Pathogens enter

- *Immune response* is a series of events that begins when a pathogen enters the body
- If it's the first time ever the immune system encounters a particular pathogen, the response is known as *the primary immune response*
    - If it's the second, third, etc., it's known as *the secondary, tertiary, etc. immune response*
- A primary immune response takes at least a week to be successful and thus it's common to experience symptoms
- A secondary immune response is both quicker and more intense and thus symptoms are rarely experienced
    - The ability to accomplish a secondary immune response for a particular antigen is what we call *being immune*

White blood cells

- *Leukocytes* are cells in our bloodstream that help us fight off pathogens and also provide us with immunity
- *Macrophages* are a type of leukocytes that is involved very early on in the immune response
    - They are large and able to change their shape to surround an invading cell through the process of phagocytosis
    - They're also able to squeeze their way in and out of small blood vessels
        - Therefore it's often for a macrophage to encounter an invading cell outside the bloodstream
- The role of macrophages is to recognise whether a cell is a natural part of the body (*self*) or not (*non-self*)
    - This is called *non-specific immunity*
        - No immunity is gained however
    - The recognition is based on the protein molecules that make up part of the surface of all cells and viruses
    - Macrophages have receptors on their surface that can detect cells that aren't body cells
- If the determination is non-self, the macrophage engulfs the cell by *phagocytosis*
    - Phagocytes contain many lysosomes in order to digest chemically whatever has been engulfed
    - This is called *non-specific response* because the identity of the specific pathogen hasnät been determined