

8. The composition of claim 1, wherein the rhGAA on average carries 2.0 to 8.0 sialic acid residues per mol of rhGAA.

9. The composition of claim 1, further comprising a chaperone.

10. A method for making the composition of claim 1, the method comprising culturing a CHO cell line that produces the rhGAA, and recovering said rhGAA composition from the culture of CHO cells.

11. A CHO cell line that produces the composition of claim 1.

12. A method for making the CHO cell line of claim 11, comprising transforming a CHO cell with DNA encoding rhGAA, selecting a CHO cell that stably integrates the DNA encoding rhGAA into its chromosome(s) and that stably expresses rhGAA, and selecting a CHO cell that

expresses rhGAA having a high content of glycans bearing M6P or bis-M6P, and, optionally, selecting a CHO cell having N-glycans with high sialic acid content and and/or having N-glycans with a low non-phosphorylated high-mannose content.

13. The composition of claim 1, for use in treating a condition, disorder or disease associated with insufficient lysosomal rhGAA .

14. The composition of claim 13, wherein the subject has Glycogen Storage Disease Type II (Pompe Disease).

15. The composition of claim 13, wherein said composition is administered to cardiac muscle of the subject.

16. The composition of claim 13, wherein said composition is administered to quadriceps, triceps or other skeletal muscle of the subject.

17. The composition of claim 13, wherein said composition is administered to the diaphragm of the subject.

18. The composition of claim 13, wherein said composition is combined with, coadministered with, or separately administered along with, a pharmacological chaperone.

19. The composition of claim 13, wherein said composition is combined with, coadministered with, or separately administered along with, 1-deoxynojirimycin or a salt thereof.

20. The composition of claim 13, wherein said composition is combined with, coadministered with, or separately administered along with, N-butyl-deoxynojirimycin or a salt thereof.