Supporting information

for manuscript entitled

Interface of nanoparticle-coated electropolished stents

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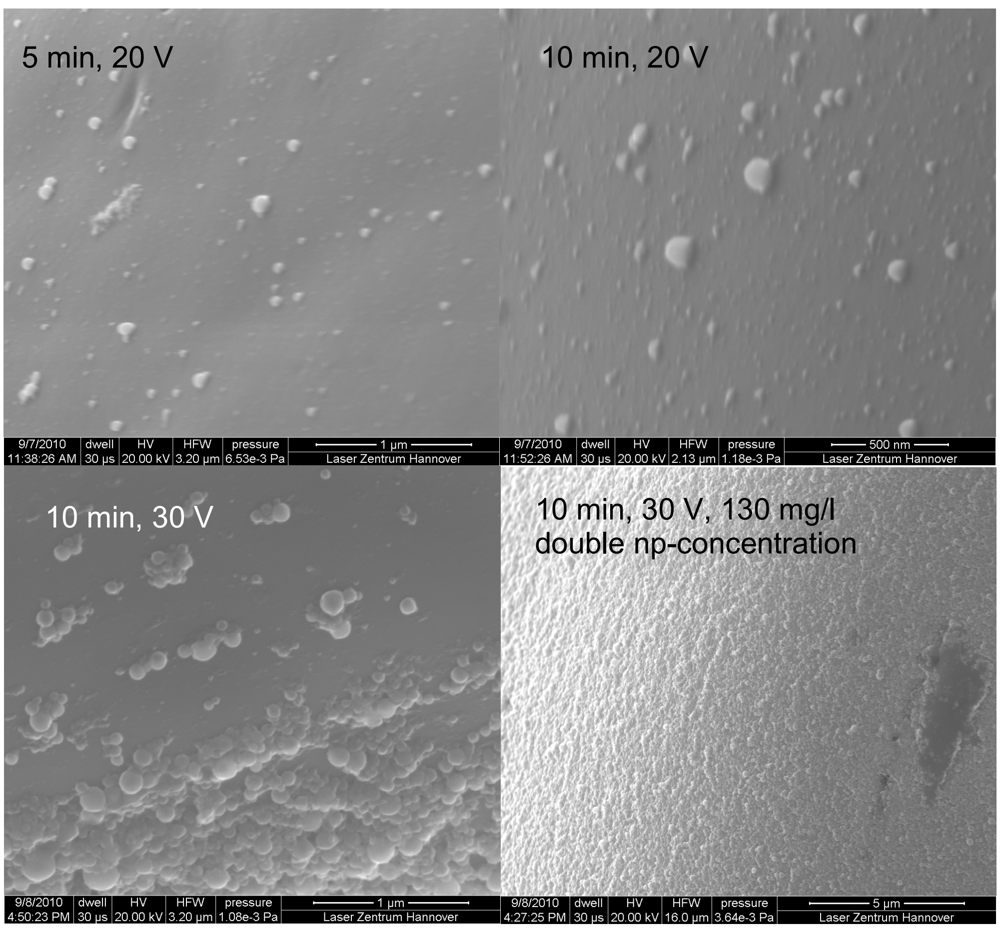

Figure S1. Stent surface coated by dielectrophoresis with laser-generated Ti nanoparticles at different electrophoresis conditions

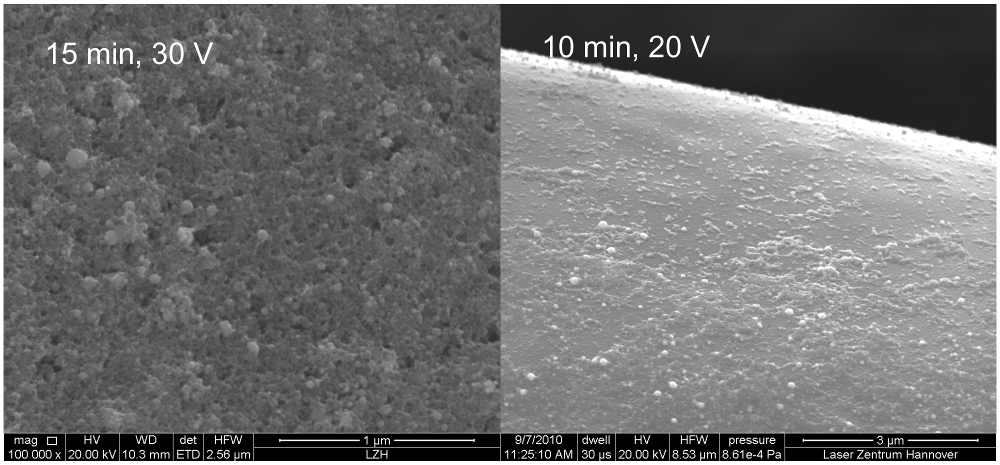

Figure S2. Stent surface coated by dielectrophoreis with laser-generated Au nanoparticles

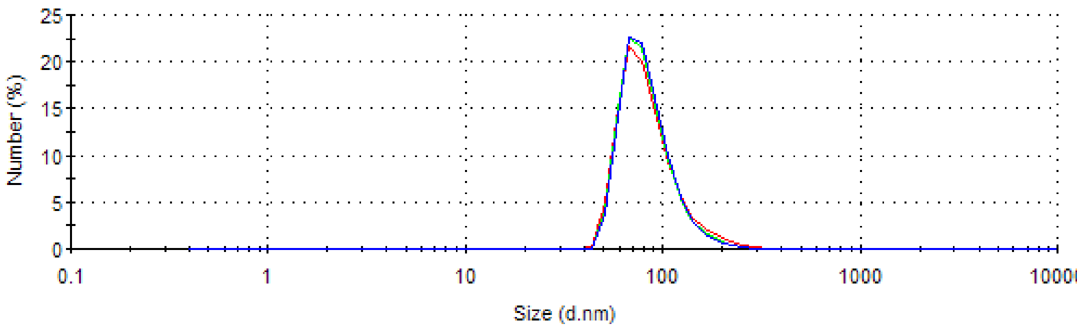

Figure S3. Size distribution of Ti nanoparticles generated by laser ablation in 2-propanol measured using dynamic light scattering

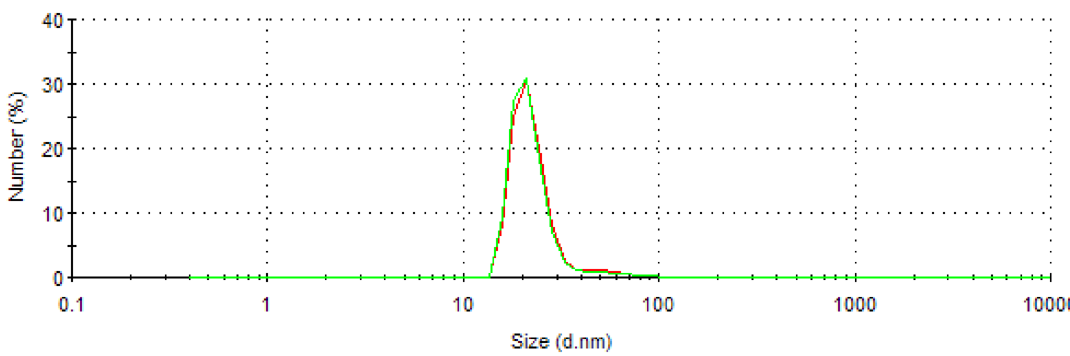

Figure S4. Size distribution of Au nanoparticles generated by laser ablation in 2-propanol measured using dynamic light scattering

<u>Nanoparticle generation:</u>

The laser beam was focused by an f-theta lens of 56 mm focal length through a quartz glass window into a self-constructed chamber onto the surface of the fixed target. The laser beam was guided using a scanner system (Scanlab HurrySCAN II-14) and the target was ablated by a fixed spiral scan pattern (diameter 5 mm, interline distance 50 µm). The liquid layer between the entrance window and ablation target was 5.5 ± 0.5 mm. A motor-driven stirrer generated constant volume flow (total volume 30 mL). The nanoparticle concentration was estimated gravimetrically while weighing the target before and after ablation.

XPS:
The X-ray radiation was generated by Al Kα line decay (1486 eV) at operating conditions of 10 kV and 15 mA. The emitted photoelectrons were analyzed with a hemispherical electron energy analyzer.

Auger:
The analyses were performed with 10 keV acceleration voltage and 20 nA beam current for the electron beam. The AES depth profiles were obtained using a 2 keV Ar ion beam. The sputtering rate was 10 nm min^{-1} for a SiO_2 standard. The real sputter rates are strongly dependent on each material. Therefore the reported depths in the profiles are adapted with experienced data.

XRD:
X-ray diffraction (XRD) was carried out by Dr. Oleg Prymak from the Department for X-Ray Diffraction of the Institute of Inorganic Chemistry, University of Duisburg-Essen. Details of the measurement are included in the manuscript.

Nanoparticle dispersion was dried before measurement on the surface of the Si monocrystal which serves as sample holder. A time step of 3 s was chosen, leading to a total measurement time of approximately 10 hours. The crystallite size of the phases, using the Scherrer-equation (including the determination of the instrumental broadening of the diffractometer), and their weight percentages were determined using the Rietveld refinement program package TOPAS 4.2 from Bruker. The final Rwp-factor 2.8 after the refinement procedure was achieved.

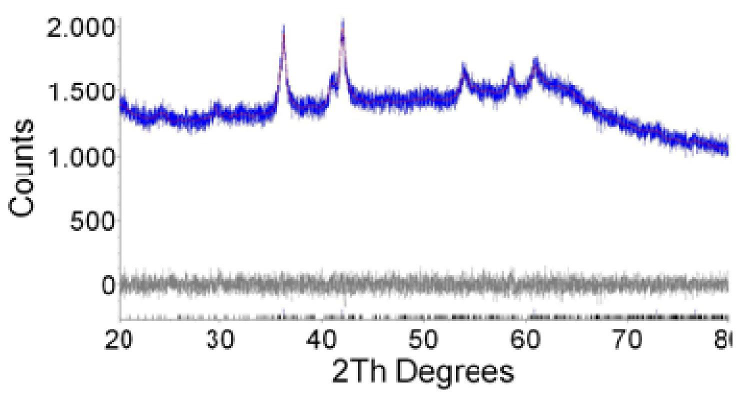

Figure S5. XRD data from laser-generated Ti-based nanoparticle colloid