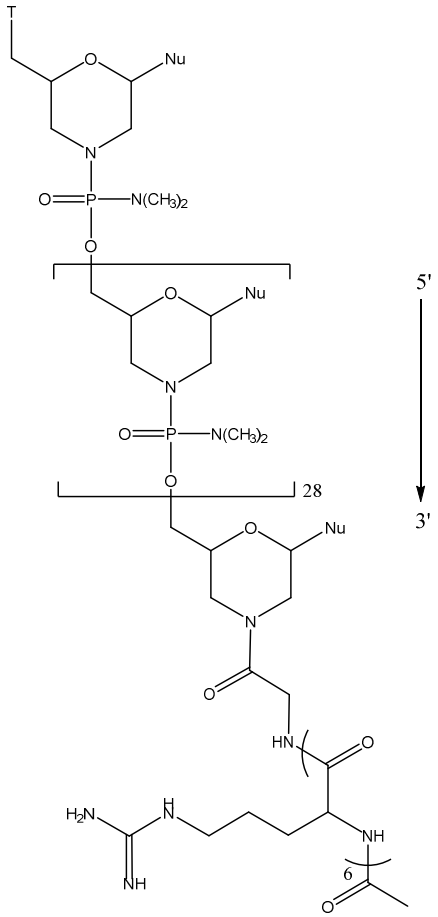
Claims:

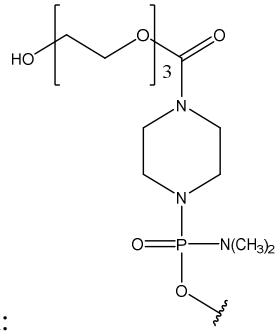
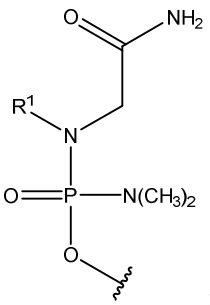
1. An antisense oligomer conjugate for use in the treatment of Duchenne muscular dystrophy (DMD) in a subject in need thereof wherein the subject has a mutation of the dystrophin gene that is amenable to exon 51 skipping, wherein the antisense conjugate is of Formula (I):



(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  ;

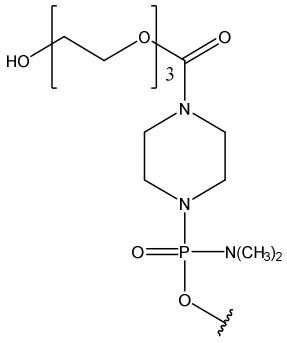
R^1 is C_1-C_6 alkyl;

wherein the targeting sequence is complementary to an exon 51 annealing site in the dystrophin pre-mRNA designated as H51A(+66+95).

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

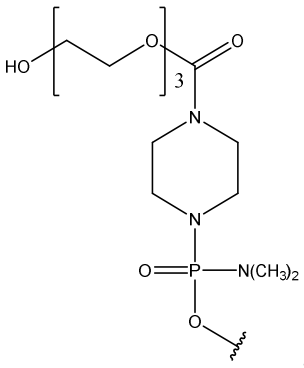
3. The antisense oligomer conjugate of claim 1, or the pharmaceutically acceptable salt thereof, wherein the targeting sequence is SEQ ID NO: 1 (5'-CTCCAACATCAAGGAAGATGGCATTTCTAG-3'), wherein each thymine (T) is optionally uracil (U).

4. The antisense oligomer conjugate of claim 1, or the pharmaceutically acceptable salt thereof, wherein T is

 , and the targeting sequence is SEQ ID NO: 1 (5'-CTCCAACATCAAGGAAGATGGCATTTCTAG-3'), wherein each thymine (T) is

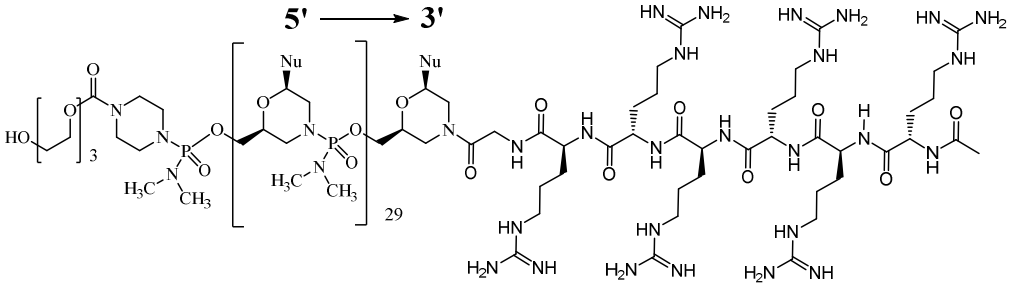
optionally uracil (U).

5. The antisense oligomer conjugate of claim 1, or the pharmaceutically acceptable salt thereof, wherein T is



, and the targeting sequence is SEQ ID NO: 1 (5'-CTCCAACATCAAGGAAGATGGCATTTCTAG-3').

6. An antisense oligomer conjugate for use in the treatment of Duchenne muscular dystrophy (DMD) in a subject in need thereof wherein the subject has a mutation of the dystrophin gene that is amenable to exon 51 skipping, wherein the antisense conjugate is of Formula (II):

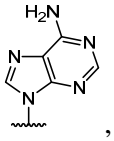
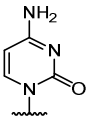
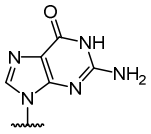
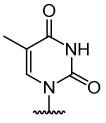
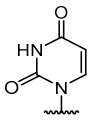


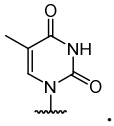
(II)

or a pharmaceutically acceptable salt thereof, wherein each Nu from 1 to 30 and 5' to 3' is (SEQ ID NO. 1):

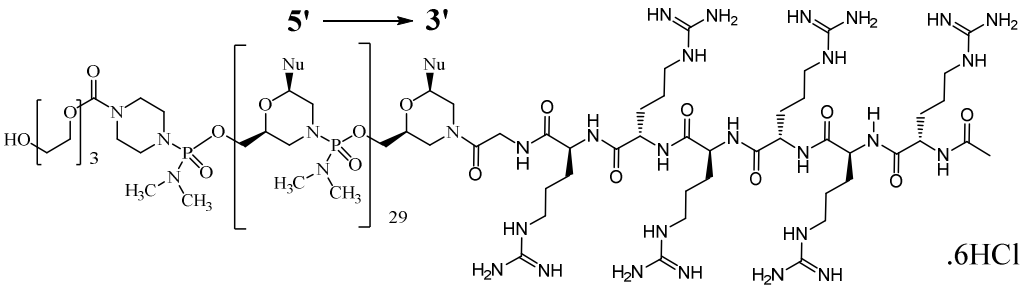
Position	Nu	Position	Nu	Position	Nu	Position	Nu	Position	Nu	Position	Nu

No. 5' to 3'		No. 5' to 3'		No. 5' to 3'		No. 5' to 3'		No. 5' to 3'		No. 5' to 3'	
1	C	6	A	11	A	16	A	21	G	26	X
2	X	7	C	12	A	17	G	22	C	27	C
3	C	8	A	13	G	18	A	23	A	28	X
4	C	9	X	14	G	19	X	24	X	29	A
5	A	10	C	15	A	20	G	25	X	30	G

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

7. The antisense oligomer conjugate of claim 6, or the pharmaceutically acceptable salt thereof, wherein each X is .

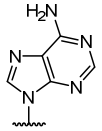
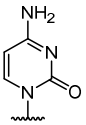
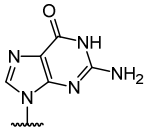
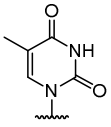
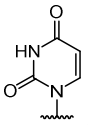
8. The antisense oligomer conjugate of claim 6, or the pharmaceutically acceptable salt thereof, wherein the antisense oligomer is of Formula (IIA):

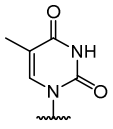


(IIA)

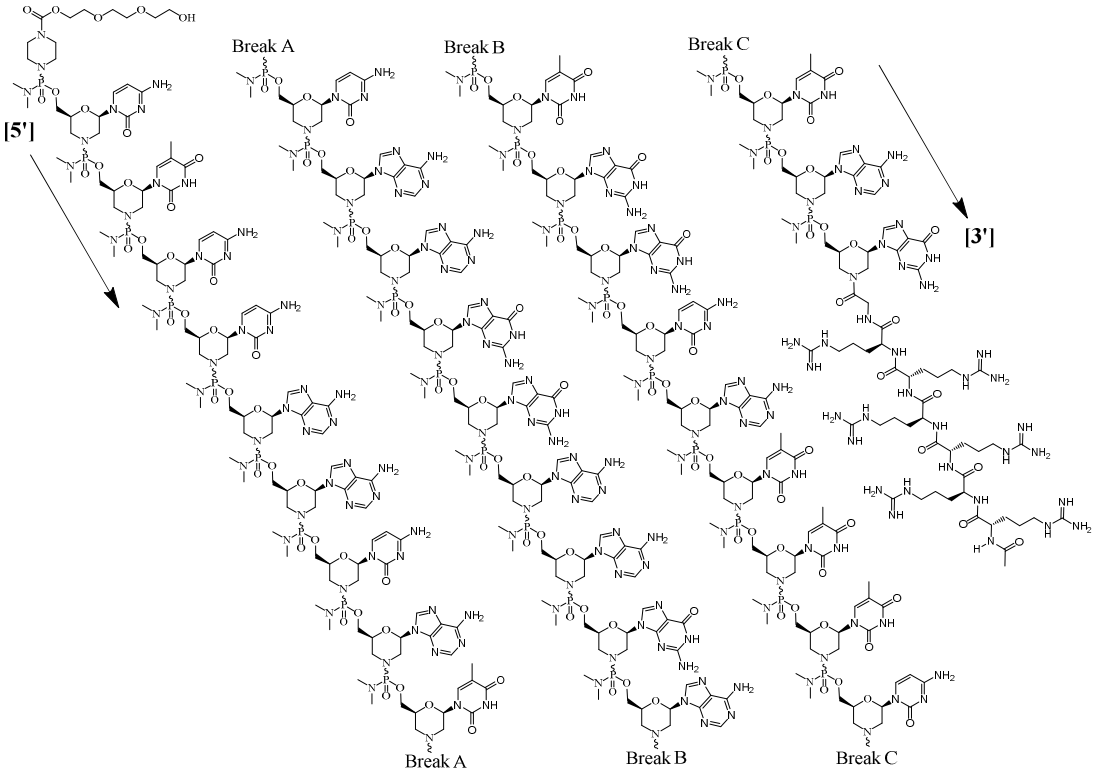
wherein each Nu from 1 to 30 and 5' to 3' is (SEQ ID NO. 1):

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	Position No. 5' to 3'	Nu
1	C	6	A	11	A	16	A	21	G	26	X
2	X	7	C	12	A	17	G	22	C	27	C
3	C	8	A	13	G	18	A	23	A	28	X
4	C	9	X	14	G	19	X	24	X	29	A
5	A	10	C	15	A	20	G	25	X	30	G

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

9. The antisense oligomer conjugate of claim 8, or the pharmaceutically acceptable salt thereof, wherein each X is .

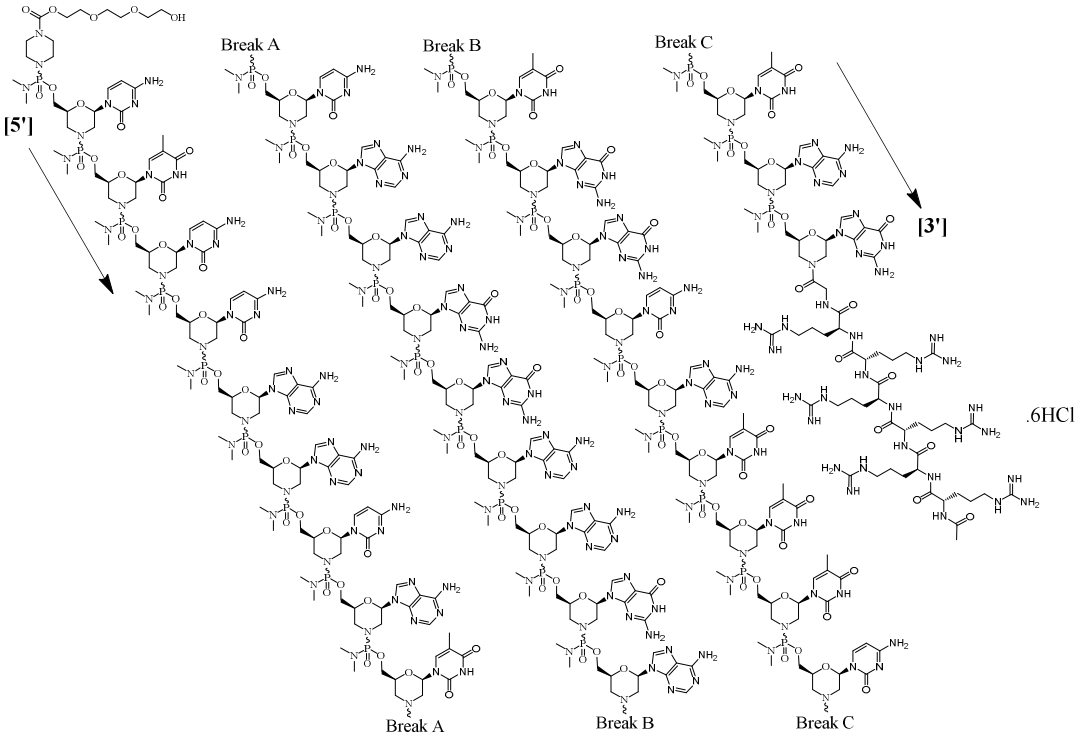
10. An antisense oligomer conjugate for use in the treatment of Duchenne muscular dystrophy (DMD) in a subject in need thereof wherein the subject has a mutation of the dystrophin gene that is amenable to exon 51 skipping, wherein the antisense conjugate is of Formula (IV):



(IV)

or a pharmaceutically acceptable salt thereof.

11. The antisense oligomer conjugate of claim 9, or the pharmaceutically acceptable salt thereof, wherein the antisense oligomer is of Formula (IVA):



(IVA).

12. The antisense oligomer conjugate of any one of claims 1-11, wherein the use is characterized in that the antisense oligomer conjugate is to be administered weekly.

13. The antisense oligomer conjugate of any one of claims 1-11, wherein the use is characterized in that the antisense oligomer conjugate is to be administered biweekly.

14. The antisense oligomer conjugate of any one of claims 1-11, wherein the use is characterized in that the antisense oligomer conjugate is to be administered every third week.

15. The antisense oligomer conjugate of any one of claims 1-11, wherein the use is characterized in that the antisense oligomer conjugate is to be administered monthly.

16. The antisense oligomer conjugate of any one of claims 1-15, wherein the use is characterized in that the antisense oligomer conjugate is to be administered at a dose of about 30 mg/kg.

17. The antisense oligomer conjugate of any one of claims 1-15, wherein the use is characterized in that the antisense oligomer conjugate is to be administered at a dose of about 40 mg/kg.

18. The antisense oligomer conjugate of any one of claims 1-15, wherein the use is characterized in that the antisense oligomer conjugate is to be administered at a dose of about 60 mg/kg.

19. The antisense oligomer conjugate of any one of claims 1-15, wherein the use is characterized in that the antisense oligomer conjugate is to be administered at a dose of about 80 mg/kg.

20. The antisense oligomer conjugate of any one of claims 1-15, wherein the use is characterized in that the antisense oligomer conjugate is to be administered at a dose of about 160 mg/kg.

21. The antisense oligomer conjugate of any one of claims 1-20, wherein the antisense oligomer conjugate, or a pharmaceutically acceptable salt thereof, is formulated as a pharmaceutical composition comprising a pharmaceutically acceptable carrier.