A Dream, a Journey, and a Promise
The Inauguration of Circulation: Cardiovascular Genetics

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The journey of a thousand miles must begin with a single step.
—Lao-Tzu, Vietnamese philosopher

These are the “best of times.” Cardiologists worldwide are fortunate that they can offer much more to their patients today than was possible even a decade ago. Never before has cardiology been on such an exciting trajectory, with such exponential growth of knowledge and the exhilarating promise of harnessing the secrets of the genome to prevent, diagnose, and treat cardiovascular disease and enhance vascular health over the human life course. The future offers the possibility of realizing the dream of practicing personalized preventive cardiovascular medicine.

These are also the most challenging of times. Increased life expectancy has generated an unprecedented growth in the older segment of the population, with the accompanying rising burden of aging-associated cardiovascular disorders. Burgeoning medical knowledge and escalating patient expectations push cardiologists to keep abreast of the latest advances in cardiovascular research as never before. We understand now that common genetic variation may predispose to common forms of cardiovascular disease in the community, and rare genetic conditions provide unique pathogenic insights into these diseases. The sequential steps in the origins of cardiovascular syndromes are beginning to unfold, revealing the stunning complexities involved in the molecular basis of disease. We are beginning to understand how genetic factors interact with environmental influences over an entire lifetime to pattern and remodel function at the molecular, cellular, tissue, and organ levels and to ultimately manifest as subclinical or clinical cardiovascular disease. Molecular phenotyping of diseases is here to stay and does not respect the traditional boundaries of medical specialties, but the range of innovative diagnostic modalities must expand dramatically if we are to unravel the sophisticated relationship between genome and phenotype. Completely new phenotyping tools, such as molecular imaging and chemical profiling of patient-derived cells, are on the horizon as the prospect of a human phenotype project coalesce. The time required for moving research findings from “bench to bedside” is decreasing exponentially with the growth of translational studies, inspired in part by the National Institutes of Health Roadmap and the launching of the Clinical and Translational Science Awards. Nevertheless, if personalized medicine is to become a reality, then the current paradigms of therapeutic discovery also must be revolutionized.

These advances spawn new and unanticipated societal challenges. Genetic tests raise ethical, legal, and social issues that must be confronted by the cardiology community together with patients, ethicists, and lawyers. The costs of personalized medicine, including refined diagnosis and personalized therapies, must be justified by improved outcomes.

It is important to remember that the ultimate delivery of personalized health care rests on the shoulders of the clinicians who interface directly with patients. How then does one ensure that cardiologists, scientists, and patients embark on the journey into this brave new world in step with each other, as fresh insights into origins of disease and technological innovations translate into therapeutic advances that hold the potential for directly improving the outcomes of the patient with cardiovascular disease and for preventing the development of disease in those currently unaffected?

The launch of Circulation: Cardiovascular Genetics represents a small but important step in this direction. Indeed, the new journal brings with it the editorial promise of undertaking the journey toward personalized medicine together with our readers. We foresee an increased emphasis on genetics, genomics, and interdisciplinary training in the curricula of medical students, residents, cardiology fellows, and other trainees. The journal will strive to address these currently unmet educational needs by publishing articles that range from easily digestible summaries of the literature through minireviews to more exhaustive reviews.

We also hope that Circulation: Cardiovascular Genetics will fulfill the need for a journal focused exclusively on investigations in cardiovascular genetics and genomics. We anticipate that the rapid pace of genetic discoveries in cardiovascular medicine will generate a large number of high-quality scientific investigations, and we hope the new journal will serve as a unique forum for authors and readers. Although the title highlights cardiovascular genetics, Circulation: Cardiovascular Genetics will cover a much broader terrain. It will carry original research that transcends and incorporates all the tools that have emerged from the completion of the genome project, including novel biomarkers, genomics, transcriptomics, proteomics, lipomics, and metabolomics. Thus, the journal content will encompass “systems biology,” a term used to describe the synthesis of information across these different domains.

The content of this new journal will bridge the domains of congenital heart disease, adolescent and adult cardiac disor-
ders, and aging-associated cardiovascular ailments. We will publish research reflecting the entire spectrum of study designs, from observational studies to interventions to meta-analyses, spanning the hierarchy of evidence-based cardiology. We will consider family-based studies as well as population-based investigations. We hope to learn lessons from both rare cardiovascular syndromes and common disorders. We invite manuscripts from researchers invested in different aspects of cardiovascular genetics and genomics, including clinical cardiologists, clinical and basic scientists, trialists, epidemiologists, geneticists, molecular biologists, and ethicists.

The first issue of the journal showcases some of these themes. The original research articles featured in the issue include genome-wide association studies of lipids and gene expression profiles, examining the pleiotropic effects of genetic loci in relation to diverse vascular phenotypes and the synthesis of findings across genetic studies with meta-analytic techniques. We expect to feature well-replicated genome-wide association studies, functional studies that clarify the role of putative genetic loci associated with cardiovascular traits, pharmacogenetic studies that identify variation in drug responses according to genotypes, investigations that evaluate multimarker predictors in screening for disease and for primary and secondary prevention, and clinical translational studies. Accompanying editorials will place the original articles in the appropriate perspective for the readers.

The journal will carry special articles by leaders in the field that define the current thinking and directions in genomic research. Thus, the commentary in this issue by Drs O’Donnell and Nabel highlights the current focus of the National Heart, Lung, and Blood Institute on genome-wide association studies to quickly identify novel genetic loci associated with risk factors, subclinical disease, and clinical events. These studies complement ongoing candidate gene studies, and these efforts will facilitate unrestricted access to large databases of genotypes and phenotypes for researchers worldwide, while maintaining confidentiality of study participants.

The journal will regularly carry educational articles such as the minireview on metabolomics by Dr Mayr, which is intended to introduce young investigators to this nascent specialty, in its Advances in Molecular Genetics, Genomics, Proteomics, Metabolomics, and Systems Biology section. We will feature articles illustrating Methods in Genetics, such as one by Dr Musunuru in this issue, which is a tutorial on the HapMap for fellows and residents. The Controversies in Cardiovascular Genetics section will highlight differences in opinions among thought leaders and should generate an interactive dialogue across the community of readers. The Book Review section will identify and evaluate recent books in the field and recommend texts that are important to have on departmental or personal library shelves. The Cardiovascular Genetics News Round-Up section will summarize important recently published articles that may have escaped the attention of some readers. We expect to provide links from the journal Web site to key articles that are of interest to our readers in the parent journal and the other Circulation subspecialty journals.

Articles can be submitted to Circulation: Cardiovascular Genetics at its online submission Web site. In other cases, authors of select articles submitted to the parent journal Circulation may be offered the option of revising their manuscript for Circulation: Cardiovascular Genetics if the submission is believed to be better suited for the subspecialty journal. Choosing this option will carry a greater certainty of publication relative to resubmission to another journal, and the review process will occur over a much shorter waiting period because the original reviews for the parent journal will apply.

The education of the cardiologist in “-omics” tools and their clinical applications requires an army of teachers and investigators. To this end, we are building a team of experts that includes our associate editors and editorial board members. These specialists span the various domains of genetics, functional genomics, and systems biology, and they will, collectively with the readers and submissions, shape the form and content of the new journal under editorial guidance. We believe that together we will make a difference.

Welcome aboard, and we hope you enjoy your journey with us.

Disclosures

None.
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