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Editorial
Translational medical research: present and future

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Translational medicine is one of the oldest medical practices during the evolution of human society, although its importance has just been increasingly recognized by more and more medical investigators and practicing physicians since the time entered the 21st century.

Translational research incorporates some of the oldest knowledge that the human race has gathered, from healing practices of ancient civilizations to the development of modern medicine. Today's translational research is generally defined as the investigation that transforms scientific discoveries arising in the laboratory, clinic, or population into new clinical tools and applications that reduce disease incidence, morbidity and mortality. Recent progress in mapping the human genome, as well as other technologies, has rapidly accelerated advances in both research and clinical applications. We have made much progress in exploring and understanding the entire genome sequence, gene expression variants, epigenomics, and the proteome of a given organism. Nevertheless, integrating the biological activities of particular genes and proteins with this newly gained knowledge continues to be a great challenge. We strive to know not only how a single stimulus affects an organism at the molecular, cellular, and organismal level, but also how distinct individuals respond differently to the same stimulus. The origin of these stimuli can be intrinsic as well as extrinsic, and often invokes a cascade of reactions in an organism. Thus, the complexity of the biological system is enormous. However, we must be able to fully address all these exciting questions, so as to develop new approaches for dealing with human disease.

Translating partial knowledge into disease treatment is always risky, and failure is a norm instead of surprise. The current goal of understanding an entire organism in a systematic manner is highly ambitious and requires ongoing efforts. We currently have many novel approaches to investigate the organism in a comprehensive manner, including whole genome sequences, gene expression profiles, proteomic analysis for entire genome changes, and state of art imaging systems. In addition, we have developed many disease models in animals that mimic human diseases. The amount of information gained from basic research is snowballing. Despite advancements in our understanding of biological systems, the success rate for drug development remains mediocre. Drug companies are trying their best to introduce new medicines into the clinical setting. However, recent improvements in effective medicine remain few and far between. Nevertheless, successful examples of novel drugs for disease treatment have been recorded and celebrated, some of them even without knowing the precise mechanism of action. Thus, the medical research community should, and will, continue to translate our still incomplete understanding of human biology into potential treatments to remedy human diseases.

The *American Journal of Translational Research* was established to publish high quality papers which report the effort, whether successful or not, of translational medical

research. The subjects of translational research encompass diagnosis, prevention and treatment of human diseases. As listed in the first and second issues, we include many updated review articles to illustrate the current understanding in different pathways or systems. These studies offer many new ideas for consideration as potential key targets to treat. Similarly, original articles presenting new findings will be encouraged and reviewed expeditiously for speedy publication. Importantly, publication in this journal is free; reviewers and editors are a group of reputable scientists working for the public good to improve this process. I wholeheartedly welcome you join us in our efforts to advance translational research in an ongoing endeavor to improve clinical medicine.