

Materials List for:

# Human Neural Organoids for Studying Brain Cancer and Neurodegenerative Diseases

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## Materials

| Name   | Company                        | Catalog Number  | Comments  |
|--|--------------------------------|-----------------|---|
| 6-well plate (6-well plate)  | Falcon / Corning               | 07-201-588      |   |
| ABI Prism 7900 HT detection system (Real-Time PCR detection systems) | Applied Biosystems             | Discontinued    |   |
| Aggrewell 400 (Microwell culture plates )                            | StemCell Technologies          | 34421           |   |
| Amplifier (W2100-HS32) (Amplifier)                                   | Multi Channel Systems          |                 |   |
| Anti-EGFR (phospho Y1101) antibody                                   | Abcam                          | ab76195         | 1/100 dilution  |
| Anti-GFAP Antibody   | Dako                           | Z334            | 1/1000 dilution   |
| Anti-Nestin, Human Antibody  | Millipore                      | ABD69           | 1/400 dilution  |
| Anti-Synapsin I Antibody   | Chemicon                       | AB1543P         | 1/500 dilution  |
| B27 supplements (B27)  | Life Technologies / Invitrogen | 1238            | For both protocol, stock solution 100x, final solution 1x   |
| Brain-derived neurotrophic factor (BDNF)                             | Cell Guidance                  | GFH1-2          | For both protocol, stock solution 100 µg/mL in pure H2O, final solution 20 ng/mL                    |
| CHIR-99021 (GSK-3β inhibitor )                                       | Axon Medchem                   | ct99021         | For Dopaminergic protocol, stock solution 7.5 mM in DMSO, final solution 3 µM                       |
| Compound E a γ-secretase inhibitor (γ-secretase inhibitor)           | Calbiochem                     | CAS 209986-17-4 | For both protocol (gamma-secretase inhibitor XXI), stock solution 5 mM in DMSO, final solution 1 µM |
| Coulochem III (Coulometric detector parameters)                      | Thermo scientific              |                 |   |
| Dibutyl cyclic-AMP (Dibutyl cAMP)                                    | Sigma                          | D0627           | For Dopaminergic protocol, stock solution 0.5 M in DMSO, final solution 0.5 mM                      |
| Dimethyl Sulfoxide Pure (DMSO)                                       | Sigma-Aldrich                  | C6164           | Compounds solvent, ready to use   |
| Dulbecco's Modified Eagle Medium (DMEM)                              | Life Technologies              | 12491-015       | For cell culture, ready to use  |

|  |                           |                  |  |
|--|---------------------------|------------------|--|
| Dulbecco's Modified Eagle Medium Mixture F-12 (DMEM-F12)   | Gibco                     | 11320033         | For cell culture, ready to use   |
| EDTA 0.1 mM (EDTA)   | Life Technologies         | AM9912           | For cell culture, ready to use   |
| Epidermal Growth Factor (EGF)  | Gibco                     | PHG0313          | For GIC culture, stock solution 100 µg/mL in pure H <sub>2</sub> O, final solution 10 ng/mL            |
| Fibroblast Growth Factor 20 (FGF20)  | Peprotech                 | 100-41           | For Dopaminergic protocol, stock solution 100 µg/mL in pure H <sub>2</sub> O, final solution 5 ng/mL   |
| fibroblast growth factor 8 (FGF8)  | Peprotech                 | GFH176-5         | For Dopaminergic protocol, stock solution 100 µg/mL in pure H <sub>2</sub> O, final solution 100 ng/mL |
| Fibroblast growth factor-basic (bFGF)  | Gibco                     | PHG0024          | For GIC culture, stock solution 100 µg/mL in pure H <sub>2</sub> O, final solution 10 ng/mL            |
| G5 supplements (G5)  | Invitrogen                | 17503012         | For GIC culture, stock solution 100x, final solution 1x  |
| Glial cell-derived neurotrophic factor (GDNF)  | Cell Guidance             | GFH2-2           | For both protocol, stock solution 100 µg/mL in pure H <sub>2</sub> O, final solution 20 ng/mL          |
| Hydrophilic polytetrafluoroethylene membrane (PTFE membrane)   | BioCell-Interface         | Discontinued     |  |
| LDN-193189 (BMP inhibitor)   | Axon Medchem /Stemgen     | 04-0072-02 /1509 | Dual/Smad, stock solution 5 mM in DMSO, final solution 0.5 µM  |
| L-glutamine (L-glutamine)  | Gibco                     | 25030081         | L-Glutamine (200 mM), stock solution 200 mM, final solution 2 mM                                       |
| Matrigel (extracellular matrix)  | BD Biosciences            | 354277           | hESC-qualified Matrix, stock solution 18-22 mg/mL, final solution 180-220 µg/mL                        |
| Millicell-CM Culture plate insert (0.4 µm) (Culture plate insert)  | Millipore                 | PICM03050        |  |
| Monoclonal Anti-β-Tubulin III antibody   | Sigma                     | T8660            | 1/1000 dilution  |
| MS Orbital Shaker, MS-NOR-30 (Orbital shaker)  | Major Science             | MS-NRC-30        |  |
| N2 supplements (N2)  | Invitrogen                | 17502-048        | For GIC culture, stock solution 100x, final solution 1x  |
| Nanodrop (Nanodrop)  | Thermo Fisher Scientific  | Discontinued     |  |
| Neurobasal (Neurobasal)  | Life Technologies / Gibco | 21103049         | Maintenance and maturation embryonic neuronal cell populations , ready to use                          |
| Non-Essential Amino Acids (NEAA)   | Gibco                     | 11140            | Non-essential Amino Acids 100X, stock solution 100x, final solution 1x                                 |
| Nurr1 Antibody (M-196)   | Santa Cruz                | Sc-5568          | 1/100 dilution   |
| Nutristem (hESC medium )   | Biological Industries     | 05-100-1A        | Stem cell media, ready to use  |
| Penicilin / Streptomycin (Penicilin / Streptomycin )   | Life Technologies / Gibco | 15140122         | For cell culture, stock solution 5 mg/mL, final solution 50 µg/mL                                      |
| Perchloric acid 0.1N (HClO <sub>4</sub> )  | Merck                     | 100519           | For HPLC, ready to use   |
| Phosphate Buffered Saline without Ca <sup>2+</sup> /Mg <sup>2+</sup> (PBS without Ca <sup>2+</sup> /Mg <sup>2+</sup> ) | Life Technologies         | 14190250         | For cell culture, ready to use   |
| PrimeScript RT-PCR Kit (Reverse transcription kit)   | Takara                    | RR014A           |  |

|  |                    |            |   |
|--|--------------------|------------|---|
| Purmorphamin (smoothened agonist)                                    | Calbiochem         | SML0868    | For Dopaminergic protocol, stock solution 10 mM in DMSO, final solution 2 $\mu$ M                           |
| Rho-associated Kinase Y-27632 (ROCK)                                 | Abcam Biochemicals | ab120129-1 | Rock Inhibitor, stock solution 50 mM in DMSO, final solution 10 $\mu$ M                                     |
| RNeasy mini kit (RNA extraction kit )                                | Qiagen             | 74104      |   |
| SB-431542 (TGF $\beta$ /Activin/Nodal inhibitor )                    | Ascent             | Asc- 163   | Dual-Smad, stock solution 50 mM in DMSO, final solution 10 $\mu$ M  |
| Sonic Hedgehog (SHH)   | Cell Guidance      | GFH168-5   | For Dopaminergic protocol, stock solution 100 $\mu$ g/mL in pure H <sub>2</sub> O, final solution 100 ng/mL |
| StemPro Accutase (hESC enzymatic solution)                           | Gibco              | A11105-01  | hESC enzymatic solution, ready to use   |
| Symmetry C-18,5 mm (4.6 150mm <sup>2</sup> ) (Reversed-phase column) | Waters Corporation |            |   |
| T150 flask (T150 flask)  | Falcon             | 08-772-1F  |   |
| TH Antibody (F-11)   | Santa Cruz         | Sc-25269   | 1/200 dilution  |
| Transforming Growth Factors beta 3 (TGF $\beta$ 3)                   | Cell Guidance      | GFH109-2   | For Dopaminergic protocol, stock solution 100 $\mu$ g/mL in pure ethanol , final solution 1 ng/mL           |
| Trichostatine A (inhibitor of histone deacetylase )                  | Sigma              | T8552      | For Dopaminergic protocol, stock solution 100 $\mu$ M in DMSO, final solution 20 nM                         |
| TrypLE (recombinant enzymatic solution)                              | Invitrogen         | 12604021   | recombinant enzymatic solution, ready to use  |
| Trypsin 0.25% (enzymatic solution)                                   | Life Technologies  | 15050065   | enzymatic solution, ready to use  |
| W2100, Multi Channel Systems (Data acquisition system )              |                    | WAT045905  |   |
| X-vivo (serum free medium)   | Lonza              | BE04-743Q  | serum free medium, ready to use   |