Electronic Supplementary Information

Intrinsically Semi-Permeable PDMS Nanosheet Encapsulating Adipose Tissue-Derived Stem Cells for Enhanced Angiogenesis

Megumi Takuma[1], *Hajime Fujita*[1], *Nanami Zushi*[1], *Hisato Nagano*[2], *Ryuichi Azuma*[2], *Tomoharu Kiyosawa*[2], *Toshinori Fujie*[1,3]

[1]School of Life Science and Technology, Tokyo Institute of Technology, B-50, 4259 Nagatsuta-cho, Midori-ku, Yokohama 226-8501 (Japan). [2]Department of Plastic and Reconstructive Surgery, National Defense Medical College, Tokorozawa, Saitama 359-8513 (Japan). [3]Living Systems Materialogy Research Group, International Research Frontiers Initiative, Tokyo Institute of Technology

*Corresponding author:
T. F: t_fujie@bio.titech.ac.jp, Tel: +81-45-924-5712

This file includes:
Supporting Figures S1 to S3
Supporting Table S1

Supporting figures and table

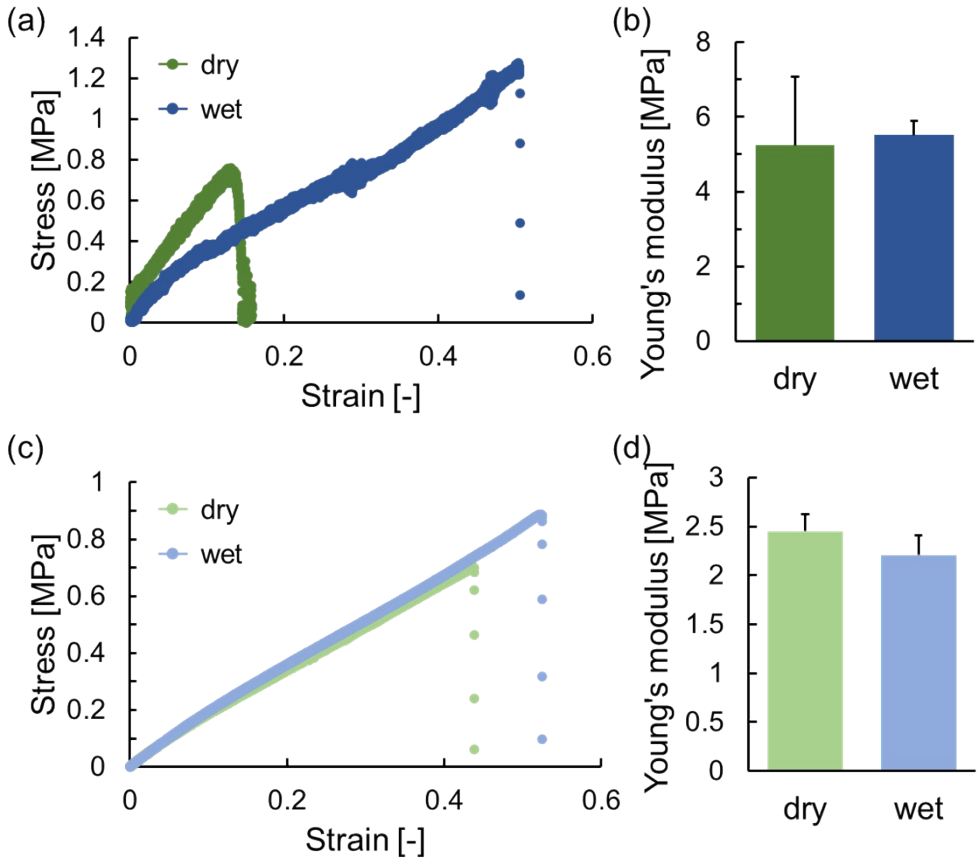

Figure S1. (a) Stress–strain curves of PDMS sheet (thickness: 2 µm) under dry and wet conditions. (b) Young's modulus of PDMS sheet (thickness: 2 µm) under dry and wet conditions. (c) Stress–strain curves of PDMS sheet (thickness: 100 µm) under dry and wet conditions. (d) Young's modulus of PDMS sheet (thickness: 100 µm) under dry and wet conditions.

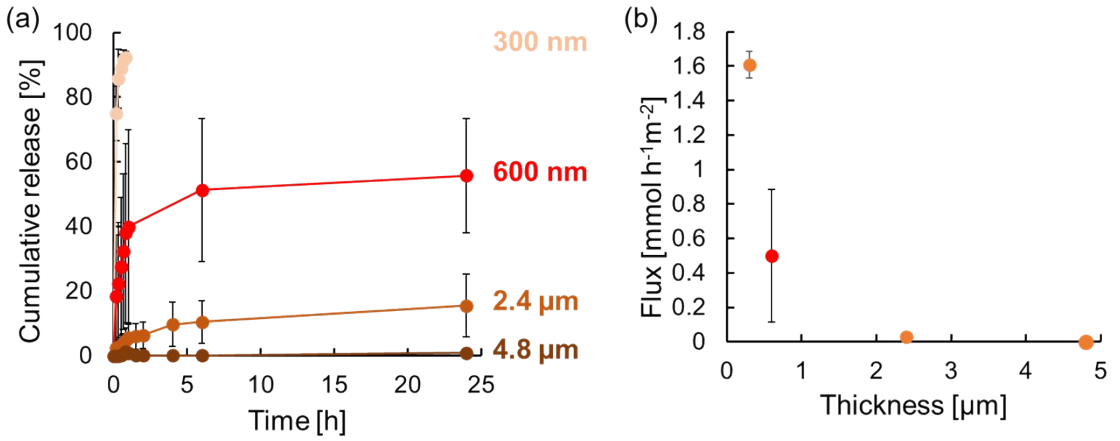

Figure S2. (a) Time-course study of the cumulative release of BSA through PDMS nanosheets with different thicknesses (pink: 300 nm, red: 600 nm, light brown: 2.4 µm, brown: 4.8 µm), and (b) corresponding relationship between the nanosheet thickness and flux. The data about 600 nm, 2.4 µm and 4.8 µm are retrieved from Figure 3.

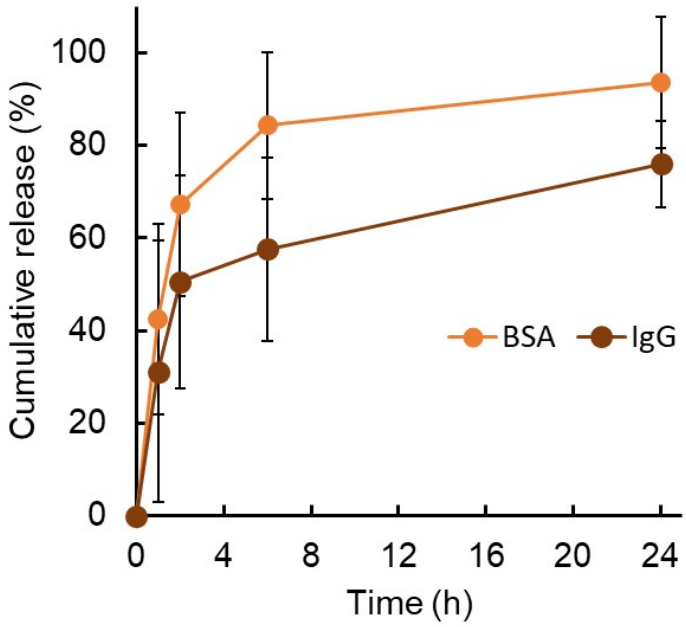

Figure S3. Time-course study of the cumulative release of FITC-BSA (orange) and FITC-IgG (brown) through PDMS nanosheet with thicknesses of 800 nm.

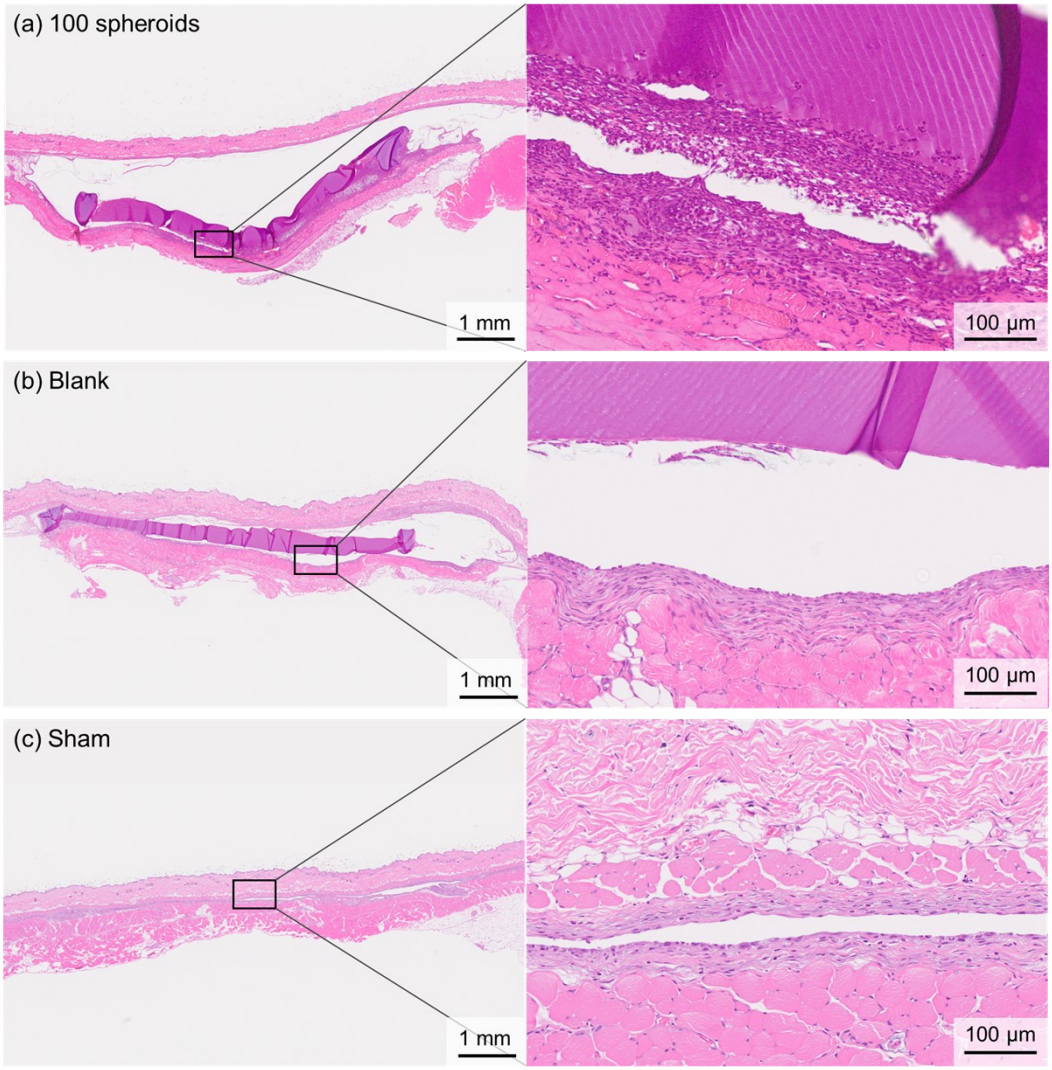

Figure S4. HE images of (a) the 100 spheroid device and (b) the blank device sandwiched between skin and fascia, and (c) a sham mouse at 7 days after transplantation.

Table S1. Details of the four animal groups and the sample number. +/- indicates the presence or absence of the device. “Spheroids” indicates the number of transplanted spheroids.

Group name	Device	Spheroids	Sample number
1. Blank	+	0	5
2. 2,000 spheroids	+	2,000	5
3. 100 spheroids	+	100	5
4. Sham	-	0	3