

SUPPORTING INFORMATION

Table SI1 Alanine transaminase (ALT) and aspartate transaminase (AST) of plasma collected from rats treated with acoustic pulses involving various inter-pulse periods (IPP).

Enzyme Activity (IU/L) at Indicated Inter-Pulse Period						
	72 ms	400 ms	800 ms	2000 ms	4000 ms	Control
ALT	90 ± 70	118 ± 120	159 ± 97	127 ± 40	180 ± 82	45 ± 8
AST	205 ± 30	225 ± 102	239 ± 75	217 ± 69	236 ± 58	87 ± 21

Table SI2 Alanine transaminase (ALT) and aspartate transaminase (AST) of plasma collected from rats treated with various pulse-train US exposure regimens. ('m,n': US pulsing 'on' time, 'off' time; C+:continuous US with PFR 13.9 Hz, C+':continuous US with PFR 55.6 Hz; details shown in Table 2)

Enzyme Activity (IU/L) at Indicated pulse-train US exposure regimens										
	C+	'1 s, 2 s'	'2 s, 2 s'	'2 s, 3 s'	'3 s, 2 s'	C+'	'1 s, 2 s'	'2 s, 2 s'	'2 s, 3 s'	'3 s, 2 s'
ALT	65 ± 22	60 ± 15	63 ± 23	84 ± 29	72 ± 35	117 ± 35	73 ± 16	80 ± 24	80 ± 16	74 ± 16
AST	215 ± 61	206 ± 43	220 ± 68	228 ± 61	242 ± 68	344 ± 116	240 ± 41	235 ± 48	227 ± 37	245 ± 32

Table SI3 The extents of hepatic necrosis damage on day 1 from variable treatments (150 µg plasmid).

MB concentration	US PNP (MPa)	Necrotic area / total area
0	0	0
10%	0	0
0	2.7	1.5%
0.5%	2.7	6.0%
1.5%	2.7	6.8%
10%	1.0	3.7%
10%	2.0	9.1%
10%	2.7	10.4%
10%	3.3	14.6%
10%	2.7(pulse-train)	5.1%

Table SI4 Summary of various animal experiments.

Experiment	Number of groups	Animal numbers per group
Comparison of gene transfer enhancement with focused and unfocused transducer	3	8
Gene delivery mediated by US with MBs	4	6
Dependence of transgene expression on MBs concentration	8	6
Gene transfer efficiency upon various US peak negative pressures (PNP)	6	7-9
Effect of inter-pulse period of US on gene transfer efficiency	5	6
Effect of pulse train US exposure on gene transfer efficiency	10	6-7
Histological assay for liver damage	2	15