

# Enterotoxins

**Enterotoxins** are produced by:

- **Bacillus cereus:** cereus toxin (highly thermostable) - increases vascular permeability, is a necrotizing "diarrhea syndrome", ingesting heavily contaminated food.
- **Clostridium perfringens (some types):** enterotoxin, which is also highly thermostable - increases capillary permeability, "only" accumulation of water and NaCl in the intestinal loops, diarrhea (note: toxin D cl. perf. causing enterotoxemia is not enterotoxin acting in the intestine, but lecithinase causing hemolysis).
- **Clostridium difficile:** 2 thermolabile toxins - A enterotoxin (aqueous, slightly hemorrhagic diarrhea), B necrotizing cytotoxin.
- **Staphylococcus aureus:** at food poisoning – enterotoxin, acts as a local neurotoxin - stimulation of visceral receptors → rapid peristalsis, ie rapid emptying, further irritates the CNS emetic center, ie vomiting, may act as a super antigen (like TSST-1), causes shock syndrome
- **E. coli ETEC group:** thermolabile and thermostable toxin - causes a disease resembling cholera.
  - **E. coli group EHEC:** shiga-like toxin or otherwise verotoxin (the gene transmits to escherichia by bacteriophage).
- **Vibrio cholerae:** cholera toxin, persistent activation of adenylate cyclase, increase of cAMP → transport of ions into the lumen of the intestine, water follows osmotically. The result is escalating diarrhea, at first the stool leaves then only the thin liquid of the image of "rice broth" (mucus flakes). Everything leads to sharp dehydration and death without treatment.
- **Shigella dysentery:** Shiga toxin, acts in the large intestine. It inactivates RNA of ribosomes by intoxicating cells → stop of protein synthesis → necrosis. However, bacillary dysentery is caused not only by the toxin, but also by the actual invasion of shigella into the intestinal mucosa. Shiga (like) toxin, when introduced into the blood, is highly specific for epitopes on the renal capillaries glomeruli - binding → netting of fibrin → and development of HUS
- **Plesiomonas shigelloides:** enterotoxin is similar to shiga like.
- **Campylobacter jejuni:** enterotoxin is cholera like, however, the disease is also due to the bacillus' own invasive activity.

## Links

### Related articles

- Enterotoxigenic
- Bacterial gastroenteritis

### Bibliography

- BEDNÁŘ, Marek. *Medical microbiology*. 1. edition. Praha : Marvil, 1996. 558 pp. ISBN 8023802976.
- LOBOVSKÁ, Alena. *Infectious diseases*. 1. edition. Praha : Karolinum, 2001. 263 pp. ISBN 80-246-0116-8.