Meet the Marker: HLA-B

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Human leukocyte antigen B (HLA-B) is a part of the human major histocompatibility complex (MHC) class I molecules, which play a vital role in presenting antigens to T cells, thereby modulating immune responses.[1,2,3] Its significance lies in its ability to present antigens derived from intracellular pathogens, tumors, and self-proteins to cytotoxic CD8+ T cells.[1,2,3]
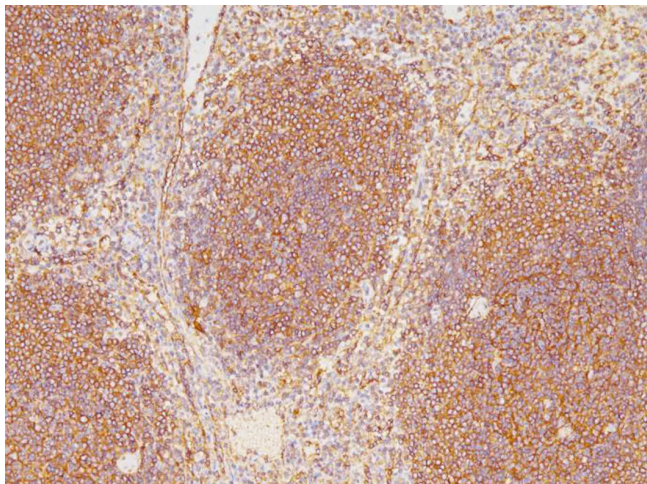
In other words, HLA-B expression may give clues about immune system activity and may serve as a valuable marker for characterizing immune responses within tissues.[1] This may allow researchers and clinicians to assess the presence and distribution of immune cells, particularly cytotoxic T cells, which play a pivotal role in immune surveillance and defense against infections and malignancies.[3,4,5]

In cancer research, the immune microenvironment surrounding tumors can be of great interest to researchers and clinicians since tumors survive in the body by finding ways to evade immune recognition and escape destruction by cytotoxic T cells.[3] Studies have suggested that cells with downregulated HLA-B expression might be better able to evade this immune recognition, allowing them to persist within the body. [3,4,5] Therefore, detecting low HLA-B expression through IHC may indicate potential immune evasion employed by tumors.[4,5] Conversely, high HLA-B expression, along with infiltrating cytotoxic T cells, may suggest an active antitumor immune response.[5] Studies have examined this link between HLA-B expression and cancer prognosis in cases of colon and rectal cancer as well as breast cancer.[3,4,5] This association with antitumor immune activity may also hold potential for the development of immune therapies.[2,4,5]
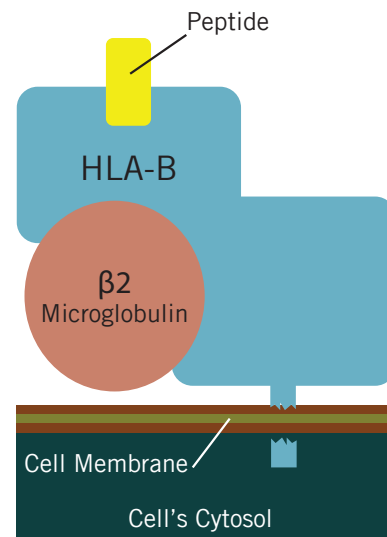
Autoimmune diseases, characterized by immune system attacks on self-tissues, may also be explored through HLA-B expression.[1] IHC staining for HLA-B in affected tissues may provide insights into the involvement of cytotoxic T cells and the immune response's role in these disorders.[1]

The potential immunohistochemical applications of the HLA-B marker are diverse and encompass various aspects of immunology and pathology. By visualizing the presence and distribution of HLA-B and associated immune cells within tissues, IHC may provide valuable insights into disease mechanisms and may guide the development of targeted therapies.

HLA-B Stains and Illustrations

Spleen stained with HLA-B [BC43] antibody

To learn more about Biocare's offerings for HLA-B antibody, please visit our website at biocare.net or call 1-800-799-9499 Option 3.

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