

The aim of this project is to check whether a new metal ions-assisted method of polydopamine (highly adhesive organic polymer) deposition can lead to the formation of a stable, thick and active adhesive layer on collagen-coated vascular prostheses, intended for further bonding with various antimicrobial agents (antibiotics, silver nanoparticles, substances reducing bacterial adhesion). The implementation of the project will answer the following questions: 1) whether this method will be more promising in antibacterial protection of vascular prostheses than previously known methods of biomaterial modification with polydopamine, and 2) whether the modified biomaterials show antibacterial effectiveness, desired functionality and safety after implantation. If this assumption is positively verified, the new modification method can be used as a valuable tool for the effective therapy of perioperative infections of vascular prostheses (laden with a 70% risk of amputation of the limb with the infected implant, and even 75% mortality). In addition, it will be possible to verify the effectiveness of the new method for the modification of other collagen-coated biomaterials.