The future of Cellular Oncology

Cancer research has witnessed a turbulent period over the last years in which many new developments in genomics, tumor cell biology, biotechnology, tumor phenotype analysis and clinical oncology have come together. Medicine has taken a new course, which to a large extent is due to the genomics revolution that has had an enormous impact on biomedical sciences in general and oncology in particular. This type of biomedical research has yielded unprecedented insights into basic mechanisms of diseases and especially cancer [4,13,28,29]. The current challenge to the medical-scientific community is to carry these new insights further and to translate them into new diagnostic, prognostic and therapeutic applications and apply these in routine patient management. Many papers in Analytical Cellular Pathology have contributed to this process and the presentations during last year’s Amsterdam meeting, at which the International Society of Cellular Oncology has been founded, form a further illustration of this [1,35]. Indeed, in diagnostic surgical pathology, which has traditionally depended on the use of phenotypical classification systems, genomics-based classifications are now emerging [3,5,9,18]. Over the last decades, the scientists who have contributed to Analytical Cellular Pathology explored the possibilities of new diagnostic tools like morphometry [20,30], proliferation assays [25], DNA cytometry [6,19,21,24,37,38] and immunohistochemical phenotype analysis [7,15–17] as adjunct tools, next to traditional features like histological type and tumor differentiation grade, to arrive at an improved classification of cancer patients and to serve as determinants of progression risk in premalignant lesions and of prognosis and therapy choice in cancer [20]. An evidence based approach has always been the core of this field of research, and methodological studies have proven to be crucial in this respect [2,8,10–12,14,19,22,26,27,31–33,36]. Thanks to the genomic revolution our possibilities have increased even further and the opportunities we now have in the field of cellular oncology, both in research and in clinical medicine, are unprecedented. We are witnessing the emergence of genetic tumor profiling as the basis for tumor classification and clinical decision making in oncology, leading to revolutionary shifts in diagnostic and therapeutic practice. The effects of translational research on the application of genomics will urge us to substantially rewrite parts of pathology, oncology and other medical disciplines in the years to come. Genetic tumor profiling has already led to, and will continue to lead to, the identification of new molecular targets for innovative anticancer agents. Pharmaceutical and biotechnology companies have introduced high-throughput micro-array based screening to identify new anticancer drugs acting at newly identified molecular targets. Indeed, several new agents designed to act at specific genes or gene products that are frequently altered in cancer, have entered clinical evaluation in cancer patients. In the near future, several more of these agents are likely to become available for use in daily practice. For physicians involved in the treatment of cancer patients, it will therefore become increasingly important to obtain information on the tumor’s genetic and proteomic profile as pivotal input for the patient’s treatment plan. All these developments have also stimulated the merger of the European Society for Analytical Cellular Pathology and the International Society for Diagnostic Quantitative Pathology into the International Society for Cellular Oncology, and to the renaissance of Analytical Cellular Pathology as Cellular Oncology [23,34]. Cellular Oncology seeks to be the scientific platform for these new developments in basic and clinical cancer research, and aims to provide its readers with high profile timely information on all topics discussed above in the form of high standard reviews on the state of the art in different areas in this field, original contributions with the latest scientific developments, but also concise practically oriented papers on the application of relevant new techniques in cancer research, as well as – in the best tradition of Analytical Cellular Pathology – descriptions of the latest technical developments and consensus pa-
pers on the clinical application of these new techniques in the management of cancer patients [11]. In general, Cellular Oncology aims at bringing together the various biomedical and clinical disciplines involved in, and affected by the genomics revolution to review the latest developments and to prepare for the translation of genomics from the research laboratory into routine patient management of cancer patients. Cellular Oncology will build upon the foundations laid by Analytical Cellular Pathology and we are indebted to all those who have nourished this journal. We will continue to work on the future of oncology, which is cellular science, and Cellular Oncology wants to be its platform.

Gerrit A. Meijer  
Editor in chief

References


