Racial tropism of a highly toxic clone of Actinobacillus actinomycetemcomitans associated with juvenile periodontitis

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Actinobacillus actinomycetemcomitans strains with enhanced levels of production of leukotoxin are characterized by a 530-bp deletion from the promoter region of the leukotoxin gene operon. Previous isolates with this deletion constituted a single clone belonging to serotype b, although they displayed minor differences among each other. We have analyzed the geographic dissemination of this clone by examining 326 A. actinomycetemcomitans isolates from healthy and periodontally diseased individuals as well as from patients with different types of extraoral infections originating from countries worldwide. A total of 38 isolates, all belonging to the same clone, showed the 530-bp deletion. Comparison of a 440-bp sequence from the promoter region of the leukotoxin gene operon from 10 of these strains revealed complete identity, which indicates that the deletion originates from a single mutational event. This particular clone was exclusively associated with localized juvenile periodontitis (L