CLAIMS

What is claimed is:

1. Use of levodopa in the manufacture of a medicament for providing rapid relief of motor fluctuations in a Parkinson's disease patient,

wherein at least one inhalation dose of levodopa is to be administered to a Parkinson's disease patient,

wherein the patient's plasma levodopa concentration increases by at least about 200 ng/ml within 10 minutes of administration of levodopa by inhalation as compared to the patient's plasma levodopa concentration prior to administration;

wherein the patient's plasma levodopa concentration maintains the increase of at least about 200 ng/ml for a time period of at least about 15 minutes after administration;

wherein the dose of levodopa comprises 90% dry weight levodopa, 8% dry weight dipamitoylphosphatidylchlorine (DPPC) and 2% sodium chloride and wherein the dose comprises about 20 mg or more fine particle dose (FPD) of levodopa, and

wherein the AUC of levodopa in the patient's plasma at about 10 minutes after administration of a dose of levodopa by inhalation, is increased by at least about 1000 ng-min/ml for every 4 mg of levodopa administered as compared to the patient's plasma levodopa concentration prior to administration of levodopa by inhalation.

2. Use of levodopa in the manufacture of a medicament for providing rapid relief of motor fluctuations in a Parkinson's disease patient,

wherein at least one inhalation dose of levodopa is to be administered to a Parkinson's disease patient,

wherein the patient's plasma levodopa concentration increases by at least about 200 ng/ml for every 10 mg of levodopa delivered as compared to the patient's plasma levodopa concentration prior to administration of levodopa by inhalation within about 10 minutes of administration, and

wherein the patient’s plasma levodopa concentration maintains the increase of at least about 200 ng/ml for a time period of at least about 15 minutes;

wherein the dose of levodopa comprises 90% dry weight, 8% dry weight dipalmitoylphophatidylcholine (DPPC) and 2% sodium chloride and wherein the dose comprises about 20 mg or more fine particle dose (FPD) of levodopa, and

wherein the AUC of levodopa in the patient's plasma at about 10 minutes after administration of a dose of levodopa by inhalation, is increased by at least about 1000 ng-min/ml for every 4 mg of levodopa administered as compared to the patient's plasma levodopa concentration prior to administration of levodopa by inhalation.

3. The use of claim 1 or claim 2, wherein the AUC of said levodopa in the plasma at about 10 minutes after administration of a dose of levodopa by inhalation is increased by at least about 1000-1500 ng-min/ml for every 4 mg of levodopa administered as compared to the patient's plasma levodopa concentration prior to administration of levodopa by inhalation.

4. The use according to any one of claims 1-3, wherein the dose comprises about 20 mg to about 50 mg fine particle dose (FPD) of levodopa.

5. The use according to any one of claims 1-4, wherein the Parkinson’s disease patient is to be administered a dopa decarboxylase inhibitor before, simultaneously with or after, administration of levodopa by inhalation.

6. The use according to any one of claims 1-5, wherein the patient’s plasma levodopa concentration maintains the increase of at least 200 ng/ml for a time period of at least about 20 minutes after administration.

7. The use according to any one of claims 1-5, wherein the patient’s plasma levodopa concentration maintains the increase of at least about 200 ng/ml for a time period of at least about 30 minutes after administration of at least one inhalation dose of levodopa.

8. The use according to any one of claims 1-5, wherein the patient's plasma levodopa concentration maintains the increase of at least about 200 ng/ml for a time period of at least about 60 minutes after administration of at least one inhalation dose of levodopa.

9. The use according to any one of claims 1-8, wherein the patient's plasma levodopa concentration does not increase more than about 1000 ng/ml within 10 minutes.

10. The use according to claim 2, wherein the medicament comprises at least about 20 mg of levodopa.

11. Use of levodopa in the manufacture of a medicament for the treatment of motor fluctuations in a Parkinson's disease patient,

wherein about 20 mg to about 75 mg fine particle dose (FPD) levodopa is to be administered by inhalation to the patient,

wherein the patient receives immediate relief of motor fluctuations within 10 minutes of inhalation;

wherein the patient maintains the relief for a period of at least 30 minutes,

wherein the levodopa comprises 90% dry weight levodopa, 8% dry weight dipalmitoylphosphatidylcholine (DPPC) and 2% sodium chloride, and

wherein the $Cmax^{Pul}/AUC^{Pul}$ divided by $Cmax^{Oral}/AUC^{Oral}$ is greater than 1 on a comparative dose of levodopa, or wherein the ratio of T1/2 / Tmax is less than 1/2.

12. The use according to claim 11, wherein an oral dose of levodopa is to be administered to the patient.

13. The use according to claim 11, wherein the relief of motor fluctuations is maintained for a period of at least 4 hours.

14. The use according to any one of claims 1-13, wherein the Parkinson's disease patient is a stage 2, 3 or 4 Parkinson's disease patient.

15. The use according to any one of claims 1-14, wherein the levodopa is not affected by a central nervous system food effect.

16. The use according to any one of claims 1-15, wherein the patient has at least a 100% improvement in UPDRS score within 20 minutes of administration of at least one inhalation dose of levodopa.

17. Use of levodopa in the manufacture of a medicament for providing rapid relief of motor fluctuations in a Parkinson's disease patient population,

wherein at least one dose of levodopa is to be administered by inhalation to a first Parkinson's disease patient who takes a first average daily dose of oral levodopa;

at least one dose of levodopa is to be administered by inhalation to a second Parkinson's disease patient who takes a second average daily dose of oral levodopa;

wherein both patients have a reduction in motor symptoms within 20 minutes of administration of said levodopa by inhalation upon administration of the same dose of pulmonary levodopa.

18. The use of claim 17, wherein said first average daily dose of oral levodopa is higher than the second average daily dose of oral levodopa.

19. The use of claim 17, wherein said first average daily dose of oral levodopa is higher than the second average daily dose of oral levodopa and both average daily doses range from 200mg to 2500mg of levodopa.

20. The use of any one of claims 17-19, wherein said first average daily dose of levodopa is between 400-700mg.

21. The use of any one of claims 17-20, wherein said second average daily dose of levodopa is between 700-2000mg.

22. The use of any one of claims 17-21, wherein said first average daily dose of levodopa is between 500-700mg.

23. The use of any one of claims 17-22, wherein said second average daily dose of levodopa is between 1000-2000mg.

24. The use of any one of claims 17-23, wherein said pulmonary levodopa is to be administered to more than two patients wherein said patients take multiple different average daily oral doses of levodopa ranging from 200mg to 3000 per day.

25. The use of any one of claims 17-24, wherein within about 10 minutes of administration of levodopa by inhalation, the patient's plasma levodopa concentration increases by at least about 200 ng/ml as compared to the patient's plasma levodopa concentration prior to administration; and wherein said patient's plasma levodopa concentration maintains said increase of at least about 200 ng/ml for a time period of at least about 15 minutes after administration.

26. The use of any one of claims 17-25, wherein said pulmonary levodopa dose comprises about 10 mg to about 75 mg of levodopa.

27. The use of any one of claims 17-26, wherein said pulmonary levodopa dose contains a salt.

28. The use of any one of claims 17-27, wherein said pulmonary levodopa dose contains a phospholipid.

29. The use of claim 25, wherein the AUC of levodopa in the patient's plasma at about 10 minutes after administration of a dose of levodopa by inhalation, is increased by at least about 1000 ng-min/ml for every 4 mg of levodopa administered as compared to the patient's plasma levodopa concentration prior to administration of levodopa by inhalation.

30. The use of claim 25, wherein the AUC of said levodopa in the plasma at about 10 minutes after administration of a dose of levodopa by inhalation is increased by at least about 1000-1500 ng-min/ml for every 4 mg of levodopa administered as compared to the patient's plasma levodopa concentration prior to administration of levodopa by inhalation.

31. The use of claim 26, wherein said pulmonary levodopa dose comprises about 12 mg to about 35 mg of levodopa.

32. The use of any one of claims 17-31, wherein a dopa decarboxylase inhibitor is to be co-administered to the patient.

33. The use of claim 25, wherein the patient's plasma levodopa concentration maintains said increase of at least about 200 ng/ml for a time period of at least about 20 minutes after administration.

34. The use of claim 33, wherein the patient's plasma levodopa concentration maintains said increase of at least about 200 ng/ml for a time period of at least about 30 minutes after administration.

35. The use of claim 34, wherein the patient's plasma levodopa concentration maintains said increase of at least about 200 ng/ml for a time period of at least about 60 minutes after administration.

36. The use of any one of claims 17-35, wherein the dose of levodopa comprises at least about 10 mg of levodopa.

37. The use of any one of claims 17-36, wherein said patient's plasma levodopa concentration does not increase more than about 1000 ng/ml within 10 minutes.