# Hemocompatibility of New Fibrous PET Structures With and Without Surface Modification

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It is well known that commercial ePTFE porous vascular grafts show a very good hemocompatibility, however, they are used mainly for large diameter grafts and there is a need for medium to small diameter vascular grafts. Woven structures of polyethylene terephthalate (PET) are also used as vascular grafts (Dacron), but for large diameter arteries only since PET does not show very good blood compatibility and poses some mechanical compatibility problems due to its low compliance. The objective of this work is to develop a biomaterial, based on fibrous structures of PET with enhanced blood and mechanical compatibility from which arterial prostheses of medium and small diameter can be fabricated. Our strategy to increase blood compatibility is based on the functionalization of the fibrous PET structures. Various chemical groups can be grafted on the PET fibres. For example, polyethylene glycol (PEG) immobilization on the material surface to increase compatibility with blood and to decrease platelet adhesion has been well documented in recent years, but this choice is not restrictive. In a first step, blood compatibility of fibrous PET structures is studied using a test of adhesion of platelets labelled with $^{51}Cr$. Results from pristine PET structures, $NH_2$-modified and OH-modified PET structures, and commercial ePTFE and woven PET structures are compared. Platelet morphology is assessed using scanning electron microscopy (SEM). Preliminary results show that $NH_2$ and OH modification improves platelet compatibility with respect to PET commercial structures, but commercial ePTFE structures still show highest blood compatibility. The anti-thrombogenic potential of the most promising modified structures will be confirmed by platelet P-selectin expression.