CLAIMS

1.) ~~A method~~ Use of a composition in the manufacture of a medicament for reducing neuronal myelin dysfunction, ~~comprising:~~

wherein the composition is to be administered in ~~administering~~ a therapeutically effective amount, to a mammal in need thereof, ~~a~~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 ~~method~~ use of claim 1, wherein said suspension has a zeta potential of at least about -40 mV.

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

4.) ~~A method~~ Use of a composition in the manufacture of a medicament for promoting remyelination of central nervous system neurons in a mammal, ~~comprising~~ wherein the composition is to be administered ~~administering~~ to a the mammal in need thereof in a therapeutically effective amount, ~~of a~~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.) ~~A method~~ Use of a composition in the manufacture of a medicament for treating demyelination of neurons, wherein the composition comprises a nanosuspension ~~comprising:~~ wherein the nanosuspension is to be administered in ~~administering~~ a therapeutically effective amount to a mammal in need thereof ~~of a nanosuspension~~, 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 ~~method~~ use of claim 5, wherein said neurons comprise central nervous system neurons.

7.) ~~A method~~ Use of a composition in the manufacture of a medicament for promoting myelin preservation in a patient in need thereof, ~~comprising:~~ wherein the composition is to be administered in ~~administering~~ at least one of a therapeutically effective amount and a prophylactically effective amount, ~~of a~~ 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.) ~~A method~~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 ~~comprising administering~~ to ~~a~~ the mammal in need thereof in a therapeutically effective amount, ~~of a~~ 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.) ~~A method~~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 ~~comprising administering~~ to ~~a~~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.) ~~A treatment~~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, ~~comprising:~~

~~a.)~~ wherein ~~using~~ an effective amount of a nanosuspension is to be used, the nanosuspension comprising:

a~~b~~.) pharmaceutical grade water;

b~~e~~.) at least one processing enhancer; and

c~~d~~.) gold nanocrystals suspended in said water forming a~~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~~e~~.) said nanosuspension having a pH of between about 5 to about 9.5 and a zeta

potential of at least about -40mv~~, said nanosuspension for use in the treatment of a disease involving at least one of myelin dysfunction and demyelination~~.

11.) The ~~treatment~~ use of claim ~~12~~10, wherein said disease comprises at least one disease

selected ~~form~~ 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 ~~treatment~~ use of claim ~~1~~2~~1~~0, wherein said disease comprises Neuromyelitis Optica (NMO).

13.) ~~A method~~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, ~~comprising~~

wherein providing 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~~, said nanosuspension for use in the prevention of a disease involving at least one of myelin dysfunction and demyelination~~.

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

the composition is to be administered ~~administering~~ to a mammal in need thereof, the composition ~~a treatment~~ 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 ~~method~~ use of claim 14, wherein said mammal ~~has been~~is diagnosed with Neuromyelitis Optica (NMO).

16.) ~~A method~~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, ~~comprising~~ wherein the composition is to be administered ~~administering~~ to a mammal in need thereof ~~a therapeutically effective amount of a composition comprising an elemental gold nanosuspension~~.

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

18.) ~~A method~~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 ~~comprising administering~~ to a mammal in need thereof ~~a prophylactically effective amount of a composition comprising an elemental gold nanosuspension~~.

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

20.) ~~A method~~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 ~~comprising administering~~ at least one of (1) a therapeutically effective amount and (2) a prophylactically effective amount of ~~a~~the composition comprising an elemental gold nanosuspension.