

## LIST OF EXCIPIENTS

<b>Sr No</b>	<b>Chemicals/Materials</b>	<b>Source/Manufacturer</b>
1.	1-Ethyl-3-(3-dimethylaminopropyl)carbodiimide	Himedia lab. Pvt. Ltd., India
2.	2-Bromoethanol	Sigma-Aldrich, 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.	Acetic Acid	Spectrochem, India
7.	Agarose	Himedia lab. Pvt. Ltd., India
8.	Boric acid	Himedia lab. Pvt. Ltd., India
9.	Bromine	Sigma-Aldrich, USA
10.	Bromophenol Blue	Himedia lab. Pvt. Ltd., India
11.	cDNA to RNA Conversion Kit	Invitrogen, USA
12.	Chitosan, medium molecular weight	Sigma-Aldrich, USA
13.	DEPC Treated Nuclease Free Water	Invitrogen, USA
14.	Dialysis Membrane	Himedia lab. Pvt. Ltd., India
15.	Diethylpolycarbonate (DEPC)	Himedia lab. Pvt. Ltd., India
16.	DMSO	Himedia lab. Pvt. Ltd., India
17.	EMEM	Himedia lab. Pvt. Ltd., India
18.	Ethanol	Spectrochem, India
19.	Ethidium Bromide	Sigma-Aldrich, USA
20.	Ethylene Diamine Tetraacetic Acid (EDTA)	Himedia lab. Pvt. Ltd., India
21.	FAM Labelled Negative Control siRNA	GenePharma, Shanghai, China
22.	Heparin Sodium	Himedia lab. Pvt. Ltd., India
23.	Human ENaC $\alpha$ siRNA	Eurofins MWG Operons Ltd, Germany
24.	Inhalac 230	Meggle Pharma, Germany
25.	Lactose	Himedia lab. Pvt. Ltd., India
26.	Linear polyethylenimine	Polychemistry, USA
27.	Lipofectamine 2000	Invitrogen, USA
28.	MES Buffer	Himedia lab. Pvt. Ltd., India
29.	N-Hydroxysulfosuccinimide sodium salt	Sigma-Aldrich, USA
30.	Nuclease Free Water	Ambion, USA
31.	Paraformaldehyde	SD Fine Chemicals, India
32.	Polyethylenimine (PEI) 25 kDa	Sigma-Aldrich, USA
33.	Potassium Carbonate	Qualigens, India
34.	Primers (ENaC $\alpha$ )	Eurofins MWG Operons Ltd, Germany
35.	Primers (GAPDH)	Eurofins MWG Operons Ltd, Germany
36.	Protamine Sulfate	Himedia lab. Pvt. Ltd., India
37.	Respitose SV001	DFE Pharma, USA
38.	Rhodamine B	Himedia lab. Pvt. Ltd., India
39.	RNA Isolation Kit	Invitrogen, USA

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40.	RNase Zap	Invitrogen, USA
41.	siRNA (Negative Control)	GenePharma, Shanghai, China
42.	Sodium Acetate	Himedia lab. Pvt. Ltd., India
43.	Sodium Bicarbonate	Himedia lab. Pvt. Ltd., India
44.	Sodium Chloride	SD Fine Chemicals, India
45.	Sodium Nitrite	Himedia lab. Pvt. Ltd., India
46.	Sodium tripolyphosphate	Sigma-Aldrich, USA
47.	Sucrose	Himedia lab. Pvt. Ltd., India
48.	SYBR Green Master Mix	Invitrogen, USA
49.	Trehalose	Himedia lab. Pvt. Ltd., Mumbai, India
50.	Tris base	Himedia lab. Pvt. Ltd., India
51.	Triton X-100	Himedia lab. Pvt. Ltd., India
52.	Trypan Blue	Himedia lab. Pvt. Ltd., India
53.	Trypsin	Himedia lab. Pvt. Ltd., India
54.	$\alpha$ -Naphthol	Sigma-Aldrich, USA

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## LIST OF INSTRUMENTS

<b>Sr No</b>	<b>Instruments</b>	<b>Company</b>
1.	Bath Sonicator	Sartorius, Inida
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)	Schimidzu, 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.	GelDoc™ XR+ Imaging System	BioRad, USA
15.	Infrared (IR) Spectroscopy	Bruker,
16.	JouanIGO150 5% CO <sub>2</sub> incubator	Thermo-Fischer, Germany
17.	Karl-Fischer Auto titrator	Toshiwal Inst. Pvt. Ltd.,
18.	Lyophilizer	Virtis-Advantage plus, USA
19.	Magnetic Stirrer	Remi Sci. Equipment, India
20.	MALDI-TOF-MS	Autoflex, Bruker, Japan
21.	Master Sizer	Malvern Instruments, Malvern, UK
22.	Multiple Capillary Gel Electrophoresis	Combisep, Bruker, Japan
23.	NanoDrop UV Spectrometer	Thermo Scientific
24.	Nuclear Magnetic Resonance (NMR)	Bruker
25.	pH Meter	Labindia Inst Pvt. Ltd., India
26.	Real Time Polymerase Chain Reaction (RT-PCR)	Applied Biosystem, USA
27.	Rotary evaporator, IKA RV-10	Cole Palmar, USA
28.	Spectrofluorometer	Schimidzu, India
29.	UV Visible Spectrophotometer	Schimidzu, India
30.	Weiber Vertical Laminar Air Flow	Weiber, India
31.	Weighing Balance	Schimidzu, India
32.	X-Ray Diffractometer (XRD)	X'pert Pro, PANalytical, Singapore
33.	Zetasizer (Nano ZS)	Malvern Instruments, Malvern, UK

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## LIST OF ABBREVIATIONS

Abbreviation	Full Form
ACI	Andersen cascade impactor
ALP	alkaline phosphatase
ASL	Airway surface liquid
BALF	Bronchoalveolar lavage fluid
bp	Base pair
CF	Cystic Fibrosis
CFBE	Cystic Fibrosis Bronchial Epithelial
CFTR	Cystic fibrosis transmembrane conductance regulator
DAPI	4',6-diamidino-2-phenylindole
DEPC	Diethyl polycarbonate
DPI	Dry Powder for Inhalation
DS	Degree of substitution
dsRNA	double-stranded RNA
ED	Emitted dose
EDC	N-(3-dimethylaminopropyl)-N'-ethylcarbodiimide
EDTA	Ethylene Diamine Tetraacetic Acid
EMEM	Eagle's minimum essential medium with Earls salt
ENaC	epithelial Na <sup>+</sup> channel
EtBr	Ethidium bromide
FACS	Fluorescence activated cell sorting
FAM-NC-siRNA	FAM labelled negative control siRNA
FBS	Fetal bovine serum
FPF	Fine particle fraction
FSC	Forward Scatter
FT-IR	Fourier transform infrared spectroscopy
G/C	Guanine/cytosine
GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
GSD	Geometric standard deviation
HELPEI	Hydroxyethyl substituted Linear Polyethylenimine
IAEC	Institutional Animal Ethical Committee
KBr	Potassium bromide
kDA	Kilo Dalton
L2K	Lipofectamine 2000
LDH	lactate dehydrogenase
LMWC	Low Molecular Weight Chitosan
LPEI	Linear Polyethyleneimine
MALDI-TOF-MS	Matrix assisted laser desorption ionization-time of flight-mass spectrometry
mCGE	Multiple capillary gel electrophoresis

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MES	2-(N-morpholino)ethanesulfonic acid
mL	Mililiter
MMAD	Mean mass aerodynamic diameter
MMWC	Medium Molecular Weight Chitosan
MTT	(3-(4, 5-dimethylthiazole-2-yl)-2, 5-di-phenyl tetrazolium bromide
Mv	viscosity-average molecular weight
MW	Molecular weight
NC siRNA	Negative control siRNA, scrambled sequence siRNA
NFW	Nuclease free water
NHS	N-hydroxysuccinimide
NMR	Nuclear magnetic resonance spectroscopy
OD	Optical Density
PBS	Phosphate-buffered saline
PDI	Polydispersity index
PEG	Polyethylene glycol
PEI	Polyethylenimine
PS	Protamine Sulphate
RISC	RNA-induced silencing complex
RNAi	RNA interference
RSD	Relative standard deviation
RT	Reverse transcription
RT-PCR	Real time-polymerase chain reaction
SD	Standard deviation
siRNA	Small Interfering RNA
SSC	Side scatter
TBE	Tris-borate-EDTA
Tc	Collapse temperature
TEM	Transmission Electron Microscopy
Tg'	Glass transition temperature
TPP	Sodium tripolyphosphate
XRD	X Ray Diffraction

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