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Letter to Editors

Why do Tetanus Bacilli Produce Tetanospasmin ?

Tetanus is one of the most lethal of virulent diseases. The disease can be attributed to tetanospasmin, a cytoplasmic protein whose gene is carried by a plasmid. Tetanus bacilli are so-called soil bacteria and are ecologically saprophytic. Saptrophytes are rarely pathogenic in animals. The original tetanus bacilli probably did not produce toxin. Then why is a plasmid responsible for toxin production ? The plamid would be a nutritional burden to the host bacteria. To compensate, plasmids must provide some benefit to the host bacteria.

If a large animal is killed with tetanospasmin, its corpse becomes a great source of nutrition for tetanus bacilli. This is the reason tetanus is so lethal.

Botulism is also highly lethal. Botulism might be explained with a similar explanation, although botulism is not considered an infectious disease. Some types of botulinus toxin are produced by temperate phages. The roles of plasmids and temperate phages are equally selfish. Plasmids cannot be phage particles, unlike temperate phages. Plasmids must depend on the integrity of host bacteria. In other words, plasmids should maintain the integrity of host bacteria. In other words, plasmids should maintain the integrity of host bacteria with the assistance of additional genes. So-called cryptic plasmids likely possess additional genes regardless of the bacterial species.

References

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