CLAIMS

1.) Use of a composition in the manufacture of a medicament for the therapeutic and/or prophylactic treatment of a disease, disorder, pathological state and/or an injury associated with neuronal myelin dysfunction, wherein the composition is to be administered in a therapeutically effective amount, to a mammal in need thereof, the composition comprising:

a.) pharmaceutical grade water;

b.) at least one processing enhancer; and

c.) gold nanocrystals suspended in said water forming a suspension, wherein said gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

ii.) have a mode particle size of less than 50nm;

iii.) are present in said suspension at a concentration of 2-5,000 ppm; and

d.) said suspension having a pH of between 5 to 9.5 and a zeta potential of at least -30mv.

2.) The use of claim 1, wherein said suspension has a zeta potential of at least -40 mV.

3.) The use of claim 1, wherein said gold nanocrystals are present in a concentration amount of 2-2000ppm.

4.) Use of a composition in the manufacture of a medicament for the therapeutic and/or prophylactic treatment of a disease, disorder, pathological state and/or an injury associated with demyelination of neurons resulting from degeneration of supporting oligodendrocytes, wherein the composition comprises a nanosuspension wherein the nanosuspension is to be administered in a therapeutically effective amount to a mammal in need thereof, the nanosuspension comprising:

a.) pharmaceutical grade water;

b.) at least one processing enhancer; and

c.) gold nanocrystals suspended in said water forming said nanosuspension, wherein said gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

ii.) have a mode particle size of less than 50nm;

iii.) are present in said nanosuspension at a concentration of 2-3,000 ppm;

d.) said nanosuspension having a pH of between 5 to 9.5 and a zeta potential of at least -20mv.

5.) The use of claim 4, wherein said neurons comprise central nervous system neurons.

6.) Use of a composition in the manufacture of a medicament for the therapeutic and/or prophylactic treatment of a disease, disorder, pathological state and/or an injury associated with myelin dysfunction of central nervous system neurons in a mammal, wherein the composition is to be administered to the mammal in need thereof a treatment, the composition comprising:

a.) pharmaceutical grade water;

b.) at least one processing enhancer; and

c.) gold nanocrystals suspended in said water forming a suspension, wherein said gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

ii.) have a mode particle size of less than 50nm;

iii.) are present in said suspension at a concentration of 2-3,000 ppm; and

d.) said suspension having a pH of between 5 to 9.5, a zeta potential of at least -20mv and the suspension does not contain chlorides.

7.) Use of a composition in the manufacture of a medicament for the therapeutic and/or prophylactic treatment of a disease, disorder, pathological state and/or an injury involving at least one of myelin dysfunction and demyelination resulting from degeneration of supporting oligodendrocytes, wherein an effective amount of a nanosuspension is to be used, the nanosuspension comprising:

a.) pharmaceutical grade water;

b.) at least one processing enhancer;

c.) gold nanocrystals suspended in said water forming the nanosuspension, wherein said gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

ii.) have a mode particle size of less than 50nm;

iii.) are present in said nanosuspension at a concentration of 2-3,000 ppm; and

d.) said nanosuspension having a pH of between 5 to 9.5 and a zeta potential of at least -40mv.

8.) The use of claim 7, wherein said disease comprises at least one disease selected form the group consisting of Progressive Supranuclear Palsy, Alexander's Disease, Krabbe Disease, Metachromatic Leukodystrophy, Canvan Disease, Leukodistrophies, Encephalomyelitis, Central Pontine Myelolysis (CPM), Anti-MAG Disease, Pelizaeus-Merzbacher Disease, Refsum Disease, Cockayne Syndrome, , Zellweger Syndrome, Guillain-Barre Syndrome (GBS), Van der Knapp Syndrome, chronic inflammatory demyelinating polyneuropathy (CIDP), multifocal motor neuropathy (MMN), Neuromyelitis Optica (NMO) ,Progressive Multifocal Leukoencephalopathy (PML), Wallerian Degeneration and some inherited diseases such as Adrenoleukodystrophy, Alexander's Disease, and PelizaeusMerzbacher Disease (PMZ).

9.) The use of claim 7, wherein said disease comprises Neuromyelitis Optica (NMO).

10.) Use of a therapeutically and/or prophylactically effective amount of a composition comprising an elemental gold nanosuspension in the manufacture of a medicament for the therapeutic and/or prophylactic treatment of a disease, disorder, pathological state and/or an injury associated with neuronal myelin dysfunction in a mammal, wherein the composition is to be administered to a mammal in need thereof.

11.) Use of a therapeutically and/or prophylactically effective amount of a composition comprising an elemental gold nanosuspension in the manufacture of a medicament for the therapeutic and/or prophylactic treatment of a disease, disorder, pathological state and/or an injury

associated with demyelination of neurons resulting from degeneration of supporting oligodendrocytes in a mammal, wherein the composition is to be administered to a mammal in need thereof.

12.) The use of claim 11, wherein said neurons comprise central nervous system neurons.

13.) Use of a therapeutically and/or prophylactically effective amount of a composition comprising an elemental gold nanosuspension in the manufacture of a medicament for the therapeutic and/or prophylactic treatment of a disease, disorder, pathological state and/or an injury associated with myelin dysfunction of central nervous system neurons in a mammal, wherein the composition is to be administered to a mammal in need thereof.

CLAIMS

1.) Use of a composition in the manufacture of a medicament for reducing neuronal myelin dysfunction,

wherein the composition is to be administered in a therapeutically effective amount to a mammal in need thereof, the composition comprising:

a.) pharmaceutical grade water;

b.) at least one processing enhancer; and

c.) gold nanocrystals suspended in said water forming a suspension, wherein said gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

ii.) have a mode particle size of less than about 50nm;

iii.) are present in said suspension at a concentration of about 2-200ppm; and

d.) said suspension having a pH of between about 5 to about 9.5 and a zeta potential of at least about -30mv.

2.) The use of claim 1, wherein said suspension has a zeta potential of at least about -40 mV.

3.) The use of claim 1, wherein said gold nanocrystals are present in a concentration amount of 2-2000ppm.

4.) Use of a composition in the manufacture of a medicament for promoting remyelination of central nervous system neurons in a mammal, wherein the composition is to be administered to the mammal in need thereof in a therapeutically effective amount, the composition comprising:

a.) pharmaceutical grade water;

b.) at least one processing enhancer; and

c.) gold nanocrystals suspended in said water forming a suspension, wherein said

gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not

have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

ii.) have a mode particle size of less than about 50nm;

iii.) are present in said suspension at a concentration of about 2-200ppm; and

d.) said suspension having a pH of between about 5 to about 9.5 and a zeta potential of at least about -30mv.

5.) Use of a composition in the manufacture of a medicament for treating demyelination of neurons, wherein the composition comprises a nanosuspension

wherein the nanosuspension is to be administered in a therapeutically effective amount to a mammal in need thereof, the nanosuspension comprising:

a.) pharmaceutical grade water;

b.) at least one processing enhancer; and

c.) gold nanocrystals suspended in said water forming said nanosuspension, wherein said gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

ii.) have a mode particle size of less than about 50nm;

iii.) are present in said nanosuspension at a concentration of about 2-200ppm;

d.) said nanosuspension having a pH of between about 5 to about 9.5 and a zeta potential of at least about -20mv.

6.) The use of claim 5, wherein said neurons comprise central nervous system neurons.

7.) Use of a composition in the manufacture of a medicament for promoting myelin preservation in a patient in need thereof,

wherein the composition is to be administered in at least one of a therapeutically effective amount and a prophylactically effective amount, the composition comprising:

~~a.) pharmaceutical grade water;~~

b.) at least one processing enhancer; and

c.) gold nanocrystals suspended in said water forming a suspension, wherein said

gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

ii.) have a mode particle size of less than about 50nm;

iii.) are present in said suspension at a concentration of about 2-200ppm; and

d.) said suspension having a pH of between about 5 to about 9.5 and a zeta potential of at least about -20mv.

8.) Use of a composition in the manufacture of a medicament for promoting remyelination of central nervous system neurons in a mammal, wherein the composition is to be administered to the mammal in need thereof in a therapeutically effective amount, the composition comprising:

a.) pharmaceutical grade water;

b.) at least one processing enhancer; and

c.) gold nanocrystals suspended in said water forming a suspension, wherein said gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

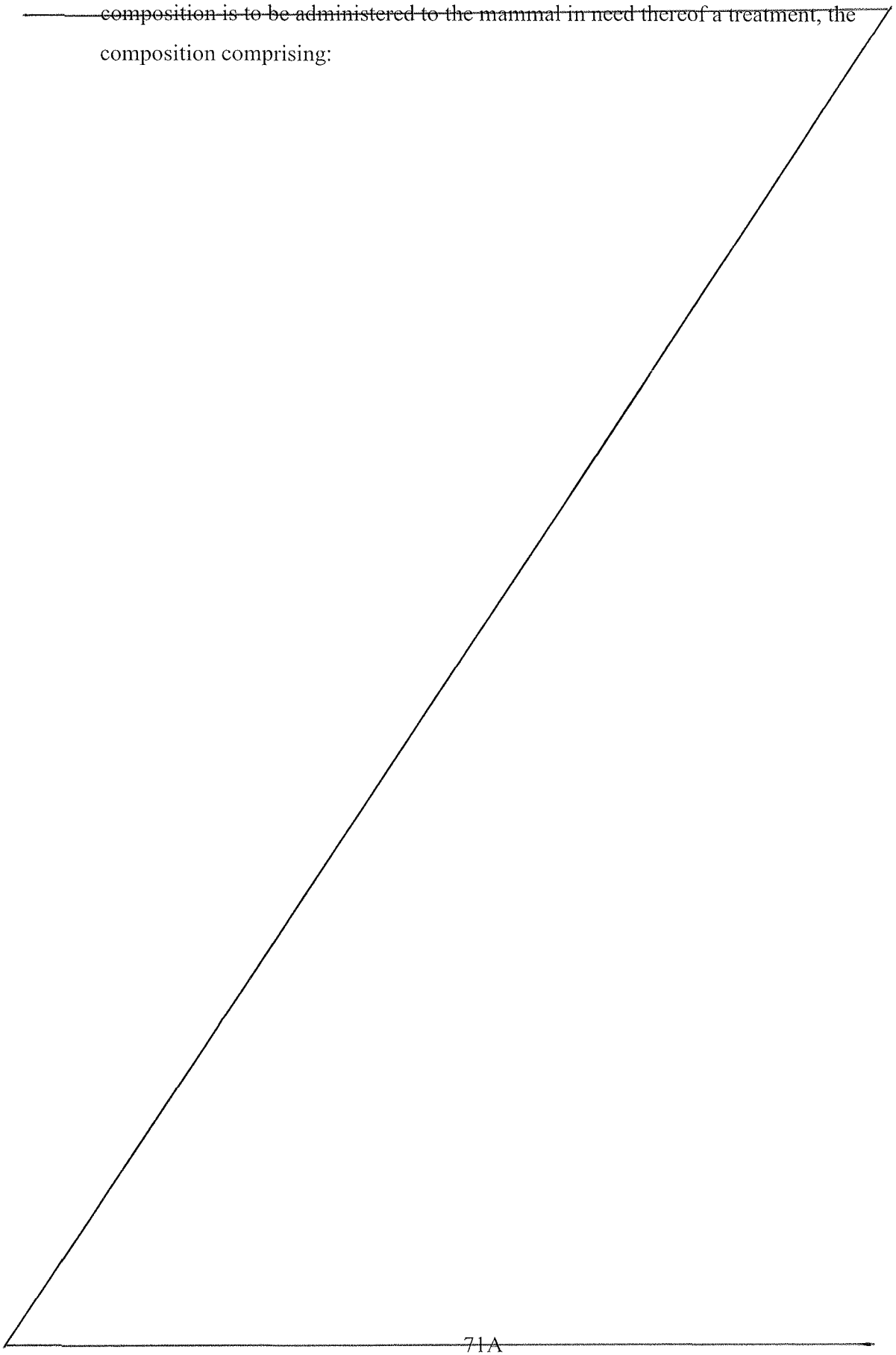
ii.) have a mode particle size of less than about 50nm;

iii.) are present in said suspension at a concentration of about 2-200ppm; and

d.) said suspension having a pH of between about 5 to about 9.5, a zeta potential of at least about -30mv.

9.) Use of a composition in the manufacture of a medicament for reducing myelin dysfunction of central nervous system neurons in a mammal, wherein the

composition is to be administered to the mammal in need thereof a treatment, the composition comprising:



a.) pharmaceutical grade water;

b.) at least one processing enhancer; and

c.) gold nanocrystals suspended in said water forming a suspension, wherein said gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

ii.) have a mode particle size of less than about 50nm;

iii.) are present in said suspension at a concentration of about 2-200ppm; and

d.) said suspension having a pH of between about 5 to about 9.5, a zeta potential of at least about -20mv and the suspension does not contain chlorides.

10.) Use of a composition in the manufacture of a medicament for the treatment of a disease involving at least one of myelin dysfunction and demyelination,

wherein an effective amount of a nanosuspension is to be used, the nanosuspension comprising:

a.) pharmaceutical grade water;

b.) at least one processing enhancer; and

c.) gold nanocrystals suspended in said water forming the nanosuspension, wherein said gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

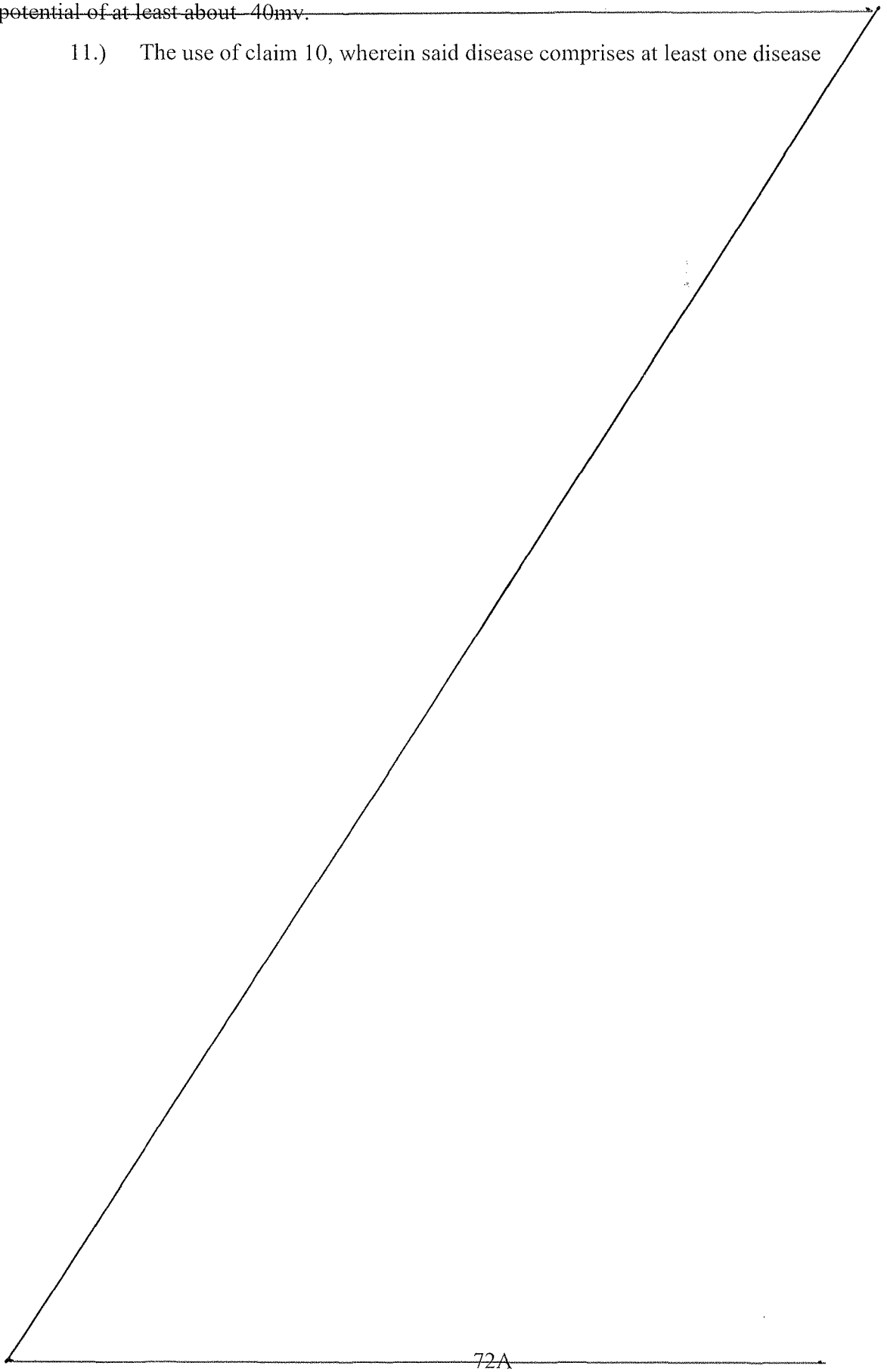
ii.) have a mode particle size of less than about 50nm;

iii.) are present in said nanosuspension at a concentration of about 2-200ppm; and

d.) said nanosuspension having a pH of between about 5 to about 9.5 and a zeta

~~potential of at least about 40mv.~~

11.) The use of claim 10, wherein said disease comprises at least one disease



~~selected from the group consisting of Progressive Supranuclear Palsy, Alexander's Disease,~~ Krabbe Disease, Metachromatic Leukodystrophy, Canvan Disease, Leukodistrophies, Encephalomyelitis, Central Pontine Myelolysis (CPM), Anti-MAG Disease, Pelizaeus-Merzbacher Disease, Refsum Disease, Cockayne Syndrome, , Zellweger Syndrome, Guillain-Barre Syndrome (GBS), Van der Knapp Syndrome, chronic inflammatory demyelinating polyneuropathy (CIDP), multifocal motor neuropathy (MMN), Neuromyelitis Optica (NMO) , Progressive Multifocal Leukoencephalopathy (PML), Wallerian Degeneration and some inherited diseases such as Adrenoleukodystrophy, Alexander's Disease, and Pelizaeus Merzbacher Disease (PMZ).

12.) The use of claim 10, wherein said disease comprises Neuromyelitis Optica (NMO).

13.) Use of a composition in the manufacture of a medicament for preserving myelin function in the prevention of a disease involving at least one of myelin dysfunction and demyelination,

wherein a prophylactically effective amount of a nanosuspension is to be provided, the nanosuspension comprising:

a.) pharmaceutical grade water;

b.) at least one processing enhancer; and

c.) gold nanocrystals suspended in said water forming a nanosuspension, wherein said gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

ii.) have a mode particle size of less than about 50nm;

iii.) are present in said nanosuspension at a concentration of about 2-200ppm; and

d.) said nanosuspension having a pH of between about 5 to about 9.5, a zeta potential of at least about -20mv.

14.) Use of a composition in the manufacture of a medicament for reducing demyelination of central nervous system neurons in a mammal, wherein

~~the composition is to be administered to a mammal in need thereof, the composition~~ comprising:

a.) pharmaceutical grade water;

b.) at least one processing enhancer; and

c.) gold nanocrystals suspended in said water forming a suspension, wherein said gold nanocrystals:

i.) have surfaces that include at least one characteristic selected from the group of characteristics consisting of: (1) no organic chemical constituents adhered or attached to said surfaces and/or (2) are substantially clean and do not have chemical constituents adhered or attached to surfaces, other than water or said processing enhancer, which alter the functioning of said nanocrystals;

ii.) have a mode particle size of less than about 50nm;

iii.) are present in said suspension at a concentration of about 2-200ppm; and

d.) said suspension having a pH of between about 5 to about 9.5, a zeta potential of at least about -30mv.

15.) The use of claim 14, wherein said mammal is diagnosed with Neuromyelitis Optica (NMO).

16.) Use of a therapeutically effective amount of a composition comprising an elemental gold nanosuspension in the manufacture of a medicament for promoting remyelination of neurons in a mammal, wherein the composition is to be administered to a mammal in need thereof.

17.) The use of claim 16, wherein the neurons comprise central nervous system neurons.

18.) Use of a prophylactically effective amount of a composition comprising an elemental gold nanosuspension in the manufacture of a medicament for reducing demyelination of neurons in a mammal, wherein the composition is to be administered to a mammal in need thereof.

19.) The use of claim 18, wherein the neurons comprise central nervous system neurons.

20.) Use of a composition in the manufacture of a medicament for promoting myelin preservation in a patient in need thereof, wherein the composition is to be administered in at least one of (1) a therapeutically effective amount and (2) a prophylactically effective amount of the composition comprising an elemental gold nanosuspension.