

| Meet the Marker: CD19

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CD19 (Cluster of Differentiation 19) is a transmembrane glycoprotein and B-lymphocyte antigen expressed in B cells at almost all stages of B cell development and differentiation. Although markers like CD20 may be expressed at higher levels than CD19, the fact that CD19 is expressed from even the earliest stages of B cell development means that it is expressed in a broader spectrum of B cell malignancies as a result.³ This can make it a more comprehensive marker in B cell lymphoid malignancies than markers such as CD20 or CD22.²

Studies have observed CD19 expression on the surface of leukemia cells in over 90% of cases of acute lymphoblastic leukemia (also called acute lymphocytic leukemia or ALL).³ It has also been found to be present in cases of B-cell non-Hodgkin's lymphoma (NHL) and chronic lymphocytic leukemia (CLL).³ However, it is often weak or negative in follicular lymphoma or diffuse large B-cell lymphoma (DLBCL).²

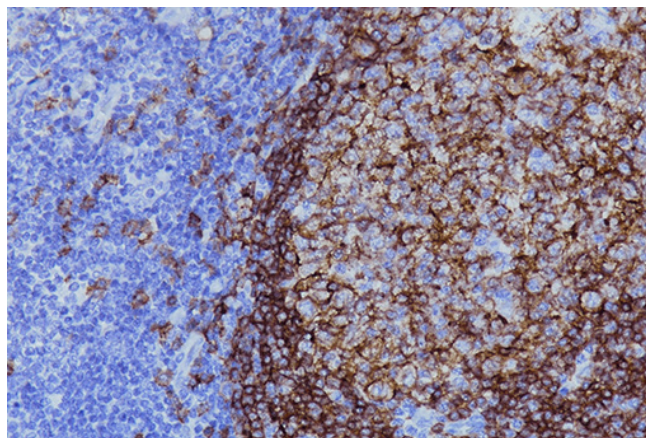
CD19's expression along nearly all stages of B cell development, and therefore a broader spectrum in B cell cancers, has made it the subject of monoclonal antibody cancer treatment strategies. Several anti-CD19 targeted cancer therapies have been approved for the treatment of lymphomas and leukemias, with more therapy trials underway.

Blinatumomab, sold under the brand name BLINCYTO®, works by binding both CD19 and CD3 on B cells and facilitating antibodies to target and destroy the cancer cells.⁴ It has been found to significantly prolong survival in patients with relapsed or refractory B-cell acute lymphoblastic leukemia.⁴

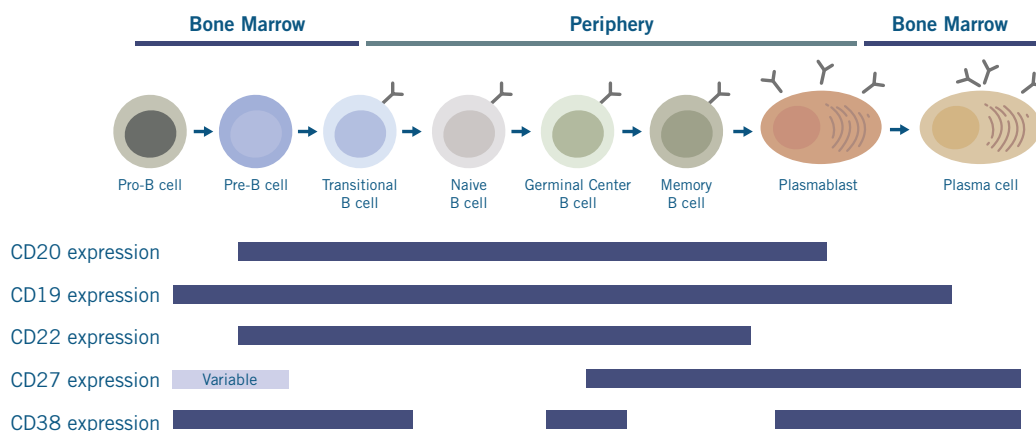
Tafasitamab, sold under the brand name MONJUVI®, has shown an overall response rate of 57.7% in non-transplant eligible patients with relapsed or refractory diffuse large B-cell lymphoma when administered in conjunction with lenalidomide.⁴ Tafasitamab is a CD19-directed cytolytic antibody that binds to both CD19 and Fc gamma receptors (FcγR) on effector cells to mediate B cell destruction.⁴

Loncastuximab tesirine, sold under the brand name ZYNLONTA®, in combination with ibrutinib, has shown an overall response rate of 48.3% in phase II trials.⁴ Loncastuximab tesirine is an antibody-drug conjugate that binds CD19 in order to be internalized by the tumor cell.⁴ Once inside, the cytotoxic pyrrolbenzodiazepine (PDB) dimer SG3199 is released, which forms DNA crosslinks that induce cell death.⁴

Stain and Illustrations



Tonsil stained with CD19 (RM) [RM332] antibody



To learn more about CD19, please call 1-800-799-9499, option #3, or visit our website at biocare.net

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2. Masir, N., Marafioti, T., Jones, M., Natkunam, Y., Rüdiger, T., Hansmann, M. L., & Mason, D. Y. (2006). Loss of CD19 expression in B-cell neoplasms. *Histopathology*, 48(3), 239–246. <https://doi.org/10.1111/j.1365-2559.2005.02317.x>

3. Naddafi, F., & Davami, F. (2015). Anti-CD19 Monoclonal Antibodies: a New Approach to Lymphoma Therapy. *International journal of molecular and cellular medicine*, 4(3), 143–151.

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