

R-4. *Prevotella intermedia* lipopolysaccharide stimulates release of nitric oxide by inducing expression of inducible nitric oxide synthase

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Objectives:

The purpose of this study was to examine the effects of lipopolysaccharide (LPS) from *Prevotella intermedia*, a major cause of inflammatory periodontal disease, on the production of nitric oxide (NO) and expression of inducible nitric oxide synthase (iNOS) in the murine macrophage cell line RAW264.7. We also attempted to throw light on the signaling mechanisms involved in *P. intermedia* LPS-induced NO production.

Materials and methods:

LPS from *P. intermedia* ATCC 25611 was prepared by the standard hot phenol-water method. NO production was assayed by measuring the accumulation of nitrite in culture supernatants. Western blot analysis of iNOS and analysis of reverse transcription (RT)-PCR products were carried out.

Results:

We found that *P. intermedia* LPS can induce iNOS expression and stimulate the release of NO without additional stimuli and demonstrated an important role of the transcription factor NF- κ B and microtubule polymerization in NO production. The production of NO required L-arginine but not activation of protein kinase C or protein tyrosine kinase.

Conclusions:

The present study clearly shows that *P. intermedia* LPS fully induced iNOS expression and NO production in RAW264.7 cells in the absence of other stimuli. The ability of *P. intermedia* LPS to promote the production of NO may be important in the pathogenesis of inflammatory periodontal disease.