

List of Excipients

Sr No	Chemicals/Materials	Source/Manufacturer
1.	1-Ethyl-3-(3-dimethylaminopropyl)carbodiimide	Himedia lab. Pvt. Ltd., India
2.	2,4,6-Trinitrobenzenesulfonic acid (TNBS)	G Biosciences, USA
3.	3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide (MTT)	Himedia lab. Pvt. Ltd., India
4.	4',6-diamidino-2-phenylindole (DAPI)	Invitrogen, USA
5.	6X DNA gel loading buffer	Himedia lab. Pvt. Ltd., India
6.	Agarose	Himedia lab. Pvt. Ltd., India
7.	Anket [®] Ketamine injection I.P. 50 mg/mL	
8.	Antibiotic mucolytic solution	Himedia lab. Pvt. Ltd., India
9.	Boc-alanine	Spectrochem, India
10.	Boc-histidine	Merck, India
11.	Boc-leucine	Sigma-Aldrich, USA
12.	Boric acid	Himedia lab. Pvt. Ltd., India
13.	Bromophenol Blue	Himedia lab. Pvt. Ltd., India
14.	cDNA to RNA Conversion Kit	Invitrogen, USA
15.	Chloroform	Himedia lab. Pvt. Ltd., India
16.	Cholesterol	Sigma-Aldrich, USA
17.	DEPC Treated Nuclease Free Water	Invitrogen, USA
18.	Dialysis Membrane	Himedia lab. Pvt. Ltd., India
19.	Diethylpolycarbonate (DEPC)	Himedia lab. Pvt. Ltd., India
20.	DMEM F12K	Himedia lab. Pvt. Ltd., India
21.	DMSO	Himedia lab. Pvt. Ltd., India
22.	DOPE	Lipoid GmbH, Germany
23.	DOTAP	Lipoid GmbH, Germany
24.	DPPC	Lipoid GmbH, Germany
25.	DSPE-mPEG ₂₀₀₀	Lipoid GmbH, Germany
26.	Ethidium Bromide	Sigma-Aldrich, USA
27.	Ethylene Diamine Tetraacetic Acid (EDTA)	Himedia lab. Pvt. Ltd., India
28.	FAM Labelled Negative Control siRNA	GenePharma, Shanghai, China
29.	FGF2 siRNA (Bovine)	Eurofins MWG Operons Ltd, Germany
30.	FGF2 siRNA (Rat)	Eurofins MWG Operons Ltd, Germany
31.	Gel Permeation Chromatography Standards	Agilent Technologies, USA

32.	Heparin Sodium Injection (Beparine, 25000 I.U. in 5mL)	Biological E Ltd., India
33.	Horse Serum	Himedia lab. Pvt. Ltd., India
34.	Lactose	Himedia lab. Pvt. Ltd., India
35.	Lipofectamine 2000	Invitrogen, USA
36.	MES Buffer	Himedia lab. Pvt. Ltd., India
37.	Methanol	Spectrochem, India
38.	Monocrotaline	Sigma-Aldrich, USA
39.	N Hydroysuccinamide	Sigma-Aldrich, USA
40.	Nuclease Free Water	Ambion, USA
41.	Paraformaldehyde	SD Fine Chemicals, India
42.	Phenol	Himedia lab. Pvt. Ltd., India
43.	Polycarbonate Membranes	Whatman, USA
44.	Polyethylenimine (PEI) 25 kDa	Sigma-Aldrich, USA
45.	Primers (FGF2)	Eurofins MWG Operons Ltd, Germany
46.	Primers (GAPDH)	Eurofins MWG Operons Ltd, Germany
47.	Rhodamine B	Sigma-Aldrich, USA
48.	RNA Isolation Kit	Invitrogen, USA
49.	RNase Zap	Invitrogen, USA
50.	siRNA (Negative Control)	GenePharma, Shanghai, China
51.	Sodium Bicarbonate	Himedia lab. Pvt. Ltd., India
52.	Sodium Chloride	SD Fine Chemicals, India
53.	Sucrose	Himedia lab. Pvt. Ltd., India
54.	SYBR Green Master Mix	Invitrogen, USA
55.	Trehalose	Himedia lab. Pvt. Ltd., Mumbai, India
56.	Triethylamine	SD Fine Chemicals, India
57.	Tris base	Himedia lab. Pvt. Ltd., India
58.	Triton X-100	Himedia lab. Pvt. Ltd., India
59.	Trypan Blue	Himedia lab. Pvt. Ltd., India
60.	Trypsin	Himedia lab. Pvt. Ltd., India

List of Instruments

Sr No	Instruments	Company
1.	Bath Sonicator	Sartorius, India
2.	Cascade Impactor	Anderson
3.	Centrifuge	Remi Sci. Equipment, India
4.	Confocal Microscope	Carl Zeiss Inc., USA
5.	CRYO-Transmission Electron Microscope	TECNAI G2 Spirit BioT WIN, FEI-Netherlands
6.	Cyclomixer	Remi, India
7.	Deep Freezer	EIE Inst. Ltd., Ahmedabad
8.	Differential Scanning Colorimetry (DSC)	Schimadzu, India
9.	Electrophoresis chamber	Genet Electrophoresis Powerpack, India
10.	ELISA Plate Reader	Bio-Rad, USA
11.	Fluorescence Microscope	Nikon Corporation, Japan
12.	Gel Doc	BioRad, USA
13.	Gel electrophoresis unit	GeNei, India
14.	Gel Permeation Chromatography (GPC)	Waters, USA
	GelDoc™ XR+ Imaging System	BioRad, USA
15.	High Pressure Homogenizer	Avestin, Canada
16.	Infrared (IR) Spectroscopy	Bruker, Japan
17.	JouanIGO150 5% CO ₂ incubator	Thermo-Fischer, Germany
18.	Karl-Fischer Auto titrator	Toshiwal Inst. Pvt. Ltd., India
19.	Lyophilizer	Virtis-Advantage plus, USA
20.	Magnetic Stirrer	Remi Sci. Equipment, India
21.	MALDI-TOF-MS	Autoflex, Bruker, Japan
22.	Master Sizer	Malvern Instruments, Malvern, UK
23.	Micropipettes	Eppendorf, Germany
24.	Multiple Capillary Gel Electrophoresis	Combisep, Bruker, Japan
25.	NanoDrop UV Spectrometer	Schimadzu, India
26.	Nuclear Magnetic Resonance (NMR) Spectroscopy	Bruker, Japan
27.	pH Meter	Labindia Inst Pvt. Ltd., India
28.	Power Lab	ADInstruments, Colorado Springs
29.	Real Time Polymerase Chain Reaction (RT-PCR)	Applied Biosystem, USA
30.	Rotary evaporator, IKA RV-10	Cole Palmar, USA
31.	Spectrofluorometer	Schimadzu, India
32.	Transmission Electron Microscope (TEM)	Philips Instruments, Holland

33.	Ultracentrifuge	Beckman, Germany
34.	UV Visible Spectrophotometer	Schimadzu, India
35.	Weiber Vertical Laminar Air Flow	Weiber, India
36.	Weighing Balance	Schimadzu, India
37.	X-Ray Diffractometer (XRD)	X'pert Pro, PANalytical, Singapore
38.	Zetasizer (Nano ZS)	Malvern Instruments, Malvern, UK

List of Abbreviations

Abbreviation	Full Form
ACI	Andersen cascade impactor
Ala	Alanine
BALF	Bronchoalveolar lavage fluid
BMPR II	Bone morphogenetic protein receptor, type II
bp	Base pair
DAPI	4',6-diamidino-2-phenylindole
DEPC	Diethyl polycarbonate
DMF	Dimethyl formamide
DMSO	Dimethyl sulfoxide
DOPE	1,2-dioleoyl- <i>sn</i> -glycero-3-phosphatidylethanolamine
DOSPA	2'-(1'',2''-dioleoyloxypropyl dimethyl-ammonium bromide)- <i>N</i> -ethyl-6-amidospermine tetratrifluoro acetic acid salt
DOTAP	<i>N</i> -(1-(2,3-dioleoyloxy)propyl)- <i>N,N,N</i> -trimethyl ammonium chloride
DPI	Dry Powder for Inhalation
DPPC	1,2-dihexadecanoyl- <i>sn</i> -glycero-3-phosphotidylcholine
DSC	Differential Scanning Colorimetry
ECs	Endothelial cells
ED	Emitted dose
EDC	<i>N</i> -(3-dimethylaminopropyl)- <i>N'</i> -ethylcarbodiimide
EDTA	Ethylene Diamine Tetraacetic Acid
EGF	Epidermal growth factor
ELISA	Enzyme-Linked ImmunoSorbent Assay
eNOS	Endothelial nitric oxide synthase
EtBr	Ethidium bromide
FACS	Fluorescence activated cell sorting
FAM-NC-siRNA	FAM labelled negative control siRNA
FGF2	Fibroblast growth factor 2
FITC	Fluorescein isothiocyanate
FPAH	Familial Pulmonary Arterial Hypertension
FPF	Fine particle fraction
FT-IR	Fourier transform infrared spectroscopy
G/C	Guanine/cytosine
GAGs	Glycosaminoglycans
GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
GPC	Gel permeation chromatography
GSD	Geometric standard deviation
HCPA-47 cells	Hypoxic CPA-47 cells

His	Histidine
IPAH	Idiopathic Pulmonary Arterial Hypertension
KBr	Potassium bromide
L2K	Lipofectamine 2000
Leu	Leucine
MALDI-TOF-MS	Matrix assisted laser desorption ionization-time of flight-mass spectrometry
mCGE	Multiple capillary gel electrophoresis
MCT	Monocrotaline
MFI	Mean fluorescence intensity
MMAD	Mean mass aerodynamic diameter
MTT	(3-(4, 5-dimethylthiazole-2-yl)-2, 5-di-phenyl tetrazolium bromide
MW	Molecular weight
NC siRNA	Negative control siRNA, scrambled sequence siRNA
NFW	Nuclease free water
NHS	N-hydroxysuccinimide
NMR	Nuclear magnetic resonance spectroscopy
NO	Nitric oxide
PAH	Pulmonary Arterial Hypertension
PAP	Pulmonary arterial pressure
PA-SMCs	Pulmonary artery smooth muscle cells
PBS	Phosphate-buffered saline
PDGF	Platelet derived growth factor
PDI	Polydispersity index
PEI	Polyethylenimine
RES	Reticuloendothelial system
RSD	Relative standard deviation
RT	Reverse transcription
RT-PCR	Real time-polymerase chain reaction
SD	Standard deviation
SEC	Size exclusion chromatography
siRNA	Small Interfering RNA
TBE	Tris-borate-EDTA
Tc	Collapse temperature
TEM	Transmission Electron Microscopy
Tg'	Glass transition temperature
TNBS	2,4,6-trinitrobenzenesulfonic acid
XRD	X Ray Diffraction