

Physiological genomics - what is in a name?

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PHYSIOLOGY, THE SCIENTIFIC discipline of enquiry into how molecules, cells, and organs interact to function as a whole being, has been in existence since the times of the ancient Greeks. However, it was in the 18th and 19th centuries that physiology collided with advances in chemistry, physics, and biology to pave the way for new disciplines to emerge, such as biochemistry, biophysics, and more recently, molecular biology. The era of modern biology ushered in largely in the mid-1980s with the advent of PCR and later on techniques developed to sequence genomes, analyze transcriptomes, and growth of the “omics era” has left an unprecedented footprint on the landscape of physiological research. Almost all, if not most of what physiologists study in recent times, whether it is the function of an organ system, organ, tissue, or cell, has elements that can be traced back to the fundamental molecule of life, DNA. Depending on the scale of the physiological question posed, experimental designs vary in breadth and scope ranging from inquiry into the product of a single gene or that of a whole genome.

Notwithstanding, the American Physiological Society (APS), established in 1887, has kept a steady pace of aligning its scientific activities with the morphing of physiology in the context of the rapidly developing field of molecular biology. One such important activity of the APS is recognizable in the creation of the APS journal *Physiological Genomics* in 1999. The purpose of this journal, to serve as a “one-stop shop” focused on genetics and physiology, was captured by the editorial written by the founding Editor-in-Chief, Dr. Victor Dzau, parts of which are reproduced below:

Physiological Genomics is created in response to the perceived need of the scientific community for a rapid conduit of information integration, knowledge dissemination, communication, and interaction, as well as for a means to stimulate new concepts, ideas, and paradigms to take full advantage of this biological information explosion. This publication was conceived by an international group of scientists from academia, government, and industry that convened at the Banbury Conference Center in Cold Spring Harbor in February of 1997 to discuss “Genomics to Physiology and Beyond: How Do We Get There?” [see *The Physiologist* 40(5): 205, 1997; <http://www.faseb.org/aps/tphys97.htm>].¹ As part of their broader recommendation for an international “Genes-to-Health Initiative,” a coordinated means for communication of new ideas and discoveries for this multidisciplinary field of research through rapid publication was deemed highly desirable. Currently, a single forum that brings together investigators of multiple disciplines with a single focus of genetic physiology does not exist... Our goal is to publish the results of a wide variety of studies from human and informative model systems with techniques linking genes and pathways to physiology, from prokaryotes to eukaryotes.

Accordingly, for the last 16 years, under the editorships of Drs. Victor Dzau (3–5), Allen Cowley (1, 2), and Andrew Greene (6), the journal has grown and become successful in attracting some of the best works in physiological genomics. Seventeen years since the birth of this journal, I am happy to be chosen to take over from Dr. Greene as the Editor-in-Chief of *Physiological Genomics* from July 1, 2015. I take this opportunity to

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¹ The URL for this article has changed; the article can currently be accessed at <http://www.the-aps.org/mm/Publications/Journals/Physiologist/1990-1999/1997/October.pdf#page=1>

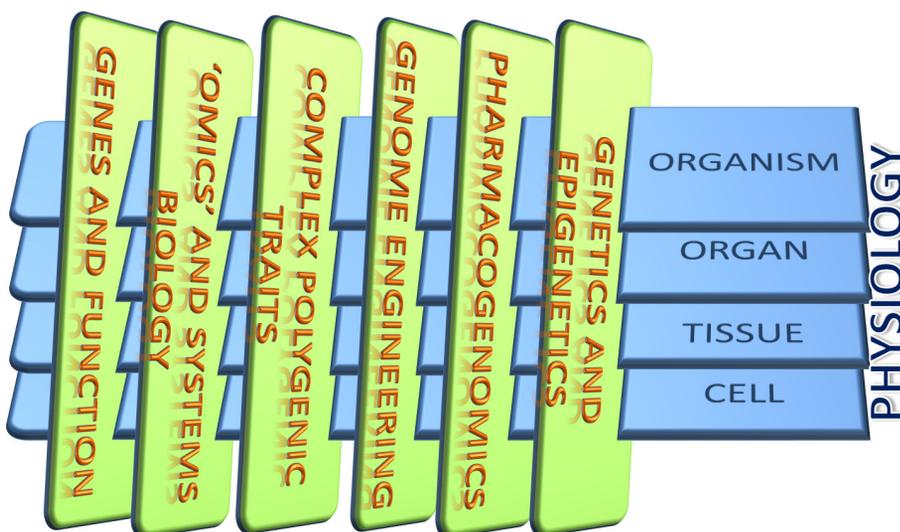


Fig. 1.

thank Dr. Greene and his editorial board colleagues for their dedication and excellent service to the journal.

Physiological Genomics is well supported by the APS to continue to grow and disseminate premier research findings in genomics to its readership. However, in constructing the vision for this journal, it is important to note that unlike the first decade since the inception of *Physiological Genomics*, (which coincided with the decade that cataloged sequences of a variety of mammals and were therefore heydays for genomic sciences), the journey forward for *Physiological Genomics* goes beyond genomics alone. The pace of discovery is now beginning to slow down as we begin to scale an upward trajectory. This is because we are now entering a relatively slow phase of physiological genomic research. Identifying variants on genomes was the easy part. Some of the most difficult and challenging studies, which are to understand the relationship between variations on the genome and their precise function to impact a physiological process, lie ahead of us. This rather arduous process is bound to take time and thereby predictable to influence the number of articles published by a journal such as *Physiological Genomics*. Therefore, I would like to clarify the broader scientific scope of the journal going forward. As shown in Fig. 1, the scope of the journal will cover a wide range of topics in molecular physiology that are not limited to genomics. The journal seeks to encompass a full spectrum of studies ranging from single gene function discovery, analysis of complex polygenic traits systems biology, and/or “omics” technologies as they relate to any organ, tissue, or cell (Fig. 1). Since most of the problems to be solved through research in physiological genomics are likely to be of practical value in improving the human condition, authors can now take advan-

tage of newer themes including pharmacogenomics and clinical translational sciences that have been added to our journal.

Armed with this strong foundation, *Physiological Genomics* is ready to move on to the next phase of the postgenomic era and is well positioned to receive your finest research findings. A new group of section editors with a diverse range of experts drawn from around the world is in place ready to serve the authors and readers of *Physiological Genomics*. Together, we solicit your input to help us serve you better and, in the process, elevate the scientific stature of *Physiological Genomics* to even greater heights.

DISCLOSURES

No conflicts of interest, financial or otherwise, are declared by the author(s).

AUTHOR CONTRIBUTIONS

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