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Autore	Trikha Prashant
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Sommario/riassunto	Cell-based immunotherapy is based on the seemingly simple principle of harnessing the power of the immune system to combat cancer, and is emerging as an important clinical tool. The remarkable success of CAR-T cell therapies demonstrate that cell based therapies are effective at eradicating hematological malignancies, and therefore hold great promise for other cancers. However, there are number of challenges that limit the full potential of cell based therapies, especially for solid cancers. T cells and NK cells represent major lymphocyte populations that are involved in immune surveillance and tumor eradication, and both are emerging as important players for cell based immunotherapy. Although they use different mechanisms for recognizing cancer cells, they complement each other during tumor eradication. NK cells have many functional similarities to T cells and represent the closest innate immune cell lineage to adaptive immune cell populations. Transcriptome analysis has also revealed similar phylogenetic origin of the two lymphocyte populations. The hurdles that impact therapeutic success of these cells include trafficking of lymphocytes to the tumor sites, recognition of solid tumors, and overcoming the inhospitable tumor microenvironment (TME) including the presence of suppressive cells (Treg and MDSC) and immune suppressive cytokines (TGF). The full potential of cell based therapies may be realized once tools to overcome these barriers are developed. This Research Topic collects

articles critically examining these obstacles and the novel strategies being developed for cell-based therapies to overcome them.