Claims

1. A method of producing an iPS cell, comprising introducing~~bringing~~ (a) ~~Oct3/4 or~~ a nucleic acid that encodes Oct3/4~~the same~~, (b) ~~Klf4 or~~ a nucleic acid that encodes Klf4~~the same~~, ~~and~~ (c) ~~Sox2 or~~ a nucleic acid that encodes Sox2~~the same~~, ~~as well as~~ (d1) ~~L-Myc or~~ a nucleic acid that encodes L-Myc~~the same and/or (d2) a functional inhibitor of p53,~~ and (e) a nucleic acid that encodes Lin28 or Lin28b into ~~contact with~~ a somatic cell *in vitro*, wherein the (a), (b), (c), (d1) and (e) is introduced in the form of an episomal vector, wherein at least one episomal vector comprises (d1) and (e) joined polycistronically in the orientation of 5'-3'.

~~2. The method according to claim 1, further comprising bringing (e) Lin28 or Lin28b or a nucleic acid that encodes the same into contact with the somatic cell.~~

~~3~~2. The method according to claim 1~~ or 2~~, further comprising introducing (d2) a functional inhibitor of p53 into the somatic cell, wherein the functional inhibitor of p53 is a nucleic acid selected from the group consisting of siRNAs and shRNAs against p53 and DNAs that encode the same, and DNAs encoding dominant negative mutants of p53.

~~4. The method according to claim 2 or 3, comprising transferring (a) a nucleic acid that encodes Oct3/4, (b) a nucleic acid that encodes KIf4, (c) a nucleic acid that encodes Sox2, (dl) a nucleic acid that encodes L-Myc and/or (d2) a nucleic acid that encodes an shRNA against p53, as well as (e) a nucleic acid that encodes Lin28 or Lin28b, to a somatic cell.~~

~~5. The method according to claim 4, wherein at least one nucleic acid selected from the group consisting of the foregoing (a) , (b) , (c) , (dl) and (e) is transferred in the form of an episomal vector.~~

~~6~~3. The method according to claim ~~4 or 5~~2, wherein (d2) ~~the nucleic acid that encodes an shRNA against p53~~ is introduced~~transferred~~ in the form of an episomal vector~~a plasmid vector incapable of self-replicating in cells~~.

~~7~~4. The method according to any one of claims 1 to 3~~5 or 6~~, wherein the episomal vector is a self-removal vector shedding from the iPS cell by the 5th passage at a frequency of 50% or more.

~~8. The method according to any one of claims 5 to 7, wherein the episomal vector has loxP sequences placed in the same orientation on the 5' and 3' sides of a vector constituent essential for the replication of the nucleic acid.~~

~~9. The method according to claim 8, not comprising the process of treating the cell with Cre recombinase.~~

~~10~~5. The method according to any one of claims 1 to ~~9~~4, wherein the somatic cell is a human cell.

~~11. The method according to claim 10, comprising culturing a cell in the absence of an ingredient from a non-human animal during the period from contact of the foregoing factors (a) , (b) , (c) , as well as (dl) and/or (d2), or additional (e) , with the somatic cell to the establishment of an iPS cell.~~

~~12. The method according to claim 11, wherein human cells are used as feeder cells, or wherein no feeder cells are used.~~

~~13. The method according to claim 12, wherein the feeder cells are derived from the same individual as the somatic cell.~~

~~14~~6. An iPS cell induction promoting agent comprising (a) a nucleic acid that encodes Oct3/4, (b) a nucleic acid that encodes KIf4, (c) a nucleic acid that encodes Sox2, (dl) a nucleic acid that encodes L-Myc ~~and/or (d2) a nucleic acid that encodes an shRNA against p53, as well as~~ and (e) a nucleic acid that encodes Lin28 or Lin28b~~.~~

~~15. The agent according to claim 14~~, wherein ~~at least one nucleic acid selected from the group consisting of~~ the foregoing (a), (b), (c), (dl) and (e) is in the form of an episomal vector, wherein at least one episomal vector comprises (dl) and (e) joined polycistronically in the orientation of 5'-3'.

~~16~~7. The agent according to claim ~~14 or 15~~6, further comprising ~~wherein~~ (d2) a functional inhibitor of p53, wherein the functional inhibitor of p53 is a nucleic acid selected from the group consisting of siRNAs and shRNAs against p53 and DNAs that encode the same, and DNAs encoding dominant negative mutants of p53~~the nucleic acid that encodes an shRNA against p53 is in the form of a plasmid vector incapable of self-replication in cells~~.

~~17~~8. The agent according to claim ~~15~~6 or ~~16~~7, wherein the episomal vector is a self-removal vector shedding from the iPS cell by the 5th passage at a frequency of 50% or more.

~~18. The agent according to any one of claims 15 to 17, wherein the episomal vector has loxP sequences placed in the same orientation on the 5' and 3' sides of a vector constituent essential for the replication of each of the foregoing nucleic acids.~~

~~19. An iPS cell that has lost the foregoing nucleic acids without undergoing the integration of the nucleic acids in the genome, obtained by the method according to any one of claims 5 to 9.~~

~~20. The iPS cell according to claim 19, which is a human iPS cell.~~

~~21. A human iPS cell free of any contaminating ingredient from a non-human animal, obtained by the method according to any one of claims 11 to 13.~~

~~22. A use of the iPS cell according to any one of claims 19 to 21 in producing a somatic cell.~~

~~23. The iPS cell according to any one of claims 19 to 21,~~

~~wherein the iPS cell serves as a source of cell in producing a somatic cell.~~