

Figure 1: Open-cell carbon foam coated with CVD tantalum

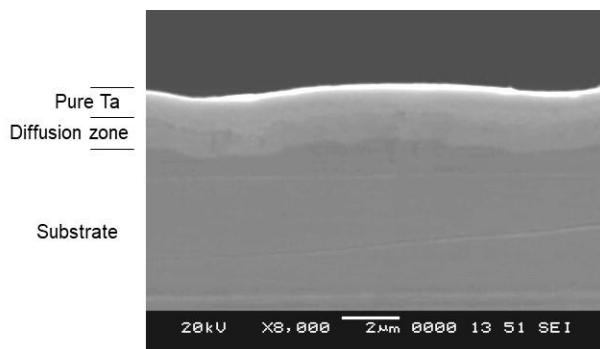


Figure 2: Cross-sectional SEM image of CVD tantalum diffusion bond

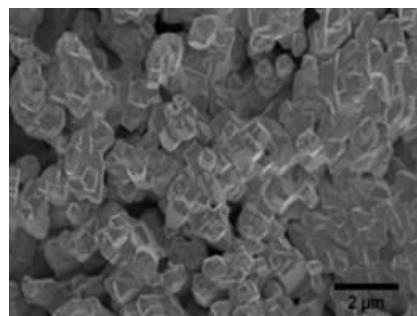


Figure 3: Textured surface of CVD tantalum coating

1. Z. Zhou and D. Liu, "Mesenchymal Stem Cell-seeded Porous Tantalum-based Biomaterial: A Promising Choice for Promoting Bone Regeneration," *Colloids Surfaces B: Biointerfaces*, **215**(2022), 12491.
2. Y. Li, S. Zhang, L. Guo, M. Dong, B. Liu, and W. Mamoudou, "Collagen Coated Tantalum Substrate for Cell Proliferation," *Colloids Surfaces B: Biointerfaces*, **95**(2012), 10–15, ISSN 0927-7765, <https://doi.org/10.1016/j.colsurfb.2012.01.009>.
3. X. Dou et al., "Effect of Porous Tantalum on Promoting the Osteogenic Differentiation of Bone Marrow Mesenchymal Stem Cells *in Vitro* Through the MAPK/ERK Signal Pathway," *J. Orthop. Translat.* **19**(2019), 81-93. doi: 10.1016/j.jot.2019.03.006. PMID: 31844616; PMCID: PMC6896724.
4. M. Lu et al., "Intrinsic Surface Effects of Tantalum and Titanium on Integrin α5β1/ ERK1/2 Pathway-Mediated Osteogenic Differentiation in Rat Bone Mesenchymal Stromal Cells," *Cell Physiol Biochem.* **51**(2018), 589-609. doi: 10.1159/000495280.
5. C. Kang et al., "Involvement of Autophagy in Tantalum Nanoparticle-induced Osteoblast Proliferation," *Int. J. Nanomedicine* **12**(2017), 4323-4333, doi: 10.2147/IJN.S136281. PMID: 28652735; PMCID: PMC5473603.
6. S. Piglionico, "Porous Tantalum vs. Titanium Implants: Enhanced Mineralized Matrix Formation after Stem Cells Proliferation and Differentiation," *J. Clin. Med.* **9**(2020), 3657.