How does my immune system react when I puncture my skin on a dirty splinter and I am allergic to wood?
Oh no! It’s a dirty splinter!

Click here to meet the bad guys

- If Bacteria then...
- If Viruses then...
Oh no! It’s a virus!
Cell Mediated Immunity

Virus attaches to host cell and injects its genetics

Viral genetics gets transcribed and translated into viral proteins

While some viral proteins assemble new virus, others are cut up by the proteosome and then selected by MHCI and promptly presented on the cells surface (Here is an animation showing this series of events)

Cytotoxic T-cell, with corresponding CD8 receptor bonds to this MHCI/Antigen complex

Meanwhile, Helper T cells secrete Interleukin 2 (IL-2). The Helper T cells were previously activated by association with a macrophage

IL-2 from the Helper T-Cell stimulates the Cytotoxic T-cell to secrete perforin which forms small holes leading to lysis, and granzymes leading to apoptosis.
Oh no! It’s a bacteria! Humoral Immunity

Bacteria is engaged by an Antigen Presenting Cell (APC) which promptly engulfs (phagocytosis) the "bad guy"

Inside the APC, the "bad guy" is broken down and a special piece of "bad guy" protein is attached to an MHC II. Then, the MHCII/antigen complex moves to the cell surface and presents to the immune system for evaluation

Appropriate Helper T cell binds with the APC's MHCII/Antigen

This activates a Helper T cell which then finds a B-cell expressing the same surface protein. When the activated Helper T cell binds to the B cell it releases Interleukin II (IL-II) which activates B cells

Activated B Cells differentiate into...

Plasma Cells, which produce...

- Antibodies, which function by increasing phagocytosis (see animation also) and by recruiting compement proteins

Memory B Cells
Reserved for a future infection
The second exposure will result in a more rapid immune response
Oh no! I’m allergic too!

- Introductory Allergy Animation illustrations
- Detailed animation of role of mast cells, antibodies, and histamine release

HOME
JEOPARDY!

Check your Knowledge Game

HOME