Lamprey-derived antibody specifically recognizes human plasma cells

17 March 2016

Antibody-secreting plasma cells arise from B cell precursors and are essential for adaptive immune responses against invading pathogens. Plasma cell dysfunction is associated with autoimmune and neoplastic disorders, including multiple myeloma. Surface markers that are specific to plasma cells have not been identified and antibodies that only recognize these cells have been challenging to generate using conventional systems.

In the current issue of *JCI Insight*, Götz Ehrhardt and colleagues at the University of Toronto describe the generation of a plasma cell-specific antibody from immunized lampreys. The authors injected lamprey larvae with a bone marrow isolate from a multiple myeloma patient and screened the resulting monoclonal antibodies for those that recognized both malignant and non-malignant plasma cells.

Further characterization of antibody VLRB MM3 revealed that this antibody is specific to plasma cells and does not recognize other B cell populations or progenitors. VLRB MM3 binding was shown to coincide with CD38 dimerization and correlate with and impede the NAD glycohydrolase activity of this glycoprotein.

The VLRB MM3 antibody represents a unique tool with potential for both diagnostic and therapeutic applications for plasma cell disorders.

More information: Cuiling Yu et al. Identification of human plasma cells with a lamprey monoclonal antibody, *JCI Insight* (2016). DOI: 10.1172/jci.insight.84738

Provided by Journal of Clinical Investigation