B cell

Plasma cells, also called plasma B cells, plasmocytes, plasmacytes, or effector B cells, are white blood cells that secrete large volumes of antibodies. They are transported by the blood plasma and the lymphatic system. Plasma cells originate in the bone marrow; B cells differentiate into plasma cells that produce antibody molecules closely modeled after the receptors of the precursor B cell. Once released into the blood and lymph, these antibody molecules bind to the target antigen (foreign substance) and initiate its neutralization or destruction.

B cells or B lymphocytes are a type of lymphocyte in the humoral immunity of the adaptive immune system.

B cells can be distinguished from other lymphocytes, such as T cells and natural killer cells (NK cells), by the presence of a protein on the B cell's outer surface known as a B cell receptor (BCR). This specialized receptor protein allows a B cell to bind to a specific antigen. In birds, B cells mature in the bursa of Fabricius. In mammals, immature B cells are formed in the bone marrow.

The B-cell lymphomas are types of lymphoma affecting B cells.

Zhang et al., developed a five B cell-associated gene signature for prognosis of high grade glioma patients, which is independent of clinicopathological and genetic features. The signature identified high risk patients suitable for chemoradiotherapy, whereas low risk patients should rule out chemotherapy with radiotherapy only.

They found that tumors of TCGA Mesenchymal glioblastoma and wild type IDH1 were preferentially stratified to the high risk group, which bore strong immunosuppressive microenvironment, while tumors of TCGA Proneural subtype and mutated IDH1 were significantly accumulated to the low risk group, which exhibited less immunosuppressive state. The five B cell-associated gene signature predicts poor survival of high risk patients bearing strong immunosuppression and helps select optimal therapeutic regimens for glioma patients [1].

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Zhang C, Li J, Wang H, Song SW. Identification of a five B cell-associated gene prognostic and predictive signature for advanced glioma patients harboring immunosuppressive subtype preference. Oncotarget. 2016 Oct 12. doi: 10.18632/oncotarget.12605. PubMed PMID: 27738332.