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Cancer Ecosystem - Quo Vadis?

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Abstract

Findings related to the Tumor Microenvironment (TME – referred hereafter as the Cancer Ecosystem (CES)) play an essential role in cancer diagnosis and treatment thereby contributing to recent achievements.
There are, however, crucial issues that are ignored or not adequately emphasized by the research community. Among the major issues are: The unique features of each tumor type—such as tissue of origin, anatomic location, metabolism, the dynamic nature of the CES as manifested by a temporal co-evolution of cancer and non-cancerous cells, intra-tumor and inter-tumor heterogeneity that influence therapy sensitivity and resistance. In order to address these issues, we should abandon reductionism and adopt a more holistic approach to uncover fundamental programs common to malignant diseases. Given the profound diversity between cancer types, achieving a holistic view of the entire spectrum of cancer diseases is unattainable at present. Instead, a holistic approach to specific cancer types (or subtypes) may be applied.
AI and technology-based solutions hold the potential to meet the challenges of holism in cancer research.