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Erratum

In Vol. 27 Nos. 2–3 (December 1985), the text on page 148 should be replaced in its entirety by:

dialysis bags were removed and fresh phosphate buffer added. The activity of the outer dialysis medium (7 ml of phosphate buffer) was measured by liquid scintillation counting and the amount of released triamcinolone acetonide was calculated. After finishing the release experiments the contents of the dialysis bags were freeze-dried and the remaining drug amount was determined.

Sample preparation for transmission electron microscopy (TEM)

The specimen preparation for the TEM followed standard methods. Briefly, the particles were embedded into Epon (Epon 812:dodecenylsuccinicacidanhydride: methylnadicanhydride 2–4–6, tris–(dimethylaminoethyl)–phenol 16.2:10:8.9:0.53) (Luft, 1961), cut into about 100 nm thick sections and contrasted with uranyl acetate for 15 min (Watson, 1958) and with lead citrate for 2 min (Reynolds, 1963).

Labeling of PLA nanoparticles with ^{99m}Tc

To a suspension of 1.5 mg particles in 3 ml water 1 ml of pertechnetate solution (10 mCi) was added. The TcO_4^- was reduced by 0.1 mg of $SnCl_2$ dissolved in 0.1 ml of water. The efficiency of the procedure was checked by TLC on cellulose (methylethylketone–methanol 8:2), and it was confirmed that the labeling yield was greater than 90% and that the label was stable over 3 h.

In vivo distribution

Rats were given intravenously a suspension of ^{99m}Tc-labeled nanoparticles. After 2 h the animals were sacrificed, the whole organs (liver, spleen, kidney, lung, thyroid glands) and aliquots of bone marrow, muscle, bone and 1 ml of blood were removed and the radioactivity was measured in a γ-counter.

Results and Discussion

After freeze-drying a white, free-flowing powder was obtained. It is dispersible in water and forms a milky suspension. Fig. 1 shows a SEM picture of PLA nanoparticles having a spherical shape and a smooth surface even at higher magnifications. The underlying matrix is due to tylose which was used as a stabilizing agent for the suspension during preparation of the specimen for SEM. Although the SEM investigations showed no porous surface it was anticipated that particles prepared by solvent evaporation have a sponge-like interior structure because the evaporation of the chloroform should leave channels and holes in the particles. Investigating a cross-section of a nanoparticle gave evidence that these nanoparticles have a similar structure to the microsponges (Fig. 2) (Gardner et al., 1980).

In order to check whether the production process is reproducible three separate batches of nanoparticles were prepared and their size distributions examined. Fig. 3 shows an almost identical size distribution for all three batches.

If polylactic acid nanoparticles are to be used as a drug carrier the drug has to be stable during the preparation. Therefore, the stability of triamcinolone acetonide was investigated by TLC on silica gel (cyclohexane–ethylacetate–water 25:75:1) (Florey,