Background

Currently there are no molecules that can directly inhibit the activity of splicing factors. We created decoy oligonucleotides that directly bind and inhibit the splicing activity of splicing factors without affecting their expression or protein-protein interactions. These unique oligos are superior to knockdown technologies (RNAi, antisense oligonucleotides) as they directly bind to the target protein, are not dependent on the half-life of the target protein and are independent of cellular machineries (e.g. RNAi) which can be mutated or are absent in certain cancers or organisms.

Our Innovation:

A new technology to inhibit the activity of RNA binding proteins.

This is a new platform to inhibit splicing factors for the treatment of several diseases. The IP includes multiple possible sequences, against more than 30 different splicing factors, including decoy oligonucleotides against splicing factors mutated in certain cancers

Application for use:

- Clinical Implications: Any disease with elevated activity of splicing factors including cancer, neurological conditions, neurodegenerative diseases, viral infections and others.
- Inhibition of oncogenic splicing factors inhibits cancer cells in cell culture and in animals.
- Ability to design specific inhibitors to a variety of splicing factors involved in multiple diseases.
- Lower toxicity than available knockdown technologies.

Key Features

- Decoy oligonucleotides that inhibit specific splicing factors can be used to treat cancer and other diseases.
- Decoy oligonucleotides against a specific oncogenic splicing factor inhibits the oncogenic properties of breast, lung, pancreatic, and glioblastoma cancer cells.
- Intellectual property includes potential decoys for over 30 splicing factors for the treatment of different diseases.
- Decoy technology is superior to knockdown techniques as it is direct, independent of cellular machineries, and less toxic than current knockdown technologies which eliminate the target protein.

Development Milestones

Proof of concept demonstrated for three different splicing factors in cell culture and for two splicing factors also in animals.

Decoy against an oncogenic splicing factor inhibited metastatic breast cancer and glioblastoma in cell culture and in animals.

Patent Status

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