

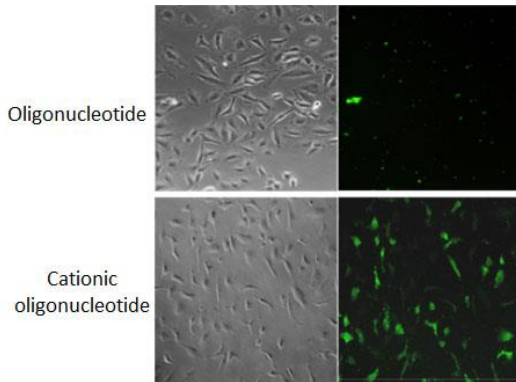
# Cationic oligonucleotides OLIGOPLUS and SIRNAPLUS®



Avoid the use of any vectors with self-delivering oligonucleotides

- + New class of therapeutic oligonucleotides
- + Self-delivering cationic oligonucleotides (OLIGOPLUS)
- + For gene silencing (SIRNAPLUS) or nucleic acid-based therapy

OLIGOPLUS is a novel class of cationic modified oligonucleotides that require no delivery agent as they act as cell-penetrating oligonucleotides. This is achieved by grafting cationic spermine units onto the oligonucleotide to create a positively charged oligospermine-oligonucleotide conjugate. Such cationic oligonucleotides are thus able to diffuse and to bind the cell membrane, inducing an endocytosis and transport in the cytoplasm.



This technology can apply to different classes of therapeutic oligonucleotides such as siRNA, antisense and anti-miR. In the case of siRNA, a sub-class called SIRNAPLUS® have been developed and fully characterized. SIRNAPLUS® conjugates are stable, active in the presence of serum and have shown specific gene silencing activity at low nanomolar concentration. Their *in vivo* gene silencing efficacy is currently under evaluation, in xenograft tumor and lung metastasis models, and in neuronal progenitor cells in mouse brain.



DNA-based conjugate



RNA-based conjugate

|                       |                                     |       |
|-----------------------|-------------------------------------|-------|
| Gene silencing        | Antisense (RNase H activity)        | siRNA |
|                       | Antigene (transcription inhibition) |       |
| Gene regulation (+/-) | Anti-Mir                            | miRNA |

Self-delivering cationic oligonucleotides (OLIGOPLUS) can be produced and used for antisense, gene silencing or antigene applications when single stranded DNA oligonucleotides are conjugated with an oligospermines tail. The grafting of oligospermine tails to double stranded RNA allows the synthesis of SIRNAPLUS® or cationic miRNA for RNA interference applications.

OLIGOPLUS and SIRNAPLUS® are licensing opportunities

For more information, contact our specialists at:  
[support@polyplus-transfection.com](mailto:support@polyplus-transfection.com)

OLIGOPLUS are the subject matter of U.S. Patent No. 9090648, European Patent No. 1 973 927 and foreign equivalents entitled "Cationic oligonucleotides, automated methods for preparing same and their uses".

SIRNAPLUS® are the subject matter of Patent Application WO/2009/095887 entitled "Cationic siRNAs, synthesis and use for RNA interference".