WHAT IS CLAIMED IS :

Claim 1. A virus-like particle (VLP) comprising a protease resistant capsid enclosing at least one heterologous cargo molecule, the cargo molecule further comprising a capsid specific packing sequence.

Claim 2. A VLP according to claim 1, wherein the heterologous cargo molecule comprises an oligoribonucleotide.

Claim 3. A nucleic acid encoding the oligoribonucleotide of claim 2.

Claim 4. A method for producing double stranded RNA comprising; (a) mixing equal amounts of a first VLP of claim 2 and a second VLP of claim 2; (b) isolating the heterologous cargo molecules thereof; (c) annealing the heterologous cargo molecules to form a double stranded RNA molecule; (d) isolating the double stranded RNA molecule.

Claim 5. A method for producing siRNA, shRNA, sshRNA, lshRNA and miRNA comprising transforming a target cell with the double stranded RNA of claim 4.

Claim 6. The nucleic acid of claim 3, wherein one or more complementary regions, each comprising;

(a) a sense strand siRNA, immediately followed by

(b) RNA capable of forming a loop, immediately followed by

(c) an antisense strand siRNA complimentary to the sense strand siRNA

are contiguously arrayed.

Claim 7. The nucleic acid of claim 6, wherein the complementary regions are linked by one or more ribozymes.

Claim 8. The nucleic acid of claim 3, wherein one or more complementary regions, each comprising;

(a) multiple catenated sense strand siRNA, immediately followed by

(b) RNA capable of forming a loop, immediately followed by

(c) multiple catenated antisense strand siRNA complementary to the multiple catenated sense strand siRNA

are contiguously arrayed.

Claim 9. The nucleic acid of claim 8, wherein multiple catenated sense strand siRNAs are linked by 1 to 3 non-complementary nucleotides to form bulged RNA.

Claim 10. The nucleic acid of claim 3, wherein one or more complementary regions, each comprising;

(a) multiple catenated sense strand siRNA, each immediately followed by a sense strand RNA sequence for host cell RNA processing, immediately followed by

(b) RNA capable of forming a loop, immediately followed by

(c) multiple catenated antisense strand siRNA complementary to the multiple catenated sense strand siRNA, each immediately followed by an antisense strand RNA complementary to the sense strand RNA for host cell RNA processing

are contiguously arrayed.

Claim 11. The nucleic acid of claim 10, wherein the RNA sequence for host cell RNA processing is CRISPER.

Claim 12. The nucleic acid of claim 10, wherein the RNA sequence for host cell RNA processing is DICER.

Claim 13. The nucleic acid of claims 6, 8 or 10, wherein the RNA sequence capable of forming a loop comprises one or more ribozymes.

Claims

Claim 1. A method for producing double stranded RNA comprising; (a) mixing equal amounts of a first virus-like particle (VLP) comprising a capsid containing an oligoribonucleotide comprising a packing sequence and a sense-strand RNA sequence and a second VLP comprising a capsid containing an oligoribonucleotide comprising a packing sequence and an antisense-strand RNA sequence; (b) isolating the oligoribonucleotide molecules thereof; (c) annealing the oligoribonucleotide molecules to form a double stranded RNA molecule; (d) isolating the double stranded RNA molecule.

Claim 2. A method for producing siRNA, shRNA, sshRNA, lshRNA, and miRNA comprising transforming a target cell with the double stranded RNA of claim 1.

Claim 3. A VLP containing an oligoribonucleotide comprising a packing sequence and multiple complementary regions, wherein each of said complementary regions comprising;

(a) a sense strand sequence, immediately followed by

(b) a non-homologous sequence capable of forming a loop, immediately followed by

(c) an antisense strand sequence complementary to the sense strand sequence

are contiguously arrayed.

Claim 4. The nucleic acid of claim 3, wherein the complementary regions are linked by one or more ribozymes.

Claim 5. A VLP containing an oligoribonucleotide comprising a packing sequence and one or more complementary regions, wherein each of said complementary regions comprising;

(a) multiple catenated sense strand sequences, immediately followed by

(b) a non-homologous sequence capable of forming a loop, immediately followed by

(c) multiple catenated antisense strand sequences complementary to the multiple catenated sense strand sequences

are contiguously arrayed.

Claim 6. The nucleic acid of claim 5, wherein multiple catenated sense strand sequences are linked by 1 to 3 non-complementary nucleotides to form bulged RNA.

Claim 7. A VLP containing an oligoribonucleotide comprising a packing sequence and one or more complementary regions, wherein each of said complementary regions comprising;

(a) multiple catenated sense strand sequences each immediately followed by a sense strand sequence for host cell RNA processing, immediately followed by

(b) a non-homologous sequence capable of forming a loop, immediately followed by

(c) multiple catenated antisense strand sequences complementary to the multiple catenated sense strand sequences each immediately followed by an antisense strand sequence complementary to the sense strand sequence for host cell RNA processing

are contiguously arrayed.

Claim 8. The nucleic acid of claim 7, wherein the sequence for host cell RNA processing is specific for CRISPR mediated RNA processing.

Claim 9. The nucleic acid of claim 7, wherein the sequence for host cell RNA processing is specific for DICER mediated RNA processing.

Claim 10. The nucleic acid of claims 3, 5 or 7, wherein the sequence capable of forming a loop comprises one or more ribozymes.