

BioMed Research Journal

Hiroshi Shimoda*

*Department of Anatomical Science, Hirosaki University Graduate School of Medicine, 5 Zaifucho, Hirosaki, Aomori 036-8562, Japan

Received November 23, 2017; Accepted November 24, 2017; Published December 1, 2017

To the Editor

In recent years, many different kinds of journals have been published in accordance with the diversity of life science research fields. I sincerely feel grateful that the journal titled wonderful term “Biomedicine”, which commits in covering broad academic fields, is launching here in such trend. Medical Biology (Biomedicine) is essentially read as a science exploring human health from a biological standpoint, and the research products must be returned to the improvement of human health. Current Biomedicine involves multiple disciplines being labeled such various kinds of academic names as Cell Biology, Molecular Biology, Biochemistry, Immunology, Laboratory Medicine, Developmental Biology, Oncology, Biological Engineering, etc. Most of the studies, therefore, turn their efforts to the researches using the cultivated cells (*in vitro*) and/or such laboratory animals (*in vivo*), so that the studies treating various functional biomolecules become the mainstream in the biological and medical research fields of Life Sciences. It is beyond all doubt that this has earned current medicine great progress and benefits. However, the difficulty of application of the research products by means of cell culture and of experimental animals such as mice to human health and the risk that the biological mechanism subsisting in the experimental models deviates from that in human tissues are recently suggested.

Revisiting the term “Biomedicine”, its principal ideology can be found in Anatomy (structure) and Physiology (function). A variety of cells assembles with their intents and unites with each other to construct elaborate tissues. The tissues are further organized into various organs and individual body with the particular morphology affording their characteristic functions: viz., the human cells succeed in fulfillment of human health by formation of our peculiar three-dimensional (3D) structure under biological actions of numerous biomolecules. From this point of view, it goes without saying that the studies by use of human organs and/or tissues are ideal for evolution of biomedical research, of which essential mission is accurate exertion for accomplishment of the human health, but, in fact, such

studies are heavily restricted because of the ethical problems. Therefore, the development of a new medical research model equivalent to human tissue is recently required to solve the issue. This is also regarded to be an important ground for current project to develop organ-on-a-chip, which is constructed with human cells and available as an organic model substitutable for experimental animal. The human tissue/organ model is further anticipated as biomaterials exploitable for transplantation. Thus, the establishment of artificial human 3D tissues/organs, which the cells form themselves through functions of their produced biomolecules, probably afford effective means to accomplish the ultimate goal of the future biomedical research.

At present, plenty of research institutes challenges the development of a variety of 3D human tissues and/or organs by good use of tissue engineering methodology not only for the progression of Biomedicine, but also for the application to medical transplantation. Considering application of the 3D tissues fabricated in *ex vivo* condition to medical research and transplantation, investment of biological regulatory system in the fabricated tissues is critically significant for their survival and function. Constitution of blood and lymphatic vasculature in the tissues is presumed to play a crucial role in preferential blood supply and drainage of tissue fluid and cells in the case of their transplantation and also in investigation of pathophysiological mechanism including tumor metastasis and drug discovery as a unique experimental model.

Corresponding author: Hiroshi Shimoda, Department of Anatomical Science, Hirosaki University Graduate School of Medicine, 5 Zaifucho, Hirosaki, Aomori 036-8562, Japan, Tel: +81-172-39-5004; E-mail: hshimoda@hirosaki-u.ac.jp

Citation: Shimoda H. (2017) BioMed Research Journal. Biomed Res J, 1(1): 1-2.

Copyright: ©2017 Shimoda H. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Assimilation of Biomedicine, of which tradition has been rooted in strict Anatomy and Physiology, to some disciplines in such heterogeneous fields as tissue engineering affords a novel scientific world, and it is intensely desired that this journal will depict the future chart on Biomedical research.