

CLAIMS

1. A composition comprising endometrial stem cells for use in a method for the treatment of poor ovarian response, wherein said endometrial stem cells are derived from an endometrial tissue sample.
2. The composition according to claim 1, wherein said endometrial stem cells are human autologous endometrial stem cells.
3. The composition according to claim 1 or 2 wherein said endometrial stem cells are endometrial mesenchymal stem cells.
4. The composition according to claim 3, wherein said endometrial mesenchymal stem cells are positive for CD90, CD146 and CD105 markers and negative for the CD34 and CD31 marker.
5. The composition according to claim 3 or 4, wherein said endometrial mesenchymal stem cells express Oct-4, CD146 and STRO-1.
6. The composition according to anyone of claims 1-5, wherein said composition is administered intra-ovarianly or to at least to one ovary.
7. The composition according to anyone of claims 1-6, wherein said composition further comprising a physiologically relevant solution selected from the following PBS solution, autologous serum, sterile normal saline or cell culture mediums at a pH of 7.2-7.4.
8. The composition according to anyone of claims 1-7, wherein said endometrial stem cells are at a concentration of 0.5-10 million cell number/mL, preferably 0.95-8 million cell number/mL, most preferably 1.5-6.5 million cell number/mL.
9. The composition according to anyone of claims 1-8, wherein said composition is administered in 1 to 5 doses, preferably 2 to 4 doses, at an amount of 0.5-2 million cell number per dose, preferably 0.8-1.3 million cell number per dose.

10. A method of treating poor ovarian response, comprising the step of administering a composition comprising endometrial stem cells, according to anyone of claims 1-9.

11. A method for banking of endometrial stem cells or composition according to the invention, comprising:
- a. Obtaining endometrial stem cells from a subject;
 - b. Checking for bacterial, yeast, or fungal contamination;
 - c. Testing a sample of endometrial stem cells for mycoplasma using preferably Gibco's MycoTect kit (Cat. No. 15672-017);
 - d. After the endometrial stem cells have reached late log phase, resuspend the endometrial stem cells in freeze medium at 5 000 000 – 20 000 000 cells/mL);
 - e. Centrifuging the resuspended endometrial stem cells in 50 mL Falcon tube at 1000 g for 15 minutes;
 - f. Suctioning away supernatant from centrifuged endometrial stem cells, add freeze medium and triturate cells until homogeneous;
 - g. Aliquoting 1 mL of the endometrial stem cells obtained from step f. in to vials and freeze vials at -20 °C freezer in a container for 3 hours;
 - h. Transferring the container to a - 80 °C freezer and store overnight.
 - i. Storing the next day, the vials obtained from step f. in a rack in a liquid N₂ tank.

12. A method for banking of endometrial stem cells or composition according to claim 11 wherein the endometrial stem cells are endometrial mesenchymal stem cells.