Title: Laboratory Tests to Guide Cancer Immunotherapy

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Abstract

The administration of antibodies blocking the immune checkpoint molecules programmed cell death protein 1 (PD-1) or programmed cell death 1 ligand 1 (PD-L1) has evolved as one of major treatment options for cancer patients. PD-1/PD-L1 inhibitors have significantly demonstrated advantages to manage varied cancers, by enhanced expansion of cytotoxic activity of CD4+ and CD8+ T lymphocytes, and cytokine secretion, resulting in enhanced antitumor responses. Anti-PD-1 or anti-PD-L1 therapy has induced tumor regression and improved clinical outcome in patients with different tumor entities, including melanoma, non-small-cell lung cancer, and renal cell carcinoma. These findings led to the approval of various anti-PD-1 or anti-PD-L1 antibodies for the treatment of tumor patients. However, not all patients benefit from immune checkpoint inhibitors, and the majority of patients have failed to respond to this treatment modality. Comprehensive immune monitoring of clinical trials led to the identification of potential biomarkers distinguishing between responders and non-responders, the discovery of modes of treatment resistance, and the design of improved immunotherapeutic strategies. In this presentation, we summarize the evolving landscape of biomarkers for anti-PD-1 or anti-PD-L1 therapy. Immunohistochemistry tests of PD-1 and PD-L1, DNA repair enzyme proteins/MSI tests, multicolor staining, CISH, Tumor mutation burden(TMB), and other emerging tests are to be thoroughly discussed. The goal is to apply proper laboratory tests to select a subgroup of patients who would fully benefit the efficient cancer immunotherapy, to avoid unnecessary treatment and to optimize the healthcare resources.

Speaker Biography:

Chief resident at Yale Medical School. Fellowship at Memorial Sloan Ketterng Cancer Center. Director of IHC and tissue microarray at Roswell Park Cancer Institute. Professor at University of Texas MD Anderson Cancer Center since 2010. Published the landmark textbook titled Pricinples of Molecular Diagnostics and Precision Cancer Medicine in 2013. Published more than 150 papers in reputed journals and has been serving as an editorial board of eight medical journals.

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