

(1), by the method according to the present invention;
 (3) detecting the presence or absence of a marker in the motor neurons obtained in step (2), wherein the marker has been identified as a responder-specific or a non-responder-specific marker by the method according to the present invention; and
 (4) selecting a subject as the subject for whom the therapeutic agent corresponding to said marker is effective, when the responder-specific marker has been detected, or the non-responder-specific marker has not been detected in the motor neurons derived from said subject.

In yet a further aspect, there is provided a pluripotent stem cell in which one or more exogenous nucleic acids encoding Lhx3, Ngn2, and Isl1 have been inserted into the chromosome, wherein said nucleic acid is functionally connected to a drug-responsive promoter; and wherein said pluripotent stem cell is induced to differentiate into a motor neuron when expression of the Lhx3, Ngn2, and Isl1 is maintained in the pluripotent stem cell in a basal medium supplemented with a retinoic acid, SHH signal stimulants, and neurotrophic factors for three days or more.

In one aspect, there is provided blood cells differentiated from the pluripotent stem cell according to the present invention, wherein the exogenous nucleic acids encoding Lhx3, Ngn2, and Isl1 express Lhx3, Ngn2, and Isl1 in a polycistronic manner under the control of the drug-responsive promoter.

In another aspect, there is provided use of monocytes or macrophages according to the present invention in the manufacture of a medicament for the treatment of motor neuron disease or nerve injury.

In yet another aspect, there is provided use of the blood cells according to the present invention in the manufacture of a medicament for the treatment of motor neuron disease or nerve injury. In yet another aspect, there is provided a method for screening a therapeutic agent for amyotrophic lateral sclerosis, comprising the following steps of (1) to (5): (1) generating motor neurons from induced pluripotent stem cells by the method according to the present invention, wherein the induced pluripotent stem cells have been produced from somatic cells isolated from a patient with amyotrophic lateral sclerosis; (2) bringing a test substance into contact with the motor neurons obtained in step (1); (3) culturing the motor neurons which have been contacted with the substance in step (2) and the motor neurons which have not been contacted with the substance (i.e., control cells); (4) measuring the cell number and/or the neurite length of the motor neurons obtained through step (3); (5) selecting a test substance as the therapeutic agent for amyotrophic lateral sclerosis, when the value of the cell number and/or the neurite length of the motor neurons which

sequence.

22. The pluripotent stem cell according to any of claims 16 to 21, wherein said pluripotent stem cell is an induced pluripotent stem cell derived from a human.

23. The pluripotent stem cell according to any of claims 16 to 22, wherein said pluripotent stem cell has one or more mutant SOD1 genes.

24. Blood cells differentiated from the pluripotent stem cell according to any of claims 17 to 22, wherein the exogenous nucleic acids encoding Lhx3, Ng2, and Isl1 express Lhx3, Ng2, and Isl1 in a polycistronic manner under the control of the drug-responsive promoter.

25. The blood cells according to claim 24, wherein said blood cells are monocytes and/or macrophages.

26. Use of the pluripotent stem cell according to any of claims 16 to 22 in the manufacture of a medicament for the treatment of motor neuron disease or nerve injury.

27. The use according to claim 26, wherein said motor neuron disease is amyotrophic lateral sclerosis.

28. Use of monocytes or macrophages according to claim 25 in the manufacture of a medicament for the treatment of motor neuron disease or nerve injury.

29. The use according to claim 28, wherein said motor neuron disease is amyotrophic lateral sclerosis.

30. A method for screening a therapeutic agent for amyotrophic lateral sclerosis, comprising the following steps of (1) to (5):

(1) generating motor neurons from induced pluripotent stem cells by the method according to any of claims 1-8, wherein the induced pluripotent stem cells have been produced from somatic cells isolated from a patient with amyotrophic lateral sclerosis;

(2) bringing a test substance into contact with the motor neurons obtained in step (1);

(3) culturing the motor neurons which have been contacted with the substance in step (2) and the motor neurons which have not been contacted with the substance (i.e., control cells);

(4) measuring the cell number and/or the neurite length of the motor neurons obtained through step (3);

(5) selecting a test substance as the therapeutic agent for amyotrophic lateral sclerosis, when the value of the cell number and/or the neurite length of the motor neurons which