

We Claim:

1. A method of treating Parkinson's disease (PD) in a subject in need thereof, the method comprising:
 - (a) identifying a subject having less than 10 hours of on-time per day; and
 - (b) administering to the subject a composition comprising a therapeutically effective amount of one or more vectors to the subthalamic nucleus of the patient, wherein each vector comprises a nucleic acid sequence encoding glutamic acid decarboxylase (GAD) and wherein the subject's on-time is increased.
2. The method of claim 1, where the subjects has less than 8 hours of on-time per day before treatment.
3. The method of any one of claims 1-2, wherein the subject scores 30 or more on part III of the UPDRS in the off medication state.
4. The method of any one of claims 1-3, wherein the one or more vectors are introduced bilaterally to the subthalamic nucleus of the patient.
5. The method of any one of claims 1-4, wherein the one or more vectors comprises a nucleic acid sequence encoding GAD-65 and a nucleic acid sequence encoding GAD-67.
6. The method of claim 5, wherein the composition comprises about a 1:1 ratio of vectors encoding GAD-65 and vectors encoding GAD-67.
7. The method of any one of claims 1-6, where the one or more vectors are viral vectors.
8. The method of claim 7, wherein the viral vectors are adeno-associated virus (AAV) vectors.
9. The method of claims 7 or 8, wherein the composition comprises at least 1×10^{11} vector genomes/ml.
10. The method of claims 7 or 8, where the composition comprises at least 3×10^{11} vector genome/ml.
11. The method of claims 7 or 8, where the composition comprises at least 1×10^{12} vector genome/ml.
12. The method of any one of claims 1-11, wherein the subject shows an increase of at least 40% in on-time 12 months post treatment.
13. The method of any one of claims 1-15, where the subject shows at least 30% increase in on-time after 12 months of post treatment.

14. The method of any one of claims 1-15, where the subject shows at least 20% increase in on-time after 12 months of post treatment.