

Sample Abstract – Immunology

Abstract Title: Activation of Th1 Immunity within the Tumor Microenvironment Is Associated with Clinical Response to Lenalidomide in Chronic Lymphocytic Leukemia

Immune stimulation contributes to lenalidomide's antitumor activity. Chronic lymphocytic leukemia (CLL) is characterized by the accumulation of mature, autoreactive B cells in secondary lymphoid tissues, blood, and bone marrow and progressive immune dysfunction. Previous studies in CLL indicated that lenalidomide can repair defective T cell function in vitro. Whether T cell activation is required for clinical response to lenalidomide remains unclear. In this study, we report changes in the immune microenvironment in patients with CLL treated with single-agent lenalidomide and associate the immunologic effects of lenalidomide with antitumor response. Within days of starting lenalidomide, T cells increased in the tumor microenvironment and showed Th1-type polarization. Gene expression profiling of pretreatment and on-treatment lymph node biopsy specimens revealed upregulation of IFN- γ and many of its target genes in response to lenalidomide. The IFN- γ -mediated Th1 response was limited to patients achieving a clinical response defined by a reduction in lymphadenopathy. Deep sequencing of TCR genes revealed decreasing diversity of the T cell repertoire and an expansion of select clonotypes in responders. To validate our observations, we stimulated T cells and CLL cells with lenalidomide in culture and detected lenalidomide-dependent increases in T cell proliferation. Taken together, our data demonstrate that lenalidomide induced Th1 immunity in the lymph node that is associated with clinical response.

KEY

Abstract contains sufficient background to understand the problem under investigation

Abstract must contain a hypothesis, objective or statement about the problem under investigation

Abstract must contain a brief statement of the experimental methods/methodology used

Essential results must be present in summary form (even if preliminary)

Abstract must contain a conclusion that explains how the work contributes to the hypothesis, objective or statement of problem

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