Staphylococcus hyicus exfoliative toxin: Purification and demonstration of antigenic diversity among toxins from virulent strains - DTU Orbit (23/12/2018)

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The exfoliative toxin produced by Staphylococcus hyicus strain 1289D-88 was purified as a single protein of approximately 30 kDa. Extracellular proteins of S. hyicus grown under small scale fermentation conditions were precipitated with ammonium sulfate. Separation of proteins was performed by hydrophobic interaction chromatography and successively anion exchange chromatography. The purified toxin was tested in a piglet skin assay. Weak epidermal lesions were macroscopically and microscopically similar to lesions caused by (NH₄)₂SO₄-precipitated culture supernatant from the same strain. Addition of 0.5 mM CuSO₄ to the purified toxin resulted in more intense skin alterations comparable to lesions caused by precipitated culture supernatant diluted 1:10. These results indicated that the activity of the exfoliative toxin was dependent on the presence of Cu²⁺. Polyclonal and monoclonal antibodies were prepared against the exfoliative toxin from strain 1289D-88. The in vivo activity of the exfoliative toxin could be neutralized by antibodies. It was shown that polyclonal as well as monoclonal antibodies only reacted with the toxin produced by two of nine well-defined virulent strains of S. hyicus. These results showed antigenic diversity among exfoliative toxins produced by different strains of S. hyicus. (C) 1997 Academic Press Limited.
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