



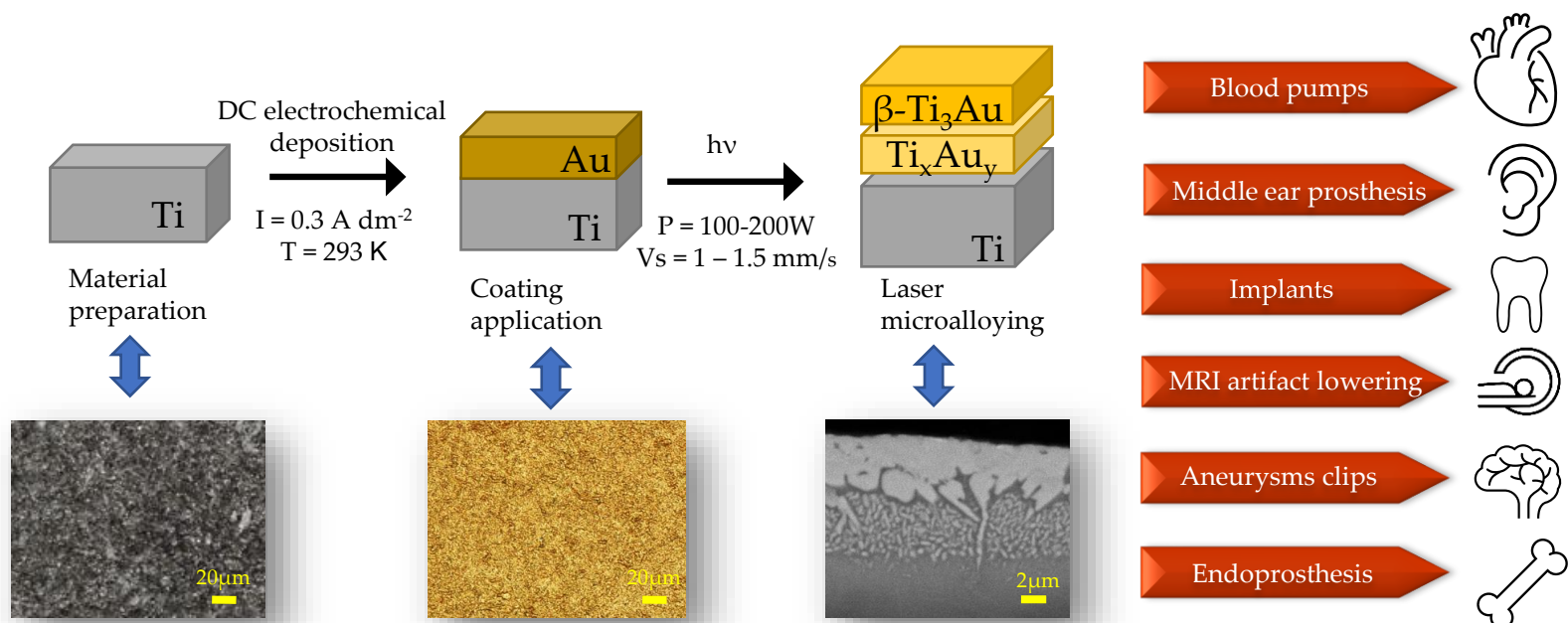
Sposób wytwarzania warstwy TiAu o właściwościach antykorozyjnych w zastosowaniach technicznych i biomedycznych

A way to produce a TiAu layer with anti-corrosion properties for technical and biomedical applications

Patent Application PL: P.441124

The present invention pertains to the utilization of electrochemically or vapor phase deposited (PVD) Au thin films, which are subsequently treated with lasers to generate TiAu phases for application in tissue and high corrosion environments. This innovation finds potential applications across various technological fields, particularly in the biomedical materials industry for the fabrication of permanent or temporary implants in living organisms. The unique aspect of this invention lies in mitigating the adverse effects of foreign body implantation by utilizing

a metal alloy material, composed of noble metals with higher standard potential, namely Gold (Au) and Titanium (Ti), which can be introduced into the bloodstream. The material exhibits improved physical and chemical properties, such as a hydrophilic surface nature and enhanced corrosion resistance. Additionally, the material demonstrates favorable results in cytotoxicity tests, indicating biocompatibility, and displays enhanced mechanical properties, including increased nanohardness and improved tribological performance.



Improvements:

- ✓ Ability to implant circulatory or skeletal support devices with reduced risk of near and distant complications.
- ✓ Extended device life cycle
- ✓ Decrease in cardiovascular disease-related mortality
- ✓ Use of a thin film will allow a relatively low increase in production costs
- ✓ New material will provoke less artifacts in high induction Magnetic Resonance Imaging (MRI)