

siRNA

Custom and wide array of siRNAs of exceptionally high quality

- **High quality siRNA at an affordable price**
High-throughput RNA synthesis platforms produce siRNA of consistent and exceptionally high quality at an affordable price.
- **Guaranteed highly purified siRNA**
Purified by either Bioneer's proprietary BioRP column technology (free of charge) or by HPLC and to guarantee the highest possible purity.
- **Each RNA is quality controlled**
Single-strand RNAs are checked via MALDI-TOF analysis (Fig. 1) and Double-stranded siRNA duplexes are confirmed by PAGE analysis (Fig. 2).
- **All Bioneer's siRNA products are manufactured in a state-of-the-art clean room.**

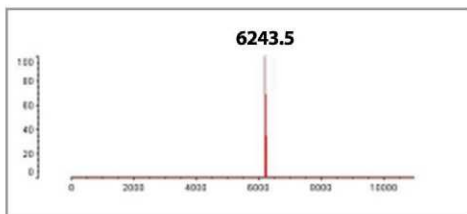


Fig. 1. MALDI-TOF mass spectrometry analysis of the synthesized siRNA

All shipped siRNAs are processed through rigorous quality control (QC) procedures, including MALDI-TOF and gel analysis.

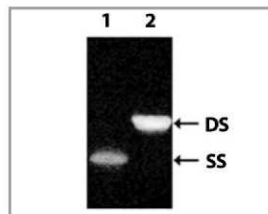


Fig. 2. Complementary single-strand RNA strands were annealed to form double-stranded siRNA

The resulting siRNA was analyzed by 15% non-denaturing PAGE. SS: single-strand RNA, DS: double-strand siRNA.

Turbo si-Designer

- Bioneer's proprietary siRNA design algorithm
- Identify highly effective siRNA target sites with high success rates
- Highly effective in selecting functional siRNAs: 83.8% of the tested siRNA showed >70% knockdown and 38.1% elicited >90% knockdown

Successful RNAi experiments in mammalian cultured cells depend upon several factors. Specifically it is important to design and identify effective and specific siRNA sites and to perform efficient and specific delivery of siRNA to the desired target cell types. To facilitate design process, Bioneer, in collaboration with the National Genome Information Center (NGIC) has developed Turbo si-Designer, (a proprietary siRNA selection algorithm). Turbo si-designer can identify highly effective siRNA target sites with superior success rates. The performance of the Turbo-si-designer was evaluated by designing hundreds of siRNAs and testing their knockdown efficacy by Real-Time PCR analysis. When compared with other web-based design tools, Turbo si-designer algorithm successfully predicted functional siRNAs at a high probability of efficient knockdown. Notably, siRNAs with the low NGIC score were mostly nonfunctional, indicating that ineffective siRNAs are efficiently removed by Turbo si-Designer (Fig.3).

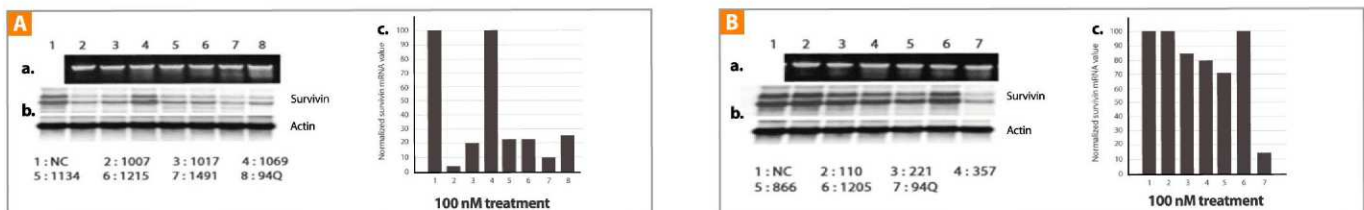


Fig. 3. Knockdown efficiency of siRNAs designed by Turbo si-Designer was analyzed by Northern blot and real-time PCR analysis

A) Knockdown efficiency of high score siRNAs. B) Knockdown efficiency of low score siRNAs. (a: siRNA 15% PAGE, b: Northern blot analysis, c: Real-Time PCR analysis)

AccuTarget™ Genome-Wide Predesigned siRNAs

- AccuTarget™ Genome-wide Predesigned siRNAs are available for about 44,359 genes of the human, mouse, and rat genomes.
- Three top-scoring siRNAs per target gene are available.
- At least one of the three siRNA candidates were reduced target mRNA levels by >70% when transfected at 100 nM concentration.

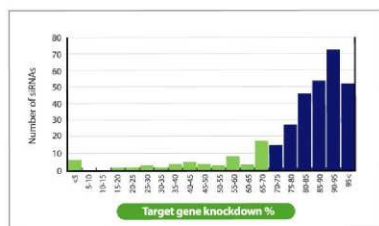


Figure 2. AccuTarget™ Pre-designed siRNAs are highly effective

To determine knockdown efficiency of predesigned siRNAs, HeLa cells were transfected with siRNAs at 100 nM concentration. Twenty four hours post-transfection, total RNA was isolated and the level of target mRNA was measured by QRT-PCR. This data demonstrates the effectiveness of the Turbo si-Designer algorithm: 83.8% of tested siRNAs induced >70% knockdown and 38.1% of tested siRNAs elicited >90% knockdown

AccuTarget™ siRNA Library

AccuTarget™ siRNA Library for Human / Validated siRNA Library for Human

- Choose to purchase either 1, 2, or 3 siRNA(s) per target gene
- New library sets are continuously being updated
- To minimize the cost of a set for high throughput screening purposes the two siRNAs are provided at 0.1 nmole, 0.25 nmole, 0.5 nmole and 1 nmole

Gene Family Functional Class	Human Genes		Gene Family Functional Class	Human Genes	
	siRNA library	Validated siRNA library		siRNA library	Validated siRNA library
1. Antioxidant	38	2	14. Lyase	123	8
2. Apoptosis	290	208	15. Motor	122	4
3. Cancer	1158	466	16. NF-kB pathway	37	34
4. Caspase	37	18	17. Nucleic acid binding	2589	144
5. Cell cycle	112	107	18. Oxidoreductase	551	15
6. Cyclase	22	-	19. Peptidase	495	27
7. Cytochrome P450	52	-	20. Phosphatase	188	119
8. Deaminase	22	-	21. Receptor	1526	53
9. GPCR signaling pathway	732	5	22. Transferase	1431	117
10. Helicase	115	8	23. Transporter	1023	17
11. Isomerase	104	4	24. Tubulin	20	-
12. Kinase	700	104	25. Ubiquitin	77	5
13. Ligase	272	27		-	-

AccuTarget™ Flexible validated siRNA library for Human

- Flexible validated siRNA library sets for customer specified genes are also available; minimum order 10 siRNAs

AccuTarget™ Validated Real-Time PCR Primer

- Always ready-to-ship for 10,662 genes specific primers
- All primers containing 10,662 pairs verified amplification efficiency through Exicycler™ 96 and AccuPower® GreenStar™ qPCR PreMix
- New primers are continuously being updated
- High quality (100% MALDI-TOF QC) and clean process (Manufactured clean room)

Gene Family/ Functional Class	Human Genes	Gene Family/ Functional Class	Human Genes
1. Antioxidant	38	14. Lyase	118
2. Apoptosis	277	15. Motor	111
3. Cancer	1082	16. NF-kB pathway	37
4. Caspase	35	17. Nucleic Acid Binding	2244
5. Cell cycle	111	18. Oxidoreductase	502
6. Cyclase	21	19. Peptidase	463
7. Cytochrome P450	37	20. Phosphatase	179
8. Deaminase	19	21. Receptor	1296
9. GPCR signaling pathway	571	22. Transferase	1356
10. Helicase	112	23. Transporter	947
11. Isomerase	91	24. Tubulin	11
12. Kinase	673	25. Ubiquinone	70
13. Ligase	261		

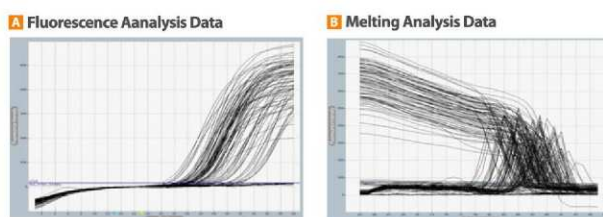


Fig. 5. Real-Time PCR validation test of human Oxidoreductase using AccuTarget Human Oxidoreductase Real-Time PCR Primer Set

AccuTarget™ Validated siRNA

- siRNA with proven knockdown efficiency
- Greater than 70 % of knockdown is proven
- Validated siRNA are provided as Tube types or Plate types at various scales (1, 5, 10, 20, 50 and 100 nmol)

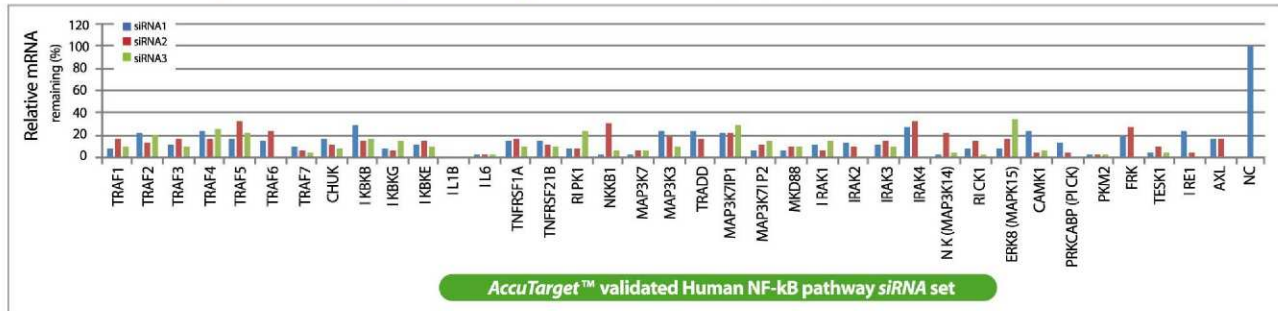


Fig. 6. Knockdown efficiency of AccuTarget™ Validated siRNAs

HeLa cells were transfected with validated siRNAs and the knockdown efficiency was measured by Real-Time PCR. The level of target mRNA was expressed as a percent of mRNA remaining in cells treated with the target gene-specific siRNA compared to cells treated with a negative control siRNA (AccuTarget™ Negative control siRNA).

AccuTarget™ Control siRNA

- Positive control siRNA (Human GAPDH, GFP, Luciferase) and Negative control siRNA (commonly used for Human, Mouse and Rat) are available
- Fluorescently labeled siRNA can be used for monitoring transfection efficiency AccuTarget™ control siRNA (Positive & Negative)
- Convenient and cost-effective
- Various scales (1, 5, 10, 20 nmol) and the option of purification methods (BioRP or HPLC)

Positive Control siRNA

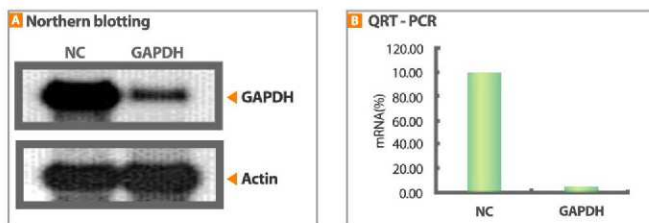


Fig. 7. HeLa cells were transfected with GAPDH and NC (negative control) siRNA. Twenty four hours post-transfection, total cellular RNA was isolated from transfected cells and subjected to Northern blot and real-time PCR analyses. Highly efficient knockdown of GAPDH mRNA can be easily achieved using our positive control GAPDH siRNA.

Negative Control siRNA

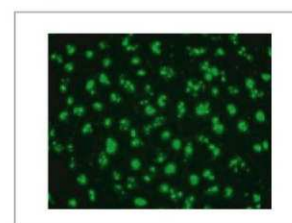


Fig. 8. HeLa cells transfected with FITC-labeled siRNA (Cat No.: SN-1021) was observed by confocal microscopy. The fluorescent cells indicate that the target cells were successfully transfected with the siRNA.

Custom siRNA

- High-throughput synthesis system (384 parallel synthesizer) and automatic purification system (BioRP & HPLC)
- High quality (100% MALDI-TOF QC) and clean process (Manufactured clean room)
- 100% satisfaction guarantee

Bioneer's High-throughput RNA synthesis platforms produce siRNA of consistent and exceptionally high quality at an affordable price.

Custom synthesized siRNAs are provided in various formats and amounts, and many different types of modifications including fluorescent labels

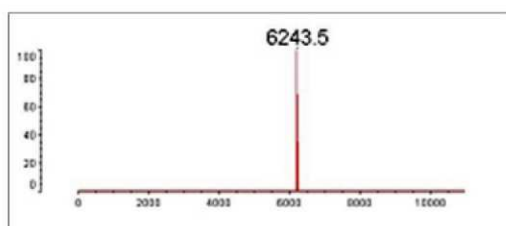


Figure 9. MALDI-TOF mass spectrometry analysis of the synthesized siRNA.

All shipped siRNAs are processed through quality control (QC) procedures, including MALDI-TOF and gel analysis



Fig 10. All siRNAs are manufactured in clean room

Ordering Information

Cat. No	Product Name	Purification	Guaranteed nmole
SDO-1005	<i>AccuTarget™</i> Genome-wide Predesigned siRNA	BioRP/HPLC	1 nmole
SDO-1006			5 nmole
SDO-1001			10 nmole
SDO-1002			20 nmole
SDO-1003			50 nmole
SDO-1004			100 nmole
SL-4001/2/3	<i>AccuTarget™</i> siRNA library	BioRP	1, 2, 3 set siRNA (0.25, 0.5, 2nmole)
SL-1001/2/3			1 siRNA (0.25, 0.5, 2nmole)
SL-2001/2/3			2 siRNAs (0.25, 0.5, 2nmole)
SL-3001/2/3			3 siRNAs (0.25, 0.5, 2nmole)
SVL-1001/2/3	<i>AccuTarget™</i> Validated siRNA library	BioRP	1 siRNA (0.25, 0.5, 2 nmole)
SVL-2001/2/3			2 siRNAs (0.25, 0.5, 2 nmole)
SVL-3001/2/3			3 siRNAs (0.25, 0.5, 2 nmole)
SFVL-1001	<i>AccuTarget™</i> Flexible Validated siRNA library	BioRP/HPLC	2 nmole (minimum order 10 siRNAs)
SV-1006/16	<i>AccuTarget™</i> Validated siRNA	BioRP/HPLC	1 nmole
SV-1007/17			5 nmole
SV-1001/11			10 nmole
SV-1002/12			20 nmole
SV-1003/13			50 nmole
SV-1004/14			100 nmole
PHS-00F050	<i>AccuTarget™</i> Validated Real Time PCR primer	BioRP	50 rxns
PHS-001050 ~ PHS-025050			50 rxns
PHS-P01			100 rxns
PHS-P02			200 rxns
SP-1004/14	<i>AccuTarget™</i> GAPDH siRNA	BioRP/HPLC	1 nmole
SP-1001/11			5 nmole
SP-1002/12			10 nmole
SP-1003/13			20 nmole
SP-2004/14	<i>AccuTarget™</i> GFP siRNA	BioRP/HPLC	1 nmole
SP-2001/11			5 nmole
SP-2002/12			10 nmole
SP-2003/13			20 nmole
SP-3004/14	<i>AccuTarget™</i> Luciferase siRNA	BioRP/HPLC	1 nmole
SP-3001/11			5 nmole
SP-3002/12			10 nmole
SP-3003/13			20 nmole
SN-1004/14	<i>AccuTarget™</i> Negative control siRNA	BioRP/HPLC	1 nmole
SN-1001/11			5 nmole
SN-1002/12			10 nmole
SN-1003/13			20 nmole
SN-1024	<i>AccuTarget™</i> Fluorescein labeled negative control	HPLC	1 nmole
SN-1021			5 nmole
SN-1022			10 nmole
SN-1023			20 nmole
SS-1001	<i>AccuTarget™</i> GAPDH Control siRNA Set, 5 nmole(Positive) + 2 nmole(Negative)	BioRP	(5P + 2N) nmole
SS-1002	<i>AccuTarget™</i> GFP Control siRNA Set, 5 nmole(Positive) + 2 nmole(Negative)	BioRP	(5P + 2N) nmole
SS-1003	<i>AccuTarget™</i> Luciferase Control siRNA Set, 5 nmole(Positive) + 2 nmole(Negative)	BioRP	(5P + 2N) nmole
SS-1011	<i>AccuTarget™</i> GAPDH Control siRNA Set, 5 nmole(Positive) + 2 nmole(Negative)	HPLC	(5P + 2N) nmole
SS-1012	<i>AccuTarget™</i> GFP Control siRNA Set, 5 nmole(Positive) + 2 nmole(Negative)	HPLC	(5P + 2N) nmole
SS-1013	<i>AccuTarget™</i> Luciferase Control siRNA Set, 5 nmole(Positive) + 2 nmole(Negative)	HPLC	(5P + 2N) nmole