CLAIMS

1. Use of a monoclonal anti-alpha synuclein antibody in the manufacture of a medicament for the treatment of a synucleinopathy or prodromal synucleinopathy, wherein said monoclonal anti-alpha synuclein antibody is to be administered intravenously to a human subject suffering from synucleinopathy or in risk of developing synucleinopathy, at a dose of between 1000 mg to 4500 mg, and wherein said monoclonal anti-alpha synuclein antibody is a full-length antibody capable of binding an epitope within amino acids 112-117 (SEQ ID NO:9 (ILEDMP)) of human alpha synuclein (SEQ ID NO:10).

2. The use according to claim 1, wherein the treatment is of a synucleinopathy, and wherein the human subject suffers from synucleinopathy.

3. The use according to claim 1, wherein the treatment is of prodromal synucleinopathy, and wherein the human subject is in risk of developing synucleinopathy.

4. The use according to any one of claims 1-3, wherein said antibody has an estimated KD value of binding to the oligomeric form of alpha synuclein of about 0.1-1.0 nM, such as about 0.5 nM.

5. The use according to any one of claims 1-4, wherein said antibody has a KD value of binding to the monomeric form of alpha synuclein of about 30-40 nM and an estimated KD value of binding to the oligomeric form of alpha synuclein of about 0.1-1.0 nM such that the ratio between the monomeric and oligomeric binding is approximately 60-70-fold enhancement.

6. The use according to any one of claims 1-5, wherein said antibody has a KD value of binding to the monomeric form of alpha synuclein of about 36 nM and an estimated binding to the

oligomeric form of alpha synuclein of about 0.5 nM, such that the ratio between the monomeric and oligomeric binding is approximately 65-fold enhancement.

7. The use according to any one of claims 1-6, wherein said antibody has a human T½ of about 28-30 days.

8. The use according to any one of claims 1-7, wherein said antibody has a KD value of binding to the monomeric form of alpha synuclein of about 36 nM and an estimated Kd value of binding to the oligomeric form of alpha synuclein of 0.5 nM, such that the ratio between the monomeric and oligomeric binding is approximately 65-fold enhancement, and wherein the antibody has a T½ of about 28-30 days, such as 29 days.

9. The use according to any one of claims 1-8, wherein said antibody comprises:
    a. a Heavy Chain CDR1 having the amino acid sequence of **SEQ ID NO:1**;
    b. a Heavy Chain CDR2 having the amino acid sequence of **SEQ ID NO:34**;
    c. a Heavy Chain CDR3 having the amino acid sequence of **SEQ ID NO:3**;
    d. a Light Chain CDR1 having the amino acid sequence of **SEQ ID NO:4**;
    e. a Light Chain CDR2 having the amino acid sequence of **SEQ ID NO:5**; and
    f. a Light Chain CDR3 having the amino acid sequence of **SEQ ID NO:6**.

10. The use according to any one of claims 1-9, wherein said antibody comprises a heavy chain consisting of a variable domain of **SEQ ID NO:31** and a light chain consisting of a variable domain of **SEQ ID NO:8**.

11. The use according to any one of claims 1-10, wherein said antibody is a human antibody.

12. The use according to any one of claims 1-11, wherein said antibody is a human IgG1 antibody.

13. The use according to any one of claims 1-12, wherein said antibody is GM37 variant 2.

14. The use according to any one of claims 1-13, wherein said antibody comprises a constant heavy chain domain as defined in **SEQ ID NO:18** and a kappa light chain constant domain as defined in **SEQ ID NO:17**.

15. The use according to any one of claims 1-14, wherein said antibody is to be administered every 4 weeks.

16. The use according to any one of claims 1-15, wherein said antibody is to be administered every 28-30 days.

17. The use according to any one of claims 1-16, wherein said antibody is to be administered once monthly.

18. The use according to any one of claims 1-17, wherein said antibody is to be administered at a dose of 1050 mg, 2100 mg or 4200 mg.

19. The use according to any one of claims 1-18, wherein said antibody is to be administered at a dose of 4200 mg.

20. The use according to any one of claims 1-19, wherein said antibody is to be administered by intravenous infusion over 30 minutes ±10 minutes.

21. The use according to any one of claims 1-20, wherein said antibody is to be administered in an amount and a frequency sufficient to achieve an estimated CSF mean steady state concentration of said antibody of at least 3 nM, such as at least 6 nM, or such as at least 12 nM.

22. The use according to any one of claims 1-21, wherein said antibody is to be administered in an amount and a frequency sufficient to achieve an estimated target engagement to oligomeric forms of alpha synuclein in CSF of at least 85 %, such as at least 90 % or such as at least 95%.

23. The use according to any one of claims 1-2 or 4-22, wherein said synucleinopathy is Parkinson's disease (PD), Dementia with Lewy Bodies (DLB), or multiple system atrophy (MSA).

24. The use according to any one of claims 1-2 or 4-23, wherein said synucleinopathy is multiple system atrophy (MSA), such as a MSA subtype selected from: possible MSA, probable MSA, MSA type C, MSA type P, clinically established MSA or clinically probable MSA.

25. The use according to any one of claims 1-2 or 4-24, wherein the treatment of synucleinopathy consists of delaying disease progression.

26. The use according to any one of claims 1 or 3-22, wherein the treatment of prodromal synucleinopathy consists of delaying disease onset.

27. The use according to any one of claims 1-26, wherein said antibody is formulated in a liquid pharmaceutical composition , wherein the liquid pharmaceutical composition comprises a full length IgG1 monoclonal anti-alpha synuclein antibody in a concentration of 25-225 mg/mL, wherein said antibody comprises:

a. a Heavy Chain CDR1 having the amino acid sequence of **SEQ ID NO:1**;

b. a Heavy Chain CDR2 having the amino acid sequence of **SEQ ID NO:34**;
c. a Heavy Chain CDR3 having the amino acid sequence of **SEQ ID NO:3**;
d. a Light Chain CDR1 having the amino acid sequence of **SEQ ID NO:4**;
e. a Light Chain CDR2 having the amino acid sequence of **SEQ ID NO:5**; and
f. a Light Chain CDR3 having the amino acid sequence of **SEQ ID NO:6**;

and wherein the composition further comprises histidine buffer, a pharmaceutically acceptable tonicity agent, a pharmaceutically acceptable surfactant and wherein the pH of the composition is between 5.5 to 6.5.