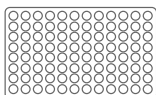


X-miR

PATENT PENDING

NOVEL TECHNOLOGY:

X-miR microRNA Repressors



X-miR Libraries available for:

Human
Mouse
Rat
C. Elegans
Epstein Barr
HIV

[X-miR]

The only microRNA repressor to catalyze non-coding RNA for either transient or stable microRNA repression.

- X-miR Synthetic RNA
- pX-miR Inducible Clones

ADVANTAGES OVER microRNA Antagonists:

- Use as Synthetic or Stably Expressed RNA
- Chemical Modifications not Required
- Specific only to Target MicroRNA Sequence
- Catalytic to Target MicroRNA
- Serum Stability

www.oligoengine.com

Specifically Neutralize microRNA.

Introduction

X-miR MicroRNA Repressors catalyze non-coding RNA via a unique endonuclease guiding mechanism. Unlike antagonists that do not require a perfect sequence match, X-miR's mode of action requires perfect complementarity to activate cleavage.

The choice of using it either as synthetic RNA or as stably expressed clone means that you can use X-miR in research, then migrate into therapeutics without changing technologies.

Benefits of X-miR microRNA repressors:

- **Specificity**
- **Ubiquitous catalysis of microRNA target**
- **Vector Compatibility:**
 - pX-miR
- **Research-to-Therapeutics Support**

X-miR is based on endoGUIDE RNA technology and a member of the Oligoengine Asymmetric RNAi Platform.

Oligoengine's **Asymmetric RNAi Platform** represents the second generation of RNAi aimed at replacing siRNA and shRNA in applications of Reverse Genomics, Target Validation, Drug Discovery, and Therapeutics. The platform includes:

- Multivalent siRNA [MV-siRNA]
- endoGUIDE RNA [endoGUIDE RNA]
- Asymmetric siRNA Duplexes [A-siRNA]
- Asymmetric shRNA Precursors [A-shRNA]

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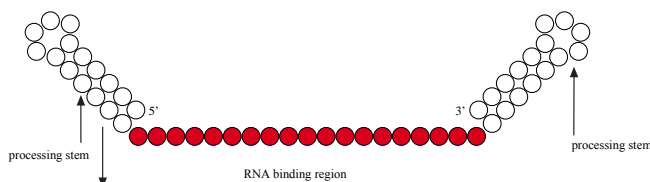
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: the molecule

X-miR's are based on Oligoengine's endoGUIDE RNA technology and work by directing a RNA/endonuclease complex to bind with target RNA via Watson-crick base pairing. This RNA guide event leads to a catalysis action of the directed endonuclease to the target only when a perfect match target sequence is found.

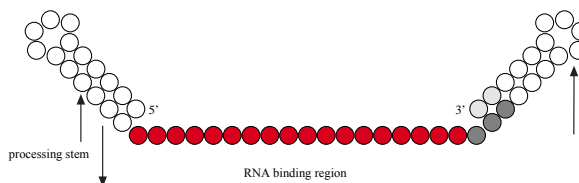
X-miRs inhibitory effects can be manipulated by design. Oligoengine 3.0 software contains thousands of pre-designed X-miR's. Each design is optimized for hybridization and potency of catalysis. However, custom design and libraries are available by request.

Basic Form: RNA Structure



The (small stem-loop, ssRNA, small stem-loop) represents the basic format offered by Oligoengine.

Transcript Form: Expressed in pX-miR



When used in a stably expressed form, the termination element is adopted into the design to ensure structure of the 3' end.

The pX-miR is utilized at Oligoengine to offer two forms of clones with features that can be used optionally by researchers:

- Inducible, retrovirally capable, with puromycin selection.
- Inducible, retrovirally capable, gfp marker, with neomycin selection.

All cloned forms of X-miR are available online.



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: the design



Design: Overview

The X-miR microRNA repressor inhibits the function of targeted microRNA by binding within the nucleotide region highlighted above. Specificity is controlled by the ssRNA region complimentary to microRNA and is chosen carefully by Oligoengine. X-miR microRNA repressors also present exonuclease resistance due to their unique structure.

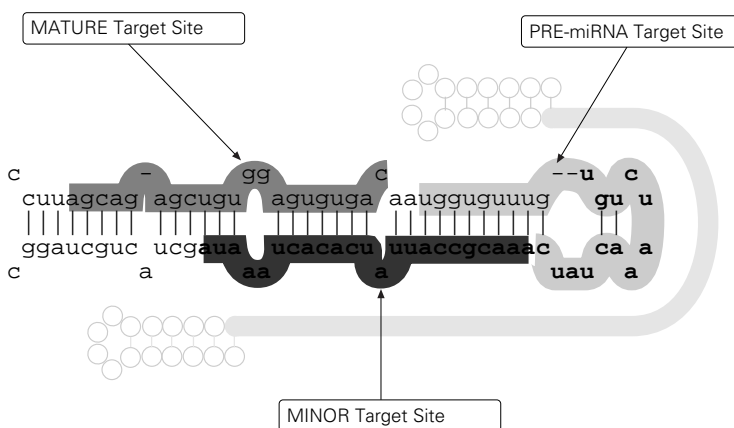
The possibility of utilizing X-miRs as constitutively-expressed transcripts, inducibly controlled, or transfected as synthetic RNA provides researchers with a wide variety of options and enables broad research applications.



Design: Targeting MicroRNA

Oligoengine designs X-miRs to target regions of microRNA that provide effects consistent with the desired research strategy. Regions containing potent and specific content are compared to regions containing potent and broad content. The easiest way to design X-miR reliably is to utilize the Oligoengine 3.0 software.

EXAMPLE:



1. X-miR contains a ~22 nucleotide single-stranded region which hybridizes to your microRNA target within a specific region. The highlighted portion of the above microRNA shows a potential zone targeted by the X-miR, but the mature/minor position may change.

2. Specificity is BLASTED against non-coding as well as coding RNA databases specific to the target organism.

3. X-miRs are protected by ~4 nt loop, ~6 nt stems.

4. *X-miRs are named according to their target region on the microRNA gene.

X-miR categories:

"Mature": Targets the mature strand region of the microRNA.

"Minor": Targets the minor strand region of the microRNA.

"Pre-miRNA": Target a region is outside the mature or minor regions.

"Broad": Targets a motif shared by many microRNAs.



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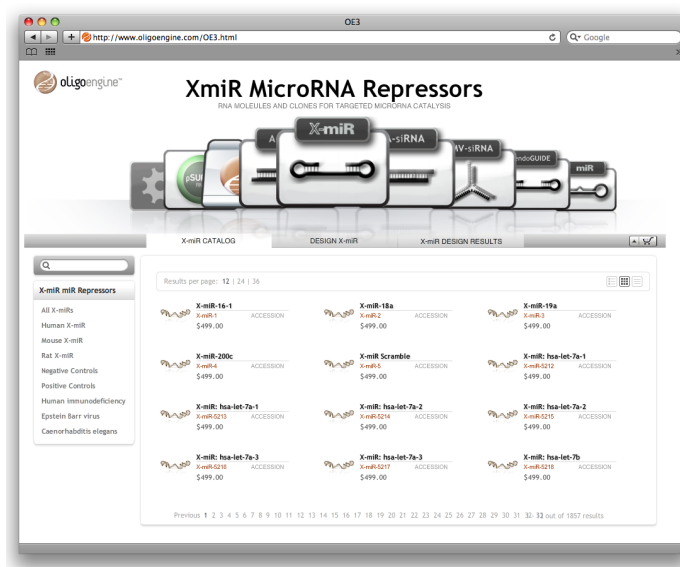
: how to order

ONLINE ORDERING (Available in May 2010):
<http://www.oligoengine.com/OE3.html>

iPhone or iPad Access (Available in May 2010):
<http://www.oligoengine.com/OE3.html>

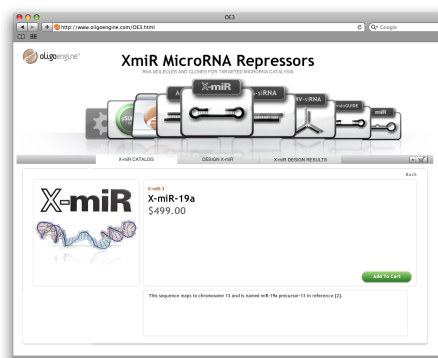
Thousands of X-miRs are available and can be searched by target, accession, or target sequence. If the catalog does not contain a suitable X-miR, you can also use the design tab to design your own.

Ordering:
Oligoengine 3.0 or Online



To order, simply click the X-miR. Then, click 'Add to Cart'. Repeat until finished.

The X-miR's are saved in your cart. The cart allows you to request quotes or even purchase.



Ordering:
By fax



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RNAi Therapeutics, Inc.

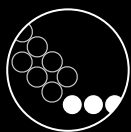
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Use the fax-back form on the following page. The full X-miR catalog is available as a PDF document from the X-miR section of the Oligoengine website.

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fax-back quote form

Fax it back, we'll take care of the rest!

Fax to 206.254.0300

IDENTITY:

NAME: _____

EMAIL: _____

LOGIN: _____

PHONE: _____

PLEASE ENSURE THAT YOU HAVE ALREADY JOINED OLIGOENGINE BEFORE YOU SUBMIT THIS FORM. USE 'SIGN UP' AT WWW.OLIGOENGINE.COM

microRNA Name	pX-miR Oligos \$249.00	pX-miR CLONE \$499.00	Synthetic RNA X-miR \$499.00
Name: _____	<input type="checkbox"/> oligo pair <input type="checkbox"/> BglII / HINDIII <input type="checkbox"/> BglII / XHOI	<input type="checkbox"/> Clone	<input type="checkbox"/> RNA
Name: _____	<input type="checkbox"/> oligo pair <input type="checkbox"/> BglII / HINDIII <input type="checkbox"/> BglII / XHOI	<input type="checkbox"/> Clone	<input type="checkbox"/> RNA
Name: _____	<input type="checkbox"/> oligo pair <input type="checkbox"/> BglII / HINDIII <input type="checkbox"/> BglII / XHOI	<input type="checkbox"/> Clone	<input type="checkbox"/> RNA
Name: _____	<input type="checkbox"/> oligo pair <input type="checkbox"/> BglII / HINDIII <input type="checkbox"/> BglII / XHOI	<input type="checkbox"/> Clone	<input type="checkbox"/> RNA
Name: _____	<input type="checkbox"/> oligo pair <input type="checkbox"/> BglII / HINDIII <input type="checkbox"/> BglII / XHOI	<input type="checkbox"/> Clone	<input type="checkbox"/> RNA
Name: _____	<input type="checkbox"/> oligo pair <input type="checkbox"/> BglII / HINDIII <input type="checkbox"/> BglII / XHOI	<input type="checkbox"/> Clone	<input type="checkbox"/> RNA
Name: _____	<input type="checkbox"/> oligo pair <input type="checkbox"/> BglII / HINDIII <input type="checkbox"/> BglII / XHOI	<input type="checkbox"/> Clone	<input type="checkbox"/> RNA
Name: _____	<input type="checkbox"/> oligo pair <input type="checkbox"/> BglII / HINDIII <input type="checkbox"/> BglII / XHOI	<input type="checkbox"/> Clone	<input type="checkbox"/> RNA