J Acupunct Meridian Stud 2014;7(4):217–218

Available online at www.sciencedirect.com

Journal of Acupuncture and Meridian Studies

journal homepage: www.jams-kpi.com

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Fat Connected with the Primo Vascular System

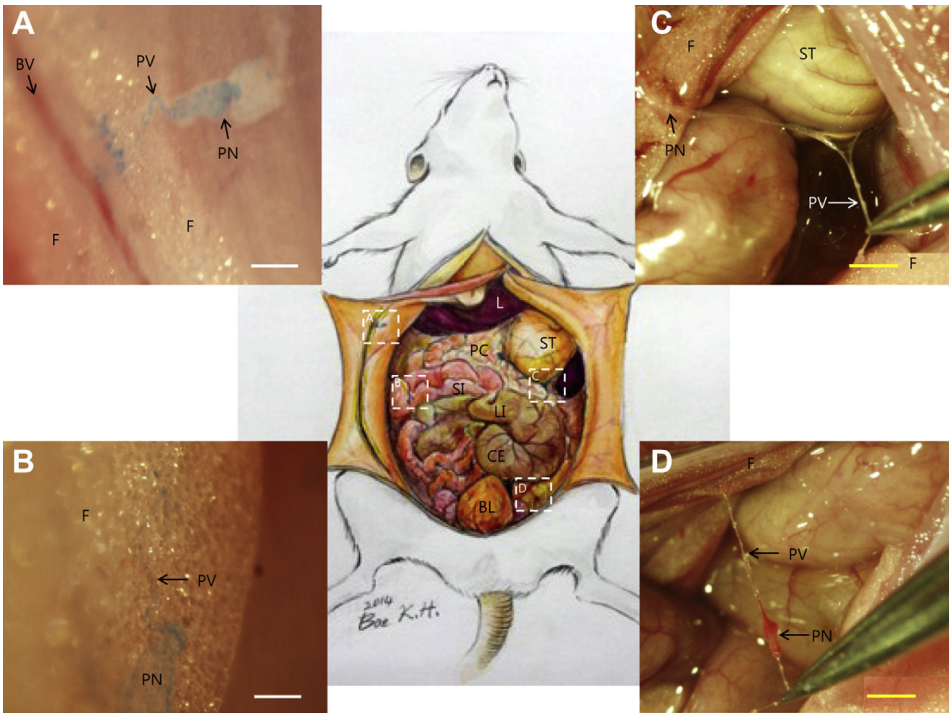
Kyoung-Hee Bae, Kwang-Sup Soh*

Nano Primo Research Center, Advanced Institute of Convergence Technology, Seoul National University, Suwon, South Korea

Available online 24 April 2014

Received: Mar 20, 2014
Accepted: Apr 3, 2014

KEYWORDS
fat;
adipose tissue;
primo vascular system (PVS)



BL, bladder; BV, blood vessel; CE, cecum; F, fat; L, liver; LI, large intestine; PC, pancreas; PN, primo node; PV, primo vessel; PVS, primo vascular system; SI, small intestine; ST, stomach

* Corresponding author. Nano Primo Research Center, Advanced Institute of Convergence Technology, Seoul National University, Suwon, South Korea.
E-mail: kssoh@snu.ac.kr (K.S. Soh).

pISSN 2005-2901 eISSN 2093-8152
http://dx.doi.org/10.1016/j.jams.2014.04.002

Adipose tissue has been a subject of wide interest in connection with obesity, which has become a global epidemic [1]. It plays a central role in the metabolic function, especially in energy homeostasis. It is not a mere mass of adipocytes, but a highly complex structure filled with complicated networks of circulatory systems, such as blood vessels, lymph vessels and primo vessels. The primo vascular system (PVS), which is a recently-found circulatory system, contains fluid whose proteomic analysis showed remarkably high levels of carbohydrate metabolic derivatives [2]. The high concentrations of proteins involved in metabolism are signs of their association with stem cells and cancer cells [3, 4]. Adipose tissues were conjectured to be connected with other organs and cancer tissues via the PVS because they are deeply connected with energy metabolic functions [5]. This conjecture was supported by experimental data obtained from the PVS on the surfaces of abdominal organs, as demonstrated in this figure. Four fat tissues (A-D) connected with the PVS in the abdominal cavity of a rat are illustrated.

A: A primo node (blue blob) and a primo vessel (blue curve) emerged from the fat band along the midline in the abdominal wall that covered the abdominal cavity of a rat. Alcian blue that was intravenously injected into the right femoral vein somehow got into and flowed in the PVS. The scale bar is 200 μm. **B:** A primo node (blue blob) and a primo vessel (dim blue curve from the top of the primo node) on an adipose tissue around the small intestine of the rat in A. The scale bar is 200 μm. **C:** A net of primo vessels entering the adipose tissues around the stomach. The scale bar is 2.0 mm. **D:** This picture shows the elasticity of the primo vessel that emerged from the adipose tissue around the small intestine. The scale bar is 2.0 mm.

Disclosure statement

The author affirms there are no conflicts of interest and the author has no financial interest related to the material of this manuscript.

Acknowledgement

This research was supported by the Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Science, ICT & Future Planning (grant numbers: 2013 R1A1A2011526 and 2013R1A1A2008343).

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