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3.2 MONOCLONAL ANTIBODIES
(biology only) (higher tier)

Production
- Mouse lymphocytes are stimulated to produce a particular antibody
- Lymphocytes are extracted and fused with cancer cells
  - Forms a hybridoma cell
- Selected hybridoma cells are cloned to produce many identical copies
- Large quantities of antibodies can be produced
  - Antibodies are purified

Function
- Antibodies are highly specific to one antigen
- Target specific cells or chemicals in the body

Limitations
- Unwanted side effects
- Expensive to produce

Applications
Treatment
- Monoclonal antibody bound to...
  - Toxin
  - Drugs
  - Radioactive substance
- Cancer treatment
  - Targets cancer cells only

Diagnosis
- Pregnancy tests
  - Targets HCG hormone
- Measure the concentration of chemicals in the blood
- Locate substances in cells or tissues using a fluorescent dye
- Detect pathogens
  - e.g. HIV, AIDS

AQA

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