

## **Plasma preparation of titanium surfaces for stents**

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Thrombosis and restenosis are the most common problems during insertion of biocompatible implants like titanium stents into human blood, due to aggregation of platelets on their surfaces. Because of this reason, we studied the response of blood platelets to a plasma treated titanium surface. The aim was to design a functionalized surface which would repel blood platelets or prevent their adhesion. Therefore, we functionalized surfaces with low-temperature inductively coupled oxygen plasma treatment, which in the first stage cleaned the surface of titanium, and in the second promoted incorporation of oxygen functional groups as well as the growth of a titanium dioxide film. In this paper we show that oxygen atoms or oxygen containing groups play an important role in the repulsion of platelets and their deactivation. At the same time, increased surface temperature of samples either through sequential thermal deactivation in heat oven at 150 °C or heating the surface with ion bombardment during the treatment, lowers the oxygen content and the surface repulsion for platelets.