

# siRNA for Gene Silencing

## Description

siRNAs (small interfering RNAs) are short double-stranded RNA molecules that induce sequence specific posttranscriptional gene silencing - a mechanism called RNA interference (RNAi).

siRNA molecules are typically made of two hybridized strands of 18-20 RNA bases, each with 2 DNA bases that overhang at the 3' terminus.

## Advantages

RNAi is one of the most promising new technologies in Molecular Biology. It offers an efficient and easy method for posttranscriptional sequence specific silencing of genes and presents a powerful new tool to study gene function, target validation and signal transduction.

The easiest way to achieve RNAi is the use of synthetic siRNA molecules. Once transfected to a cell, siRNA is incorporated into a nuclease complex called RISC (RNA-induced silencing complex). RISC targets and cleaves mRNA that is complementary to this siRNA, thus interrupting translation of targeted genes.

The sequence specificity of siRNA molecules allows specific silencing of about 90% of known genes.

## Applications

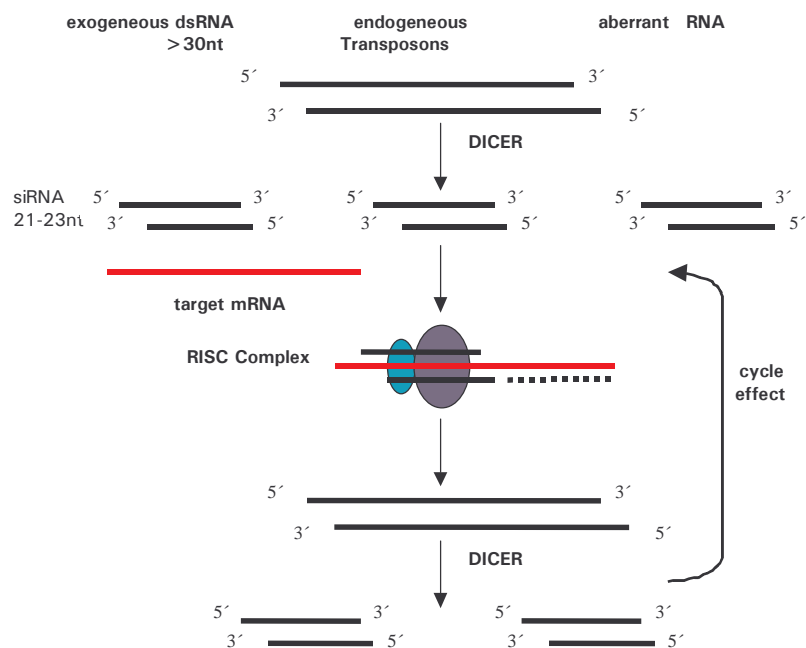
- functional genomics
- drug discovery
- target validation
- signal transduction
- gene therapy

## Product offering

- Custom synthesis of synthetic small interfering RNA molecules (siRNA)  
Thermo Electron siRNA molecules are
- composed of 18-20-RNA bases with 2 DNA bases that overhang at the 3' terminus
  - delivered fully unprotected and ready-to-use as double stranded molecules
  - desalted or PAGE purified

Easily order via the web:  
[www.thermo.com/siRNA](http://www.thermo.com/siRNA)  
or via email:  
[sales.oligos@thermo.com](mailto:sales.oligos@thermo.com)

## Current RNAi-model



## Literature

- Elbashir SM et al.: Duplexes of 21-nucleotide RNAs mediate RNA interference in mammalian cell culture. *Nature* 411 (2001): 494-498
- Elbashir SM, Lendeckel W and Tuschl T: RNA interference is mediated by 21 and 22 nt RNAs. *Genes & Dev.* 15 (2001): 188-200
- Tuschl T, Zamore PD, Lehman R, Bartel DP and Sharp PA: Targeted mRNA degradation by double-stranded RNA in vitro. *Genes & Dev.* (1999) 13: 3191-3197
- Dorsett Y, Tuschl T: siRNAs: applications in functional genomics and potential as therapeutics. *Nat Rev Drug Discov.* (2004) Apr 3(4): 318-29

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Please note:

The inhibition of the expression of a given target gene by dsRNA may be protected by patent rights of Ribopharma AG. The use of certain RNAi fragments may be protected by patent rights of the Carnegie Institute of Washington, Whitehead Institute for Biomedical Research, the Max-Planck-Gesellschaft zur Förderung der Wissenschaften e.V., the Massachusetts Institute of Technology and the University of Massachusetts Medical Center. To obtain a license thereunder for your specific application of gene suppression with small RNA molecules, please contact the named patent owners.

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