Hepatocyte spheroids formed on rubbed polyimide membrane for cell transplantation

Yuuki Karube\textsuperscript{a}, Shoichiro Asayama\textsuperscript{a}, Mami Osoegawa\textsuperscript{a}, Naoto Matsuno\textsuperscript{b}, Hiroyoshi Kawakami*\textsuperscript{a}

\textsuperscript{a}Department of Applied Chemistry, Tokyo Metropolitan University, 1-1 Minami-Osawa, Hachioji, Tokyo 192-0397, Japan
Tel. +81 426771111, ext. 4972; Fax +81 426772821; email: kawakami-hiroyoshi@c.metro-u.ac.jp
\textsuperscript{b}Tokyo Medical University Hachioji Medical Center, Hachioji, Tokyo 193-0998, Japan

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\textbf{ABSTRACT}

In this study, we have prepared a rubbed fluorinated polyimide membrane using a rubbing machine with a rubbing cloth and formed hepatocyte spheroids on the rubbed membrane. The re-seeding of the spheroids, that is, spheroid building, enhanced the biochemical functions of the spheroids by optimization of the culture conditions. Furthermore, the co-culture of the spheroids with endothelial cells enhanced the spheroid function. To increase the specific function without co-culture, we attempted to transplant the hepatocyte spheroid into rat spleen. The transplanted spheroid without dispersion was observed by hematoxylin-eosin staining. Moreover, immunostaining proved that the resulting spheroids in the spleen expressed liver-specific antigen on cell surface. These results suggest that the hepatic spheroid formed on the rubbed polyimide membrane succeeded to be transplanted.

\textbf{Keywords:}  Polyimide membrane; Rubbing; Hepatocyte spheroid; Cell transplantation; Endothelial cell

* Corresponding author.