

## LIST OF ABBREVIATIONS

| Abbreviation     | Full form   |
|------------------|---|
| <b>DFW</b>       | DNase Free Water  |
| <b>dsDNA</b>     | Double stranded DNA   |
| <b>TNBS</b>      | 2, 4, 6-Trinitrobenzene Sulfonic Acid                         |
| <b>EtBr</b>      | Ethidium Bromide  |
| <b>RSD</b>       | Relative Standard Deviation                                   |
| <b>FST</b>       | Forced Swim Test  |
| <b>TST</b>       | Tail Suspension Test  |
| <b>NAc</b>       | Nucleus Accumbens   |
| <b>eGFP</b>      | Enhanced Green Fluorescent Protein                            |
| <b>SDS</b>       | Sodium Dodecyl Sulfate  |
| <b>LB medium</b> | Luria-Bertani medium  |
| <b>EDTA</b>      | Ethylenediaminetetraacetic acid                               |
| <b>BP</b>        | Base-Pair   |
| <b>BOC</b>       | Butyloxycarbonyl  |
| <b>DOPE-H</b>    | Histidine conjugated DOPE                                     |
| <b>DOPE-A</b>    | Arginine conjugated DOPE                                      |
| <b>DOPE-L</b>    | Lysine conjugated DOPE  |
| <b>DOPE</b>      | 1,2-Dioleoyl-sn-glycero-3-phosphoethanolamine                 |
| <b>HSPC</b>      | hydrogenated soy phosphatidylcholine                          |
| <b>DPPE</b>      | 1,2-Dipalmitoyl-sn-glycero-3-phosphoethanolamine              |
| <b>PBS</b>       | Phosphate buffer saline                                       |
| <b>MTT</b>       | 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide |
| <b>DAPI</b>      | 4',6-diamidino-2-phenylindole (DAPI)                          |
| <b>DEPC</b>      | Diethyl polycarbonate   |
| <b>DCC</b>       | N,N'-Dicyclohexylcarbodiimide                                 |

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|---------------|--|
| <b>DCU</b>    | Dicyclohexylurea                         |
| <b>DMAP</b>   | 4-Dimethylaminopyridine                  |
| <b>DCM</b>    | Dichloro methane                         |
| <b>FT-IR</b>  | Fourier transform infrared spectroscopy  |
| <b>GAPDH</b>  | Glyceraldehyde-3-phosphate dehydrogenase |
| <b>INF</b>    | Interferon $\alpha$ 2B                   |
| <b>kDa</b>    | Kilo Dalton                              |
| <b>PEG</b>    | Polyethylene glycol                      |
| <b>RT-PCR</b> | Real time-polymerase chain reaction      |
| <b>RT</b>     | Reverse transcription                    |
| <b>SD</b>     | Standard deviation                       |
| <b>TEM</b>    | Transmission Electron Microscopy         |
| <b>Tg</b>     | Glass transition temperature             |
| <b>mL</b>     | Mililiter                                |
| <b>H</b>      | Hour                                     |

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## SOURCES OF CHEMICALS

| <b>Gift samples</b>  |  |
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| <b>p11 plasmid</b>   | Laboratory of Molecular Neurosurgery,<br>Weill Medical College of Cornell<br>University, New York, USA |
| <b>HSPC</b>  | Lipoid GmbH  |
| <b>DOPE</b>  | Lipoid GmbH  |
| <b>DPPE</b>  | Lipoid GmbH  |
| <b>Egg PC</b>  | Lipoid GmbH  |
| <b>DSPE-mPEG<sub>2000</sub></b>                                    | Lipoid GmbH  |
| <b>Purchased ingredients</b>                                       |  |
| <b>DEPC</b>  | Himedia lab. Pvt. Ltd., India  |
| <b>Agarose</b>   | Himedia lab. Pvt. Ltd., India  |
| <b>2-Bromoethanol</b>  | Sigma-Aldrich, USA   |
| <b>TNBS</b>  | Sigma-Aldrich, USA   |
| <b>Coomassie brilliant blue G-250</b>                              | Himedia lab. Pvt. Ltd., India  |
| <b>Ethidium Bromide</b>  | Sigma-Aldrich, USA   |
| <b>EDTA</b>  | Himedia lab. Pvt. Ltd., India  |
| <b>G418 antibiotic</b>   | Himedia lab. Pvt. Ltd., India  |
| <b>N <math>\alpha</math>,N <math>\beta</math> -di-Boc-L-lysine</b> | Alfa aesar, USA  |
| <b>N <math>\alpha</math>,N im -di-Boc-L-Histidine</b>              | Alfa aesar, USA  |
| <b>Boc- Arg(Mtr)-OH</b>  | CHEMDYES CORPORATION, India  |
| <b>DCC</b>   | Sigma-Aldrich, USA   |
| <b>Tri flouro acetic acid</b>                                      | Himedia lab. Pvt. Ltd., India  |
| <b>Bovine serum albumin</b>  | TCS chemicals, India   |
| <b>Dry DCM</b>   | Sigma-Aldrich, USA   |
| <b>Cholesterol</b>   | Sigma-Aldrich, USA   |
| <b>Heparin Sodium</b>  | Himedia lab. Pvt. Ltd., India  |
| <b>India</b>   |  |
| <b>MTT</b>   | Himedia lab. Pvt. Ltd., India  |

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| <b>DAPI</b>  | Sigma Aldrich, USA                |
| <b>p11 Elisa Kit for mice</b>  | Krishgen Biosystems, India        |
| <b>PVDF membrane</b>   | Sigma Aldrich, USA                |
| <b>Potassium Dihydrogen Phosphate</b>  | S.D. Fine Chemicals, India        |
| <b>Sterile Tissue culture flasks (25,75 cm<sup>2</sup>)</b>  | BD Falcon, India                  |
| <b>Minimum Essential Medium (MEM)</b>  | Himedia Lab. Pvt. Ltd., India     |
| <b>Fetal Bovine Serum</b>  | Himedia Lab. Pvt. Ltd., India     |
| <b>Antibiotic solution (10,000 units Penicillin, 10 mg Streptomycin and 25 mg Amphotericin B per ml)</b> | Himedia Lab. Pvt. Ltd., India.    |
| <b>Primers (GAPDH)</b>   | Eurofins MWG Operons Ltd, Germany |
| <b>Primers (S100A10/p11)</b>   | Eurofins MWG Operons Ltd, Germany |
| <b>DSPE-mPEG<sub>2000</sub>-meleimide</b>  | Avanti polar, India               |
| <b>2-Iminothiolane hydrochloride (Traut's reagent)</b>   | Sigma Aldrich, USA                |
| <b>Ethanol</b>   | Spectrochem, India                |
| <b>Acetic Acid</b>   | Spectrochem, India                |
| <b>Interferon <math>\alpha</math> 2B</b>   | Intas Pharmaceuticals Ltd., India |

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## INSTRUMENTS USED

| Instruments   | Company  |
|---|--|
| <b>Bath Sonicator</b>                               | Modern Industrial Corporation, India             |
| <b>Centrifuge</b>                                   | PR 24 Centrifuge (Remi Equipments, India)        |
| <b>Confocal Microscope</b>                          | Zeiss LSM 510 (Zeiss, Germany)                   |
| <b>Cryo-TEM</b>                                     | Tecnai G2 cryo-TEM (FEI Company Ltd., USA).      |
| <b>Magnetic Stirrer</b>                             | Remi, India                                      |
| <b>Particle Size Analyzer</b>                       | Nano ZS 90 - Malvern Zetasizer (Malvern, UK)     |
| <b>Probe Sonicator</b>                              | Labsonic M (Sartorius, Germany)                  |
| <b>Rheometer</b>                                    | RST coaxial cylinder rheometer (Brookfield, USA) |
| <b>Rotary Evaporator</b>                            | RV-10 Rotavapor (IKA Companies Ltd., India)      |
| <b>UV-Vis Spectrophotometer</b>                     | UV 1800 (Shimadzu, Japan)                        |
| <b>Zeta Potential Measurement</b>                   | Nano ZS 90 - Malvern Zetasizer (Malvern, UK)     |
| <b>Confocal Microscope</b>                          | Carl Zeiss Inc., USA                             |
| <b>Deep Freezer</b>                                 | EIE Inst. Ltd., Ahmedabad                        |
| <b>Electrophoresis chamber</b>                      | Genet Electrophoresis Powerpack, India           |
| <b>ELISA Plate Reader</b>                           | Bio-Rad, USA                                     |
| <b>Gel Doc</b>                                      | BioRad, USA                                      |
| <b>Gel electrophoresis unit</b>                     | GeNei, India                                     |
| <b>GelDoc™ XR+ Imaging System</b>                   | BioRad, USA                                      |
| <b>Infrared (IR) Spectroscopy</b>                   | Bruker, India                                    |
| <b>Jouan IGO150 5% CO2 incubator</b>                | Thermo-Fischer, Germany                          |
| <b>NanoDrop UV Spectrometer</b>                     | Thermo Scientific, Germany                       |
| <b>pH Meter</b>                                     | Labindia Inst Pvt. Ltd., India                   |
| <b>Real Time Polymerase Chain Reaction (RT-PCR)</b> | Applied Biosystem, USA                           |
| <b>Weighing Balance</b>                             | Schimadzu, India                                 |
| <b>Fluorescence Microscope</b>                      | Nikon Corporation, Japan                         |