

Infection and response

Communicable diseases

Pathogens

Viruses Bacteria Protists Fungi

Spread

Direct contact Water Air

Diseases

Measles, HIV, TMV Salmonella, gonorrhoea

Rose black spot Malaria

Non-specific defences

Skin Nose Trachea and bronchi Stomach

White blood cells

Phagocytosis Antibodies Antitoxins

Vaccination

Dead or inactive pathogen Quick antibody response

Population protected

Antibiotics and painkillers

Kill bacteria only Painkillers treat symptoms

Resistant strains

Drug development

Plant sources Preclinical testing Clinical trials

Placebo, peer review

Monoclonal antibodies Triple only Higher tier

Single clone of cells Triple only Higher tier

One binding site One protein antigen

Production Triple only Higher tier

Mouse lymphocytes Tumour cell fusion Hybridoma cell

Clone and purify

Diagnosis Triple only Higher tier

Pregnancy tests Lab measurements

Research Triple only Higher tier

Fluorescent dye Locate molecules

Cancer treatment Triple only Higher tier

Radioactive substance Toxic drug Targets cancer cells

Drawbacks Triple only Higher tier

More side effects Less widely used

Plant disease Triple only

Detection Triple only Higher tier

Stunted growth Spots and decay Discolouration Pests

Identification Triple only Higher tier

Manual or website Laboratory Monoclonal antibody kits

Pathogens and pests Triple only

TMV Black spot Aphids

Ion deficiency Triple only

Nitrate: stunted growth Magnesium: chlorosis

Physical defences Triple only

Cellulose cell walls Waxy cuticle Dead cell layers

Chemical defences Triple only

Antibacterial chemicals Poisons

Mechanical adaptations Triple only

Thorns and hairs Drooping leaves Mimicry