CLAIMS

1. Medium chain triglycerides (MCT) for use in the treatment of a disease or disorder in a subject in need thereof, wherein 20 g of MCT is to be administered in a pharmaceutical composition, wherein the MCT comprises at least 95% caprylic triglyceride, and wherein the MCT composition provides a maximum serum concentration (Cmax) of total ketones within at least 3 hours after administration, when administered 30 minutes after a standard meal and in the substantial absence of proteins, wherein the Cmax of total ketones is at least 400 µmol/L, at least 450 µmol/L, or at least 500 µmol/L.

2. Use of medium chain triglycerides (MCT) in the manufacture of a medicament for the treatment of a disease or disorder in a subject in need thereof, wherein 20 g of MCT is to be administered in a pharmaceutical composition, wherein the MCT comprises at least 95% caprylic triglyceride, and wherein the MCT composition provides a maximum serum concentration (Cmax) of total ketones within at least 3 hours after administration, when administered 30 minutes after a standard meal and in the substantial absence of proteins, wherein the Cmax of total ketones is at least 400 µmol/L, at least 450 µmol/L, or at least 500 µmol/L.

3. The MCT for use of claim 1, or the use of claim 2, wherein the MCT composition provides a maximum serum concentration (Cmax) of total ketones within at least 2.5 hours after administration, at least 2 hours after administration, at least 1.5 hours after administration, or at least 1 hour after administration.

4. Medium chain triglycerides (MCT) for use in the treatment of a disease or disorder in a subject in need thereof, wherein 20 g of MCT is to be administered in a pharmaceutical composition, wherein the MCT comprises at least 95% caprylic triglyceride, and wherein the MCT composition provides a maximum serum concentration (Cmax) of b-hydroxybutyrate (BHB) within at least 3 hours after administration, when administered 30 minutes after a standard meal and in the substantial absence of proteins, wherein the Cmax of BHB is at least 400 µmol/L, at least 450 µmol/L, or at least 500 µmol/L.

5. Use of medium chain triglycerides (MCT) in the manufacture of a medicament for the treatment of a disease or disorder in a subject in need thereof, wherein 20 g of MCT is to be administered in a pharmaceutical composition, wherein the MCT comprises at least 95% caprylic triglyceride, and wherein the MCT composition provides a maximum serum

concentration (Cmax) of b-hydroxybutyrate (BHB) within at least 3 hours after administration, when administered 30 minutes after a standard meal and in the substantial absence of proteins, wherein the Cmax of BHB is at least 400 µmol/L, at least 450 µmol/L, or at least 500 µmol/L.

6. The MCT for use of claim 4, or the use of claim 5, wherein the MCT composition provides a maximum serum concentration (Cmax) of BHB within at least 2.5 hours after administration, at least 2 hours after administration, at least 1.5 hours after administration, or at least 1 hour after administration.

7. Medium chain triglycerides (MCT) for use in the treatment of a disease or disorder in a subject in need thereof, wherein 20 g of MCT is to be administered in a pharmaceutical composition, wherein the MCT comprises at least 95% caprylic triglyceride, and wherein the MCT composition provides a maximum serum concentration (Cmax) of acetoacetate (AcAc) within at least 2.5 hours after administration, when administered 30 minutes after a standard meal and in the substantial absence of proteins, wherein the Cmax of AcAc is at least 50 umol/L, at least 60 umol/L, at least 70 umol/L, at least 80 umol/L, at least 90 umol/L, or at least 100 umol/L.

8. Use of medium chain triglycerides (MCT) in the manufacture of a medicament for the treatment of a disease or disorder in a subject in need thereof, wherein 20 g of MCT is to be administered in a pharmaceutical composition, wherein the MCT comprises at least 95% caprylic triglyceride, and wherein the MCT composition provides a maximum serum concentration (Cmax) of acetoacetate (AcAc) within at least 2.5 hours after administration, when administered 30 minutes after a standard meal and in the substantial absence of proteins, wherein the Cmax of AcAc is at least 50 umol/L, at least 60 umol/L, at least 70 umol/L, at least 80 umol/L, at least 90 umol/L, or at least 100 umol/L.

9. The MCT for use of claim 7, or the use of claim 8, wherein the MCT composition provides a maximum serum concentration (Cmax) of AcAc within at least 2 hours after administration, at least 1.5 hours after administration, or at least 1 hour after administration.

10. The MCT for use of any one of claims 1, 3, 4, 6, 7, and 9, or the use of any one of claims 2, 5, 8, and 9, wherein the MCT pharmaceutical composition is stable at a pH of about 1 to about 3.

11. Medium chain triglycerides (MCT) for use in the treatment of a disease or disorder in a subject in need thereof, wherein 20 g of MCT is to be administered in a pharmaceutical composition, wherein the MCT comprises at least 95% caprylic triglyceride, and wherein the MCT composition provides a maximum serum concentration (Cmax) of total ketones after at least 2.5 hours after administration, when administered 30 minutes after a standard meal and in the presence of proteins, wherein the therapeutically effective amount of MCT is 20 g and wherein the Cmax of total ketones is at least 200 µmol/L, at least 250 µmol/L, at least 300 µmol/L, or at least 350 µmol/L.

12. Use of medium chain triglycerides (MCT) in the manufacture of a medicament for the treatment of a disease or disorder in a subject in need thereof, wherein 20 g of MCT is to be administered in a pharmaceutical composition, wherein the MCT comprises at least 95% caprylic triglyceride, and wherein the MCT composition provides a maximum serum concentration (Cmax) of total ketones after at least 2.5 hours after administration, when administered 30 minutes after a standard meal and in the presence of proteins, wherein the therapeutically effective amount of MCT is 20 g and wherein the Cmax of total ketones is at least 200 µmol/L, at least 250 µmol/L, at least 300 µmol/L, or at least 350 µmol/L.

13. The MCT for use of claim 11, or the use of claim 12, wherein the MCT composition provides a maximum serum concentration (Cmax) of total ketones after at least 3.0 hours after administration, after at least 3.5 hours after administration, after at least 4.0 hours after administration, or after at least 5 hours after administration.

14. Medium chain triglycerides (MCT) for use in the treatment of a disease or disorder in a subject in need thereof, wherein 20 g of MCT is to be administered in a pharmaceutical composition, wherein the MCT comprises at least 95% caprylic triglyceride, and wherein the MCT composition provides a maximum serum concentration (Cmax) of b-hydroxybutyrate (BHB) after at least 2.5 hours after administration, when administered 30 minutes after a standard meal and in the presence of proteins, wherein the Cmax of BHB is at least 200 µmol/L, at least 250 µmol/L, at least 300 µmol/L, or at least 350 µmol/L.

15. Use of medium chain triglycerides (MCT) in the manufacture of a medicament for the treatment of a disease or disorder in a subject in need thereof, wherein 20 g of MCT is to be administered in a pharmaceutical composition, wherein the MCT comprises at least 95% caprylic triglyceride, and wherein the MCT composition provides a maximum serum concentration (Cmax) of b-hydroxybutyrate (BHB) after at least 2.5 hours after

administration, when administered 30 minutes after a standard meal and in the presence of proteins, wherein the Cmax of BHB is at least 200 μmol/L, at least 250 μmol/L, at least 300 μmol/L, or at least 350 μmol/L.

16. The MCT for use of claim 14, or the use of claim 15, wherein the MCT composition provides a maximum serum concentration (Cmax) of BHB after at least 3.0 hours after administration, after at least 3.5 hours after administration, after at least 4.0 hours after administration, or after at least 5 hours after administration.

17. Medium chain triglycerides (MCT) for use in treating a subject in need thereof, wherein 20 g of MCT is to be administered in a pharmaceutical composition, wherein the MCT comprises at least 95% caprylic triglyceride, wherein the MCT composition provides a maximum serum concentration (Cmax) of acetoacetate (AcAc) after at least 2.5 hours after administration, when administered 30 minutes after a standard meal and in the presence of proteins, and wherein the Cmax of AcAc is at least 20 umol/L, at least 25 umol/L, at least 30 umol/L, at least 35 umol/L, or at least 40 umol/L.

18. The MCT for use of claim 17, wherein the MCT composition provides a maximum serum concentration (Cmax) of AcAc after at least 3.0 hours after administration, after at least 3.5 hours after administration, after at least 4.0 hours after administration, or after at least 5 hours after administration.

19. The MCT for use of any one of claims 11, 14, and 16-18, or the use of any one of claims 12, 13, 15, and 16, wherein the MCT pharmaceutical composition is stable at a pH of about 5 to about 7.

20. Medium chain triglycerides MCT for use in treating a subject in need thereof, wherein a therapeutically effective amount of MCT is to be administered in two portions,

wherein the first portion comprises a first therapeutically effective amount of medium chain triglycerides MCT that is substantially released within 3 hours upon administration to the subject, and

wherein the second portion comprises a second therapeutically effective amount of medium chain triglycerides MCT and protein, wherein the second amount of MCT are substantially released from the second portion over 3 or more hours after administration of the second portion to the subject,

wherein the first portion of MCT is administered in the substantial absence of proteins, and

wherein the MCT comprise at least 95% caprylic triglyceride.

21. The MCT for use of claim 20, wherein the first portion of MCT is substantially released within 2.5 hours, within 2 hours, within 1.5 hours, or within 1 hour upon administration to the subject.

22. The MCT for use of any one of claims 20 or 21, wherein the second portion of MCT is substantially released over 3.5 or more hours, 4 or more hours, 4.5 or more hours, or 5 or more hours upon administration to the subject.

23. The MCT for use of any one of claims 1, 3, 4, 6, 7, 9, 11, 13, 14, 17, 18, 19, 20, and 21 or the use of any one of claims 2, 5, 8, 10, 12, 15, and 19, wherein the disease or disorder is a disease or disorder associated with reduced cognitive function.

24. The MCT for use or the use of claim 23, wherein the disease or disorder associated with reduced cognitive function is selected from Alzheimer's Disease and Age-Associated memory impairment.

25. The MCT for use of any one of claims1, 3, 4, 6, 7, 9, 11, 13, 14, 17, 18, 19, 20, and 21-24, or the use of any one of claims 2, 5, 8, 10, 12, 15, 19, and 23-24, wherein the subject lacks the ApoE4 genotype.

26. The MCT for use of any one of claims 1, 3, 4, 6, 7, 9, 11, 13, 14, 17, 18, 19, 20, and 21-25, or the use of any one of claims 2, 5, 8, 10, 12, 15, 19, and 23-25, wherein the amount of total ketones, BHB, and/or AcAc is determined using enzymatic methods.

27. A pharmaceutical composition comprising a first component and a second component,

wherein the first component comprises a therapeutically effective amount of a first portion of medium chain triglycerides MCT that is substantially released within 3 hours upon administration of the pharmaceutical composition to a subject in need thereof, and

wherein the second component comprises a therapeutically effective amount of a second portion of medium chain triglycerides MCT and protein, wherein the second portion

of MCT are substantially released from the second component over 3 or more hours after administration of the pharmaceutical composition to the subject, and

wherein the MCT comprise at least 95% caprylic triglyceride.

28. The pharmaceutical composition of clam 27, wherein the first portion of MCT is substantially released within 2.5 hours, within 2 hours, within 1.5 hours, or within 0.5 hours of administration of the pharmaceutical composition.

29. A pharmaceutical composition, comprising:

20 g medium chain triglycerides MCT and at least one pharmaceutically acceptable excipient,

wherein the MCT comprises at least 95% caprylic triglyceride,

wherein the composition is substantially free of proteins, and

wherein the composition provides a maximum serum concentration (Cmax) of at least one ketone body within at least 3 hours after administration, when administered 30 minutes after a standard meal and in the substantial absence of proteins to a subject in need thereof.

30. The composition of claim 29, wherein the MCT composition provides a maximum serum concentration (Cmax) of at least one ketone body within at least 2.5 hours after administration, at least 2 hours after administration, at least 1.5 hours after administration, or at least 1 hour after administration.

31. The composition of claim 29 or 30, wherein the at least one ketone body is b-hydroxybutyrate (BHB), acetoacetate (AcAc), or combinations thereof.

32. The MCT for use of any one of claims 1, 3, 4, 6, 7, 9, 11, 13, 14, 17, 18, 19, 20, and 21-26, the use of any one of claims 2, 5, 8, 10, 12, 15, 19, and 23-26, or the composition of any one of claims 27-31, wherein the MCT pharmaceutical composition is an emulsion.

33. The MCT for use, the use of or the composition of claim 32, wherein the emulsion does not phase separate for at least 10 minutes, at least 20 minutes, at least 30 minutes, at least 45 minutes, at least 1 hour, at least 2 hours, at least 4 hours, at least 5 hours, or at least 24 hours.

34. The MCT for use, the use of or the composition of any one of claims 32 or 33, wherein the emulsion has a mean droplet diameter of between about 100 nm and about 1000 nm, about 100 nm and about 500 nm, or about 200 nm and about 300 nm.

35. The MCT for use of any one of claims 1, 3, 4, 6, 7, 9, 11, 13, 14, 17, 18, 19, 20, 21-26, and 32-34, the use of any one of claims 2, 5, 8, 10, 12, 13, 15-16, 19, 23-26, and 32-34, or composition of any one of claims 27-34, wherein the MCT pharmaceutical composition comprises at least 98% caprylic triglyceride.

36. The MCT for use of any one of claims 1, 3, 4, 6, 7, 9, 11, 13, 14, 17, 18, 19, 20, 21-26, 32-34, and 35, the use of any one of claims 2, 5, 8, 10, 12, 13, 15-16, 19, 23-26, 32-34, and 35, or composition of any one of claims 27-34 and 35, wherein the subject in need thereof is a human.