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Sommario/riassunto	<p>The emerging precision medicine approach aims to tailor disease prevention and treatment to each patient on the basis of individual variability, environmental factors and lifestyle. Fundamental achievements in the last few decades have converged to offer nowadays the compelling opportunity to move towards this innovative approach: i) unprecedented improvements in disease modeling in silico, in vitro and in vivo; ii) acquisition of a wide range of biomedical information combined with the development of computational toolsets for flexible and integrative analyses of multi-assay datasets. Our deeper understanding of oncogenic mechanisms has finally begun to have a crucial impact on clinical decisions at several steps, from cancer prevention and diagnosis to therapeutic intervention. However, precision oncology still encounters several unresolved hurdles including tumour heterogeneity and recurrence as well as unexplained drug resistance and lack of effective ways to monitor response to therapeutic treatments. Notably, limitations in biomedical research regulation and governance represent additional debatable issues that need careful consideration.</p>