In one aspect, the present disclosure provides a use of a composition in the manufacture of a medicament for treating amyotrophic lateral sclerosis (ALS), wherein the composition comprises mesenchymal stem cells and is to be administered intravenously twice or more, wherein the mesenchymal stem cells are mesenchymal stem cells derived from bone marrow or blood.

Technical Problem

[0008] An object of the present invention is to provide a new means for treating various symptoms of amyotrophic lateral sclerosis (ALS).

Solution to Problem

[0009]

Using ALS model rats, the inventors evaluated the natural course of symptoms widely in view of motor function and histology, and found that intravenous administration of MSCs allows suppression of progression and alleviation of symptoms in both moderate and severe stages. They further studied more effective administration methods and achieved the present invention.

[0010]

More specifically, the present invention relates to the following (1) to (6).

(1) A pharmaceutical composition for treating amyotrophic lateral sclerosis (ALS), wherein the

obtaining such cells and the details thereof are described in ~~WO2009/002503~~ WO2009/034708 (PCT/JP2008/002503).

[0019]

In the method developed by the inventors, cells are separated from, e.g., bone marrow fluid in such a condition that they are not substantially in contact with an anticoagulant (e.g., heparin), proliferated in a medium containing allogeneic serum (preferably, autologous serum; human serum in the case of a human pharmaceutical composition) in the absence of an anticoagulant (e.g., heparin) or in the presence of an extremely low concentration of the anticoagulant. The phrase "in the absence of an anticoagulant or in the presence of an extremely low concentration of the anticoagulant" means that the anticoagulant is not contained in such an amount that produces an effect as an anticoagulant. More specifically, for example, heparin or a derivative thereof, which is usually effective in an amount of about 20 to 40 μ/mL. In the method developed by the inventors, the mount thereof previously added to a blood collection tube for collecting a sample is minimized. Owing to this, the amount thereof in the sample taken from a living body becomes less than 5 U/mL, preferably less than 2 U/mL, and further preferably less than 0.2 U/mL. As a result, the amount thereof present in a medium for culturing cells becomes less than 0.5 U/mL, preferably less than 0.2 U/mL, and further

Claims

[Claim 1]

Use of a composition in the manufacture of a medicament for treating amyotrophic lateral sclerosis (ALS), wherein the composition comprises mesenchymal stem cells and is to be administered intravenously twice or more, wherein the mesenchymal stem cells are mesenchymal stem cells derived from bone marrow or blood.

~~[Claim 2]~~

~~The use according to claim 1, which is to be administered twice or more.~~

[Claim ~~3~~2]

The use according to claim 1~~ or 2~~, wherein 10^6 or more mesenchymal stem cells are to be administered per dose.

~~[Claim 4]~~

~~The use according to any one of claims 1 to 3, wherein the mesenchymal stem cells are mesenchymal stem cells derived from bone marrow or blood.~~

[Claim ~~5~~3]

The use according to any one of claims 1 ~~to~~ or ~~4~~2, wherein the mesenchymal stem cells are mesenchymal stem cells derived from bone marrow or blood of a patient.

[Claim ~~6~~4]

The use according to any one of claims 1 to ~~5~~3, wherein the mesenchymal stem cells are CD24-negative.

[Claim 5]

The use according to any one of claims 1 to 4, wherein the composition is formulated with cryopreservation solution.