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THE RENAISSANCE OF CANCER IMMUNOTHERAPY IS A REVOLUTION FOR PATIENTS

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Over just the past few years, cancer immunotherapy has transformed how we think about cancer care and cancer biology. This transformation is remarkable not only for its rapidity but also because cancer immunology itself had received little serious consideration for decades. At least three factors have been responsible: (i) the advent of actual data from the clinic as opposed to promising ideas from the laboratory; (ii) a more sophisticated understanding of the human immune response to cancer; and (iii) the realization that despite many years of effort targeting the oncogenic drivers of cancer, for the vast majority of patients the development of resistance limits long term benefit. Since the immune system is adaptive, it can be primed to address the variability inherent to all cancers since the genetic events responsible for cancer's heterogeneity comprise its Achilles heel in so far as the immune system is concerned: every genetic alteration is a potential target for immune recognition. Thus far, progress has been driven by antibodies that block "checkpoints" that limit T lymphocyte activity, but it is already clear – as successful as it is – the field is as yet at a very early stage. A wealth of different biologies remain to be targeted, a seemingly limitless number of mechanism-based combinations need to be evaluated. We will review where we have been, and where we are going, emphasizing the key role that will continue to be played by biotherapeutics