CLAIMS

1. A method for increasing telomere length during embryonic development, the method comprising contacting a gamete and/or a fertilisation product thereof with a mitochondrial-targeted agent *in vitro*, wherein the mitochondrial-targeted agent is BGP-15 and/or an acceptable derivative, prodrug, solvate, salt, tautomer, stereoisomer, and/or racemate thereof.

2. Use of a mitochondrial-targeted agent for increasing telomere length during embryonic development, the use comprising contacting a gamete and/or a fertilisation product thereof with the mitochondrial-targeted agent *in vitro*, wherein the mitochondrial-targeted agent is BGP-15 and/or an acceptable derivative, prodrug, solvate, salt, tautomer, stereoisomer, and/or racemate thereof.

3. A method for increasing telomere length during embryonic development, the method comprising using a gamete and/or a fertilisation product thereof that has been contacted *in vitro* with a mitochondrial-targeted agent in a method of assisted reproduction, preferably in a method of *in vitro* fertilisation, wherein the mitochondrial-targeted agent is BGP-15 and/or an acceptable derivative, prodrug, solvate, salt, tautomer, stereoisomer, and/or racemate thereof.

4. Use of a mitochondrial-targeted agent for increasing telomere length during embryonic development, comprising using a gamete and/or a fertilisation product thereof that has been contacted *in vitro* with a mitochondrial-targeted agent in a method of assisted reproduction, preferably in a method of *in vitro* fertilisation, wherein the mitochondrial-targeted agent is BGP-15 and/or an acceptable derivative, prodrug, solvate, salt, tautomer, stereoisomer, and/or racemate thereof.

5. The method or use according to any one of claims 1-4, wherein:

(a) the gamete is:

i. an oocyte obtained from a female mammal with reduced fertility;

ii. sperm obtained from a male mammal with reduced fertility;

(b) the mammal:

i. is an aged mammal, preferably wherein the mammal is a human of at least 30, 35 or 40 years old; and/or

ii. is an overweight or obese mammal, preferably wherein the mammal is a human having a body mass index (BMI) of greater than 25 kg/m^2;

(c) the fertilisation product of the gamete is a zygote or embryo, preferably a zygote.

6. The method or use according to any one of claims 1-5, wherein at least the gamete and the fertilisation product of the gamete, wherein the fertilisation product of the gamete is a zygote, are contacted with the mitochondrial-targeted agent (preferably prior to syngamy), preferably wherein only the gamete and the zygote are administered or contacted with the mitochondrial-targeted agent, most preferably prior to syngamy.

7. The method or use according to any one of claims 1-5, wherein the fertilisation product of the gamete is a zygote and wherein at least the zygote is contacted with the mitochondrial-targeted agent before PN5, preferably wherein the fertilisation product of the gamete is a zygote and only the zygote is contacted with the mitochondrial-targeted agent before PN5.

8. The method or use according to any one of claims 1-5, wherein the fertilisation product of the gamete is contacted with the mitochondrial-targeted agent between the 8-cell stage and before the blastocyst stage of embryonic development and/or implantation, preferably wherein the fertilisation product of the gamete is contacted with the mitochondrial-targeted agent between the 8-cell stage and before the blastocyst stage of embryonic development and/or implantation only.

9. The method or use according to any one of claims 1-5, wherein the gamete and/or the fertilisation product thereof comprises an elevated level of mitochondrial reactive oxygen species before contact (e.g. contacting) with the mitochondrial-targeted agent.

10. The method or use according to any one of claims 1-9, wherein the mitochondrial-targeted agent is BGP-15 or a derivative thereof.

11. The method or use according to any one of claims 1-10, wherein the embryo develops into a foetus having increased telomere length.