

Supplementary Information:

Figure S1. Close-ups of porous titanium bead-based implants before and after implantation.

Figure S2. Macrographs of the explants, Acid-etched and anodised samples were more integrated and harder to remove from the surrounding tissue.

Figure S3. Quantification of total protein and collagen amounts in the explanted samples. Especially, the anodised samples had significantly more collagen and total protein in both no serum and serum conditions.

Figure S4. Macro and nanoscale effects of anodization. Anodization produced nanoscale tubes with an average diameter of 50 ± 16 nm, which is a more regular structure compared to acid-etched surfaces.

Figure S5. Surface treatment with other acids (HF and H₂SO₄) can lead to significant changes on the Titanium bead surfaces.

Figure S6. Contact angle measurements on non-porous titanium surface before and after surface treatment.