

Appendix

Materials

1 Equipment and instruments

1. Autoclave HiclaveTM Model HV-50, Hirayama Manufacturing Corp., Japan
2. Automatic pipetter, Portable Pipet-aid XP, Cat. No. 4-000-201, Drummond scientific Company, USA
3. BiotrakTM II microplate reader, Model 80-2115-82, Amersham Biosciences, Biochrom Ltd., UK
4. Cell scraper 24 cm, Cat. No. 99002, TRP AG, Switzerland
5. Critical point dryer, Model CPD7501, Polaron, VG Microtech, England
6. Diaphragm vacuum pump, Model MZ2, Vacuubrand, Germany
7. Digital camera, NIKON COOLPIX, Model 4500, Japan
8. Freeze-dryer machine Flexi-DryTM, Model FD-1-54D, USA
9. Hemocytometer Neubauer improved bright-line Depth 0.1 mm, 0.0025mm², BRAND, Germany
10. Hot air oven Model UM500, Mammert, Germany
11. Laboratory Stirrer/hotplate, Model PC-420, CORNING, USA
12. Liquid nitrogen tank, Model HC-34 Liquid Dewar, Taylor-Wharton, USA
13. Microflow laminar downflow workstation, Astec Microflow Model ABS1200TCN, Bioquell Lab, UK
14. Microscope NIKON Diaphot, Japan
15. pH meter, Precisa pH900 Type 900-9050, Precisa Instruments AG, Switzerland
16. Pipetter 1000-microlitre, Pipetman Gilson[®], Cat. No. U69088E, France
17. Pipetter 200-microlitre, Pipetman Gilson[®], Cat. No. U65792E, France
18. Pipetter 20-microlitre, Pipetman Gilson[®], Cat. No. U66585E, France
19. Refrigerated centrifugator, Labofuge 400R, Kendro Laboratory products, Germany
20. Scanning electron microscope, JSM-5800LV, JEOL LTD, Japan
21. Series II water jacketed CO₂ incubator, Model 3111, Thermoforma, USA
22. Sputter Coater, SPI- ModuleTM, Model 11425, SPI supplies, USA
23. Vortex mixer, Vortex Genie2, Model G-560E, Scientific Industries Inc., USA

24. Water bath, Model WB22, Mammert, Germany

25. Weight meter, Adventurer™ Electric balance Ohaus, Model AR2140, Ohaus® Corp., USA

2 Disposable materials

1. 24-well plates Nunclon™ Delta Surface, Cat. No.143982, Nunc™ Brand products, Denmark
2. 96-well plates Nunclon™ Delta Surface, Cat. No. 167008, Nunc™ Brand products, Denmark
3. Cryotube 1.8ml Sl Nunc™ Brand products, Cat. No. 375418, Nalge Nunc International, Denmark
4. Disposable conical tube 15 ml Nunc™, Cat. No. 366036, Nunc™ Brand products, USA
5. Disposable conical tube 50 ml Nunc™, Cat. No. 373660, Nunc™ Brand products, Denmark
6. Disposable polystyrene syringes 3ml without needle, NIPRO, Lot. No. 03C10, Japan
7. Fetal mouse calvarial osteoblast cell line MC3T3-E1 (ATCC), USA
8. Filter paper, ALBET®, Cat. No. 413, Filalbet, Spain
9. Microcentrifuge tubes 1.5 ml. click cap flat top, Cat. No. 96.7541.9.01, Treff AG, Switzerland
10. Micropipette tips 0.1-1000 µl, Cat. No. 96.82.76, TreffLab, Treff AG, Switzerland
11. Micropipette tips 0.1-20 µl, Cat. No. 702504, Plastibrand, Germany
12. Micropipette tips 0.1-200 µl, Cat. No. 96.8700, TreffLab, Treff AG, Switzerland
13. Parafilm® "M" Laboratory film 4IN.x125FT, Cat. No. PM-996, Pechiney plastic packaging, USA
14. Sterile disposable plastic pipette 10 ml Nunc™, Cat. No. 159633, Nunc™ Brand products, Denmark
15. Sterile disposable plastic pipette 25 ml Nunc™, Cat. No. 159641, Nunc™ Brand products, Denmark
16. Sterile surgical blade no. 11, Cat. No. 02116360, Feather Safety Razor Co. Ltd., Japan

17. Syringe filter sterile-EO Minisart[®], Cat. No. 16534, Sartorius AG, Germany
18. Tissue culture dish with Airvent Nunclon[™] 100x15 mm, Cat. No. 150350, Nunc[™] Brand products, Denmark
19. Tissue culture flasks Nunclon[™] Delta Surface, Cat. No. 156472, Nunc[™] Brand products, Denmark

3 Chemical agents

1. 1% Atelocollagen solution, Koken, Japan
2. 2-Amino-2-methyl-1-propanol 1.5 mol/l pH 10.3, Fluka, Cat. No. 0851, Switzerland
3. Absolute ethanol, Cat. No. 1.00983.2500, Merck, Germany
4. Beta-glycerophosphate, disodium salt, hydrate 100g, Cat. No. G-9891, Sigma[®], USA
5. Bio-Rad DC protein assay kit, Cat. No. 500-0016, Bio-Rad Laboratory, USA
6. Bio-Rad Protein Assay standard II Lyophilized Bovine Serum Albumin(BSA)1.45 g/ml, Cat. No. 500-0007, Bio-Rad laboratory, USA
7. Calcium kit, Cat. No. 587-M, Sigma diagnostics[®], Germany
8. Calcium/Phosphorus combined standards, Cat. No. 360-11, Sigma diagnostics[®], Germany
9. CellTiter 96[®] AQueous One Solution Cell proliferation assay, Cat. No. G3580, Promega, USA
10. Chitosan medium molecular weight 25 g, Cat. No. 22742, Fluka, Switzerland
11. Dimethyl sulphoxide 500 ml, Cat. No. K31165388, Analar[®] BDH laboratory supplies, Thailand
12. Di-sodium hydrogen phosphate dodecahydrate, Cat. No. 1.06579.1000, Merck, Germany
13. Fetal bovine serum (FBS), Cat. No. S0115, Biochrom AG, Germany
14. Fungizone 20 ml, Cat. No. G15290-018, Gibco, USA
15. Glutaraldehyde 25% E.M. Grade, Cat. No. 16210, Electron Microscopy Sciences, USA
16. Hydrochloric acid (HCl) 1.0 N solution 100 ml, Cat. No. H9892, Sigma[®], USA
17. L-ascorbic acid, Cat. No. 79-500G, Unilab, Australia

18. Minimum essential medium alpha medium (α -MEM) powder with L-glutamine, ribonucleosides, Cat. No. 11900-016, Gibco, USA
19. Osmium tetroxide-OsO₄ E.M. Grade, Cat. No. 19110, Electron Microscopy Sciences, USA
20. Penicillin/Streptomycin 10000U/ 10000 μ g/ml, Cat. No. A2213, Biochrom AG, Germany
21. Phosphate buffer saline (PBS), Central laboratory unit, Faculty of dentistry, Prince of Songkla University
22. p-Nitrophenol standard solution 10 μ mol/ml 100 ml, Cat. No. N7660, Sigma diagnostics[®], USA
23. p-Nitrophenyl phosphate, disodium salt. Cat. No. 4876, Calbiochem[®], USA
24. Potassium chloride, Cat. No. 1.04936.1000, Merck, Germany
25. Potassium dihydrogen phosphate, Cat. No. 1.04873.1000, Merck, Germany
26. Sodium bicarbonate NaHCO₃ dry substance, Cat. No. L1703, Biochrom AG, Germany
27. Sodium chloride, Cat. No. 1.06404.1000, Merck, Germany
28. Sodium hydroxide, Cat. No. 1.06498.1000, Merck, Germany
29. Sodium thiosulfate, Cat. No. S-1648, Sigma[®], USA
30. Triton X-100 50 ml Cat. No. T-8787, Sigma[®], USA
31. Trypsin/ EDTA solution (10X) 0.5%/0.2% (W/V) in (10X) PBS w/o Ca²⁺, Mg²⁺, Cat. No. L2153, Biochrom AG, Germany

4 Software

1. SPSS for Windows, version 11.0, USA
2. Stat View for Windows, version 4.5, SAS Institute Inc, USA