

Monoclonal Antibodies

1. Antibodies are produced when white blood cells called lymphocytes detect an antigen.

What is meant by the word antigen?

2. The steps to produce a monoclonal antibody are shown below.

Write what is happening next to each stage.

Stage 1



Stage 2



Stage 3



Stage 4



Stage 5



Stage 6



Stage 1: First a mouse is injected with the antigen that we are making monoclonal antibodies against.

Stage 2: All of the lymphocytes are then extracted from the mouse.

Stage 3: Lymphocytes cannot undergo cell division by mitosis. So in this stage, we fuse (join) our lymphocyte with a tumour cell. Tumour cells can undergo mitosis indefinitely.

Stage 4: We have now produced a cell called a hybridoma. These produce antibodies and can undergo mitosis indefinitely. We select the hybridoma producing the antibody that we want.

Stage 7: We now allow our hybridoma to undergo mitosis. This produces a clone of identical hybridoma cells, all producing only the antibody that we want.

Stage 6: We now collect and purify a large amount of our monoclonal antibody.