

A PUZZLING BORDETELLA PETRII O-ANTIGEN THE CORE OLIGOSACCHARIDE OF *B. PETRII* TYPE STRAINS AND AN EPHEMERAL PRESENCE OF THE O-SPECIFIC POLYSACCHARIDE

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Bordetella petrii is the only environmental species found among host-restricted and pathogenic members of the genus *Bordetella*. It was first isolated from an anaerobic, dechlorinating bioreactor culture enriched from river sediment [1] Later it was linked to jaw bone infection [2], ear infection [3] and chronic pulmonary disease [4]. Virulence factors of *B. petrii* comprise a lipopolysaccharide, i.e. the major outer-membrane component of Gram-negative bacteria. Data on the structural features of the lipopolysaccharide (LPS) of *B. petrii* are scarce and confounding. To date only the structures of the *B. petrii* lipid A have been characterized [5] Moreover, Zelazny *et al.* [6] showed that in the environmental isolate of *B. petrii* strain (ATCC BAA-461) the O-antigen is present, but neither the O-antigen nor the core OS were recognized by serum of a patient with *B. petrii* infection. Despite reports to the contrary, our preliminary structural data indicates the lack of O-specific polysaccharide segment in the O-antigen. This observation has been further confronted with the O-antigen structural features of the primary clinical isolate *B. petrii* strain (NCTC 13363).

The components released by mild acidic hydrolysis of the LPS were separated and investigated by ¹H and ¹³C NMR spectroscopy. The structure of the core oligosaccharide of *B. petrii* has been identified for the first time. The main oligosaccharide fraction contained an octasaccharide. The NMR data of *B. petrii* core oligosaccharide were compared with these of the core OS among respiratory pathogens from the genus *Bordetella*. The analysis indicated that the oligosaccharide conforms to the conserved structural features of the *Bordetella* spp. LPS core with some variability in relation to the terminal GlcN. Furthermore, the serological cross-reactivities of the *B. petrii* LPS also confirmed the similarity between the core oligosaccharides of *B. petrii* and other *Bordetellae*.

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