Biobanks as a pivotal research infrastructure in precision medicine

The transition from an empirical medicine to a molecular one, has highlighted the importance of the study of biomarkers as prognostic factors, in order to identify high-risk patients for whom additional/different therapeutic strategies might be desired. To this end, the development and introduction of new biotechnologies, together with the integration of clinical data have greatly improved the understanding of the genetic, cellular and molecular basis of many diseases and have produced translational studies aimed at seeking new molecular prognostic markers and encouraged the creation of the field of biomarker discovery, with the ultimate aim of providing new algorithms for the definition of risk to be applied in a personalized clinical approach. For these reasons, the availability of infrastructure such as biobanks that collect and retain biological samples, fluids and tissues, is essential in the design of personalized medicine and evidence-based medicine studies, in the assessment of health needs and in designing interventions aimed at enhancing the social well-being, to improve the patient’s quality of life and, which, ultimately, could allow a more rational use of drugs. Furthermore, the development of clinical/diagnostic algorithms will allow an accurate classification of the biological characteristics of each patient, accompanied by predictive information of clinical outcome and/or response to therapy. In this light, sample quality, as ensured by adherence to standard operating procedures and sample whole life-cycle tracking, recorded by innovative tracking systems employing information technology tools for monitoring storage conditions, will ensure a proper sample exchangeability among research facilities.

Biography

Fiorella Guadagni is an Oncologist and Clinical Pathologist, has completed her Master’s in Economy and Health Management and PhD in Medical Biotechnologies. She is a full Professor at the San Raffaele Roma University, Consultant at the Laboratory of Tumor Immunology and Biology and member of several international scientific societies. She is the Scientific Coordinator of the Interinstitutional Multidisciplinary Biobank (BioBIM) and author of 206 publications in indexed journals with mean IF of 4.2.

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