

Immune Response Case Study

Jennifer had a sore throat, headache, fever, swollen glands, and generally felt awful. Her father took her to their family doctor, who examined her and made a preliminary diagnosis of strep throat (a streptococcal bacterial infection). To confirm the diagnosis, the doctor requested some lab tests of Jennifer's blood. Because the tests would take several days to complete, the doctor gave Jennifer a prescription for an antibiotic and asked her to return in about one week, after taking the antibiotics, for some additional blood tests.

The lab technician took Jennifer's blood samples and separated the plasma from the cells. Her plasma and a sample of pure, artificial plasma were mixed with three different types of bacteria.

a) Why was the blood separated and the plasma portion mixed with bacteria?

The technician examined the plasma samples for evidence of clumping of the bacteria. The lab reported the following results:

Plasma Sample	Bacteria 1	Bacteria 2	Bacteria 3
Jennifer's 1st	no clumping	clumping	no clumping
Jennifer's 2nd	no clumping	clumping	clumping
Artificial Plasma	no clumping	no clumping	no clumping

b) Explain the results from the mixing of the three plasma samples with bacteria 1, 2, and 3.

c) Which bacteria were probably responsible for Jennifer's sore throat?

d) Explain why the lab tested the artificial plasma.