CLAIMS

1. A method of expressing a recombinant protein comprising mannose-terminated N-glycans from a host cell, the method comprising:

(a) introducing a nucleic acid encoding a recombinant protein into a Chinese Hamster Ovary (CHO) cell comprising a mutation in the GnT 1 gene (GenBank Accession Number AF343963) leading to loss of GnT 1 function; and

(c) expressing the recombinant protein from the host cell, in which the expressed recombinant protein comprises a mannose-terminated glycan structure

in which the method does not include a step of introducing functional GnT-I into the host cell.

2. A method according to Claim 1, in which the method does not include a step of introducing a nucleic acid encoding functional GnT-I into the host cell.

3. A method according to Claim 1 or 2, in which the CHO cell is selected with *Ricinus communis* agglutinin I (RCA-I) or a descendent thereof.

4. A method according to 3, in which at selection with RCA-I comprises comprising culturing CHO cells in the presence of *Ricinus communis* agglutinin I (RCA-I) and selecting cells which survive the culture, in which for example: (a) the CHO cells are exposed to RCA-I at a concentration of between 0.1μg/ml to 100μg/ml, for example up to 50 μg/ml or up to 20μg/ml, such as 10μg/ml or 5μg/ml; or (b) the CHO cells are exposed RCA-I for a period of from an hour, a few hours (such as 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12), overnight, to a few days, such as 2 days or 3 days, such as overnight, optionally together with a further step of selecting cells which do not react with RCA-I in an agglutination test.

5. A method according to any preceding claim, in which the host cell is adapted to suspension culture.

6. A method according to any preceding claim, in which the host cell comprises a JW152 cell line (deposited at ATCC under the Budapest Treaty as accession number PTA-9657).

7. A method according to any preceding claim, in which at step (b) an expression construct comprising nucleic acid encoding the recombinant protein in an expression vector such as pcDNA3.1 is introduced into the host cell.

8. A method according to any preceding claim, in which the nucleic acid encoding the recombinant protein is transformed or stably integrated into the host cell.

9. A method according to any preceding claim, further comprising the step of isolating and/or purifying the expressed recombinant protein.

10. A method according to any preceding claim, in which the protein comprises:

(a) a sequence having GenBank Accession Number NP_000148.2 or a variant, homologue, derivative or fragment thereof having glucocerebrosidase activity;

(b) a tumour-specific or tumour-associated antigen such as MUC1, HER2/neu and carcinoembryonic antigen (CEA) and antigenic portions thereof; or

(c) a viral antigen.

11. A method according to any preceding claim, in which the nucleic acid comprises a sequence having GenBank Accession Number NM_000157 or a variant, homologue, derivative or fragment thereof encoding a protein comprising glucocerebrosidase activity.

12. A recombinant protein comprising mannose-terminated N-glycans such as glucocerebrosidase, MUC1, HER2/neu and carcinoembryonic antigen (CEA) expressed by a host cell line according to any preceding claim.

13. A JW152 cell (deposited at ATCC under the Budapest Treaty as accession number PTA-9657) comprising a nucleic acid sequence encoding a protein with glucocerebrosidase activity, MUC1, HER2/neu or carcinoembryonic antigen (CEA) and which is preferably capable of expression of such a protein.

14. A method of expressing a mannose-terminated protein having glucocerebrosidase activity, MUC1, HER2/neu or carcinoembryonic antigen (CEA) from a host cell, the method comprising:

(a) providing a JW152 cell (deposited at ATCC under the Budapest Treaty as accession number PTA-9657) comprising a nucleic acid encoding a protein having glucocerebrosidase activity, MUC1, HER2/neu and carcinoembryonic antigen (CEA) as the case may be; and

(b) allowing the respective protein to be expressed from the cell

in which the method does not include a step of introducing functional GnT-I into the host cell.

15. A method comprising expressing a recombinant protein comprising mannose-terminated N-glycans from a host cell according to any of Claims 1 to 11, 13 or 14, or providing a recombinant protein comprising mannose-terminated N-glycans according to Claim 12, and administering the recombinant protein comprising mannose-terminated N-glycans to an individual in need thereof.

16. A method according to Claim 15 for treatment of Gaucher's Disease, in which the recombinant protein comprising mannose-terminated N-glycans comprises a recombinant protein comprising mannose-terminated N-glycans with glucocerebrosidase activity.

17. A recombinant protein comprising mannose-terminated N-glycans according to Claim 12 for use in a method of treatment of Gaucher's Disease, in which the recombinant protein comprising mannose-terminated N-glycans comprises a recombinant protein comprising mannose-terminated N-glycans with glucocerebrosidase activity.

18. A JW152 cell (deposited at ATCC under the Budapest Treaty as accession number PTA-9657) comprising a nucleic acid sequence encoding a protein, which protein when expressed is desired to comprise a mannose-terminated glycan structure.

19. A method, recombinant protein, cell or cell line substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

CLAIMS

1. A method of expressing a recombinant protein comprising mannose-terminated N-glycans from a host cell, the method comprising:

(a) introducing a nucleic acid encoding a recombinant protein into a host cell comprising a mutation in the GnT I gene leading to loss of GnT I function, in which the host cell is a Chinese Hamster Ovary (CHO) cell selected with *Ricinus communis* agglutinin I (RCA-I) or a descendent thereof; and

(b) expressing the recombinant protein from the host cell, in which the expressed recombinant protein comprises mannose-terminated N-glycans structure

in which the method does not include a step of introducing functional GnT I into the host cell.

2. A method of expressing a recombinant protein comprising mannose-terminated N-glycans from a host cell, the method comprising:

(a) introducing a nucleic acid encoding a recombinant protein into a host cell comprising a mutation in the GnT I gene leading to loss of GnT I function, in which the host cell is a Chinese Hamster Ovary (CHO) cell selected with *Ricinus communis* agglutinin I (RCA-I) or a descendent thereof; and

(b) expressing the recombinant protein from the host cell, in which the expressed recombinant protein comprises mannose-terminated N-glycans structure;

in which the method does not include a step of introducing functional GnT I into the host cell and the CHO cell was selected with RCA-I by culturing CHO cells in the presence of *Ricinus communis* agglutinin I (RCA-I) and selecting cells which survive the culture.

3. A method according to Claim 1, in which the host cell is adapted to suspension culture.

4. A method according to Claim 1, in which the host cell comprises a JW152 cell (deposited at ATCC under the Budapest Treaty as accession number PTA-9657).

5. A method according to Claim 1, in which at step (b) an expression construct comprising nucleic acid encoding the recombinant protein in an expression vector is introduced into the host cell.

6. A method according to Claim 1, in which the nucleic acid encoding the recombinant protein is transformed or stably integrated into the host cell.

7. A method according to Claim 1, further comprising the step of isolating and/or purifying the expressed recombinant protein.

8. The method according to Claim 1, in which the recombinant protein comprises:

(a) a sequence of SEQ ID NO. 3 or a variant, homologue, derivative or fragment thereof having glucocerebrosidase activity;

(b) a tumour-specific or tumour-associated antigen; or

(c) a viral antigen.

9. A method according to Claim 1, in which the nucleic acid comprises a sequence of SEQ ID NO. 4 or a variant, homologue, derivative or fragment thereof encoding a protein comprising glucocerebrosidase activity.

10. A JW152 cell (deposited at ATCC under the Budapest Treaty as accession number PTA-9657) comprising a nucleic acid sequence encoding a recombinant protein.

11. A method of expressing a recombinant protein comprising mannose-terminated N-glycans from a JW152 host cell, the method comprising:

(a) providing a JW152 host cell (deposited at ATCC under the Budapest Treaty as accession number PTA-9657) comprising a nucleic acid encoding a protein having glucocerebrosidase activity, MUC1, HER2/neu or carcinoembryonic antigen (CEA); and

(b) allowing the recombinant protein to be expressed from the JW152 host cell in which the method does not include a step of introducing functional GnT I into the host cell.

12. A method according to Claim 2, in which the CHO cells were cultured in the presence of RCA-I at a concentration of between 0.1 μg/ml to 100 μg/ml.

13. A method according to Claim 2, in which the CHO cells were cultured in the presence of RCA-I at a concentration of between 0.1 μg/ml to 50 μg/ml.

14. A method according to Claim 2, in which the CHO cells were cultured in the presence of RCA-I at a concentration of between 0.1 μg/ml to 20 μg/ml.

15. A method according to Claim 2, in which the CHO cells are exposed to RCA-I for a period of at least an hour.

16. A method according to Claim 2, in which the CHO cells are exposed to RCA-I for a period of 2 to 12 hours.

17. A method according to Claim 2, in which the CHO cells are exposed to RCA-I for a period of 2 to 3 days.

18. A method according to Claim 2, further comprising a step of selecting CHO cells which do not react with RCA-I in an agglutination test.

19. A method according to Claim 5, in which the expression vector is pcDNA3.1.

20. A method according to Claim 11, in which the recombinant protein comprising mannose-terminated N-glycans is a protein having glucocerebrosidase activity, MUC1, HER2/neu, or carcinoembryonic antigen (CEA).

21. A JW152 cell according to Claim 10, in which the nucleic acid sequence encodes a protein with glucocerebrosidase activity, MUC1, HER2/neu, or carcinoembryonic antigen (CEA).

22. A JW152 cell according to Claim 10, in which the nucleic acid sequence is capable of expression of the recombinant protein.

23. A method according to Claim 8, in which the tumour-specific or tumour-associated antigen is selected from the group consisting of MUC1, HER2/neu, carcinoembryonic antigen (CEA) and antigenic portions thereof.