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Monoclonal and polyclonal antibodies directed toward Tsukamurella pulmonis polysaccharide

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The genus *Tsukamurella* includes aerobic Gram-positive and modified acid alcohol-fast-positive rods belonging to the aerobic actinomycetes, usually found in soil, sludge and arthropods. *T. pulmonis* is a rare human pathogen associated with oncologic and immunosuppressed patients, and a variety of infections have been associated with this bacterium: pneumonia, conjunctivitis, keratitis and catheter-related bacteremia. The strain of *T. pulmonis* was obtained from Polish Collection of Microorganisms (PCM 2578). The bacteria were identified morphologically by Gram staining, scanning electron microscopy and MALDI-TOF mass spectrometry. The polysaccharides were extracted by trichloroacetic acid from dry bacterial cell mass and purified by anion exchange and gel permeation chromatography. Sugar composition was determined by gas-liquid chromatography-mass spectrometry (GLC-MS). The monoclonal antibodies against polysaccharide of *T. pulmonis* were obtained by the hybridoma technique. Rabbit polyclonal immune sera against *T. pulmonis* were obtained by immunization with *T. pulmonis* whole cells. The scanning electron microscopy showed a variation of the rod shape of the bacteria. Purified polysaccharide of *T. pulmonis* consists of arabinose and mannose also traces amounts of glucose and galactoses were detected. Two hybridomas 5 and 23 producing mAbs against polysaccharide antigen were IgM class. The ELISA test allowed to detect cross reactivity of these monoclonal antibodies with some other Actinomyces spp antigens. Reactivity in double immunodiffusion test of polysaccharide antigen of *T. pulmonis* with polyclonal sera against *T. pulmonis, T. tyrosinosolvens*, *T. inchonensis* and *T. paurometabola* cells was observed. Cross reactivity of EPS were seen with all Tsukamurella antisera studied. Results indicate that monoclonal and polyclonal antibodies and polysaccharide could serve as tools for diagnostic purposes but their diagnostic potential should be further studied regarding the specificity and structure of epitope recognized.

Biography

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