

Resource Summary Report

Generated by [SPARC SAWG](#) on Sep 17, 2026

siDirect

RRID:SCR_004853

Type: Tool

Proper Citation

siDirect (RRID:SCR_004853)

Resource Information

URL: <http://sidirect2.rnai.jp/>

Proper Citation: siDirect (RRID:SCR_004853)

Description: siDirect 2.0 provides functional and off-target minimized siRNA design for mammalian RNAi. The previous version of our software designed functional siRNAs by considering the relationship between siRNA sequence and RNAi activity, and provided them along with the enumeration of potential off-target gene candidates by using a fast and sensitive homology search algorithm. In the new version, the siRNA design algorithm is extensively updated to eliminate off-target effects by reflecting our recent finding that the capability of siRNA to induce off-target effect is highly correlated to the thermodynamic stability, or the melting temperature (T_m), of the seed-target duplex, which is formed between the nucleotides positioned at 2-8 from the 5' end of the siRNA guide strand and its target mRNA. Selection of siRNAs with lower seed-target duplex stabilities (benchmark T_m 21.5 degrees C) followed by the elimination of unrelated transcripts with nearly perfect match should minimize the off-target effects. siDirect 2.0 provides functional, target-specific siRNA design with the updated algorithm which significantly reduces off-target silencing. When the candidate functional siRNAs could form seed-target duplexes with T_m values below 21.5 degrees C, and their 19-nt regions spanning positions 2-20 of both strands have at least two mismatches to any other non-targeted transcripts, siDirect 2.0 can design at least one qualified siRNA for > 94% of human mRNA sequences in RefSeq. Enter an accession number and retrieve sequence or Paste in a nucleotide sequence.

Resource Type: analysis service resource, data analysis service, production service resource, service resource

Defining Citation: [PMID:19948054](#), [PMID:15215364](#)

Funding: Special Coordination Fund for Promoting Science and Technology ;
Ministry of Education Culture Sports Science and Technology of Japan ;
Grant-in-Aid for Scientific Research on Priority Areas 12208003

Resource Name: siDirect

Resource ID: SCR_004853

Alternate IDs: nlx_83672

Record Creation Time: 20220129T080226+0000

Record Last Update: 20260912T200134+0000

Ratings and Alerts

No rating or validation information has been found for siDirect.

No alerts have been found for siDirect.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 294 mentions in open access literature.

Listed below are recent publications. The full list is available at [SPARC SAWG](#) .

Xiao D, et al. (2026) Poplar miR1447 Is a Negative Regulator of Disease Resistance Through the SA-Dependent Pathway. *Plant biotechnology journal*, 24(6), 3616.

Niu X, et al. (2026) Targeted inhibition of RGS19 alleviates renal fibrosis by restoring autophagy and modulating immune cell infiltration. *Journal of nanobiotechnology*, 24(1).

Tian M, et al. (2026) Targeting FN1 to overcome gemcitabine resistance in gallbladder cancer: Mechanistic insights and an iRGD-modified PEG-PLGA nanoparticle delivery strategy. *Materials today. Bio*, 37, 102877.

Fu Y, et al. (2026) Disruption of yellow-e3 impairs both adult molting and cuticular melanization in the honeybee (*Apis mellifera*). *Frontiers in zoology*, 23(1).

Koike A, et al. (2026) A neuregulin-like ligand and EGF receptor underpin *Echinococcus multilocularis* development. *Frontiers in cellular and infection microbiology*, 16, 1742233.

Liang J, et al. (2026) IGF1/IGF-1R promotes hepatocellular carcinoma progression by activating the Akt/GSK-3?? pathway. *PloS one*, 21(4), e0346926.

Peng W, et al. (2026) Dual-targeted lipid nanoparticles for TET3 siRNA delivery: nanobiotechnology strategy to remodel tumor immune microenvironment in hepatocellular carcinoma. *Journal of nanobiotechnology*, 24(1).

Zhu Z, et al. (2026) Angiogenic Prognostic Signature for Stratification in Hepatocellular Carcinoma. *Journal of hepatocellular carcinoma*, 13, 600117.

Qian J, et al. (2026) The role of long non-coding RNA HCP5 in ulcerative cutaneous tuberculosis therapy introduction. *Frontiers in cellular and infection microbiology*, 16, 1824185.

Liu S, et al. (2026) An integrated green control strategy for plant viral co-infections: from multivalent vaccine construction to synergistically modified nanodelivery systems. *Journal of nanobiotechnology*, 24(1), 161.

Wei Q, et al. (2026) Glucocorticoid Receptor Activation Reprograms NK Cells to Drive AREG-Mediated Immunosuppression: A Pan-Cancer Role for AREG. *Advanced science* (Weinheim, Baden-Wurttemberg, Germany), 13(2), e12620.

Guo C, et al. (2026) ETS Variant Transcription Factor 6 Promotes Glucose Metabolism Reprogramming in HCC. *Journal of cellular and molecular medicine*, 30(3), e71029.

Rezaenasab A, et al. (2026) TMEM105 upregulation promotes colorectal cancer malignancy: a novel prognostic biomarker potentially linked to the MYC-Ribosome biogenesis axis. *Cancer cell international*, 26(1), 76.

Wu D, et al. (2026) A *Fusarium sacchari* Glycoside Hydrolase 12 Protein FsEG1 Is a Major Virulence Factor During Sugarcane Infection and Confers Resistance to Pokkah Boeng Disease via the HIGS Strategy. *Plant biotechnology journal*, 24(5), 3458.

Wu M, et al. (2026) Self-Assembling Nanoparticle Enhances RNA Interference Efficiency against *Hyphantria Cunea* (Drury) with Minimal Risk to Nontarget Organisms. *Journal of agricultural and food chemistry*, 74(6), 5107.

Mida B, et al. (2026) A low-level Cdkn1c/p57kip2 expression in spinal progenitors drives the transition from proliferative to neurogenic modes of division. *EMBO reports*, 27(2), 433.

Komata S, et al. (2026) Whole genome analysis of toxic Papilionidae butterflies utilizing aristolochic acid, *Pachliopta aristolochiae*, and *Byasa alcinous*. *DNA research : an international journal for rapid publication of reports on genes and genomes*, 33(1).

Gao R, et al. (2026) Bioinformatics and Immunohistochemistry Reveal the Diagnostic and Mechanistic Role of the Cuproptosis-Related Genes SMOC2/THY1 in Liver Fibrosis. *Journal of cellular and molecular medicine*, 30(8), e71144.

Zhang L, et al. (2026) Systematic evaluation of scallop (*Argopecten irradians*) SoxH reveals its crucial role in spermiogenesis with limited evidence for sex determination. *Communications biology*, 9(1).

Li Y, et al. (2026) Deciphering the ancestral mechanisms of neural regeneration through single-cell analyses of jellyfish rhopalium repair. *Science advances*, 12(21), eaeb8034.