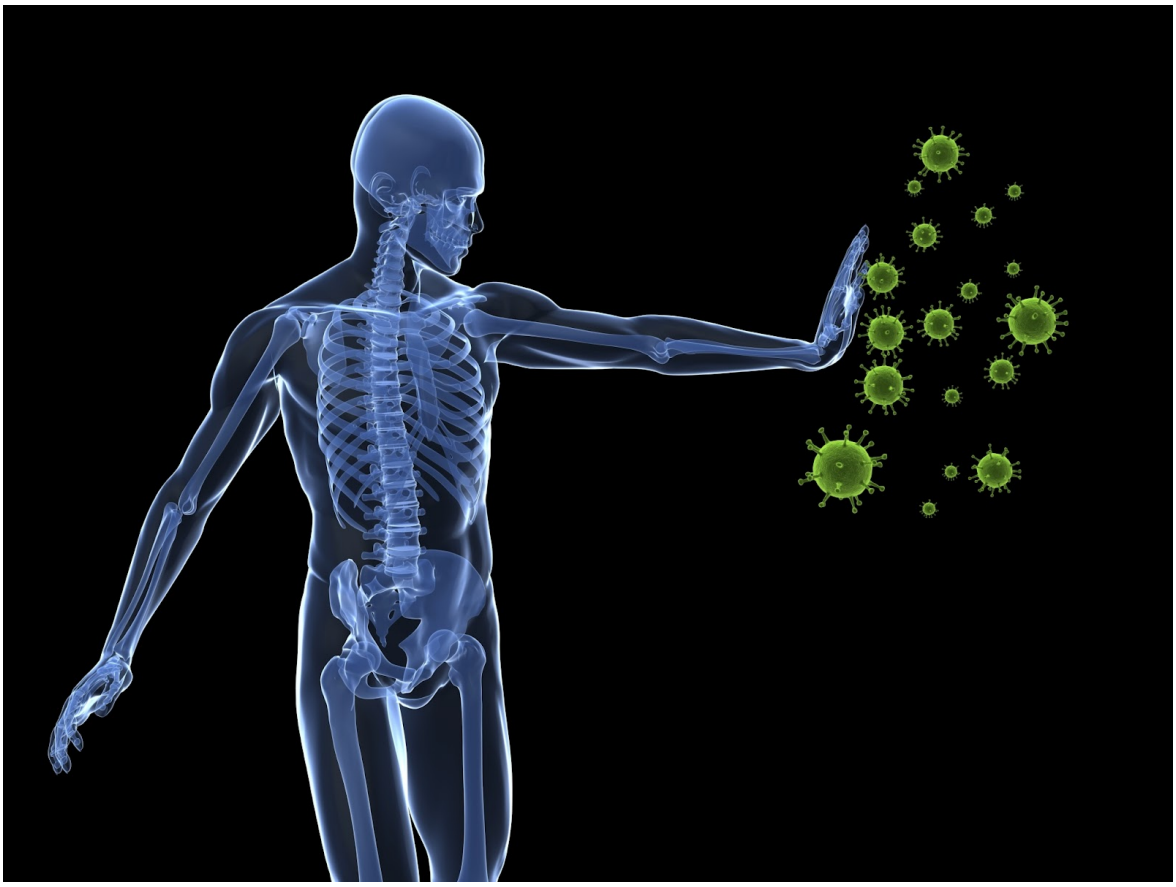
The Immune System



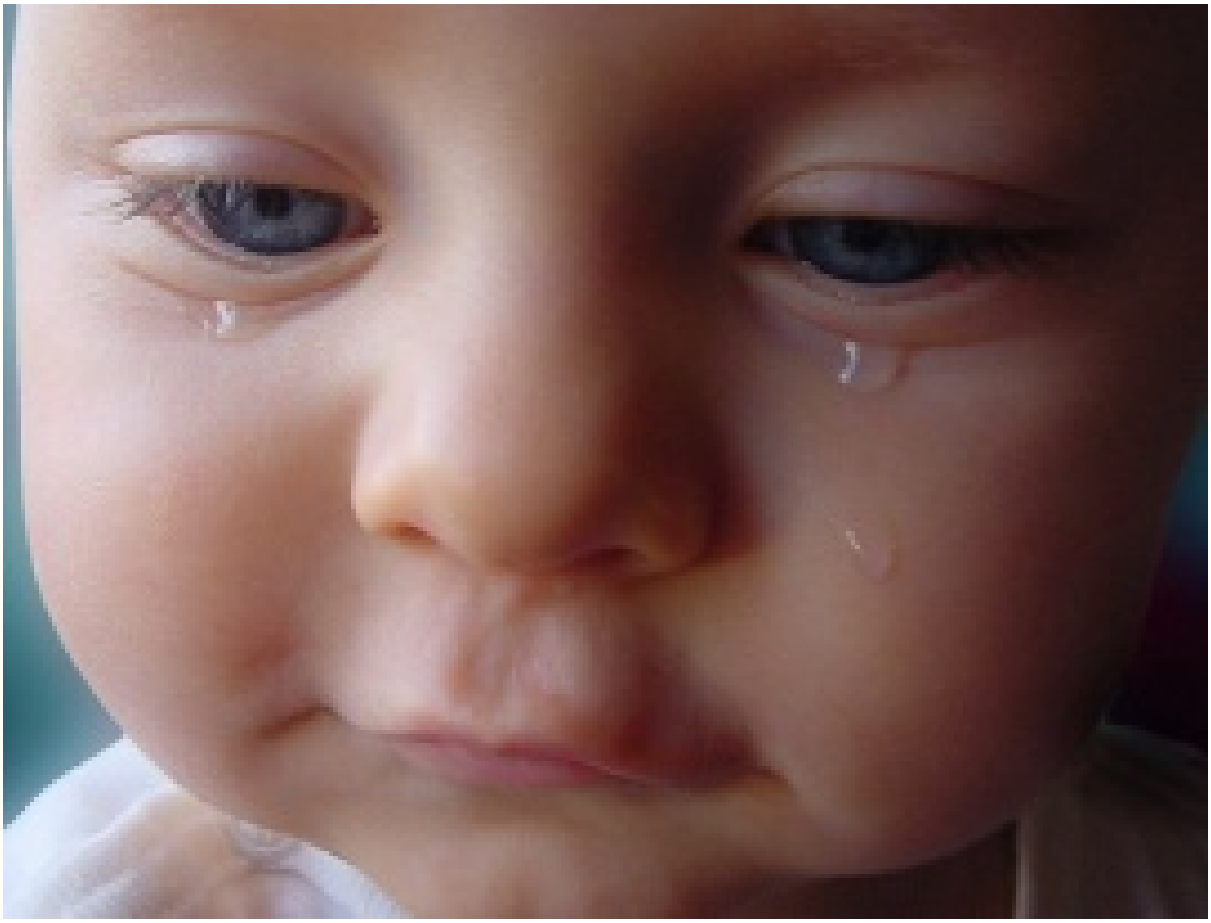
Why we get sick

- We get sick when pathogens (bacteria, viruses and protozoans) get *inside* our body and infect our normally healthy cells.
- These pathogens usually come from other living organisms and are spread by various methods

Slow Mo Sneeze

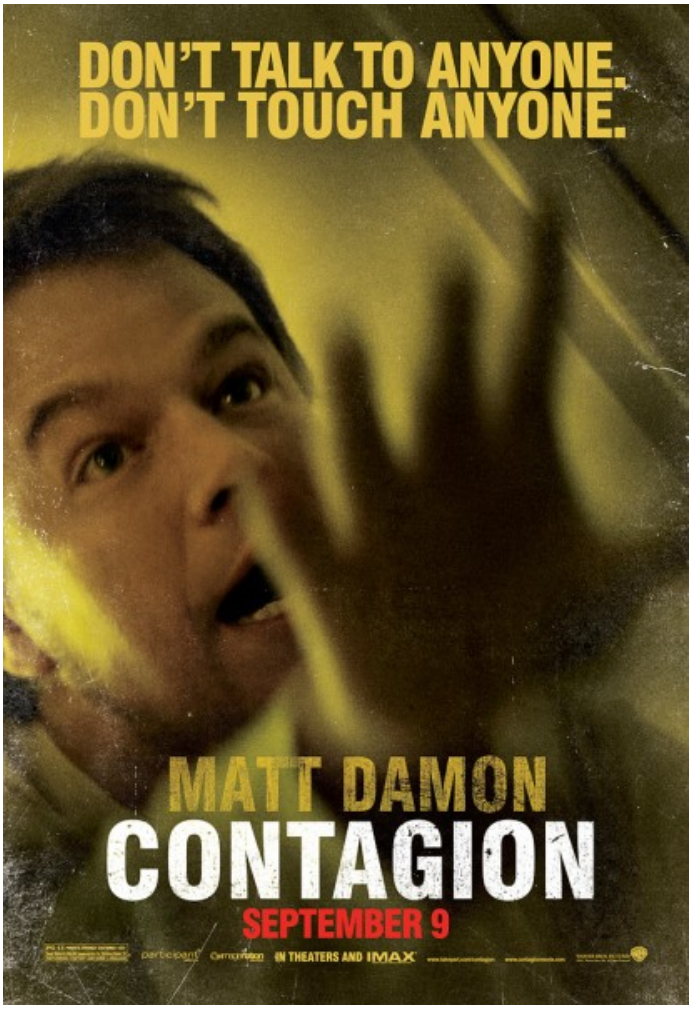
Two Parts of the Immune System

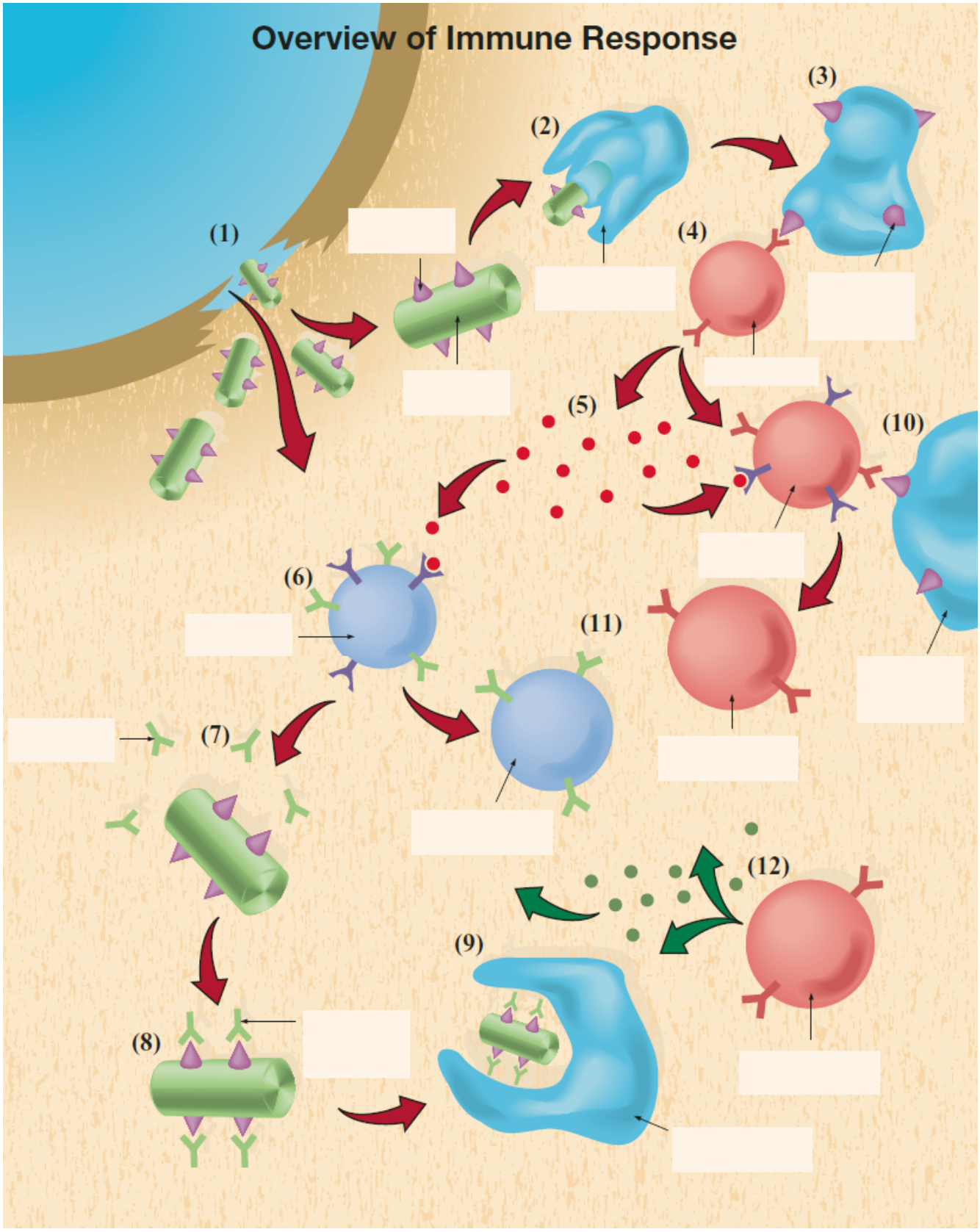
- The immune system has ways of trying to keep pathogens out of our body in the first place. This is frequently called the Immune System's First Line of Defence.



... but sometimes, when the first line of defence is not sufficient, pathogens can still get into the body cells.

This occurs when you breath in pathogens, they enter through a cut, injected by insects or needles, putting one's fingers in their mouth, ingesting pathogens (food poisoning), exchange of bodily fluids, etc.




Overview of Immune Response
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Vaccinations

The story of the first vaccination ... Edward Jenner - 1796

Smallpox wikipedia

Cowpox

Vaccination

- an injection (of a weakened form, similar form, or dead form of a pathogen) that exposes the body to the antigens of a disease causing pathogen so that memory cells and antibodies can be made to provide immunity.

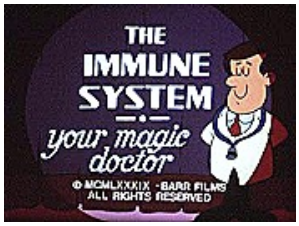
IMMUNITY FROM NAZI SLAVERY

During World War II, when the Germans were killing or enslaving Poles and Jews as racially inferior people, an immunological trick was employed to save lives in a political way. E. Lazowski, now at the Illinois Children's Hospital in Chicago, and S. Matulewicz, now at the Université Nationale in Zaire, knew that an infection by a relatively harmless bacterium, *Proteus* OX-19, could cause a blood reaction resembling that of epidemic typhus, the dreaded louse-borne "disease of human misery." The Weil-Felix reaction had been known since an earlier epidemic in Poland in 1916, and it was routinely accepted as a diagnostic test for true typhus. The doctors reasoned that a blood test of a healthy person who had been injected with a dead suspension of *Proteus* OX-19 would indicate typhus.

For more than 25 years there had been no epidemic typhus in Germany, and consequently the Germans had lost much of their immunity to the disease. Knowing that, German doctors had no desire either to import the disease into their country or to go themselves into places where they could come into contact with it. Thus any Pole who showed a positive Weil-Felix reaction was presumed to be carrying typhus and was not wanted in Germany.

A Polish slave laborer, allowed a 14-day home leave, volunteered to be the first test case of an artificially induced immunological experiment. Although the trial carried risks, some known and some unknown, both to the Polish doctors and the worker, he preferred those risks to a return to slavery. He took the *Proteus* injection, officially disguised as "protein stimulation therapy." His blood sample, sent to the German laboratories, prompted a telegraphic reply: Weil-Felix positive. The local German officers, interpreting the telegram to mean typhus, excluded both the worker and his family from Germany in order to keep out typhus-carrying lice.

With the technique established, Lazowski and Matulewicz began injecting many Poles with *Proteus* OX-19, thus producing false typhus-positive blood tests, until a dozen villages were officially declared an epidemic area, relatively exempt from German interference. Suspecting that Polish doctors might send mislabeled blood samples, the German doctors tried to take samples only in their own laboratories, but of course their results were also positive because the reaction was a true biological one, even though it had been artificially induced. As Lazowski and Matulewicz reported in 1977, "Our private immunological war gave us a deep satisfaction because we knew that we had saved the lives of people who would otherwise have been killed."


THE
IMMUNE
SYSTEM
your magic doctor
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Autoimmune Diseases

- Immune System Mistakes

- for some reason, sometimes the immune system begins to attack the body's normal, healthy cells.
- causes some diseases like Multiple Sclerosis, Juvenile-onset diabetes, rheumatoid arthritis.
- Also, allergies are result of this condition
- Also complicates organ transplants

A05 eTest

Attachments

Smallpox.webloc