CLAIMS

WHAT IS CLAIMED IS:

1. A compound comprising an oligonucleotide comprising linked nucleosides with a nucleobase sequence comprising a portion of at least 10 contiguous nucleobases that shares at least 90% identity with an equal length portion of any one of SEQ ID NOs: 1-446, SEQ ID NOs: 894-918, SEQ ID NOs: 945-1390, or SEQ ID NOs: 1392-1416, wherein at least one nucleoside linkage of the linked nucleosides is a non-natural linkage; or

an oligonucleotide comprising linked nucleosides with a nucleobase sequence comprising a portion of at least 10 contiguous nucleobases that shares at least 90% identity with an equal length portion of any one of SEQ ID NOs: 1-446, SEQ ID NOs: 894-918, SEQ ID NOs: 945-1390, or SEQ ID NOs: 1392-1416, wherein at least one nucleoside linkage of the linked nucleosides is a non-natural linkage;

wherein the oligonucleotide is 19, 20, 21, 22, 23, 24 or 25 nucleotides in length;

wherein the oligonucleotide exhibits at least a 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, 200%, 300%, or 400% increase of full length STMN2 protein, wherein the increase of the full length STMN2 protein is measured in comparison to a reduced level of full length STMN2 protein achieved using a TDP43 antisense oligonucleotide; and/or

wherein the oligonucleotide exhibits at least a 50%, 60%, 70%, 80%, or 90% reduction of the STMN2 transcript with the cryptic exon.

2. The oligonucleotide of claim 1, wherein the nucleobase sequence comprises a portion of at least 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, or 25 contiguous nucleobases that shares at least 90% identity with an equal length portion of any one of SEQ ID NOs: 1-446, SEQ ID NOs: 894-918, SEQ ID NOs: 945-1390, or SEQ ID NOs: 1392-1416.

3. The oligonucleotide of any one of claims 1-2, wherein the nucleobase sequence comprises a portion of at least 10 contiguous nucleobases that shares at least 90% identity with an equal length portion of any one of SEQ ID NOs: 31, 36, 41, 46, 55, 144, 146, 150, 169, 170, 171, 172, 173, 177, 181, 185, 197, 203, 209, 215, 237, 244, 249, 252, 380, 385, 390, 395, 400, 975, 980, 985, 999, 1088, 1090, 1094, 1113, 1114, 1115, 1116, 1117, 1121, 1125, 1129, 1141, 1147, 1153, 1159, 1181, 1188, 1193, 1196, 1324, 1329, 1334, 1339, or 1344,.

4. The oligonucleotide of any one of claims 1-3, wherein the nucleobase sequence comprises a portion of at least 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, or 25 contiguous nucleobases that shares at least 90% identity with an equal length portion of any one of SEQ ID NOs: 31, 36, 41, 46, 55, 144, 146, 150, 169, 170, 171, 172, 173, 177, 181, 185, 197, 203, 209, 215, 237, 244, 249, 252, 380, 385, 390, 395, 400, 975, 980, 985, 999, 1088, 1090, 1094, 1113, 1114, 1115, 1116, 1117, 1121, 1125, 1129, 1141, 1147, 1153, 1159, 1181, 1188, 1193, 1196, 1324, 1329, 1334, 1339, or 1344.

5. A compound comprising an oligonucleotide comprising linked nucleosides with a nucleobase sequence comprising at least 10 contiguous nucleobases that share at least 90% identity to an equal length portion of any one of SEQ ID NOs: 894-918 or SEQ ID NOs: 1392-1416, or

an oligonucleotide comprising linked nucleosides with at least 10 contiguous nucleobases that share at least 90% identity to an equal length portion of any one of SEQ ID NOs: 894-918 or SEQ ID NOs: 1392-1416,

wherein the oligonucleotide is 19, 20, 21, 22, 23, 24 or 25 nucleotides in length;

wherein the oligonucleotide exhibits at least a 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, 200%, 300%, or 400% increase of full length STMN2 protein, wherein the increase of the full length STMN2 protein is measured in comparison to a reduced level of full length STMN2 protein achieved using a TDP43 antisense oligonucleotide; and/or

wherein the oligonucleotide exhibits at least a 50%, 60%, 70%, 80%, or 90% reduction of the STMN2 transcript with the cryptic exon.

6. The oligonucleotide of claim 5, wherein the nucleobase sequence comprises a portion of at least 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, or 25 contiguous nucleobases that shares at least 90% identity to of any one of SEQ ID NOs: 894-918 or SEQ ID NOs: 1392-1416.

7. A compound comprising an oligonucleotide comprising linked nucleosides with a nucleobase sequence comprises a portion of at least 10 contiguous nucleobases that is at least 90% complementary to an equal length portion of nucleobases within any one of positions 144-168 173-197, 185-209, or 237-261 of SEQ ID NO: 944, or

an oligonucleotide comprising linked nucleosides with a nucleobase sequence comprising a portion of at least 10 contiguous nucleobases that is at least 90% complementary to an equal length portion of nucleobases within any one of positions 144-168, 173-197, 185-209, or 237-261 of SEQ ID NO: 944.

8. The oligonucleotide of claim 7, wherein the portion of the nucleobase sequence is 100% complementary to an equal length portion of nucleobases within any one of positions 144-168, 173-197, 185-209, or 237-261 of SEQ ID NO: 944.

9. The oligonucleotide of claim 8, wherein the portion of the nucleobase sequence is 100% complementary to an equal length portion of nucleobases within any one of positions 144-164, 144-166, 145-167, 146-166, 146-168, 147-165, or 148-168 of SEQ ID NO: 944.10. The oligonucleotide of claim 8, wherein the portion of the nucleobase sequence is 100% complementary to an equal length portion of nucleobases within any one of positions 173-191, 173-193, 173-195, 173-197, 175-195, 175-197, 177-197, or 179-197 of SEQ ID NO: 944.

11. The oligonucleotide of claim 8, wherein the portion of the nucleobase sequence is 100% complementary to an equal length portion of nucleobases within any one of positions 185-205, 187-209, 189-209, 185-207, or 191-209 of SEQ ID NO: 944.

12. The oligonucleotide of claim 8, wherein the portion of the nucleobase sequence is 100% complementary to an equal length portion of nucleobases within any one of positions 237-255, 237-257, 237-259, 239-259, 239-261, 241-261, 237-257, or 243-261 of SEQ ID NO: 944.

13. The oligonucleotide of claim 8, wherein the nucleobase sequence comprises a portion of at least 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, or 25 contiguous nucleobases that is complementary to an equal length portion of nucleobases within any one of positions 144-168, 173-197, 185-209, or 237-261 of SEQ ID NO: 944.

14. The oligonucleotide of claim 8, wherein the nucleobase sequence comprises a portion of at least 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, or 25 contiguous nucleobases that is complementary to an equal length portion of nucleobases within any one of positions 144-164, 144-166, 145-167, 146-166, 146-168, 147-165, 148-168, 173-191, 173-193, 173-195, 173-197, 175-195, 175-197, 177-197, 179-197, 185-205, 185-207, 187-209, 189-209, 191-209, 237-255, 237-259, 239-259, 239-261, 241-261, or 243-261 of SEQ ID NO: 944.

15. The oligonucleotide of any one of claims 1-14, wherein the oligonucleotide comprises at least one nucleoside linkage selected from the group consisting of a phosphodiester linkage, a phosphorothioate linkage, an alkyl phosphate linkage, an alkylphosphonate linkage, a 3-methoxypropyl phosphonate linkage, a phosphorodithioate linkage, a phosphotriester linkage, a methylphosphonate linkage, an aminoalkylphosphotriester linkage, an alkylene phosphonate

linkage, a phosphinate linkage, a phosphoramidate linkage, a phosphoramidothiate linkage, a phosphorodiamidate (*e.g.*, comprising a phosphorodiamidate morpholino (PMO), 3' amino ribose, or 5' amino ribose) linkage, an aminoalkylphosphoramidate linkage, a thiophosphoramidate linkage, a thionoalkylphosphonate linkage, a thionoalkylphosphotriester linkage, a thiophosphate linkage, a selenophosphate linkage, and a boranophosphate linkage, or any combination(s) thereof.

16. The oligonucleotide of any one of claims 1-15, wherein at least two, three, or four internucleoside linkages of the oligonucleotide are phosphodiester internucleoside linkages.

17. The oligonucleotide of any one of claims 1-16, wherein the oligonucleotide comprises at least two, three, or four modified internucleoside linkages.

18. The oligonucleotide of claim 17, wherein each of the modified internucleoside linkage of the oligonucleotide is independently selected from a phosphorothioate linkage, a phosphoramidate linkage, a phosphoramidothiate linkage, a phosphorodiamidate.

19. The oligonucleotide of claim 17 or 18, wherein all internucleoside linkages of the oligonucleotide are phosphorothioate linkages.

20. The oligonucleotide of claim 19, wherein the phosphorothioate internucleoside linkage is in one of a *R*p configuration or a *S*p configuration.

21. The oligonucleotide of any one of claims 1-20, wherein the oligonucleotide comprises at least one modified nucleobase.

22. The oligonucleotide of claim 21, wherein the at least one modified nucleobase is 5-methyl cytosine, pseudouridine, or 5-methoxyuridine.

23. The oligonucleotide of any one of claims 1-22, wherein the oligonucleotide comprises at least one modified sugar moiety.

24. The modified oligonucleotide of claim 23, wherein the modified sugar moiety is one of a 2'-OMe modified sugar moiety, bicyclic sugar moiety, 2’-O-(2-methoxyethyl) (2’MOE), 2'-deoxy-2'-fluoro nucleoside, 2’-fluoro-β-D-arabinonucleoside, locked nucleic acid (LNA), constrained ethyl 2’-4’-bridged nucleic acid (cEt), *S*-cEt, hexitol nucleic acids (HNA), and tricyclic analog (*e.g.*, tcDNA).

25. The oligonucleotide of any one of claims 1-15, wherein the oligonucleotide comprises three linked nucleosides that are linked through phosphodiester internucleoside linkages at the 5’ end and three linked nucleosides that are linked through phosphodiester internucleoside linkages at the 3’ end.

26. The oligonucleotide of any one of claims 1-15 and 17-25, wherein the oligonucleotide comprises one or more 2’-*O*-(2-methoxyethyl) (2'-MOE) nucleosides that are linked through phosphorothioate internucleoside linkages, optionally wherein all nucleosides in the oligonucleotide comprise modified sugar moiety comprising 2'-MOE; further optionally wherein all cytosine nucleosides in the oligonucleotide comprise modified nucleobase 5-methyl cytosine; and further optionally wherein all internucleoside linkages are phosphorothioate linkages.

27. The oligonucleotide of any one of claims 1-18 and 20-26, wherein the oligonucleotide comprises three linked nucleosides that are linked through phosphorothioate internucleoside linkages at the 5’ end and three linked nucleosides that are linked through phosphorothioate internucleoside linkages at the 3’ end.

28. The oligonucleotide of claim 27, wherein the oligonucleotide comprises five linked nucleosides that are linked through phosphodiester internucleoside linkages.

29. The oligonucleotide of claim 28, wherein the each of the five linked nucleosides are 2’-*O*-(2-methoxyethyl) (2’-MOE) nucleosides.

30. The oligonucleotide of claim 25 or 29, wherein each of the linked nucleosides of the oligonucleotide are 2’-*O*-(2-methoxyethyl) (2’-MOE) nucleosides.

31. A pharmaceutical composition comprising one or more of the oligonucleotides of any one of claims 1-30, or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable excipient.

32. Use of an oligonucleotide of any one of claims 1-30 or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition of claim 31, in the manufacture of a medicament for treating a neurological disease and/or a neuropathy in a patient in need thereof.

33. The use of claim 32, wherein the neurological disease is selected from the group consisting of amyotrophic lateral sclerosis (ALS), frontotemporal dementia (FTD), Alzheimer’s disease (AD), Parkinson’s disease (PD), Huntington’s disease, brachial plexus injuries, peripheral

nerve injuries, progressive supranuclear palsy (PSP), brain trauma, spinal cord injury, and corticobasal degeneration (CBD).

34. The use of claim 33, wherein the neuropathy is chemotherapy induced neuropathy.

35. Use of an oligonucleotide of any one of claims 1-30 or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition of claim 31, in the manufacture of a medicament for restoring axonal outgrowth and/or regeneration of a motor neuron, wherein the motor neuron is to be exposed to the medicament.

36. Use of an oligonucleotide of any one of claims 1-30 or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition of claim 31, in the manufacture of a medicament for increasing, promoting, stabilizing, or maintaining STMN2 expression and/or function in a neuron, wherein the neuron is to be exposed to the medicament.

37. The use of claim 35 or 36, wherein the neuron is a neuron of a patient in need of treatment of a neurological disease and/or a neuropathy.

38. The use of claim 37, wherein the neurological disease is selected from the group consisting of amyotrophic lateral sclerosis (ALS), frontotemporal dementia (FTD), Alzheimer's disease (AD), Parkinson's disease (PD), Huntington's disease, brachial plexus injuries, peripheral nerve injuries, progressive supranuclear palsy (PSP), brain trauma, spinal cord injury, and corticobasal degeneration (CBD).

39. The use of claim 38, wherein the neuropathy is chemotherapy induced neuropathy.

40. The use of any one of claims 35-39, wherein the exposing is to be performed *in vivo* or *ex vivo*.

41. The use of any one of claims 35-39, wherein the exposing comprises the oligonucleotide which is to be administered to a patient determined to have a transcript comprising a cryptic exon sequence of SEQ ID NO: 447.

42. The use of any one of claims 35-41, wherein the oligonucleotide is to be administered topically, parenterally, intrathecally, intracisternally, orally, rectally, buccally, sublingually, vaginally, pulmonarily, intratracheally, intranasally, intralesionally, transdermally, or intraduodenally.

43. The use of claim 42, wherein the oligonucleotide is to be administered orally.

44. The use of any one of claims 32-43, wherein a therapeutically effective amount of the oligonucleotide is to be administered intrathecally or intracisternally.

45. The use of any one of claims 32-44, wherein the patient is a human.

46. The pharmaceutical composition of claim 31, wherein the pharmaceutical composition is suitable for topical, intrathecal, intracisternal, parenteral (*e.g.*, subcutaneous, intramuscular, intradermal, intraduodenal, or intravenous), intralesional, oral, pulmonary, intratracheal, intranasal, transdermal, rectal, buccal, sublingual, vaginal, or intraduodenal administration.

47. Use of an oligonucleotide of any one of claims 1-30 or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition of claim 31, in the manufacture of a medicament for the treatment of neurological disease or a neuropathy.

48. The use of claim 47, wherein the neurological disease is selected from the group consisting of amyotrophic lateral sclerosis (ALS), frontotemporal dementia (FTD), Alzheimer's disease (AD), Parkinson's disease (PD), Huntington's disease, brachial plexus injuries, peripheral nerve injuries, progressive supranuclear palsy (PSP), brain trauma, spinal cord injury, and corticobasal degeneration (CBD).

49. The use of claim 47, wherein the neuropathy is chemotherapy induced neuropathy.

50. The use of any one of claims 47-49, wherein the oligonucleotide or the pharmaceutical composition is to be administered topically, parenterally (*e.g.*, subcutaneous, intramuscular, intradermal, intraduodenal, or intravenous), intralesionally, orally, pulmonarily, rectally, buccally, sublingually, vaginally, intratracheally, intranasally, intracisternally, intrathecally, transdermally, or intraduodenally.

51. The use of any one of claims 47-49, wherein the oligonucleotide or the pharmaceutical composition is to be administered intrathecally or intracisternally.

52. The use of any one of claims 47-51, wherein a therapeutically effective amount of the oligonucleotide or the pharmaceutical composition is to be administered intrathecally or intracisternally.

53. The use of any one of claims 47-52, wherein the patient is human.

54. An oligonucleotide of any one of claims 1-30, or a pharmaceutically acceptable salt thereof, for use as a medicament in the treatment of a neurological disease or a neuropathy.

55. An oligonucleotide of any one of claims 1-30, or a pharmaceutically acceptable salt thereof, for use in the treatment of a neurological disease or a neuropathy.

56. The oligonucleotide for use of claim 54 or 55, wherein said neurological disease is selected from the group consisting of amyotrophic lateral sclerosis (ALS), frontotemporal dementia (FTD), Alzheimer's disease (AD), Parkinson's disease (PD), Huntington's disease, brachial plexus injuries, peripheral nerve injuries, progressive supranuclear palsy (PSP), brain trauma, spinal cord injury, and corticobasal degeneration (CBD).

57. The oligonucleotide for use of claim 54 or 55, wherein the neuropathy is chemotherapy induced neuropathy.

58. An oligonucleotide comprising linked nucleosides with a nucleobase sequence of any one of SEQ ID NOs: 1-446, SEQ ID NOs: 894-918, SEQ ID NOs: 945-1390, or SEQ ID NOs: 1392-1416, or a pharmaceutically acceptable salt thereof, wherein the oligonucleotide exhibits at least a 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%, 200%, 300%, or 400% increase of full length STMN2 protein, wherein the increase of the full length STMN2 protein is measured in comparison to a reduced level of full length STMN2 protein achieved using a TDP43 antisense oligonucleotide and/or wherein the oligonucleotide exhibits at least a 50%, 60%, 70%, 80%, or 90% reduction of the STMN2 transcript with the cryptic exon;

wherein oligonucleotide comprises at least one nucleoside linkage selected from the group consisting of: a phosphodiester linkage, a phosphorothioate linkage, an alkyl phosphate linkage, an alkylphosphonate linkage, a 3-methoxypropyl phosphonate linkage, a phosphorodithioate linkage, a phosphotriester linkage, a methylphosphonate linkage, an aminoalkylphosphotriester linkage, an alkylene phosphonate linkage, a phosphinate linkage, a phosphoramidate linkage, a phosphoramidothiate linkage, a phosphorodiamidate linkage, an aminoalkylphosphoramidate linkage, a thiophosphoramidate linkage, a thionoalkylphosphonate linkage, a thionoalkylphosphotriester linkage, a thiophosphate linkage, a selenophosphate linkage, and a boranophosphate linkage; and/or

wherein at least one nucleoside of the linked nucleosides is substituted with a component selected from the group consisting of a 2'-*O*-(2-methoxyethyl) nucleoside (2′-*O*-methoxyethylribonucleosides (2′-MOE)), a 2'-O-methyl nucleoside, a 2'-deoxy-2'-fluoro

nucleoside, a 2'-fluoro-β-D-arabinonucleoside, a locked nucleic acid (LNA), constrained methoxyethyl (cMOE), constrained ethyl (cET), and a peptide nucleic acid (PNA).

59. The oligonucleotide of claim 58, wherein at least one internucleoside linkage of the oligonucleotide is a phosphorothioate linkage.

60. The oligonucleotide of claim 58 or 59, wherein the oligonucleotide comprises three linked nucleosides that are linked through phosphodiester internucleoside linkages at the 5' end and three linked nucleosides that are linked through phosphodiester internucleoside linkages at the 3' end.

61. The oligonucleotide of any one of claims 58-60, wherein the oligonucleotide comprises one or more 2'-*O*-(2-methoxyethyl) nucleosides that are linked through phosphorothioate internucleoside linkages.

62. The oligonucleotide of claim 60 or 61, wherein the oligonucleotide comprises five linked nucleosides that are linked through phosphodiester internucleoside linkages.

63. The oligonucleotide of claim 62, wherein each of the five linked nucleosides are 2'-*O*-(2-methoxyethyl) (2'-MOE) nucleosides.

64. The oligonucleotide of any one of claims 58-63, wherein each of the linked nucleosides of the oligonucleotide are 2'-*O*-(2-methoxyethyl) (2'-MOE) nucleosides.

65. The oligonucleotide of claim 64, wherein all internucleoside linkages of the oligonucleotide are phosphorothioate linkages, optionally wherein each of the linked nucleosides of the oligonucleotide are 2'-*O*-(2-methoxyethyl) (2'-MOE) nucleosides, further optionally wherein the oligonucleotide comprises at least one 5-methyl cytosine modified nucleobase.

66. A pharmaceutical composition comprising the oligonucleotide of any one of claims 58-65, or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable excipient.

67. An oligonucleotide of any one of claims 1-30 or a pharmaceutically acceptable salt thereof capable of increasing, restoring, or stabilizing expression of the STMN2 mRNA capable of translation of a functional STMN2 and/or activity and/or function of STMN2 protein in a cell or a human patient suffering from a neurological disease or disorder, wherein the level of increase, restoration, or stabilization of expression and/or activity and/or function is sufficient for use of the oligonucleotide as a medicament for the treatment of neurological disease or disorder.

68. The oligonucleotide of any one of claims 1-30 comprising one or more chiral centers and/or double bonds.

69. The oligonucleotide of claim 68, wherein the oligonucleotide exist as stereoisomers selected from geometric isomers, enantiomers, and diastereomers.

70. The oligonucleotide of any one of claims 1-30 or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition of claim 31, in combination with a second therapeutic agent selected from Riluzole (Rilutek), Edaravone (Radicava), rivastigmine, donepezil, galantamine, selective serotonin reuptake inhibitor, antipsychotic agents, cholinesterase inhibitors, memantine, benzodiazepine antianxiety drugs, AMX0035 (ELYBRIO), ZILUCOPLAN (RA101495), dual AON intrathecal administration (*e.g.*, BIIB067, BIIB078), BIIB100, levodopa/carbidopa, dopaminergic agents (*e.g.*, ropinirole, pramipexole, rotigotine), medroxyprogesterone, KCNQ2/KCNQ3 openers, anticonvulsants and psychostimulant agents, and/or a therapy (*e.g.*, selected from breathing care, physical therapy, occupational therapy, speech therapy, nutritional support), for use in therapy.

71. Use of an oligonucleotide of any one of claims 1-30 or a pharmaceutically acceptable salt thereof, or a pharmaceutical composition of claim 31, in combination with a second therapeutic agent selected from Riluzole (Rilutek), Edaravone (Radicava), rivastigmine, donepezil, galantamine, selective serotonin reuptake inhibitor, antipsychotic agents, cholinesterase inhibitors, memantine, benzodiazepine antianxiety drugs, AMX0035 (ELYBRIO), ZILUCOPLAN (RA101495), dual AON intrathecal administration (*e.g.*, BIIB067, BIIB078), BIIB100, levodopa/carbidopa, dopaminergic agents (*e.g.*, ropinirole, pramipexole, rotigotine), medroxyprogesterone, KCNQ2/KCNQ3 openers, anticonvulsants and psychostimulant agents, and/or a therapy (*e.g.*, selected from breathing care, physical therapy, occupational therapy, speech therapy, nutritional support), in the manufacture of a medicament for treating a neurological disease and/or a neuropathy in a patient in need thereof.

72. The use of claim 71, wherein the neurological disease is selected from the group consisting of amyotrophic lateral sclerosis (ALS), frontotemporal dementia (FTD), Alzheimer's disease (AD), Parkinson's disease (PD), Huntington's disease, brachial plexus injuries, peripheral nerve injuries, progressive supranuclear palsy (PSP), brain trauma, spinal cord injury, and corticobasal degeneration (CBD).

73. The use of claim 72, wherein the neuropathy is chemotherapy induced neuropathy.

74. The use of any one of claims 32-53 and 71-73, wherein patient for treatment is identified by measuring the presence or level of expression of neurofilament light (NEFL), neurofilament heavy (NEFH), phosphorylated neurofilament heavy chain (pNFH), TDP-43, or $p75^{ECD}$ in the plasma, the spinal cord fluid, the cerebrospinal fluid, the extracellular vesicles (for example, CSF exosomes), the blood, the urine, the lymphatic fluid, fecal matter, or a tissue of the patient.

75. The use of claim 74, wherein the patient for treatment is identified by measuring phosphorylated neurofilament heavy chain (pNFH) in cerebrospinal fluid (CSF).

76. The use of claim 75, wherein the pNFH in the CSF of the patient is used to predict disease status and survival in *C9ORF72*-associated amyotrophic lateral sclerosis (c9ALS) patients after initial administration and/or during on-going treatment.