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Cytocompatibility of DLC coating on a synthetic vascular graft NAOYUKI TAKEDA , YUTA HOSHINO, YASUHARU OHGOE, ALI ALANAZI, KENJI HIRAKURI, YASUHIRO FUKUI, TOKYO DENKI UNIVERSITY TEAM, KING SAUD UNIVERSITY TEAM — Expanded–polytetrafluoroethylene has been used for synthetic vascular graft. It is not enough to keep these polymeric materials into human being for long term although the thrombus formation on them is relatively low in comparison with other materials. In order to improve the problem, it is important to innovate on the coating technology with high biocompatibility and cytocompatibility. Diamond-like carbon (DLC) film is one of the candidates for the coating because of their excellent properties such as biocompatibility and chemical stability. Recently, surface treatment of the DLC film has attracted much attention to give added value without losing a characteristic for the improvement of the biocompatibility of the DLC film. The surface of DLC film is able to be evidently modified by oxygen, argon and nitrogen after DLC film has been deposited on a synthetic vascular graft inner-wall. The biocompatibility of the modified DLC film was evaluated by in-vitro studies using endothelial cell. As a result of the in-vitro studies, the cytocomapatibilty was obviously improved because the number of cell was increased on the surface with the modification.

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