

Solutions

2.1 Mouse lymphocyte – makes the specific antibody; tumour cell – divides rapidly and endlessly.

2.2 A hybridoma both divides and produces the antibody, so large quantities of one antibody can be made.

2.3 Any two: pregnancy tests; measuring hormone levels; detecting pathogens; locating molecules in research; cancer treatment.

3.1 Stimulate mouse lymphocytes to make the antibody; fuse them with tumour cells to make hybridoma cells; clone a single hybridoma; collect and purify the large quantity of antibody produced.

3.2 The antibody is specific to the antigen on the cancer cells only; it is bound to a radioactive substance, toxic drug or growth-stopper; it delivers the substance to the cancer cells without harming other body cells.

3.3 HCG in the urine binds to the antibodies; the complex moves along the strip and is trapped in the result zone by more antibody; the bound complex forms a coloured line – a positive result.