

Abstract

T lymphomas are malignant tumors arising from T cells; they represent a rare variant of non-Hodgkin's lymphomas. As in other cancers, tumor T cells need to modify their signaling to support their growth and survival. T-lymphoma tumor cells are capable to adapt various signaling cascades important also in normal healthy T cells to their benefit.

The aim of this work is to summarize tumor-specific signaling typical for different types of T-cell lymphomas; both, identical to the signaling of normal T lymphocytes and altered by tumor specific somatic mutations.

Detailed focus is on T lymphoma most frequent and important alterations and signaling pathways. These are specifically alterations of signaling pathways associated with T-cell receptor, JAK/STAT cytokine signaling, and Notch signaling. These pathways are particularly important for the differentiation and growth of T lymphocytes in general, therefore, it is not surprising that these pathways are also often pathologically activated or deactivated in tumor cells.

Keywords: lymphocytes, non-Hodgkin lymphomas, T-cell receptor, leukemia, JAK/STAT signaling, Notch signaling, oncogenic signaling pathways