Editorial

When we look back at the progress made in the area of cancer research in the past two decades, one cannot but be astounded at the magnitude of the advances made in this field. The long drive to understand the nature of intricate changes that a cancer cell undergoes to acquire a fully transformed and metastatic phenotype has been underway for some time. This has yielded an amazing amount of information that is relevant not only to our understanding of the molecular basis of cancer, but also to a more fundamental understanding of the multitudes of processes involved in the growth, differentiation, and death of a living cell. These insights come from the integration of several important disciplines of biology which include virology, carcinogenesis, cytogenetics, growth regulation, and developmental biology. It is now evident that human carcinogenesis is a multistep process which involves the activation of oncogenes, inactivation of growth suppressor genes, subversion of apoptotic mechanisms, and loss of self recognition. It is interesting to note that while the early studies of oncogenic retroviruses provided us with critical information on the nature of oncogenes (such as *src*, *abl*, *myc*, and *ras*) that play a critical role in cancer, DNA viruses such as SV40 and adenoviruses have provided us with clues regarding the nature and mechanism of action of growth-suppressor genes (such as Rb and p53).

While our understanding of the cellular processes that result in human cancer is far from complete, we seem to be at a wonderful moment in science, in which many lines of work converge to make what was once impossibly obscure suddenly appear very clear. This can be readily illustrated by recent discoveries that led to the identification of microRNAs as molecular entities that regulate gene expression and function in multicellular organisms. It is astounding to see the many ways in which a cancer cell subverts the fine regulation imposed by microRNAs during the evolution of this disease. This fundamental understanding of the molecular mechanisms associated with the initiation and progression of cancer has also made it possible to develop

new therapies that we all hope will make cancer an innocuous disease in the future. A glimpse of this paradigm is seen in the development of Gleevec[®], a specific inhibitor of the BCR-ABL kinase, which has profoundly impacted the lives of chronic myelogenous leukemia patients. As the molecular targets for various cancers emerge, it is very likely that specific inhibitors will be developed and studied in detail to further improve their efficacy and safety profiles. Needless to say, this new revolution will require the active collaboration of biologists, medicinal chemists, and pharmacologists melding these disciplines for the benefit of humanity. These new drugs will not only benefit the cancer patient but will also serve as important tools to understand the function of proteins with which they interact. Thus, we truly find ourselves at the brink of a very exciting moment in biology.

We hope to capture this exciting new future in *Genes & Cancer*, which will cover all aspects of the structure and function of oncogenes, growth suppressor, and apoptotic genes, and the mechanisms by which their expression and function are altered during tumor development. In addition to publishing manuscripts that directly relate to these areas of research, one of our goals is to establish a journal that can attract papers in the emerging areas of genomics, drug development, and systems biology. The amount of data that is generated from these approaches is immense, and such studies have the potential to reveal novel strategies that can be used to design targeted therapies. Our vision is to be able to provide a forum in which scientists can not only publish original manuscripts but also discuss the impact of such findings in specialized reviews and review issues.

We encourage you to submit your work to the journal, and we look forward to becoming an important contributor to the unfolding dialog of cancer biology.

E. Premkumar Reddy, PhD
Editor-in-Chief
Genes & Cancer