The Promise of Precision Oncology in Breast Cancer

Guest Editor:

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Message from the Guest Editor

Breast cancer remains a leading cause of death among women worldwide. While we acknowledge some of the best examples of targeted treatments exist for this cancer type (i.e., hormone therapy in ER-positive and anti-HER2 treatment in HER2 amplified tumors), we are still far from implementing truly personalized patient management.

Extensive molecular characterization has revealed inter- and intra-tumor heterogeneity as hallmarks of the disease. Similarly, a functionally relevant heterogeneity has been observed in the tumor microenvironment. Such diversity implies the necessity for innovative and tailored therapeutic interventions; however, our understanding of the mechanisms determining treatment response is still unsatisfactory. Technological development has enabled genome-wide measurements, multi-omic approaches and single-cell resolution analysis, providing an unprecedented ability to capture the complexity of cancer as a system. In this context, computational biology has a key and expanding role for the effective exploitation of the increasing amount of data generated.

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Special Issue

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Message from the Editor-in-Chief

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