



一人工血管取代物

提案人：徐善慧 教授

單位：臺灣大學高分子科學與工程學研究所

簡歷：<http://homepage.ntu.edu.tw/~shhsu/index.htm>

市場及需求：

由於社會進步造成的高齡化與生活習慣的改變，罹患血管疾病的人口始終居高不下。根據研究的統計，周邊動脈阻塞疾病的發生率約為 12%，大多數是年齡 45 歲以上的人為主。由於台灣老年人口增加，飲食習慣改變等因素，此疾病有逐年增加的趨勢。周邊血管阻塞常見治療方式為繞道手術、氣球擴張與截肢。然而臨床小血管手術(如血管繞道手術)的替換物來源，通常是從病患自身其他部位取得替代用血管，或由其他適合的捐贈者提供，但是病患自體的血管來源有限，其他捐贈者有免疫排斥等問題，加上目前市場尚無可長期使用之小管徑人工血管產品(<6 mm 直徑)，因此在臨床需求上仍未能獲得解決。根據人工血管的需求量估算，預估台、美下肢周邊血管繞道手術用人工血管市值約台幣 150 億元。

技術摘要(含成果)：本技術使用高度生物相容性與優異機械性質的高分子聚合物，製作成擁有長期暢通率的小管徑人工血管。

優勢：本發明為一人工血管取代物。亮點優勢為具有高度生物相容性、低外來物免疫反應、可結合生醫用藥與優異的機械性質，是一長期暢通的小管徑人工血管產品。

競爭產品：由達克龍 (Dacron) 或聚四氟乙烯 (expanded polytetrafluoroethylene, ePTFE) 所組成的已上市人工血管，但其管徑 ≥ 4 mm。在直徑 ≤ 3 mm 管徑人工血管，目前無對應產品。

專利現況：

本技術已有相關專利 (中華民國專利申請號: I427091, I466908; 美國專利證號: 8975331)。

聯絡方式(請不用填):

臺大產學合作總中心

Tel: 02-3366-9945, E-mail: ntuciac@ntu.edu.tw



A replacement of artificial blood vessels

PI : Prof. Shan-hui Hsu; Institute of Polymer Science and Engineering

Experience: <http://homepage.ntu.edu.tw/~shhsu/index.htm>

Market Needs:

According to the social progress caused by the aging and living habits change, the population with vascular disease is more common. By the studies, the incidence of peripheral arterial obstruction disease (PAOD) is about 12%, and most of them were over 45 years old people. By the increased elderly population in Taiwan, eating habits, and other factors, the PAOD has become more prevalent. The treatment of PAOD were bypass surgery, balloon expansion, and amputation. The source of replacement for clinical small-diameter vessel is usually obtained from other parts of the patient by alternative blood vessels, or by other suitable donors. However, the source of autologous blood vessels is limited, and the allograft blood vessels have immunization problems. There is still not available products for long-term use in clinical needs. By the estimated demand for artificial blood vessels, the market value of artificial blood vessels in the peripheral vascular bypass of Taiwan and the United States is estimated to be about NT \$ 15 billion.

Our Technology: The use of highly biocompatible and excellent mechanical properties of high molecular polymer, made with long-term flow rate of small diameter artificial blood vessels.

Strength: The present invention is a replacement of artificial blood vessel with high biocompatibility, low foreign immune response, combination with medical drugs, and excellent mechanical properties. These are small diameter artificial blood vessels products for long term use.

Competing Products: The products composed of Dacron or expanded polytetrafluoroethylene (ePTFE). But, there is no corresponding product in the ≤ 3 mm diameter artificial blood vessels

Intellectual Properties:

The ROC patent application number: I427091 , I466908
United States Patent 8975331

Contact (do not need to fill out):

Center for Industry-Academia Cooperation, NTU
Tel: 02-3366-9945, E-mail: ntuciac@ntu.edu.tw