

**Antisense/decoy ODN transfection (in vitro)**

No.	First Author	Reference	PMID	Cell	Origin	decoy/antisense ODN target	Remarks
1	S. Akagi et al.	<i>J. Am. Soc. Nephrol.</i> , 15, 3215-3224 (2004).	15579525	primary CD34 <sup>+</sup> cell	Human blood (EPO-H, EPO-R patients)	SHP-1 antisense ODN	pEGFP-Luc plasmid:primary CD34 <sup>+</sup> cell
2	S. F Feigl et al.	<i>J. Clin. Invest.</i> , 115, 3057-3071 (2005).	16239967	HeLa, Raji cell	Human Cervix Adenocarcinoma, Human B lymphocyte(Burkitt's lymphoma)	NF-κB decoy ODN	
3	S. F Feigl et al.	<i>Nature Med.</i> , 12, 99-106 (2006).	16327802	THP-1, MM6(Mono Mac6)	Human monocytic cell, Human monocytic cell	STAT-6, NF-κB, AP-1 decoy ODN	Luc.plasmid:THP-1, MM6
4	Y. Miyazaki et al.	<i>Am. J. Pathol.</i> , 169, 697-707 (2006).	16877367	primary HDMECs	Human dermal microvascular endothelial cell	STAT-6, NF-κB decoy ODN	
5	Y. Kubota et al.	<i>J. Immunol.</i> , 178, 2923-2931 (2007).	17312137	primary macrophage	C3H mouse peritoneal resident	Mcl-1 antisense ODN	
6	G. Son et al.	<i>Am J Physiol Gastrointest Liver Physiol.</i> , 293, 631-639 (2007).	17640975	primary macrophage primary HSC	Mouse liver Rat Hepatic stellate cell	NF-κB decoy ODN	FITC labered NF-κB decoy:almost 100%
7	KF.Takahashi et al.	<i>BMC Dev Biol.</i> 10(1), 115. (2010).	21108791	mandibles (organ culture)	E10.5 Mouse Embryo	Prtg(Protogenin) decoy ODN	organ culture
8	Y. Nakamura et al.	<i>Int. Arch. Allergy Immunol.</i> , 155, 129-140 (2011).	21196757	CD3 <sup>+</sup> T cells	Mouse	Ribbon-type NFAT decoy ODN	100nM

**siRNA transfection / miRNA transfection (in vitro)**

No.	First Author	Reference	PMID	Cell	Origin	siRNA target	Remarks
1	Y. Itoh et al.	<i>Nature</i> , 422(13), 173-176 (2003).	12629551	MIN6	Mouse pancreatic Bcell	GPR40	
2	T. Ishii et al.	<i>J. Immunol.</i> , 170(1), 3653-3661 (2003).	12646630	Jurkat	Human acute T cell leukemia	SS-A/Ro52	
3	C. Kojima et al.	<i>EMBO J.</i> , 23, 4413-4422 (2004).	15483625	C2C12	Mouse myoblast(differentiated)	Bin1	
4	K. Ohnuma et al.	<i>Proc. Natl. Acad. Sci. USA</i> , 101(39),14186-14191 (2004).	15353589	primary monocyte	Human monocyte	Caveolin-1	
5	A. Watanabe et al.	<i>J. Mol. Cell. Cardiol.</i> , 37(3), 691-698 (2004).	15350842	primary cardiac myocyte	Rat cardiac myocyte	phospholamban	
6	M. Asada et al.	<i>Mol. Cell. Biol.</i> , 24(18), 8236-8243 (2004).	15340083	U937	Human myelomonocytic cell	Brap2	
7	R. Kuribara et al.	<i>Mol. Cell. Biol.</i> , 24(14), 6172-6183 (2004).	15226421	K562	Human chronic myelogenous leukemia	Bim	
8	T. Matsumoto et al.	<i>EMBO J.</i> , 24, 2342-2353 (2005).	15962004	HUVEC	Human umbilical vein endothelial cell	TSAd (T-cell specific adapter)	
9	T. Takada et al.	<i>Biochem. Biophys. Res. Commun.</i> , 331(4),1039-1044 (2005).	15882982	CMK6G3	Monkey ES cell (stably expresses EGFP)	EGFP	
10	K. Ohnuma et al.	<i>Mol. Cell. Biol.</i> , 25,7743-7757 (2005).	16107720	primary monocyte	Human monocyte	Tollip(Toll-interacting protein), IRAK-1(IL-1 receptor-associated serine/threonine kinase 1)	
11	S. Sangkhathat et al.	<i>Int. J. Oncology</i> , 28, 715-722 (2006).	16465377	HuH-6, HuH-7, HepG2	Human hepatoblastoma cell, Human Hepatocecellular carcinoma cell	β-catenin	
12	S. F Feigl et al.	<i>Nature Med.</i> , 12, 99-106 (2006).	16327802	J774	Mouse macrophage cell	IL-13 Receptor α2	
13	D. D Feng et al.	<i>Endocrinology</i> , 147, 674-682 (2006).	16254037	MIN6	Mouse pancreatic B cell	GPR40	
14	K. Ohnuma et al.	<i>J. Biol. Chem.</i> , 282(13), 10117-10131 (2007).	17287217	primary T cell	Human peripheral blood	Human CARMA1	
15	Y. Nakamichi et al.	<i>J. Immunol.</i> , 178, 192-200 (2007).	17182555	primary calvarial osteoblasts	Mouse calvarial osteoblasts	OPG (Osteoprotegrin)	
16	A. Masuda et al.	<i>J. Immunol.</i> , 178, 360-368 (2007).	17182574	primary mast cell	Mouse bone marrow-derived	GATA-1,GATA-2	
17	H. Iguchi et al.	<i>J. Biol. Chem.</i> , 282(26), 19052-19061(2007).	17412698	INS-1E, NIH-3T3	Rat B cell, Mouse embryonic fibroblast	Sox6	
18	Y. Kubota et al.	<i>J. Immunol.</i> , 178, 2923-2931 (2007).	17312137	primary macrophage	C3H mouse peritoneal resident	Mcl-1	
19	M. Shimada et al.	<i>Mol. Endocrinol.</i> , 21, 2487-2502 (2007).	17595323	primary granulosa cell	Mouse granulosa cell	Snap25 (Synaptosomal associated protein 25)	
20	Y. Yamashita et al.	<i>Endocrinology</i> , 148, 6164-6175 (2007).	17901238	primary granulosa cell	Rat granulosa cell	TACE/ADAM17	
21	E. Saito et al.	<i>J. Atheroscler.Thromb.</i> , 14, 317-324 (2007).	18174662	BASMC	Bovine aortic smooth muscle cell	Bovine TE(tropoelastin)	
22	Y. Tsuchiya et al.	<i>Free Radical Biology and Medicine</i> , 43(12),1604-1615 (2007).	18037126	U937	Human leukemic monocyte cell	Human cathepsin G	
23	Y. Nimura et al.	<i>Int. J. Oncol.</i> , 30(6), 1477-1484 (2007).	17487369	A549, H1299,TE13, PCNA-1, MIAPaCa-2, Du-145, ME-180	Human lung carcinoma, Human esophageal carcinoma, Human pancreas carcinoma, Human prostate carcinoma, Human cervical carcinoma	Ku80	siRNA + 2Gy irradiation
24	Y. Sawa et al.	<i>J. Histochem. Cytochem.</i> , 56, 97-109 (2008).	17938282	HMVEC-dLyNeo(LEC)	Human neonatal dermal lymphatic microvascular endothelial cell	TLR4	siRNA(30uM)
25	T. Saito et al.	<i>British J. Cancer</i> , 98, 345-355 (2008).	18195712	U251MG, D54MG	Human glioma(p53 mutated at codon 273) Human glioma(p53 wild type)	Survivin, p53	
26	M. Shimada et al.	<i>Development</i> , 135, 2001-2011 (2008).	18434414	granulosa cell	Mouse granulosa cell	TLR2, TLR4	siRNA(25nM)

No.	First Author	Reference	PMID	Cell	Origin	siRNA/miRNA target	Remarks
27	H-Y Fan <i>et al.</i>	<i>Development</i> , 135, 2127-2137 (2008).	18506027	granulosa cell	Mouse granulosa cell	Mkp3	siRNA(50nM)
28	H. Mukaide <i>et al.</i>	<i>Cancer Invest.</i> , 26,385-390 (2008).	18443959	COLO201	Human colon cancer	FKBP51	
29	J J. Conkright <i>et al.</i>	<i>Am. J. Respir. Cell Mol. Biol.</i> , 42, 181-189(2010).	19423771	alveolar type II epithelial cells	Mouse alveolar type II epithelial cells	Nedd4, Nedd4-2	siRNA(200pmol)
30	J P. Bridges <i>et al.</i>	<i>J. Clin. Invest.</i> , 120(5), 1736-1748 (2010).	20407208	primary alveolar type2 cell	mouse lung alveolar type2 cell	LPCAT1(lung lysophosphatidylcholine acyltransferase)	
31	A.Watanabe <i>et al.</i>	<i>Cardiovasc. Res.</i> , 90(1), 57-67 (2011).	21113058	Primary neonatal cardiac ventricular myocyte	Rat primary neonatal cardiac ventricular myocyte	Mitochondriak Transcription Factors(TFAM,TFB2M)	siRNA(100nM)
32	F. Jafarifar <i>et al.</i>	<i>EMBO J.</i> , 30, 1324-1334 (2011).	21343907	U937	Human leukemic monocyte cell	VEGFA(vascular endothelial growth factor-A)	miRNA(200nM)
33	S. Koyanagi <i>et al.</i>	<i>J. Biol. Chem.</i> , 286 32416-32423 (2011).	21768648	Mouse suprachiasmatic nucleus slice cultures	Mouse suprachiasmatic nucleus	Atf4 (Activating transcription factor4)	siRNA(20 pmol/ml)

### Protein/Peptide transfection (in vitro)

No.	First Author	Reference	PMID	Cell	Origin	protein/peptide	Remarks
1	S. Yuki <i>et al.</i>	<i>Eur. J. Biochem.</i> , 271(17), 3567-3572 (2004).	15317592	K562, SAS, G-402, BHK-21	continuous human chronic myelogenous leukemia cell, poorly differentiated human squamous cell carcinoma line, human renal leiomyoblastoma, baby hamster kidney cellline	RNaseT1	
2	Y. Kubota <i>et al.</i>	<i>Int. J. Radiat. Biol.</i> , 81(6), 459-472 (2005).	16249161	primary macrophage	C3H mouse peritoneal resident	SOD (Superoxido dismutase)	
3	T. Matsumoto <i>et al.</i>	<i>EMBO J.</i> , 24, 2342-2353 (2005).	15962004	HUVEC	Human umbilical vein endothelial cell	synthetic biotinylated peptide, synthetic phosphorylated peptide	
4	K. Kitadokoro <i>et al.</i>	<i>Proc. Natl. Acad. Sci. USA</i> , 104(12), 5139-5144 (2007).	17360394	Swiss 3T3	Mouse embryonic fibroblasts	PMT(Pasteurella multocida toxin)	
5	S. Kamitani <i>et al.</i>	<i>J. Biol. Chem.</i> , 285(33), 25467-25475 (2010).	20534589	Swiss 3T3	Mouse embryonic fibroblasts	PMT(Pasteurella multocida toxin)	

### Antibody delivery into living cells (in vitro)

No.	First Author	Reference	PMID	Cell	Origin	Monoclonal antibody	Remarks
1	Y. Kondo <i>et al.</i>	<i>J. Immunol. Methods</i> , 332, 10-17 (2008).	18221753	HeLaS3, Hs68, A549, SAS, HT1080MCF-7, WI38, BNL-CL2, BHK-21, Raw264.7, Jurkat, P19, 3T3-L1		anti-NPC, anti-alpha tubulin, anti-alpha adaptin, anti-NFkB, control IgG (mouse, rat, human, rabbit, goat)	
2	S. Balasubramanian <i>et al.</i>	<i>PLoS One.</i> , 5(7), e11470 (2010).	20635003	adult feline cardiomyocytes	adult feline cardiomyocytes	beta-actin antibody	

### Bioimaging (in vitro, ex vivo)

No.	First Author	Reference	PMID	Cell	Origin	Magnetic labeling	Remarks
1	K. Toyoda <i>et al.</i>	<i>Neuroreport</i> , 15 (4), 589-593 (2004).	15094458	PC-12, astrocyte	Rat pheochromocytoma cell, Mouse astrocyte	Feridex (superparamagnetic iron oxide particles)	labeled-cells were injected into rat brain <local injection>
2	JA Flexman <i>et al.</i>	<i>Conf Proc IEEE Eng Med Biol Soc.</i> 7, 5246-5249 (2004).	17271523	PC-12	Rat pheochromocytoma cell	Feridex (superparamagnetic iron oxide particles)	
3	S. Miyoshi <i>et al.</i>	<i>Mol. Imaging Biol.</i> , 7(4), 286-295 (2005).	16080022	PC-12	Rat pheochromocytoma cell	Feridex (superparamagnetic iron oxide particles)	
4	Y. Song <i>et al.</i>	<i>Histol. Histopathol.</i> , 21(7), 705-711 (2006).	16598669	microglial cell	Mouse microglial cell	Resovist (superparamagnetic iron oxide particles)	pCAG-EGFP:microglial cell (in vitro transfection) labeled-cells were injected into neck's carotid artery(for rat brain) <systemic injection>

No.	First Author	Reference	PMID	Cell	Origin	Magnetic labeling	Remarks
5	K.Takata <i>et al.</i>	<i>FEBS Letters</i> , 581,475-478(2007).	17240371	microglial cell	Rat microglial cell	Resovist (superparamagnetic iron oxide particles )	Resovist labeled-rat microglia cells were transplanted into the left lateral ventricle. <local injection>
6	N.Takehara <i>et al.</i>	<i>J. Am. Coll. Cardiol.</i> , 52(23), 1858-1865 (2008).	19038683	Cardiosphere-derived cell	Human Cardiosphere-derived cell	Superparamagnetic iron oxide (SPIO)	
7	T.Takimoto <i>et al.</i>	<i>Chem. Mater.</i> , 22 (11) 3462-3471 (2010).		HeLa	Human Cervix Adenocarcinoma	Fluorescent Diamond Nanoparticles	
8	JA. Flexman <i>et al.</i>	<i>Mol. Imaging Biol.</i> , 13(1), 104-111 (2011).	20440567	Primary neural stem cells	Rat fetal striatum	Superparamagnetic iron oxide (SPIO) particles (Feridex IV)	

### Plasmid DNA transfection (in vitro, ex vivo))

No.	First Author	Reference	PMID	Cell	Origin	plasmid DNA transfected	Remarks
1	T. Watanabe <i>et al.</i>	<i>Nature Immunol.</i> , 5, 800-808 (2004).	15220916	primary mouse CD11b <sup>+</sup> macrophage	Card15 <sup>-/-</sup> mouse(from splenocyte)	NOD2(Nucleotide-binding oligomerization domain 2)	13.8μL(1μg/μL)
2	Y. Ikeda <i>et al.</i>	<i>Hypertens. Res.</i> , 27(2), 119-228 (2004).	15005275	primary Mononuclear cell	Human	hVEGF(Vascular endothelial growth factor)	100ng plasmid/24-well
3	J. Eguchi <i>et al.</i>	<i>Biochem. J.</i> , 387, 343-353 (2005).	15563274	CHO-K1	chinese-hamster ovary	ACAM(adipocyte adhesion molecule) cDNA	Stable transfectant
4	J. Ohishi <i>et al.</i>	<i>J. Control. Release</i> , 110(2), 431-436 (2006).	16309776	NIH-3T3	Mouse	PAK-pEGFP-C1complex (PAK:polyacrylamide possessing substrate for protein kinase A) , Luciferase	
5	T. Nishikawa <i>et al.</i>	<i>Hum. Gene Ther.</i> , 17(4), 470-475 (2006).	16610935	HAECs(Human aortic endothelial cells), HASMCs(Human aortic smooth muscle cells)	Human	human heart cDNA library, Luciferase	pLuc:10μg
6	Y. Nakamichi <i>et al.</i>	<i>J. Immunol.</i> , 178, 192-200 (2007).	17182555	primary calvarial osteoblasts	OPG <sup>-/-</sup> (C57BL/6) mouse	OPG(Osteoprotegerin)	20μL (3μg/μL)
7	T. Shimamura <i>et al.</i>	<i>J. Immunol.</i> , 181, 4656-4665 (2008).	18802068	Hepatic stellate cell	Human	pTGF-β 1-Luciferase and pSV-β -galactosidase	pTGF-β1-Luciferase (250ng) pSV-β-galactosidase(25ng)/ 96-well plate
8	T. Akaike <i>et al.</i>	<i>J. Biol. Chem.</i> , 284(36), 24025-24034 (2009).	19567868	Primary Rat DA SMC	Rat ductus arteriosus smooth muscle cell	rat α1G cDNA	
9	M. Sato <i>et al.</i>	<i>J. Biol. Chem.</i> , 284(45), 31431-31440 (2009).	19723622	cultured rat neonatal cardiomyocytes	Rat neonatal cardiomyocytes	AGS8(Activator of G protein signaling 8)	The transfection efficiency was approximately 50-60% , as estimated by fluorescence of the pEGFP vector.

### Review

No	Author	Reference	PubMed ID	Remarks
1	Y. Kaneda <i>et al.</i>	<i>Mol. Ther.</i> , 6(2), 219-226 (2002).	12161188	
2	Y. Kaneda	<i>Curr. Drug Targets</i> , 4(8), 599-602 (2003).	14577648	
3	H. Kotani <i>et al.</i>	<i>Curr. Gene Ther.</i> , 4(2), 183-194 (2004).	15180584	
4	Y. Kaneda <i>et al.</i>	<i>Adv. Genet.</i> , 53, 307-332 (2005).	16240999	
5	Y. Kaneda <i>et al.</i>	<i>Cancer Sci.</i> , 97(5), 348-354 (2006).	16630130	
6	Y. Kaneda	<i>Expert Opinion Drug Deliv.</i> , 5(2), 221-233 (2008).	18248320	
7	Q. Zhang <i>et al.</i>	<i>Biochem Biophys Res Commun</i> , 373, 345-349 (2008).	18588856	
8	P E.Lund <i>et al.</i>	<i>Pharm. Res.</i> , 27(3), 400-420 (2010).	19998056	
9	Y. Kondo <i>et al.</i>	<i>Curr. Protoc. Immunol.</i> , 2, Unit 2.16.1-12 (2010).	20376843	
10	Y. Kondo <i>et al.</i>	<i>Curr. Protoc. Immunol.</i> , 10, Unit 10.17D.1-9 (2010).	20376840	
11	T. Amatsubo <i>et al.</i>	<i>Magn. Reson. Med. Sci.</i> , 9(3) 95-99 (2010)	20885081	

No	Author	Reference	PubMed ID	Remarks
12	Y. Kaneda	<i>Expert. Opin. Drug Deliv.</i> , (9), 1079-1093 (2010)	20716020	
13	A. Kitani <i>et al.</i>	<i>Curr. Protoc. Immunol.</i> , 10, Unit 10.17E.1-9 (2010).	21053301	
14	Y. Kaneda	<i>BMB Rep.</i> , 43(12) 773-780 (2010).	21189152	
15	Y. Kaneda	<i>Advanced Drug Delivery Reviews</i> <in press>	21443915	

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