CLAIMS

1. Use of a composition comprising at least one inhibitor of gangliosides metabolism in the preparation of a medicament for the treatment of a motor neuron disease, wherein said motor neuron disease is hereditary spastic paraplegia (HSP) selected from SPG11, SPG15, SPG4 and SPG7.

2. The use according to claim **1**, wherein said inhibitor of ganglioside metabolism is selected from the group comprising small organic molecules, antibodies, antagonists, inhibitor scaffold, aptamers, ribozymes, peptides, chemical chaperones, ribonucleic acid interference (RNAi), oligonucleotide antisense, small interfering RNA (siRNA), antisense RNA (asRNA), morpholinos, and engineered nucleases.

3. The use according to claim **1** or **2**, wherein said inhibitor of gangliosides metabolism is an inhibitor of glucosylceramide synthase, selected from the group comprising: imino sugars, analogs of D-threo-1-phenyl-2-decanoylamino-3-morpholino-propanol (PDMP), ceramide analogs, carboxamides, carbamates, glycoside hydrolase chaperones.

4. The use according to claim **3**, wherein said inhibitor of glucosylceramide synthase is selected from the group comprising: N-butyldeoxynojirimycin (NB-DNJ), quinuclidin-3-yl (2-(4'-fluoro-[l, -biphenyl]-3- yl)propan-2-yl)carbamate (GZ161), N-[(1R,2R)-1-(2,3-dihydro-1,4-benzodioxin-6-yl)-1-hydroxy-3-(1-pyrrolidinyl)-2-propanyl]octanamide, N-(5-adamantane-1-yl-methoxypentyl) deoxynojirimycin (AMP-DNJ); N-butyl-1-deoxy-nojirimycin (KTB-DNJ); N-ethyl-1-dexynojirimycin (NE-DNJ); N-butyldeoxymannojixamycin; N-5-carboxyl-1-deoxynojiramycin; N-docecyl-1- deoxynojirimycin; nojirimycin bisulfate; nojiximycin-1-sulfonic acid; N-(n-nonyl)-1-deoxynojirimycin; N-(7-oxadecyl)-1-deoxynojirimycin; N-(7-oxa-9,9,9,-trifluorononyl)-1-deoxynojirimycin; (2R,3S,4R,5S)-2-(Hydroxymethyl)-3,4,5-piperidinetriol; N-butyldeoxygalactonojirimycin (NB-DGJ); N-(n-nonyl)deoxynojirimycin; (3S,4S)-3-(hydroxymethyl)pyrrolidine-3,4-diol (isoLAB); 1,4-dideoxy-1,4-imino-D-arabinitol, (2S,3R,4S,5R)-3,4,5-trihydroxy-6-

oxopiperidine-2-carboxylic acid, D-glucaro-delta-lactam, 1,4-dideoxy-2-hydroxymethyl-1,4-imino-D-threitol; (2S,3S,4R)-2,4-bis(hydroxymethyl)pyrrolidine-3,4-diol, isoDGDP, D-threo-1-phenyl-2-decanoylamino-3-morpholino-propanol (PDMP); enantiomers of PDMP, L-threo- and DL-erythro-1-phenyl-2-amino-1,3-propanediol, the D-threo (R,R) enantiomer; 1-phenyl-2-palmitoylamino-3-morpholino-1-propanol; 1-phenyl-2-palmitoylamino-3-pyrrolidino-1-propanol (P4), D-threo-1-ethylenedioxyphenyl-2-palmitoyl-3-pyrrolidino-propanol (EtDO-P4); DL-threo-1-phenyl-2-palmitoylamino-3-pyrrolidino-1-propanol (DL-threo-P4); 2-(2,3-dihydro-1H-inden-2-yl)-N-((1R,2R)-1-(2,3-dihydrobenzo[b][1,4]dioxin-6-yl)-1-hydroxy-3-(pyrrolidin-1-yl)propan-2-yl)acetamide; N-((1R,2R)-1-(2,3-dihydrobenzo[b][1,4]dioxin-6-yl)-1-hydroxy-3-(pyrrolidin-1-yl)propan-2-yl)nonanamide; BML-119; IV-231B, (S)-quinuclidin-3-yl (2-(2-(4-fluorophenyl)thiazol-4-yl)propan-2- yl)carbamate (S)-2-hydroxysuccinate (GZ 452), quinuclidin-3-yl (2-(4'-fluoro-[1, -biphenyl]-3- yl)propan-2-yl)carbamate, (1R,2R)-octanoic acid[2-(2',3'-dihydro-benzo [1,4] dioxin-6'-yl)-2- hydroxy- 1 -pyrrolidin-1-ylmethyl-ethyl]-amide-L-tartaric acid, EXEL-0346, isofagomine, trans-4-(2-amino-3,5-dibrombenzylamino)-cyclohexanol, 5-(4-chlorophenyl)-6-ethyl- 2,4-pyrimidinediamine, (3R,4R,5R)-5-(hydroxymethyl)-3,4-piperidinediol, ambroxol, imiglucerase,), α-homogalactonojirimycin, α-homoallonojirimycin, β-1-C-butyl-DGJ, N-nonyl-DNJ.

5. The use according to claim **1** or **2**, wherein said inhibitor of gangliosides metabolism is an inhibitor of GM3 synthase.

6. The use according to claim **5**, wherein said inhibitor of GM3 synthase is a miRNA is selected from SEQ ID NO: 3, SEQ ID NO: 4 and function conservative variants thereof.

7. The use according to claim **5**, wherein said inhibitor of GM3 synthase is the carbon-linked analog of cytidine monophospho-N-acetylneuraminic acid.

8. The use according to any one of claims **1** to **7**, wherein the composition is to be administered by oral, topical, transdermal, intramuscular, subcutaneous, intravenous, parenteral, intranasal or perispinal administration.

9. Use of a pharmaceutical composition comprising, consisting of or consisting essentially of at least one inhibitor of gangliosides metabolism and a pharmaceutically acceptable excipient in the preparation of a medicament for the treatment of a motor neuron disease, wherein said motor neuron disease is hereditary spastic paraplegia (HSP) selected from SPG11, SPG15, SPG4 and SPG7.