CLAIMS

1. A method of treating or preventing a neurodegenerative disorder comprising administering a composition comprising a bacterial strain of the genus *Megasphaera*, wherein the bacterial strain has a 16s rRNA sequence that is at least 95% identical to SEQ ID NO:2 to a patient in need thereof.

2. Use of a composition comprising a bacterial strain of the genus *Megasphaera*, wherein the bacterial strain has a 16s rRNA sequence that is at least 95% identical to SEQ ID NO:2, in the manufacture of a medicament for treating or preventing a neurodegenerative disorder in a patient.

3. The method claim 1, wherein the method is a method of treating or preventing a disease or condition selected from the group consisting of Parkinson's disease, including progressive supranuclear palsy, progressive supranuclear palsy, Steele-Richardson-Olszewski syndrome, normal pressure hydrocephalus, vascular or arteriosclerotic parkinsonism and drug-induced parkinsonism; Alzheimer's disease, including Benson's syndrome; multiple sclerosis; Huntington's disease; amyotrophic lateral sclerosis; Lou Gehrig's disease; motor neurone disease; prion disease; spinocerebellar ataxia; spinal muscular atrophy; dementia, including Lewy body, vascular and frontotemporal dementia; primary progressive aphasia; mild cognitive impairment; HIV-related cognitive impairment and corticobasal degeneration; or

the use of claim 2, wherein the medicament is for treating or preventing a disease or condition selected from the group consisting of Parkinson's disease, including progressive supranuclear palsy, progressive supranuclear palsy, Steele-Richardson-Olszewski syndrome, normal pressure hydrocephalus, vascular or arteriosclerotic parkinsonism and drug-induced parkinsonism; Alzheimer's disease, including Benson's syndrome; multiple sclerosis; Huntington's disease; amyotrophic lateral sclerosis; Lou Gehrig's disease; motor neurone disease; prion disease; spinocerebellar ataxia; spinal muscular atrophy; dementia, including Lewy body, vascular and frontotemporal dementia; primary progressive aphasia; mild cognitive impairment; HIV-related cognitive impairment and corticobasal degeneration.

4. The method of claim 1, wherein the method is a method of treating or preventing Parkinson's disease; or the use of claim 2, wherein the medicament is for treating or preventing Parkinson's disease.

5. The method of any one of claims 1, 3 or 4, wherein the method is a method of treating or preventing early-onset neurodegenerative disease; or the use of any one of claims 2-4, wherein the medicament is for treating or preventing early-onset neurodegenerative disease.

6. The method of any one of claims 1 or 3-5, wherein the method is a method of preventing or delaying onset or progression of a neurodegenerative disorder; or the use of any one of claims 2-6, wherein the medicament is for preventing or delaying onset or progression of a neurodegenerative disorder.

7. A method of treating brain injury comprising administering a composition comprising a bacterial strain of the genus *Megasphaera,* wherein the bacterial strain has a 16s rRNA sequence that is at least 95%, identical to SEQ ID NO:2, to a patient in need thereof.

8. Use of a composition comprising a bacterial strain of the genus *Megasphaera*, wherein the bacterial strain has a 16s rRNA sequence that is at least 95%, identical to SEQ ID NO:2, in the manufacture of a medicament for treating a brain injury in a patient.

9. The method of claim 10 or the use of claim 8, wherein the brain injury is stroke, such as cerebral ischemia, focal cerebral ischemia, ischemic stroke or hemorrhagic stroke.

10. The method of any one of claims 1, 3-7 or 9 or the use of any one of claims 2-6 or 8-9, wherein the bacterial strain is of *Megasphaera massiliensis*.

11. The method of any one of claims 1, 3-7 or 9-10 or the use of any one of claims 2-6 or 8-10, wherein the bacterial strain has a 16s rRNA sequence that is at least 95%, 96%, 97%, 98%, 99%, 99.5% or 99.9% identical to SEQ ID NO:2, or wherein the bacterial strain has the 16s rRNA sequence represented by SEQ ID NO:2.

12. The method of any one of claims 1, 3 or 4, wherein the composition comprises a bacterial strain of the species *Megasphaera massiliensis*; or the use of any one of claims 2-4, wherein the medicament comprises a bacterial strain of the species *Megasphaera massiliensis*.

13. The method of claim 7 or the use of claim 8, wherein the brain injury is brain injury resulting from a stroke.

14. The method of any one of claims 1, 3-7 or 9-13, wherein the composition is administered orally; or the use of any one of claims 2-6 or 8-13, wherein the medicament is formulated for oral administration.

15. The method of any one of claims 1, 3-7 or 9-14 or the use of any one of claims 2-6 or 8-14, wherein the composition comprises one or more pharmaceutically acceptable excipients or carriers.

16. The method of any one of claims 1, 3-7 or 9-15 or the use of any one of claims 2-6 or 8-15, wherein the bacterial strain is lyophilised.

17. A food product comprising a bacterial strain of the genus *Megasphaera*, wherein the bacterial strain has a 16s rRNA sequence that is at least 95% identical to SEQ ID NO:2, when used in a method of any one of claims 1, 3-7 or 9-16.

18. Use of a food product comprising a bacterial strain of the genus *Megasphaera*, wherein the bacterial strain has a 16s rRNA sequence that is at least 95% identical to SEQ ID NO:2, in the manufacture of a medicament for treating or preventing a neurodegenerative disorder.

19. The use of claim 18, modified by the features of any one of claims 2-6 or 8-16.

20. A cell of the *Megasphaera massiliensis* strain deposited under accession number NCIMB 42787.

21. A composition comprising the cell of claim 20.

22. The composition of claim 21, comprising a pharmaceutically acceptable carrier or excipient.

23. A biologically pure culture of the *Megasphaera massiliensis* strain deposited under accession number NCIMB 42787.

24. A cell of the *Megasphaera massiliensis* strain deposited under accession number NCIMB 42787, when used in therapy.

25. Use of a cell of the *Megasphaera massiliensis* strain deposited under accession number NCIMB 42787, in the manufacture of a medicament.

26. The method of any one of claims 1, 3-7, 9 or 10 or the use of any one of claims 2-6 or 8-10, wherein the bacterial strain is a cell of the *Megasphaera massiliensis* strain deposited under accession number NCIMB 42787.