interchim

Sino Biological Inc.

Biological Solution Specialist

Sinofection®

- Animal Component Free
- Fast Delivery
- Quality Guaranty

- High Efficiency
- High Stability
- High Reproducibility
- Simple to Use

Sinofection®

Quality

Transfection reagents are used to facilitate nucleic acids, such as DNA, RNA and oligonucleotides, crossing cellular membrane into culture cells. **Sinofection®** is an ideal transfection reagent that is highly efficient for various sizes of nucleic acids from 15bp to 500kb transfection. The prominent features of **Sinofection®** are reliable, highly efficient, low cytotoxicity, high reproducible and easy to use transfections to various cell lines and primary culture cells.

Sino Biological, Inc, is one of the largest recombinant protein and antibody manufacturers in the world. It launches more than 2000 new products of the high quality recombinant proteins and antibodies each year. In the process of product development and production, the scientists have been using Sinofection® tens of thousands times, and the success rate of DNA transfection into culture cells by using Sinofection® has been close to 100%.

Ordering information

Cat. No.	Size	
STF01	0.75ml (250~750 times transfections*)	
	1.5ml (500~1500 times transfections*)	
	Bulk (for 1L culture transfection)	

Partial List of Suitable Cell Lines

NIH–3T3	T98G	hES	COS–7	Jurkat	293E
HEK293	HeLa	PC3	293F	D53MS	CHO–K1
CHO	HepG2	RAW264	U–937	DG44	A549
SNU–16	MCF7	SCC61	AGS	Vero	293H
A–375	mES	SQ208	CACO–2	HT–29	etc.

Sinofection®

Reliable

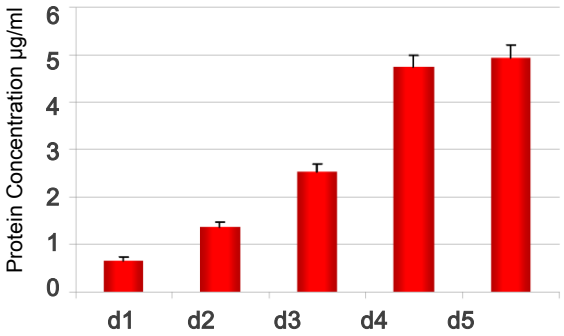
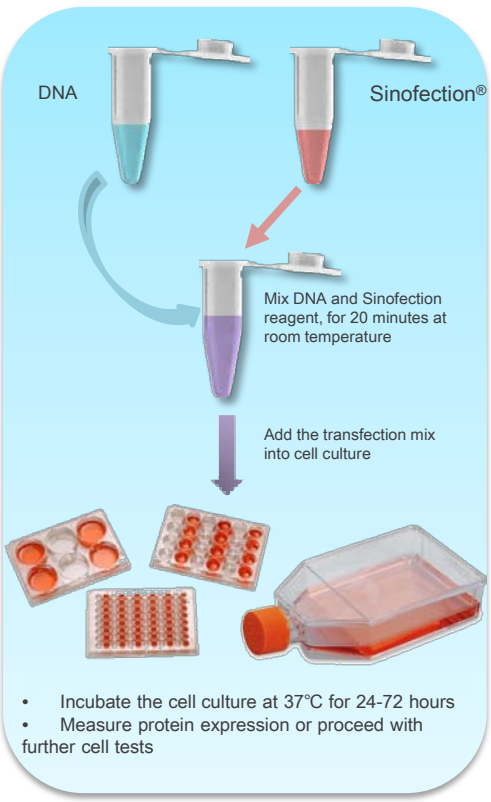


Figure: Protein expression increases in the days after transfection of HEK293 cell line. On Day 5, the expression reaches a plateau. While the same DNA constructs were transfected CHO cells, a cell line grows in suspension, the increasing protein expression continues after Day 5 and reaches a plateau at Day 12~14.

Product Feature

- Cationic polymer-based transfection reagent, which is suitable nucleic acid size for transfection: 15bp - 500kb
- Optimized for eukaryotic culture cell transfection
- Suitable for primary, stem cell, insect culture cell transfection
- Suitable for both suspension or adherent cell cultures
- Culture with serum or not are suitable using Sinofection
- High transfection efficiency, low cytotoxicity
- Easy to use and time saving
- Animal component free
- Stable at room temperature for 6 months and at 4℃ for 12 months

Application



- Incubate the cell culture at 37℃ for 24-72 hours
- Measure protein expression or proceed with further cell tests

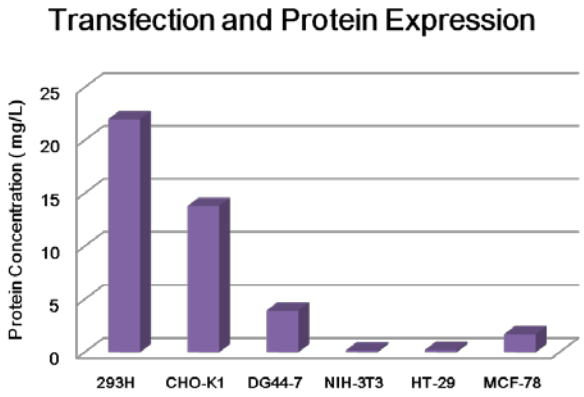
Suggested DNA and Transfection Reagent Ratio

Cell Culture	Volume (ml)	Surface (cm^2/well)	DNA (μg/well)	Sinofection® (μl/well)
96 well plate	0.1	0.3	0.05	0.25 – 0.75
48 well plate	0.2	0.7	0.1 – 0.4	0.5 – 1.5
24 well plate	0.5	2.0	0.2 – 0.8	1.0 – 3.0
12 well plate	1.0	4.0	0.4 – 1.6	2.0 – 6.0
6 well plate	2.0	9.5	0.8 – 3.2	4.0 – 12
35 mm dish	2.0	8.0	0.8 – 3.2	4.0 – 12
10 cm dish	5.0	20	1.6 – 6.4	8.0 – 24
15 cm dish	10	60	3.2 – 12.8	16 – 48
125 ml flask	30			50 – 70
1 liter flask	250			400 – 600

Table above: List of recommended Sinofection reagent and DNA ratio in various transfection volumes of HEK293 cell culture at 70% confluence. One should be noticed that the protocol may be optimized for each transfection with different cell line, medium, and cell confluency at the time of transfection to give higher transfection efficiency and higher protein expression.

Sinofection®

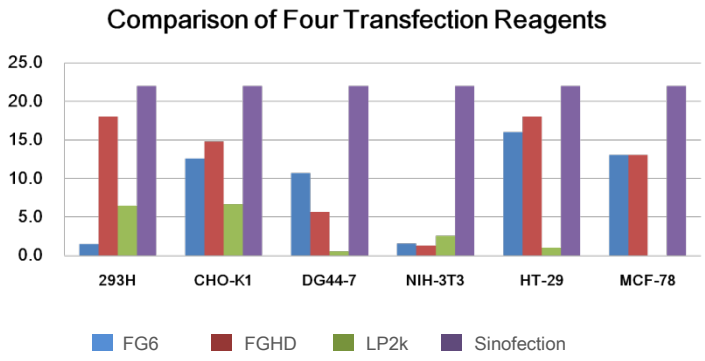
Cost Effective



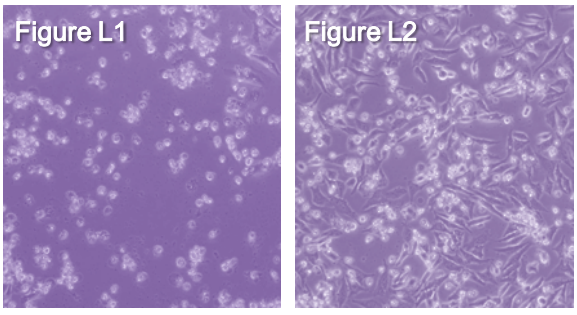
High Efficiency

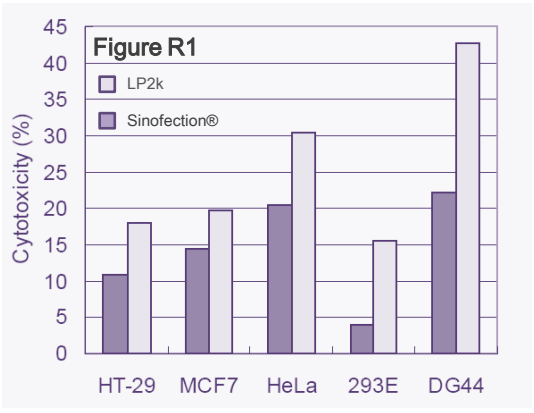
Left figure: protein expressions (mg/L) of 6 cell lines, HEK293, CHO, DG44-7, 3T3, HT29 and MCF78, at the 72 hour after transfection with Sinofection®. The protein from expression construct was expressed significantly different among the cell lines after transfection in a parallel condition. The different expression may be contributed by 1) transfection efficiency, 2) cytotoxicity of transfection reagent to various cells, 3) transcription mechanism of the host cell matches with cis-regulatory elements on the expression construct, and 4) whether or not the expressed product affecting cell growth and protein synthesis.

Right figure: Comparison of Sinofection with three other commercial brand products, which are commonly used in research labs. In the same experiment above with the Sinofection and a expression plasmid in 6 different cell lines, Sinofection was compared with three other popular brand products in parallel. For the comparison, all the data, in µg/ml or in ng/ml, were normalized. The results demonstrate that Sinofection obtains higher protein expression in 6 cell lines than competitors' products, FG6, FGHD and LP2k. The comparison indicates that Sinofection transfection reagent has higher transfection efficiency and lower cytotoxicity than other three products.



Low Cytotoxicity





Most transfection reagents or methods have some effects to cellular membranes and increase their permeability, so to let nucleic acids crossing the membrane into cytoplasmic matrix. Some of transfection reagents may have additional cytotoxicities, such as Polyfectins' side-effects reviewed by Hunter AC*. In general, 10% to 25% cytotoxicity counted as cell-death rate after a transfection is considered as optimal transfection effect to obtaining ideal expression results. Transfection with less than 10% cell death may lower the transfection efficiency, and that with more than 25% cell-death also lowers the efficiency because of massive cell-death. Figures above on left: microscopic views of Hela cell after transfection, Figure L1 – obvious cytotoxicity with more than 30% cell-death after using a commercial transfection reagent, LP2K, with the manufacturer recommended protocol; Figure L2, 20% cell-death with Sinofection® in a parallel experiment. Figure R1, Cytotoxicities of Sinofection® transfection reagent and LP2K in 5 cell lines were compared.

* Molecular hurdles in polyfectin design and mechanistic background to polycation induced cytotoxicity. Hunter AC. Adv Drug Deliv Rev. 2006 Dec 1;58(14):1523-31. Epub 2006 Sep 28.

Stability

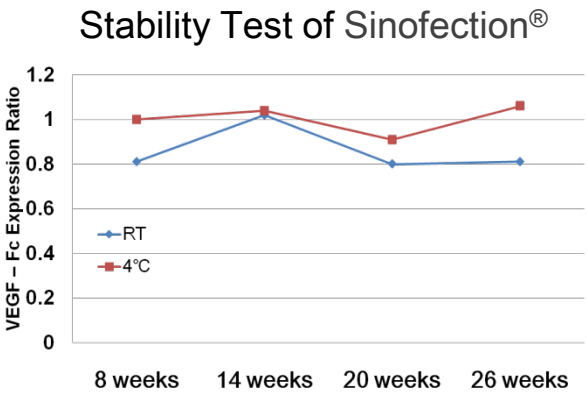


Figure left: Sinofection® product samples were stored either at room temperature (RT) or 4℃ for 8, 14, 20 and 26 weeks prior to the transfection tests. VEGF-Fc expression construct was transfected into HEK293 cells with the transfection reagent above and fresh made transfection reagent in parallel as control, and the VEGF expression ratio of the shelf reagent to the fresh reagent was plotted. The result indicates that Sinofection® is stable after 6 months stored at room temperature.

Recommended storage condistions :

Short term storage (<6 months) : 4 °C
Long term storage (>6 months) : -20 °C

Related Products

Related Products		Product number
Cytokines & Growth Factors and receptors	Recombinant proteins	763
cDNA	cDNA	7000+
CD antigens / antibodies	Recombinant proteins and antibodies	800+
Antibodies	mAb, research tools	3000+

Sino Biolocal, Inc.

Email:
For product information and orders, contact:
interbiotech@interchim.com

For Research Use Only

Preparation of transfection

- **For adherent cells** :

  One day before transfection, plate 0.2–2×10^6 cells in medium per 35-mm dish. Incubate at 37°C (5% CO2) overnight. 50–80% confluency of the cells is optimal for performing transfection.

- **For suspension cells** :

  One day before transfection , cell passages at a density of 5 × 10^4/ml to 1 × 10^6/ml in a 35-mm dish is obtained. The cell number should depend on both cell types and experimental need. A better result of the transfection should be obtained when cells are in log growth phase at the time of transfection.

Preparation of Sinofection & DNA complexes in 10 ml cell culture:

Dilute the required plasmid DNA amount with 0.5ml appropriate diluent, such as 150mM NaCl, 300mM glucose, DMEM medium with or without serum, whichever is isotonic. mix sufficiently.

Add the required Sinofection® volume to the diluted DNA mix sufficiently and incubate the mixture for 3-20 minutes at room temperature to allow complexes to form. Do not incubate for longer than 20 minutes

Transfecting with Sinofection®

Add the complexes drop-wise to cells and medium. Gently rock the dishes or wells to ensure even distribution.

Incubate cells at 37°C in a CO2 incubator for 18-48 hours (normally high expression is achieved after 72 hours) prior to protein expression assay.

To improve your transfection efficiency, the following tips should may help:

- Culture medium selection: to select the culture medium that makes your cells at a high growth rate. Sinofection® works well in all the medium we have tested, includng many commercial media with or withou serum.
- The transfection should be most efficient at log growth phase of the fresh passage of the culture cells.
- Pre-transfection test of cytotoxicity to obtain optimal volume of Sinofection: add a seriel of dilution, from 0.5ul/ml to 15ul/ml, of the transfection reagent to cell cultures. Use the condition with 80% cell survive rate at Day 3 after adding the transfection reagent for the experiment.
- Optimize DNA concentration for your transfection: we recommend the DNA concentration of 0.05ug/ml to 1.5ug/ml for most transfection applications. Within this range, you may find a best concentration of nucleic acids for your experiment.
- To change medium after 24 hours after adding the transfection reagent may help culture cells growing healthier and expressing transfected gene higher
- At the last, we have optimized transfection condition for the following cell lines for your convenience :

Cell type	Optimal DNA:Sinofection®	DNA µg in MW48	Sinofection® µl in MW48
HEK293	1:4.6	0.31	1.40
CHO-K1	1:4.9	0.20	1.00
DG44-7	1:3.9	0.31	1.21
CCTCC	1:3.9	0.20	0.80
Hela	1:3.5	0.22	0.78
NIH-3T3	1:4.5	0.20	0.90
HT-29	1:3.3	0.30	1.00
Vero	1:3.0	0.41	1.20
MCF-7	1:4.4	0.20	0.90
A549	1:2.8	0.40	1.10