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Introductory Note

The search for new biomarkers in its various phases from basic research to clinical practice is a complex process limited by several factors.

The biomarker development phase frequently requires the availability of new technologies, experienced laboratories, and specific human expertise.

Conversely, analytical validation of biomarkers is characterized by strict methodological criteria, verification of robustness of the assay, availability of reference materials, etc.

Finally, the clinical validation phase is reliant on the availability of biospecimens and patients to clinically relate the biomarker in a reliable way with a more efficient diagnostic-therapeutic strategy.

Examples of all these pathways are presented in this exciting issue which reports the main scientific topics discussed in Cluj in May, 2012. Organized by the Oncology Institute Ion Chiricuta of Cluj Napoca and the Organization of European Cancer Institutes (OECI), scientists from all over Europe discussed the most important aspects in cancer biomarker research nowadays.

The potentials but also the limitations of new technologies were clearly illustrated by several speakers against the backdrop of economic reality in Romania, in which costs of acquisition are still of concern. Financial considerations also affect the issue of education and training of young scientists on these specific technologies, which emerged as being of great importance.

Another problem which was greatly debated was that of how delicate the analytical performances of high throughput technologies are. Guaranteeing European-wide Quality Control programs for OMICS approaches still remains an open problem that needs to be solved quickly in order to allow diffusion of these procedures.

However, the field in which Europe needs to be combining its efforts is that of the clinical validation of new biomarkers. Frequently, thanks to the centralized organization of their health systems, Eastern-European countries have access to large, homogeneous, mono-institutional cohorts of patients that can be utilized and shared for clinical research purposes. Furthermore, these organizations frequently have a close connection with a territory from where epidemiological data could be extrapolated. Even more interestingly, qualified research laboratories are only present in specialized Institutes where high quality biosamples could be stored and analyzed.

Is the emerging Eastern European countries optimal base for biomarker research? Not yet! These countries need close, regular discussion with Western scientists to provide opportunities for young scientists to train in Western laboratories and to select technologies of clinical interest in order to optimize their still-limited economical resources.

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