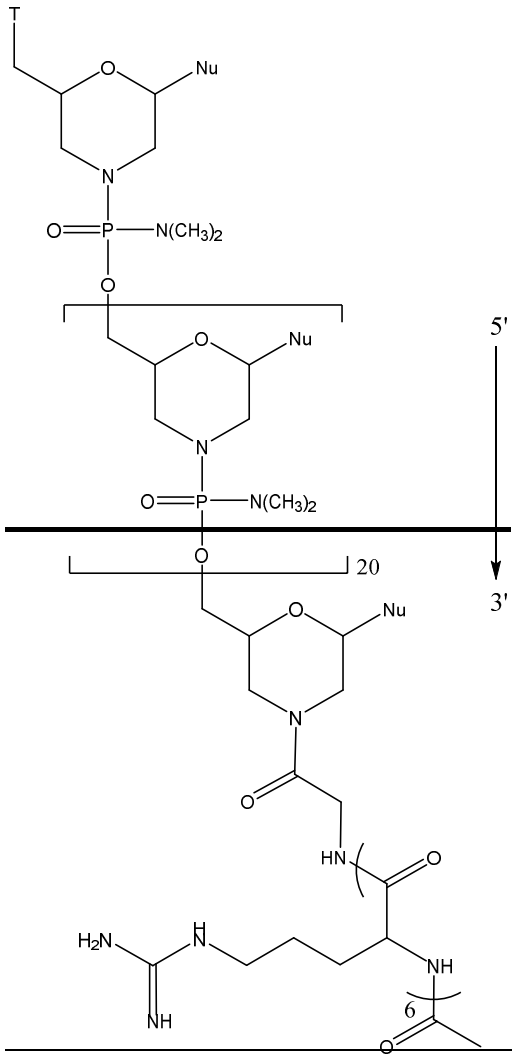
~~We claim:~~

CLAIMS

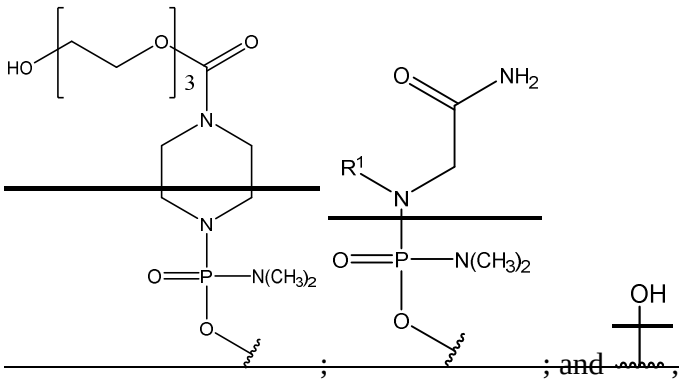
1. ~~An antisense oligomer conjugate~~Use of ~~Formula (I):~~



~~or a pharmaceutically acceptable salt thereof, wherein:~~

~~each Nu is a nucleobase which taken together form a targeting sequence; and~~

~~T is a moiety selected from:~~



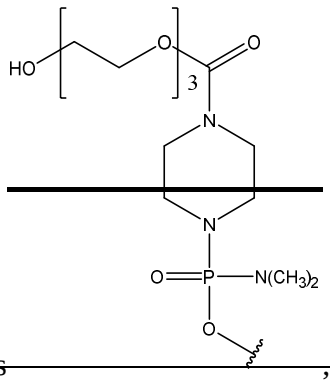
; ; and ,

where R^1 is C_1-C_6 alkyl,

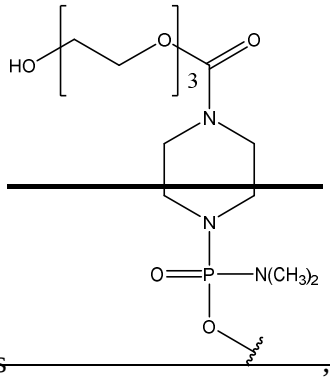
wherein the targeting sequence is complementary to an exon 45 annealing site in the dystrophin pre-mRNA designated as H45A(-03+19).

2. The antisense oligomer conjugate of claim 1, wherein each Nu is independently selected from cytosine (C), guanine (G), thymine (T), adenine (A), 5-methylcytosine (5mC), uracil (U), and hypoxanthine (I).

3. The antisense oligomer conjugate of claim 1, wherein the targeting sequence is SEQ ID NO: 1 (5’-CAATGCCATCCTGGAGTTCCTG-3’), wherein thymine (T) is optionally uracil (U).

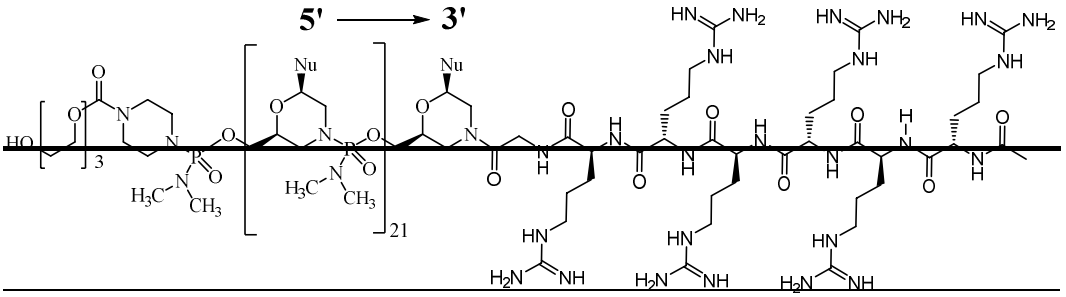


4. The antisense oligomer conjugate of claim 1, wherein T is , and the targeting sequence is SEQ ID NO: 1 (5’-CAATGCCATCCTGGAGTTCCTG-3’), wherein thymine (T) is optionally uracil (U).



5. The antisense oligomer conjugate of claim 1, wherein T is , and the targeting sequence is SEQ ID NO: 1 (5’-CAATGCCATCCTGGAGTTCCTG-3’).

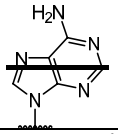
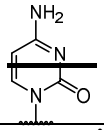
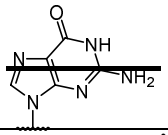
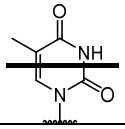
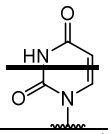
6. An antisense oligomer conjugate of Formula (II):

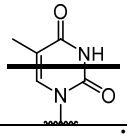


(II)

or a pharmaceutically acceptable salt thereof, wherein each Nu from 1 to 22 and 5’ to 3’ is (SEQ ID NO. 1):

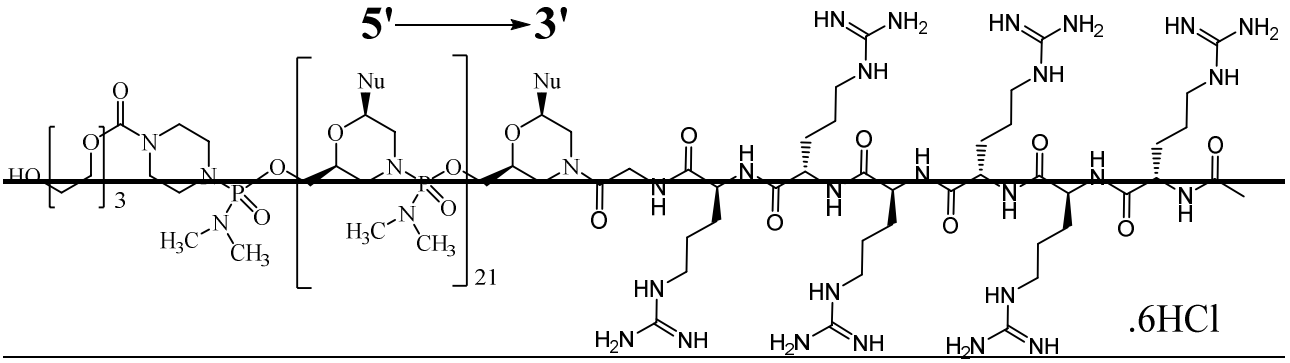
Position No. 5’ to 3’	Nu	Position No. 5’ to 3’	Nu	Position No. 5’ to 3’	Nu	Position No. 5’ to 3’	Nu	Position No. 5’ to 3’	Nu
1	C	6	C	11	C	16	G	21	X
2	A	7	C	12	X	17	X	22	G
3	A	8	A	13	G	18	X		
4	X	9	X	14	G	19	C		
5	G	10	C	15	A	20	C		

and wherein A is , C is , G is , and each X is  or .



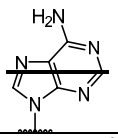
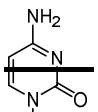
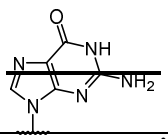
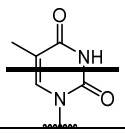
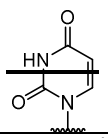
7. The antisense oligomer conjugate of claim 6, wherein each X is .

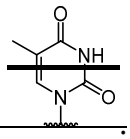
8. The antisense oligomer conjugate of claim 6, wherein the antisense oligomer is of Formula (IIA):



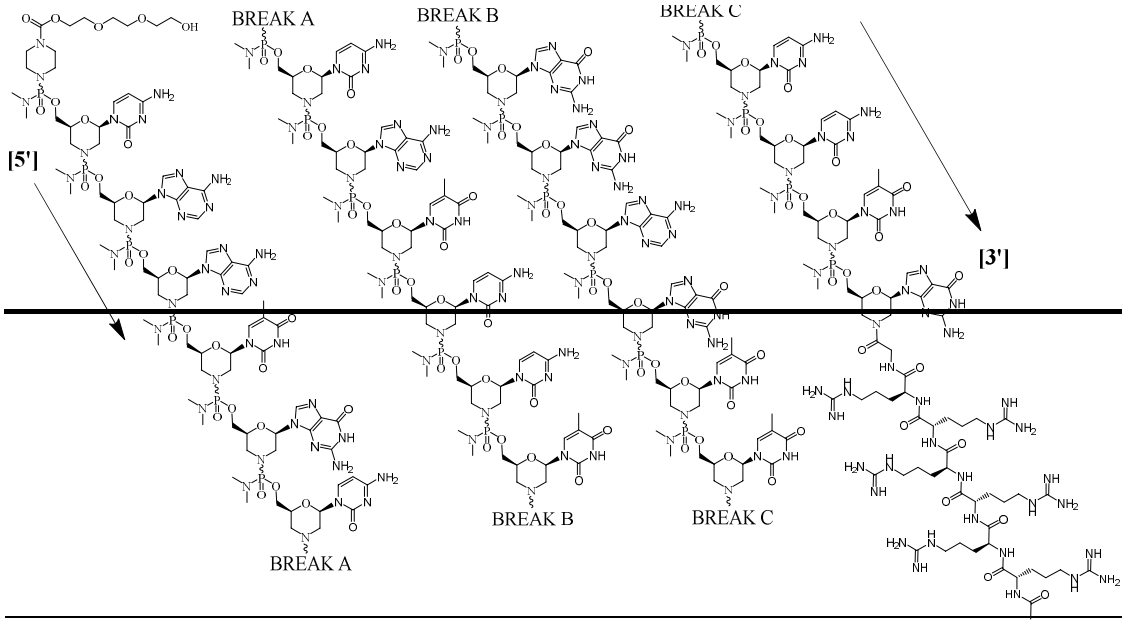
wherein each Nu from 1 to 22 and 5' to 3' is (SEQ ID NO. 1):

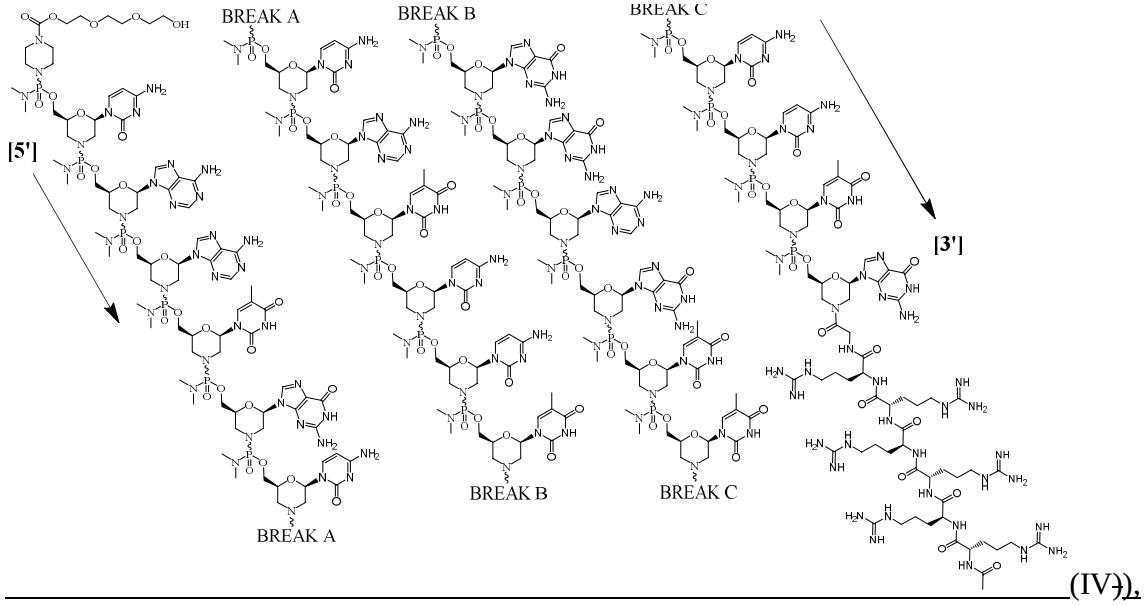
Position No. 5' to 3'	Nu	Position No. 5' to 3'	Nu	Position No. 5' to 3'	Nu	Position No. 5' to 3'	Nu	Position No. 5' to 3'	Nu
1	C	6	C	11	C	16	G	21	X
2	A	7	C	12	X	17	X	22	G
3	A	8	A	13	G	18	X		
4	X	9	X	14	G	19	C		
5	G	10	C	15	A	20	C		

and wherein A is , C is , G is , and each X is  or .

~~9. The antisense oligomer conjugate of claim 6, wherein each X is~~  ~~.~~

~~10. An~~an antisense oligomer conjugate of Formula (IV):

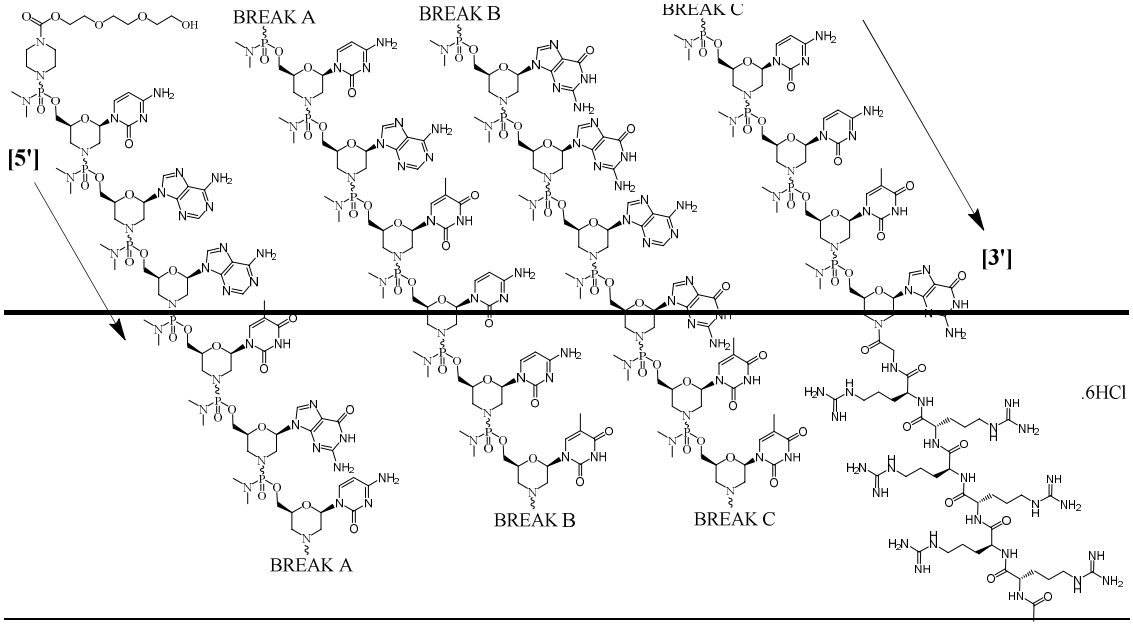




(IV~~)~~),

or a pharmaceutically acceptable salt thereof~~.~~

~~11. The antisense oligomer conjugate of claim 9, wherein~~, in the ~~antisense oligomer is of Formula (IVA):~~



~~(IVA).~~

~~12. A pharmaceutical composition, comprising an antisense oligomer conjugate of any one of claims 1 to 11, or~~ manufacture of a ~~pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier.~~

~~13. A method~~medicament for treating Duchenne muscular dystrophy (DMD) in a primate subject in need thereof, wherein the primate subject has a mutation of the dystrophin gene that is amenable to exon 45 skipping~~, the method comprising administering to the subject the antisense oligomer conjugate of any one of claims 1 to 11~~.

~~14. The method~~

2. Use of ~~claim 13, wherein the~~ an antisense oligomer conjugate ~~is administered weekly.~~

~~15. The method~~ of ~~claim 13, wherein the antisense oligomer conjugate is administered biweekly.~~

~~16. The method~~Formula (IV), as defined in claim 1, or a pharmaceutically acceptable salt thereof, in the manufacture of ~~claim 13, wherein the antisense oligomer conjugate is administered every third week.~~

~~17. The method of claim 13, wherein the antisense oligomer conjugate is administered monthly.~~

~~18. A method of~~a medicament for restoring an mRNA reading frame to induce dystrophin production in a primate subject having a mutation of the dystrophin gene that is amenable to exon 45 skipping~~, the method comprising administering to the subject the antisense oligomer conjugate of any one of claims 1 to 11~~.

~~19~~

3. The ~~method~~use of claim ~~18~~1 or 2, wherein the ~~antisense oligomer conjugate is administered weekly.~~

~~20. The method of claim 18, wherein the antisense oligomer conjugate is administered biweekly.~~

~~21. The method of claim 18, wherein~~ use comprises administering to the primate subject a pharmaceutical composition comprising the antisense oligomer conjugate ~~is administered every third week.~~

~~22. The method of claim 18, wherein the antisense oligomer conjugate is administered monthly.~~

~~23. A method for treating Duchenne muscular dystrophy (DMD) in a subject in need~~of Formula (IV) or pharmaceutically acceptable salt thereof ~~wherein the subject has~~and a ~~mutation of the dystrophin gene that is amenable to exon 45 skipping, the method comprising administering to the subject the~~pharmaceutically acceptable carrier.

4. Use of a pharmaceutical composition ~~of claim 11.~~

~~24. A method of restoring an mRNA reading frame to induce dystrophin production~~comprising an antisense oligomer conjugate of Formula (IV), as defined in ~~a~~claim 1, or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier, in the manufacture of a medicament for excluding exon 45 from dystrophin pre-mRNA during mRNA processing in a primate subject having a mutation of the dystrophin gene that is amenable to exon 45 skipping~~, the method comprising administering to the subject the~~.

5. Use of a pharmaceutical composition ~~of claim 11.~~

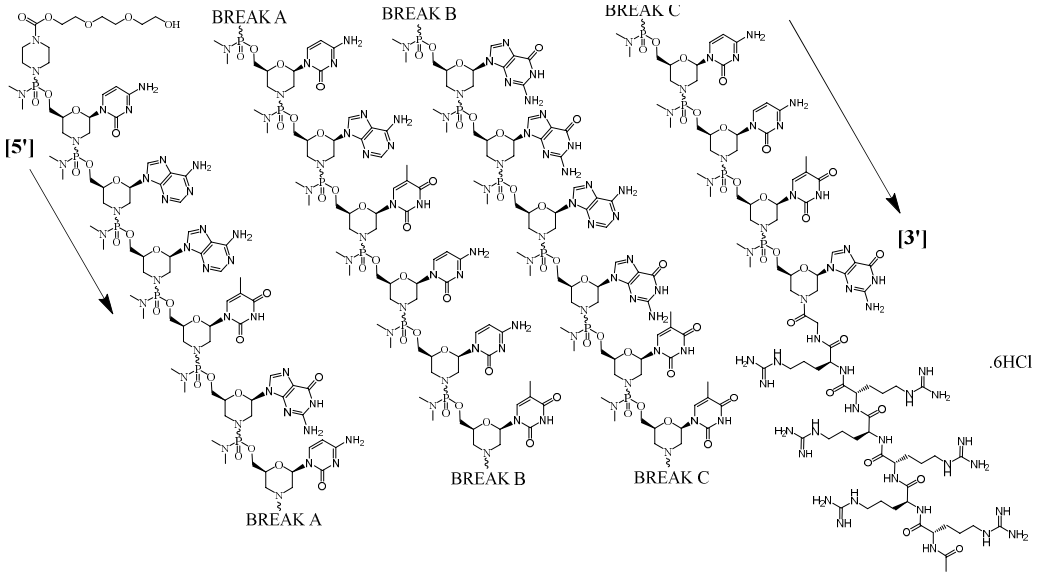
~~25. A method of excluding exon 45 from dystrophin pre-mRNA during mRNA processing in a subject having a mutation of the dystrophin gene that is amenable to exon 45 skipping, the method comprising administering to the subject the pharmaceutical composition of claim 11.~~

~~26. A method of~~comprising an antisense oligomer conjugate of Formula (IV), as defined in claim 1, or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier, in the manufacture of a medicament for binding exon 45 of dystrophin pre-mRNA in a primate subject having a mutation of the dystrophin gene that is amenable to exon 45 skipping~~, the method comprising administering to the subject the pharmaceutical composition of claim 11~~.

6. The use of any one of claims 1 to 5, wherein the subject is human.

7. The use of any one of claims 1 to 6, wherein the antisense oligomer conjugate is in the form of a pharmaceutically acceptable salt.

8. The use of claim 7, wherein the antisense oligomer conjugate is in the form of a pharmaceutically acceptable salt of Formula (IVA):



(IVA).