Highly Purified *Porphyromonas gingivalis* LPS

Product	Cat. #	Price/100ug
P.gingivalis - 1690	7000	$95
P.gingivalis - 1435/1449	7010	$95

Form/dry weight: lyophilized/100 μg
Reconstitution: highly pure dH_20, endotoxin-free

INTRODUCTION

Porphyromonas gingivalis (*Pg*), an etiologic agent for periodontitis, causes a highly unusual innate host response. Two different LPSs are available with differing biologic activity. One fraction, designated Pg_{1690}, purified using a phenol method, yields a negative mass ion of 1690 which represents a penta-acyl lipid A. This fraction is an agonist for human monocytes and HUVEC. Another fraction, designated $Pg_{1435/1449}$, obtained through the cold magnesium chloride purification method, yields lipid A species with mass ions of 1435/1450 representing tetra-acyl forms. This preparation is a weak agonist for macrophages, does not stimulate HUVEC and is an antagonist of Pg_{1690} and *E.coli* LPS stimulation of these cells.

BIOCHEMICAL ANALYSIS

Purity

	Pg_{1690}	$Pg_{1435/1449}$
DNA content	1%	1%
Protein content	1.5%	1.05%

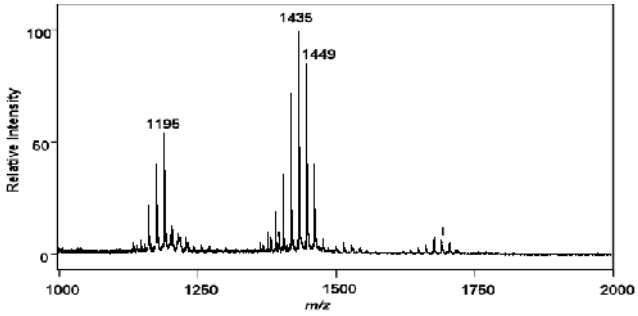
Gas chromatographic/mass spectroscopy (GC/MS) of LPS fatty acids.

Pg_{1690} and $Pg_{1435/1450}$ LPS samples were analyzed by their trimethylsilyl ethers after transmethylation with N,O,-bis(trimethylsilyl) trifluoroacetimide (BSTFA) containing 1% trimethylchlorosilane (TMCS). The fatty acids are accounted for along with trace amounts of C14:0 and C18:0. No other fatty acids nor phospholipid, glycolipid, or lipoprotein were detected.

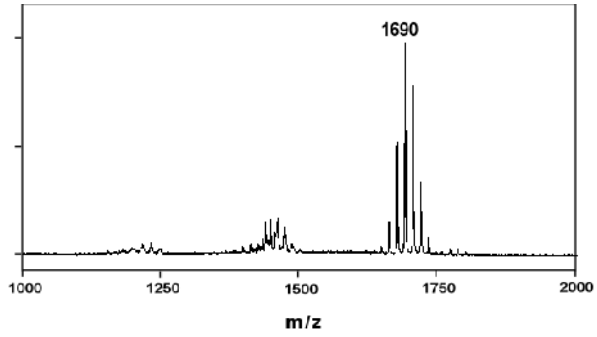
Mass Spectrometry

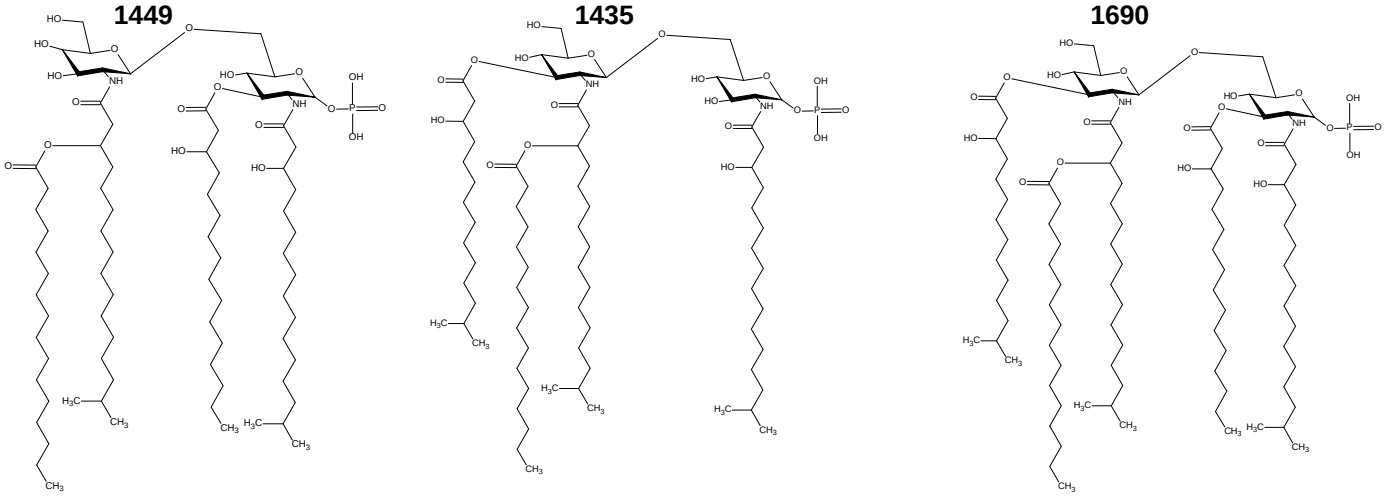
The deduced structure of the Lipid A moiety of *Pg*$_{1690}$ and *Pg*$_{1435/1449}$ was analyzed by matrix assisted laser desorption ionization time of flight (MALDI-TOF). *Pg*$_{1690}$ contains a negative mass ion of 1690, which represents a penta-acyl Lipid A. *Pg*$_{1435/1449}$ LPS contains 2 species of lipid A with mass ions of 1435/1449, representing tetra-acyl forms. A minor species of tria-acyl is also present with a negative mass of 1195.

MALDI-TOF analysis of purified Pg$_{1435/1450}$ LPS



MALDI-TOF analysis of purified Pg$_{1690}$ LPS





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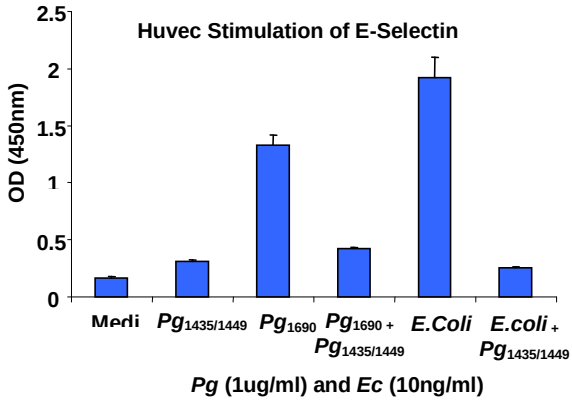
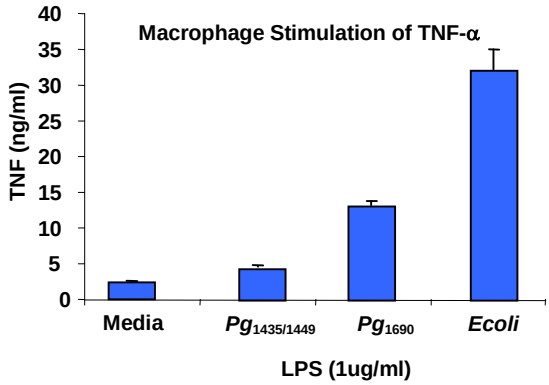
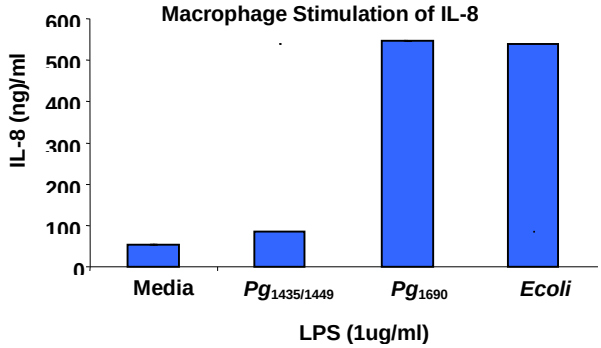
BIOLOGIC ACTIVITY

The biologic response of the purified LPS was tested for E-Selectin expression on HUVEC cells (Astarte HUVEC/E-Selectin Kit #2016). These cells normally produce E-selectin in response to *E.coli* LPS. Purified Pg_{1690} LPS is a potent agonist for E-selectin expression while $Pg_{1435/1449}$ is a weak agonist. In addition, $Pg_{1435/1449}$ is able to antagonize Pg_{1690} stimulation of E-Selectin at 1:1 and *E.coli* LPS at 100:1. With respect to myeloid cells, Pg_{1690} is a more potent agonist of TNF-α and IL-8 expression by macrophages cells compared to $Pg_{1435/1449}$.







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