
P7 – Surface Profiles and Nano Scratches of Platinum-Coated Electrodes by Complementary Microscopy for Anticancer Therapy in Clinical Trials

Hong Bae Kim^a, Saeyoung Ahn^a, and Ki Woo Kim^b

^aSolco Biomedical Institute, Solco Biomedical Company,
Pyeongtaek 451-852, Republic of Korea

^bNational Instrumentation Center for Environmental Management,
Seoul National University, Seoul 151-921, Republic of Korea

Surface profiles of platinum (Pt)-coated electrodes for anticancer therapy were investigated by complementary microscopy. Needle electrodes of Pt/tungsten (W) were prepared by unbalanced magnetron sputtering under an argon atmosphere. Auger electron spectroscopy and scanning electron microscopy with X-ray microanalysis revealed the surface of W electrodes was coated with a thin layer of Pt. Topographic images of the electrodes by atomic force microscopy exhibited granular morphology and deep valleys over scan areas. Furthermore, an indenter (tip radius 5 μm) was pushed with a loading rate of 80 mN into the electrodes moving with a constant velocity of 4 mm/min. The nano scratching of the electrodes showed the first cracking at 23.14 mN and the rupture at 53.24 mN. These results suggest that the Pt/W electrodes for solid tumors could be employed in the electrochemical treatment of tumors for anticancer therapy, due to their high biocompatibility and corrosion resistance in the body fluid environment.