THE ROLE OF NONFIMBRIAL ADHESINS: PROTEINS OF OUTER MEMBRANE AND LIPOPOLYSACCHARIDE IN ADHERENCE AND INVASION OF BACTERIA TO HOST CELLS.

Summary

Specific adhesion to host tissue cells is an essential virulence factor of most bacterial pathogens. Adherence is often an essential step in bacterial pathogenesis or infection, required for colonizing a new host. To effectively adhere to host surfaces, many bacteria produce multiple adherence factors called adhesins.

There are two types of adhesins: fimbrial and nonfimbrial adhesins. Lipopolysacharide and outer membrane proteins belong to non fimbrial adhesins.

The role of LPS in adherence of Gram-negative organisms to host cells has been evaluated for several bacterial species. The O-specific chain of bacteria can lead mostly to an increased tendency for this organism to bind to mammalian cells. The attachment of bacteria could be inhibited by purified LPS. A few receptors responsible for recognizing LPS have been identified: CD 14, scavenger receptor, Toll-like receptors, integrins, selectins. LPS receptors transduce signals from the membrane to the cytosol. Interaction between adhesins and their receptor can lead to invasion to host cells. Adhesins are attractive vaccine candidates because they are often essential to infection and are surface-located, making them readily accessible to antibodies.