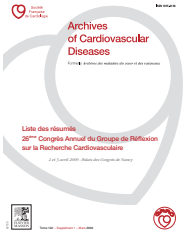
Archives of Cardiovascular Diseases (2009) 102 Supplément 1, S6-S129





# Thèmes et Posters

## *Jeudi 2 avril 2009, de 10h00 à 11h30*

### *A — ATHEROSCLEROSE, HEMOSTASE, INFLAMMATION, AGE*

A001

## AFFINITY OF LOW MOLECULAR WEIGHT FUCOIDAN FOR P-SELECTIN TRIGGERS ITS BINDING TO ACTIVATED HUMAN PLATELETS

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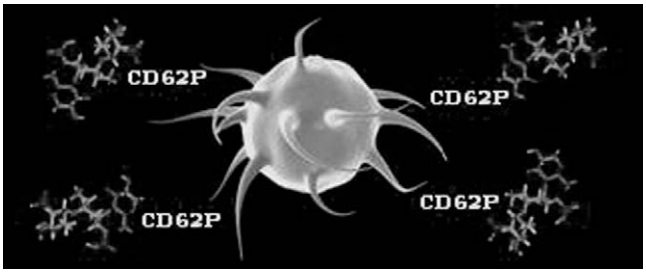
**Background** — P-selectin is an adhesion receptor expressed on activated platelets and endothelial cells. Its natural ligand, P-selectin glycoprotein ligand-1, is expressed on leucocytes and the P-selectin/PSGL-1 interaction is involved in leukocyte rolling. We have compared the interaction of P-selectin with several low molecular weight polysaccharides: fucoidan, heparin and dextran sulfate.

**Methods** — Binding assays were obtained from the interaction of the polysaccharides with Sialyl Lewis X and PSGL-1 based constructs onto microtiter plates coated with P-selectin. SELDI TOF mass spectrometry was performed with anionic chips arrays coated with P-selectin in the absence or in the presence of polysaccharides. Kd were obtained from surface plasmon resonance experiments with immobilized Pselectin constructs, polysaccharides being injected in the mobile phase. Human whole blood flow cytometry experiments were performed with fluorescein isothiocyanate labelled polysaccharides with or without platelets activators.




*Affinity of low molecular weight fucoidan for P-selectin triggers its binding to activated human platelets.*
*Bachelet L, Bertholon I, Lavigne D, Vassy R, Jandrot-Perrus M, Chaubet F, Letourneur D.*
*Biochim Biophys Acta. 2008 Nov 5.*

**Results** — The fucoidan prevented P-selectin binding to Sialyl Lewis X with an IC50 of 20 nM as compared to 400 nM for heparin and >25000 nM for dextran sulfate. It exhibited the highest affinity for immobilized Pselectin with a KD of 1.2 nM, two orders of magnitude greater than the KD of the other polysaccharides. Mass spectrometry evidenced the formation of a complex between P-selectin and fucoidan. The intensity of the fucoidan binding to platelets was dependent on the level of platelet activation. Competition between fucoidan and an anti P-selectin antibody demonstrated the specificity of the interaction.

**General significance** — Low molecular weight fucoidan is a promising therapeutic agent of natural origin for biomedical applications.

A002

## A TYROSINE PEG-MICELLE MAGNETIC RESONANCE CONTRAST AGENT FOR THE DETECTION OF LIPID RICH AREAS IN THE ATHEROSCLEROTIC PLAQUE

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Vulnerable or high-risk atherosclerotic plaques often exhibit large lipid cores and thin fibrous caps that can lead to deadly vascular events via their rupture. In this study, PEGmicelles that incorporate a Gd-DTPA amphiphile were used as an MR contrast agent. In an approach inspired by lipoproteins, the micelles were functionalized with tyrosine