MONOCLONAL ANTIBODY

LIBRARY DISSERTATION

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Monoclonal Antibodies (MCA) are antibodies produced by a single clone of cells or clonal derived cell lines and therefore have an unique aminoacid sequence.

In 1975 Kohler. G and Milstein. E. during their study on the genetics of immunoglobulin production fused myeloma cells with spleen cells from a mouse immunised with sheep red blood cells (RBC). This resulted in the production of a progency which had the immortality of the myeloma cell line, by continuous secretion of antibodies produced by its B cells against sheep RBC. These antibodies produced by such cell hybrids are known as **HYBRIDOMAS** ;and these selected cell lines when grown in tissue culture or in the peritoneal cavity of an animal, will give rise to one type of antibody. Clones may be selected to yield antibodies specific for a single antigenic determinant or for as many antigen molecules as desired. MCA's are now exploited in the making and purification of antigens, the discovery of new antigens, the investigation of cell functions inhibited by antibodies and in the study of allergy (Topley and Wilson 1990). Monoclonal antibody yields large amount of pure antibody and does not depend upon the variability of individual animals, in terms of affinity, avidity or amount of antibody produced. These MCA's do not differ structurally from other antibodies found under natural conditions. The property which makes MCA's unique is that all the molecules in any single preparation are identical. Their reaction with any defined antigen-the opposite partner in the fundamental reaction of immunology, must also be exactly the same each time. It is this constancy in preparation and in effect that makes them so useful. Because the antibody is literally, monoclonal the product of a single antibody producing cell, its use is free of problems associated with polyclonal antisera; nor does it require to be absorbed to remove