WHITEPAPER

Meet the Marker: CD20

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CD20, also known as cluster of differentiation 20, is a 33–37 kDa non glycosylated membrane protein expressed on the surface of normal and malignant B lymphocytes.[1] It is a member of the MS4A (membrane spanning 4 domain family A) protein family and is expressed from the late pre B cell stage through mature B cells. CD20 is detected in both the bone marrow and peripheral lymphoid tissues, making it a reliable marker of B cell lineage.[2]

Structurally, CD20 is defined by four hydrophobic transmembrane domains embedded in the plasma membrane.[3] The protein includes one intracellular loop and two extracellular loops, with both the N terminal and C terminal ends located on the cytoplasmic side of the membrane.[3] These structural features contribute to the stability of CD20 within the membrane and create accessible extracellular regions that serve as antibody binding sites, enabling effective immunohistochemical detection.

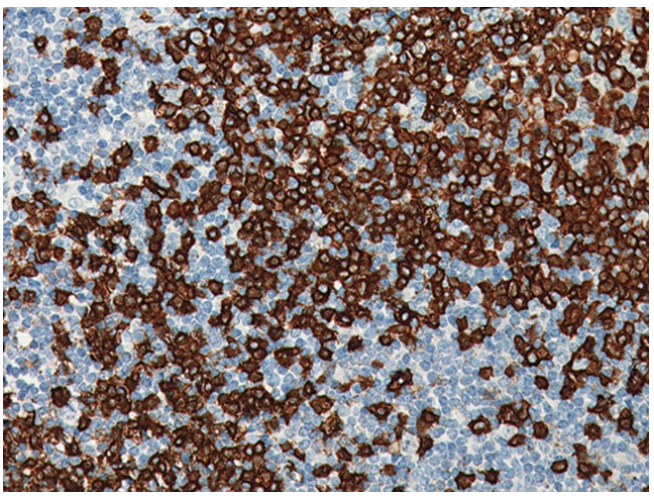
Functionally, CD20 plays a role in the regulation of calcium movement across the cell membrane, an important step in B cell activation, cell cycle progression, and proliferation.[2,4] Although its complete physiological function has not been fully defined, CD20 is associated with B cell development, differentiation, and B cell receptor (BCR) signaling.[2]

In clinical diagnostics, CD20 is widely used for the identification of B cell lineage and the characterization of B cell–derived tumors. Immunohistochemistry (IHC) using mouse anti CD20 monoclonal antibodies enables the visualization and localization of B cells within tissue samples.[1,4] Increased CD20 expression in malignant B cells facilitates differentiation between tumor and non tumor cells, supporting the accurate diagnosis and classification of B cell lymphomas and leukemias.[5]

Interpretation of CD20 IHC staining is largely qualitative rather than quantitative and relies on the expertise of pathologists, who evaluate staining intensity, membrane localization, and distribution patterns within the tissue alongside morphology and complementary markers.[4,5]

Overall, IHC with mouse anti CD20 monoclonal antibodies serves as an important biomarker in hematopathology. The ability of CD20 to reliably mark B cells continues to make it one of the most valuable tools for understanding and diagnosing B cell disorders in research and clinical practice.

CD20 Illustration / Photomicrograph



Biocare Medical's anti-CD20 [L26] marker on a human tonsil

To learn more about the markers listed above, please visit our website at biocare.net or call 1-800-799-9499, option #3

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