



ELSEVIER

Contents lists available at ScienceDirect

Data in Brief

journal homepage: www.elsevier.com/locate/dib

Data Article

Rapid production of engineered human primary hepatocyte/fibroblast sheets

Yusuke Sakai*, Makiko Koike, Akihiko Soyama, Masaaki Hidaka, Tamotsu Kuroki, Susumu Eguchi

Department of Surgery, Nagasaki University Graduate School of Biomedical Sciences, 1-7-1 Sakamoto, Nagasaki 852-8501, Japan

ARTICLE INFO

Article history:

Received 18 August 2015

Received in revised form

17 September 2015

Accepted 29 September 2015

Available online 9 October 2015

Keywords:

Human primary hepatocyte

Fibroblast

Cell sheet

Tissue engineering

ABSTRACT

This data article contains data related to the research article entitled “Vascularized subcutaneous human liver tissue from engineered hepatocyte/fibroblast sheets in mice,” published in *Biomaterials* [1]. Engineered hepatocyte/fibroblast sheets (EHFSs) are used for construction of vascularized subcutaneous liver tissue without a pre-transplant vascularization procedures. Here, we described a rapid production technique of EHFSs by controlling fibroblast density and coating fetal bovine serum (FBS) onto temperature-responsive culture dishes (TRCDs). The human fibroblast monolayer formed on FBS-coated TRCDs within 1 h when seeded at a high density (at least 1.56×10^5 cells/cm²). The most rapid EHFS production was achieved soon after the adhesion of human primary hepatocytes onto the fibroblast layer.

© 2015 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY license

(<http://creativecommons.org/licenses/by/4.0/>).

Specifications Table

Subject area	<i>Biology</i>
More specific subject area	<i>Tissue engineering, cell sheet, hepatocyte culture</i>
Type of data	<i>Image, graph, figure</i>
How data was acquired	<i>Microscope</i>

* Corresponding author.

E-mail address: y.sakai.bioeng@gmail.com (Y. Sakai).

<http://dx.doi.org/10.1016/j.dib.2015.09.044>

2352-3409/© 2015 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

Data format	Raw
Experimental factors	Cell sheet, rapid producing technique
Experimental features	Rapid production of engineered human hepatocyte/fibroblast sheet
Data source location	Nagasaki University Graduate School of Biomedical Sciences, Nagasaki, Japan
Data accessibility	Supplementary data of the article

Value of the data

- FBS served as a good TRCD coating for the rapid preparation of fibroblast monolayers.
- Fibroblast monolayers formed within 1 h by seeding at least 1.56×10^5 cells/cm².
- Rapid production of EHFSSs was achieved approximately 3 h after the first inoculation of TIG-118 cells.

1. Data and experimental design

1.1. Fibroblast monolayer preparation by controlling cell density and FBS-coating to TRCD

Human fibroblasts (TIG-118 cells) formed a confluent monolayer within 1 h after inoculation with at least 1.56×10^5 cells/cm² onto FBS-coated TRCDs (Fig. 1A and B). Fibroblasts seeded at a lower density (1.04×10^5 cells/cm²) did not form confluent monolayers. Fibroblasts on uncoated TRCDs were unable to reach confluence despite high-density inoculation and showed non-uniform cell distributions (Fig. 1C and D).

1.2. Human primary hepatocyte density for healthy culture on a FBS-coated TRCD

Human primary hepatocytes on FBS-coated TRCDs were not confluent within 1 day after inoculation under two conditions of hepatocyte densities (1.04 and 2.08×10^5 cells/cm²) (Fig. 2). After

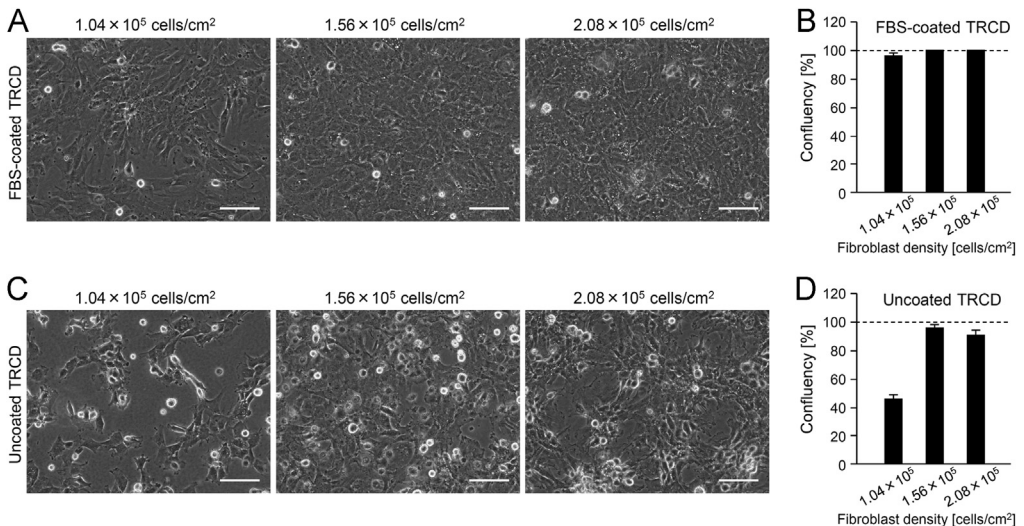


Fig. 1. Phase-contrast micrographs (A, C) and confluency (B, D) of fibroblasts cultured on TRCDs at 2 h after inoculation. Fibroblasts were cultured at 1.04 , 1.56 , or 2.08×10^5 cells/cm² on (A, B) FBS-coated or (C, D) uncoated TRCDs. Scale bar, 100 μ m. The dashed lines indicate the confluent.

Download English Version:

<https://daneshyari.com/en/article/174855>

Download Persian Version:

<https://daneshyari.com/article/174855>

[Daneshyari.com](https://daneshyari.com)