Claims

1. Use of IL-12 and GM-CSF in the manufacture of a medicament for improving pregnancy rates in non-human females prior to implantation of an embryo or prior to insemination.

2. The use according to claim 1 wherein the IL-12 is either IL-12 p40 or IL- 12p70.

3. The use according to claim 1 or claim 2 wherein the medicament is to be administered to the uterus from a vaginal insert or an intra-uterine device comprising the medicament.

4. The use according to any preceding claim wherein active ingredients in the medicament are released *in situ* either above or within the approximate physiological range as those found in seminal fluid.

5. The use according to any preceding claim wherein IL-12 and GM-CSF are recombinant.

6. The use according to any one of claims 3 to 5 wherein the vaginal insert is a vaginal capsule, vaginal gel, vaginal tablet, vaginal powder, vaginal solution, vaginal pessary**,** vaginal cup, vaginal sponge, vaginal aerosol or vaginal foam or spray.

7. The use according to any preceding claim further including an adjuvant, excipient or carrier.

8. The use according to any preceding claim for rapid delivery, controlled delivery, continuous delivery or pulsed delivery.

9. The use according to any preceding claim for improving pregnancy rates in a rodent.

10. The use according to claim 9 wherein the rodent is a rat or mouse.

11. The use according to any preceding claim for promoting uterine receptivity.

12. The use according to claim 11 for promoting uterine receptivity in a rodent.

13. The use according to claim 12 wherein the rodent is a mouse or rat.

14. The use according to any one of claims 1 to 13 for reducing maternal alloreactivity in a non-human mammalian female against seminal fluid/sperm or embryos comprising exposing the vaginal mucosa to the medicament, the use comprising:

(i) a step wherein at least one vaginal delivery vehicle comprising the medicament of any preceding claim is to be introduced into the vagina of the female;

(ii) optionally a step wherein further vaginal delivery vehicle(s) is to be inserted as necessary;

(iii) a step wherein a sufficient period of time is allowed to elapse to allow the active components of the vaginal delivery vehicle to be released and to penetrate into the vagina and be absorbed transmucosally and/or diffuse and/or be transported into the uterus; and

(iv) a step wherein the female is to be inseminated by either mating with a male or by artificial insemination, donor gametes or introducing an embryo or other allograft into the uterus for implantation.

15. The use according to any one of claims 1 to 13 for improving pregnancy rates or outcome in a non-human mammalian female prior to insemination or implantation of an embryo comprising exposing the vaginal mucosa to the medicament, the use comprising:

(i) a step wherein at least one vaginal delivery vehicle comprising the medicament of any preceding claim is to be introduced into the vagina of the female;

(ii) optionally a step wherein further vaginal delivery vehicle(s) is to be inserted as necessary;

(iii) a step wherein a sufficient period of time to elapse to allow the active components of the vaginal delivery vehicle to be released and to penetrate into the vagina and be absorbed transmucosally and/or diffuse and/or be transported into the uterus; and

(iv) a step wherein the female is to be inseminated by either mating with a male or by

artificial insemination, donor gametes or introducing an embryo or other allograft into the uterus for implantation.

16. A kit of parts comprising a number of vaginal delivery vehicles containing the medicament of any of claims 1 to 13 and an apparatus for inserting said vaginal delivery vehicles into the vagina of the recipient non-human female and optionally a set of written instructions therefore, the kit being for use in improving pregnancy rates and/or for reducing maternal alloreactivity against seminal fluid/sperm or embryos or other allograft tissue and/or for providing an immunopermissive uterine environment in non-human mammalian females prior to implantation of an embryo or prior to insemination.