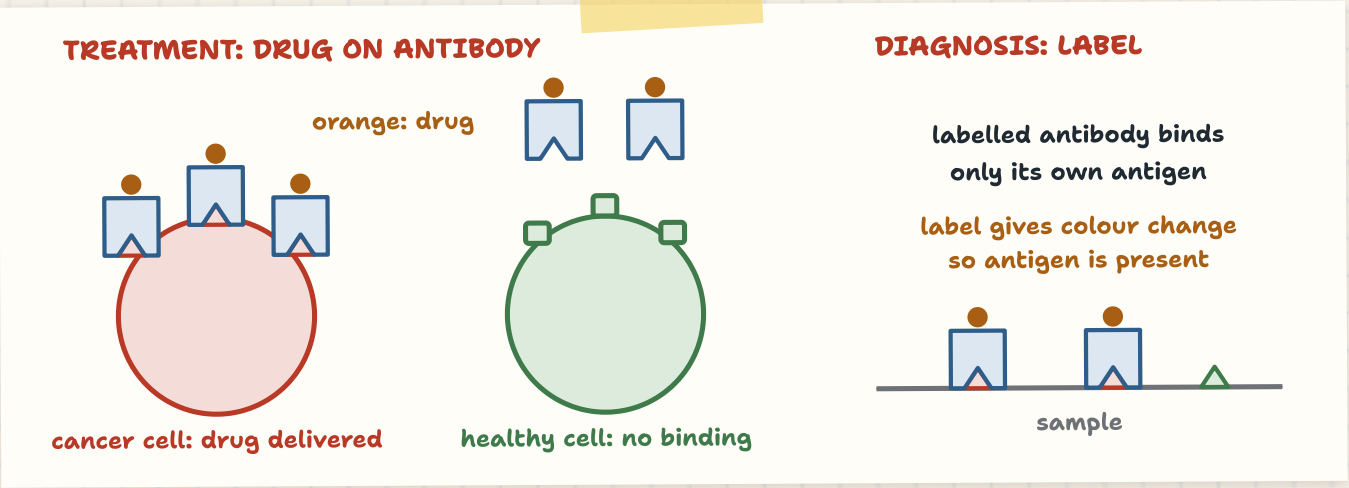
Monoclonal Antibodies in Medicine

A monoclonal antibody is specific to one antigen, so it can carry a drug to cancer cells or carry a label to show an antigen is present.



Key terms

monoclonal antibody	antibodies of one type only, all with the same binding site for one specific antigen.
specific	its binding site is complementary to one antigen, so it binds only that.
target cell	the cell carrying the antigen, e.g. a cancer cell with a unique surface antigen.
therapeutic drug	a drug attached to the antibody, so it is delivered to the target cells.
diagnosis	a labelled antibody binds the antigen in a sample; the label (e.g. colour change) shows it is present.
side effects	fewer in targeting, because the drug is concentrated at the target and the antibody does not bind healthy cells.

I can...

- ☐ Use of monoclonal antibodies in targeting medication by attaching a therapeutic drug
- ☐ Use in medical diagnosis
- ☐ Details of production not required

EXAM TRAP

The antibody carries the drug; it is not the drug and does not itself kill the cancer. Explain why: its binding site is complementary to an antigen only on the cancer cells. Never claim no side effects, only fewer.

4 marks: what earns them

1. Antibody has a binding site complementary to an antigen found on (only) the cancer cells, so it binds specifically to them
   Not: antibody attacks or recognises cancer, with no antigen or binding; same shape as the cancer cell
2. Drug is attached to the antibody, so the drug is delivered to / held against the cancer cells
   Not: antibody kills the cancer cells; antibody is the drug
3. Healthy cells are far less affected / fewer side effects, because the antibody does not bind to them
   Not: no side effects at all; healthy cells not killed, with no reason
4. (Diagnosis) a labelled antibody binds to the specific antigen in the sample, so the label (e.g. colour change) shows the antigen is present
   Not: antibody tests for disease, with no binding or label; antibody changes colour, with no binding

Remember

One antigen, one monoclonal antibody.
Treatment: drug rides on the antibody.
Diagnosis: label shows it has bound.

Independent revision resource, not endorsed by AQA. Practice question is original.
© 2026 Medservatory, a project of ADMR Solutions Ltd. Free to print and share for personal study.