Claims

1. An isolated antisense oligonucleotide for inhibiting the expression of PRDM15 by inducing the skipping of an exon of a PRDM15 pre-mRNA or mature mRNA to induce cell cycle arrest or apoptosis, wherein the antisense oligonucleotide has any one sequence selected from SEQ ID NOs: 18, 19, 21, 26, 27, 36, 70, 71, 72 and 73, which specifically hybridises to a target region of a PRDM15 pre-mRNA or mature mRNA.

2. The antisense oligonucleotide according to claim 1, wherein the oligonucleotide is chemically linked to one or more conjugates that enhance the activity, cellular distribution, or cellular uptake of the antisense oligonucleotide.

3. A pharmaceutical composition comprising the antisense oligonucleotide according to any one of claims 1 or 2, and a pharmaceutically acceptable carrier.

4. The pharmaceutical composition according to claim 3, wherein the composition is suitable for parenteral administration either naked or complexed with a delivery agent to a patient.

5. The pharmaceutical composition according to any one of claims 3 or 4, wherein the carrier is selected from the group consisting of a nanoparticle, such as a polymeric nanoparticle; a liposome, such as pH-sensitive liposome, an antibody conjugated liposome; a viral vector, a cationic lipid, a polymer, a UsnRNA, such as U7 snRNA and a cell penetrating peptide.

6. The pharmaceutical composition according to any one of claims 3 to 5, wherein the antisense oligonucleotide is administered orally, or rectal, or transmucosal, or intestinal, or intramuscular, or subcutaneous, or intramedullary, or intrathecal, or direct intraventricular, or intravenous, or intravitreal, or intraperitoneal, or intranasal, or intraocular.

7. Use of an antisense oligonucleotide according to any one of claims 1 or 2 in the manufacture of a medicament for treating cancer.

8. The use according to claim 7, wherein the cancer is a PRDM15-expressing cancer.

9. The use according to any one of claims 7 or 8, wherein the cancer is any one selected from the group comprising: haematological malignancies, lung cancer, breast cancer, prostate cancer, stomach cancer, testis cancer, larynx cancer, liver cancer, uterus cancer, colorectal cancer, melanoma, glioblastoma, sarcomas, and retinoblastoma.

10. The use according to claim 9, wherein the haematological malignancies is either lymphoma or leukaemia.

11. The use according to claim 10, wherein the lymphoma is a B-cell lymphoma.

12. The use according to claim 11, wherein the B-cell lymphoma is a follicular lymphoma or a diffuse large B-cell lymphoma.

13. The use according to any one of claims 7 to 12, wherein a further anti-cancer agent or treatment is administered.

14. An *in vitro* method of inducing exon-skipping of a PRDM15 pre-mRNA, the method comprising delivering to a cell the antisense oligonucleotide of any one of claims 1 or 2, thereby inducing exon-skipping of the PRDM15 pre-mRNA.

15. The method according to claim 14, wherein the cell is a human cell.

16. The method according to claim 15, wherein the human cell is a cancer cell, the cancer is any one selected from the group comprising: haematological malignancies, lung cancer, breast cancer, prostate cancer, stomach cancer, testis cancer, larynx cancer, liver cancer, uterus cancer, colorectal cancer, melanoma, glioblastoma, sarcomas, and retinoblastoma.

17. A kit comprising the antisense oligonucleotide of any one of claims 1 or 2, optionally in a container, and a package insert, package label, instructions or other labelling.