Unit 4 Key Area 2

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| **Lymphocytes carry out** | a specific immune response |
| **Lymphocytes are made** | from stem cells in the bone marrow |
| **Some lymphocytes pass to**  | the tymus gland and develop into T Lymphocytes (T cells) |
| **Lymphocytes that remain in the**  | bone marrow develop into B lymphocytes (B cells) |
| **An antigen is** | any foreign molecule that is recognised by a lymphocytes eg. Viruses, bacteria |
| **Lymphocytes have a single type of** | membrane receptor which is specific for only one type of antigen |
| **A lymphocyte is said to have been “selected”** | when it is activated by a specific antigen |
| **A person’s antigen signature is** | the unique combination of cell surface proteins on the body cells’ surface |
| **The antigen signature is critical as it ensures** | the person’s own lymphocytes do not try to destroy their own body cells surface proteins |
| **During maturation of B and T cells** | any lymphocytes bearing an antigen receptor that fits a body cell surface protein is destroyed |
| **Auto-immunity is when T lymphocytes launch an attack on** | The body’s own cells and it is the cause of auto-immune diseases eg. Rheumatoid arthritis, Type 1 diabetes, MS |
| **An allergic reaction is caused by** | Hypersensitive B lymphocytes responding to harmless substances (eg. Pollen, dust, feathers) |
| **The two groups of T lymphocytes are** | Helper T cells and Cytotoxic T cells |
| **Helper T cells**  | secrete cytokines to activate phagocytes, T cells and B cells |
| **Cytotoxic T Cells** | destroy infected cells by apoptosis |
| **Antigen presenting cells are** | phagocytes which capture the pathogen and display fragments of the antigen on their surface |
| **Antigen presenting cells activate the** | production of a clone of Helper T cell Lymphocytes that move to the site of infection secreting cytokines |
| **Each B lymphocyte clone produces** | a specific antibody molecule that will recognise a specific antigen surface molecule on a pathogen or toxin |
| **Antigen-antibody complexes may** | inactivate a pathogen/toxin or render it more susceptible to phagocytosis or bring about cell lysis |
| **Antibodies are secreted into** | the blood and lymph where they make their way to the infected area |
| **Some T and B lymphocytes produced by clonal selection** | survive long term as memory cells |
| **Secondary exposure to the same antigen** | rapidly gives rise to a new clone of lymphocytes producing a rapid and greater immunological respons |