

## Disease

- Signs
- Symptoms

## Etiology

- Infection
- Pathogen
- Virulence

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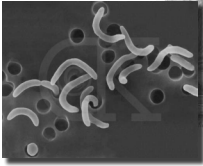
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## Behavior



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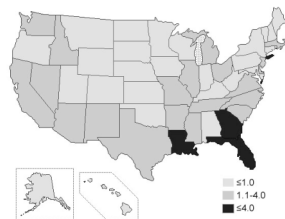
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## *Treponema pallidum*



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## Portals of Entry

The microbes' view:

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## Infectious Dose<sub>50%</sub> (ID<sub>50</sub>)



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## ID<sub>50</sub>

Number of bacteria	Number of dead mice	% dead mice
10	1	
100	3	
1000	6	

What's the ID<sub>50</sub>?

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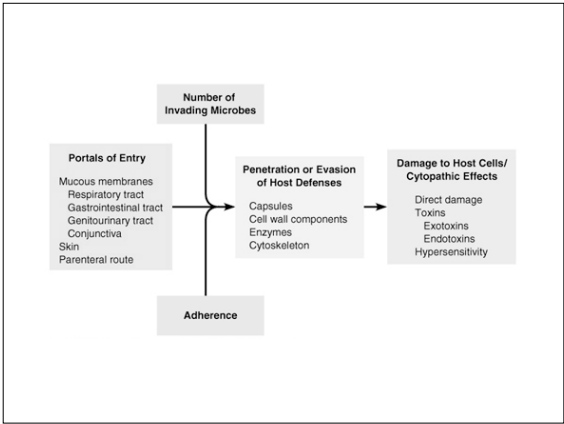
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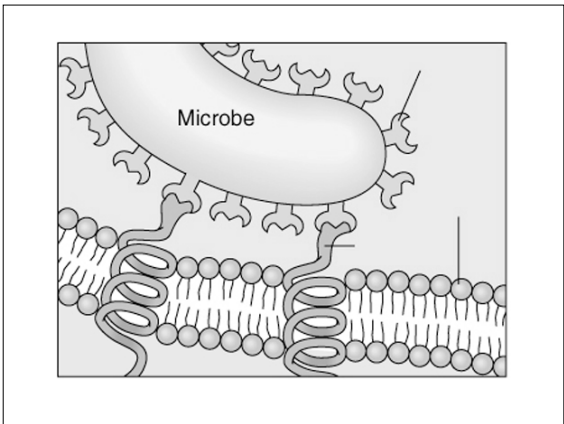
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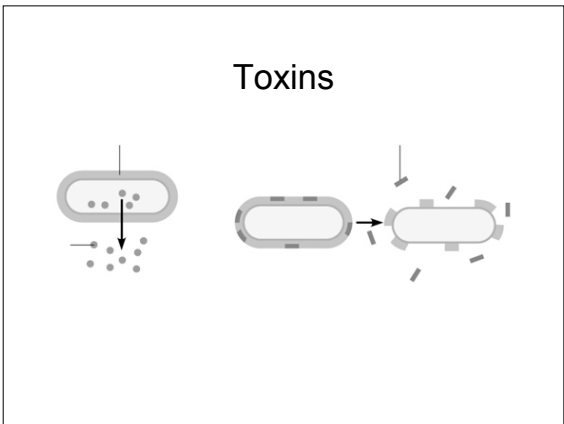
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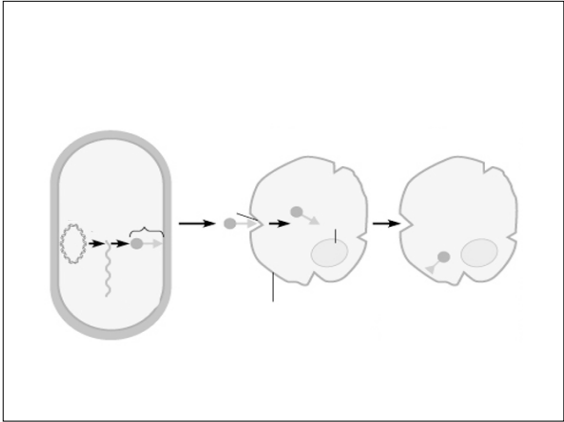
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|--------------------------|-------------------------|
| • Gram +                 | • Gram -                |
| • Metabolic product      | • Structural, LPS       |
| • Protein                | • Lipid A               |
| • Specific action        | • General action        |
| • Heat labile            | • Heat stable           |
| • Hi toxicity            | • Lo toxicity           |
| • No fever               | • Fever                 |
| • Small LD <sub>50</sub> | • High LD <sub>50</sub> |

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**Enzymes**

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Gastric (peptic) and duodenal ulcers are caused by

- A. Diet.
- B. Excess acid production.
- C. Stress.
- D. A bacterial infection.
- E. A, B, and C above.

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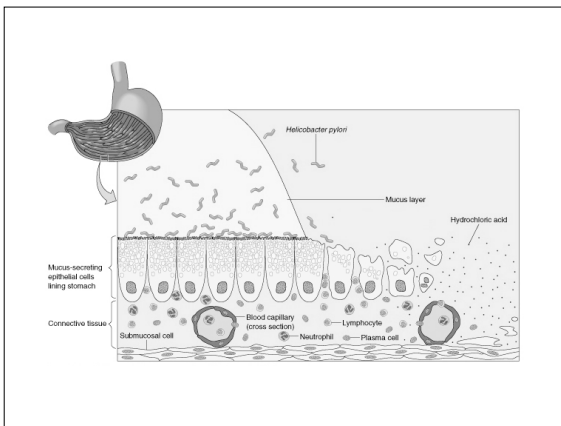
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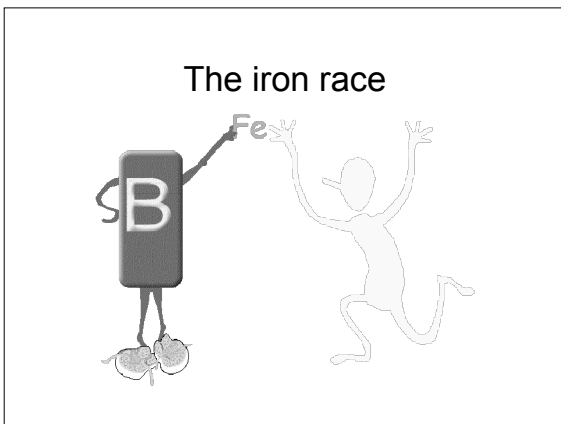
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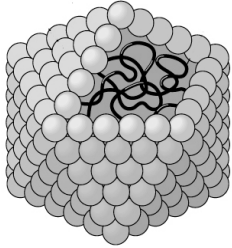
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## Cytopathic effects



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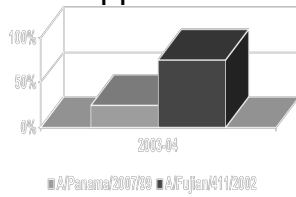
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## What happened?



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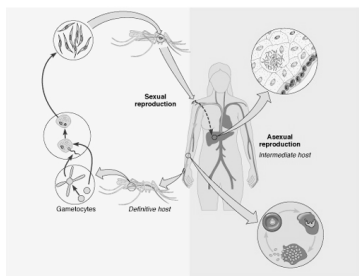
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## Protozoa



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## Fungi



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## Algae



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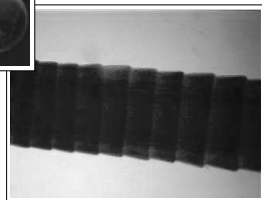
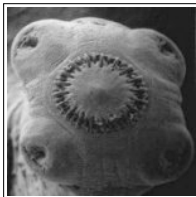
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## Helminths



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