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Global Translational Medicine

EDITORIAL

Inaugural editorial: A new platform dedicated to promote bench-to-bedside translation

Lemin Zheng†*

The Institute of Cardiovascular Sciences, Peking University, Beijing, China

We are pleased to introduce you to the inaugural volume of *Global Translational Medicine*, a new journal under AccScience Publishing (Singapore) Pte. Ltd. *Global Translational Medicine* is a quarterly journal that focuses on medicine, biological sciences, and biomaterials engineering. *Global Translational Medicine* provides a platform to fill the gaps in preclinical and inter-disciplinary research, to promote clinical translation of scientific research results, and to contribute to the conception of new and improved preventive measures as well as diagnostic and therapeutic techniques of diseases.

Translational medicine is a branch of medical research which aims to bridge basic research and clinical application. The main focus of *Global Translational Medicine* is to break down the barriers between basic research and clinical application, such as drug development, biomarker assay, and so on, paving a new way to translational medicine. The high incidence of cardiovascular and cerebrovascular diseases as well as tumors brought a huge burden to many families and the society. The pathology of these diseases involves both genetic and environmental risk factors, while the traditional methods are unable to meet the needs of prevention, diagnosis, treatments, and prognosis assessment of these diseases. The development of multiomics technology brings new chances to translational medicine. There may be two points that will contribute to the success of translational medicine, one is using the methods of multiomics to explore new targets and drugs, and the other is optimizing preclinical models.

The most downloaded articles in the first two issues of *Global Translation Medicine* are related to genomics, metabolomics, and preclinical animal models in cardiovascular disease (CVD) and idiopathic pulmonary fibrosis (IPF).

The first article[1] reviewed the genetic and non-genetic risk factors of IPF. IPF is the most common form of fibrosis of internal organs. The etiology and pathogenesis of IPF are still not well understood. However, a growing line of evidence shows that both genetic and non-genetic factors contribute to IPF development. The release of pro-inflammatory cytokines activates the immune cells. The enhanced synthesis of interleukins and cytokines, especially transforming growth factor β1, leads to the proliferation of fibroblasts, increased extracellular matrix formation, and epithelial-mesenchymal transformation of the lung tissue. These pathological changes could lead to fibrosis. Polymorphisms of genes responsible for the function of mucociliary clearance (MUC5B), telomerases (TERT, TERC), as well as signaling pathway-related genes, such as Sonic hedgehog, Wnt, and some other genes, are also risk factors for IPF development. Epigenetic regulatory mechanisms, such as methylation and acetylation of DNA and histones, may also influence the development and progression of this disease. At present, the role of non-coding RNAs, particularly long non-coding RNAs (lncRNA) in the development of fibrotic processes, is actively studied. LncRNA is an RNA that

†Professor Lemin Zheng the Editor-in-Chief of *Global Translational Medicine*.

***Corresponding author:**
Lemin Zheng
(zhengl@bjmu.edu.cn)

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is longer than 200 base pairs and does not code for any proteins. LncRNAs perform various functions in the cell, from nuclear compartmentation to epigenetic regulation of gene expression and post-translational modification of proteins. This article sheds light on the mechanisms of the pathogenesis of IPF and suggests potential therapeutic targets for IPF.

The second article[2] is about the application of metabolomics in CVD. Succinate is generally considered an important intermediate product of the tricarboxylic acid cycle. Mounting studies have shown that succinate is related to the pathophysiology of CVD, such as atherosclerosis, acute aortic dissection, hypertension, myocardial ischemia-reperfusion injury, and heart failure. It may represent a potential target or biomarker for CVD. It has been demonstrated that succinate not only participates in various energy metabolic pathways but also plays an important role in various pathophysiological activities as a signaling molecule. Given the significance of metabolites in CVD, it is important to focus on the metabolic regulation mechanism of succinate in CVD. This article outlines the latest evidence pointing to the potential role of succinate in CVD, along with its mechanisms, and updates the current understanding on the role of succinate in CVD, which is of great significance not only for clinical diagnosis and treatment but also for basic research.

The third article[3] introduces two preclinical murine models used in the basic research of atherosclerosis. Atherosclerosis is a leading cause of morbidity and mortality in many countries. Mice are the most frequently used animal model to study the pathogenesis and molecular mechanisms of atherosclerosis. En face analyses of the aorta and cross-sections of the aortic root are the two common modes for quantifying the severity of atherosclerosis in mice. This article outlines the pros and cons of these two methods and provides suggestions to optimize the quantification of atherosclerosis, thereby enhancing rigor and reproducibility in preclinical research, which means a lot to the further translation to clinic.

We hope that our readers could be inspired by the articles published in the inaugural volume of *Global Translational Medicine*. Moreover, we sincerely welcome submissions from our readers to publish new research, insights, and novel results in the forthcoming issues of *Global Translational Medicine*.

Conflict of interest

The author declares no conflict of interest.

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