Molecular immunology, molecular genetics, molecular pharmacology, and the Human Genome Project are in the process of providing a level of understanding of cancer undreamed of in the past. Optimism is based on the firm belief that understanding at the molecular level will lead to better and earlier diagnosis, to new forms of treatment, and, most importantly, eventually to prevention of many types of cancer. The rapid advances in molecular biology at the end of the 20th century mark a new era in our knowledge of cancer. Molecular immunology, molecular genetics, molecular pharmacology, and the Human Genome Project are in the process of providing a level of understanding of cancer undreamed of in the past.

Figure 1. Molecular diagnostics in oncology. There are several major avenues in cancer medicine, which utilize molecular-based assays. Testing for hereditary cancer syndromes is now routinely used both for identification of persons at-risk and for personalization of systemic treatment. To overcome this problem, some advanced cancer centers began to routinely utilize multigene platforms, which are based on the next generation sequencing analysis and include almost all known genetic loci relevant for the choice of cancer drugs. These advances may need to be considered while discussing the standards of clinical research, data dissemination and interaction between clinical and laboratory specialists.

Author Contributions. Recent advances in molecular oncology have shown us the importance of genes in tumor formation and growth. The second International IFOM-IEO Meeting on Cancer has focused on such currently relevant topics in this area as genome instability, novel technologies, transcriptional regulation mechanisms, and the identification of therapeutic targets. This meeting, promoted by the European School of Molecular Medicine (SEMM) and the University of Milan, in collaboration with IFOM (The FIRC Institute of Molecular Oncology Foundation) and IEO (European Institute of Oncology) involved important present...