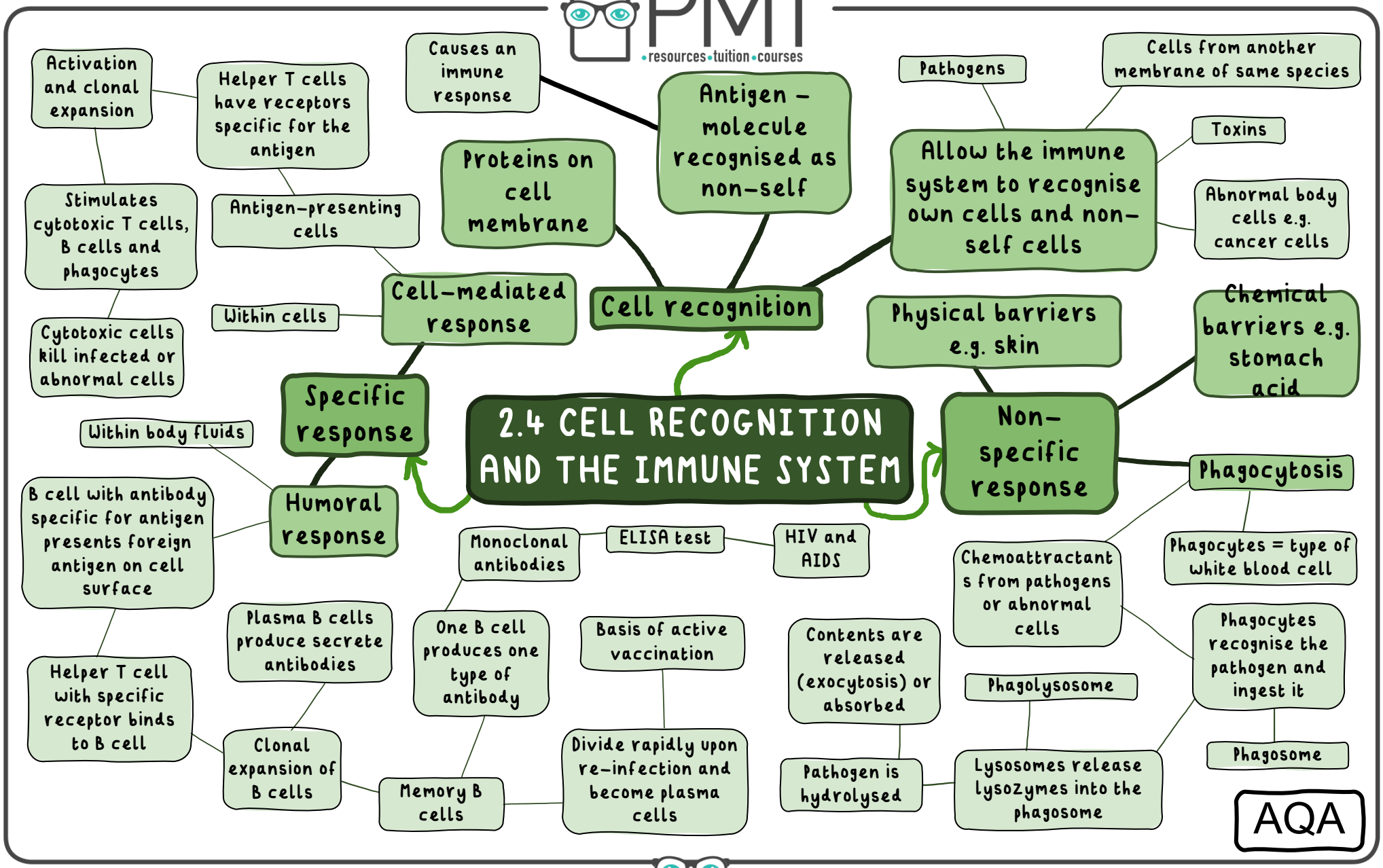
PMT
resources tuition courses
2.4 CELL RECOGNITION AND THE IMMUNE SYSTEM
Cell recognition
Antigen – molecule recognised as non-self
Causes an immune response
Proteins on cell membrane
Allow the immune system to recognise own cells and non-self cells
Pathogens
Cells from another membrane of same species
Toxins
Abnormal body cells e.g. cancer cells
Specific response
Cell-mediated response
Within cells
Helper T cells have receptors specific for the antigen
Activation and clonal expansion
Antigen-presenting cells
Stimulates cytotoxic T cells, B cells and phagocytes
Cytotoxic cells kill infected or abnormal cells
Humoral response
Within body fluids
B cell with antibody specific for antigen presents foreign antigen on cell surface
Helper T cell with specific receptor binds to B cell
Clonal expansion of B cells
Plasma B cells produce secrete antibodies
Memory B cells
Monoclonal antibodies
One B cell produces one type of antibody
ELISA test
HIV and AIDS
Basis of active vaccination
Divide rapidly upon re-infection and become plasma cells
Non-specific response
Physical barriers e.g. skin
Chemical barriers e.g. stomach acid
Phagocytosis
Phagocytes = type of white blood cell
Chemoattractants from pathogens or abnormal cells
Phagocytes recognise the pathogen and ingest it
Phagosome
Phagolysosome
Lysosomes release lysozymes into the phagosome
Contents are released (exocytosis) or absorbed
Pathogen is hydrolysed
AQA

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