

## FINAL PROGRAM OF ENDOTOXIN 2004

-----→ Monday, November 15

**9:15 – REGISTRATION OPENS, POSTER MOUNTING**

**10:00– 10th Annual Meeting of the Japan Endotoxin Society:**

**15:30-16:15 Special Lecture**

*Hiroyuki HIRASAWA*

Clinical Aspect of Hypercytokinemia in Critical Care

---Pathophysiology, Evaluation and Countermeasure---

**16:15-17:05 Invited Lecture I**

*Ernst RIETSCHEL*

Chemical constitution and biological activities of bacteria lipopolysaccharides

**17:05-17:55 Invited Lecture II**

*Jack LEVIN*

The clinical significance of endotoxemia

**18:00 - WELCOME PARTY**

-----→ Tuesday, November 16

\* Number in parenthesis corresponds to listed abstract #

**8:00-8:30 – Continental Breakfast, Poster Viewing**

**8:20- OPENING CEREMONY Takashi Yokochi, Toshikazu Yoshikawa**

### SESSION A – CHEMISTRY AND BIOLOGY OF ENDOTOXIN I

*Moderators: Shoichi Kusumoto, Ulrich Zähringer*

**8:30-8:55 – Christopher WHITFIELD (1\*) -- Overview**

Evolutionary biology of endotoxin: from genomics to physiology

**8:55-9:20 – Douglas GOLENBOCK (2) -- Overview**

Endotoxin signaling

**9:20-9:40 – M. Stephen TRENT (3)**

Remodeling of *H. pylori* LPS

**9:40-10:00 – Russell BISHOP (4)**

Structure and function of PagP

**10:00-10:20 – BREAK**

**10:20-10:40 – Kiyoshi KAWASAKI (5)**

Lipid A deacylation by PagL: Regulation of TLR4 signaling

**10:40-11:00 – Robert ERNST (6)**

Biological relevance of lipid A variation in *Yersinia* species

**11:00-11:15 – Thomas GUTSMANN (7)**

Lipid-mediated resistance of Gram-negative bacteria against pore-forming anti-microbial peptides

**11:15-11:30 – Rosevelt PARDY (8)**

Molecules from eukaryotic algae possess LPS-like features but inhibit innate responses of mouse macrophages

**11:30-11:40** – *Selected ABSTRACT* -- Yukari FUJIMOTO (47)

Synthesis of lipid A and its novel analogues for investigation of the structural and conformational bases for their bioactivity

**11:40-11:50** -- *Selected ABSTRACT* -- Anthony MORAN (63)

*Helicobacter* varies LPS antigenic structure to evade surfactant protein D

**12:00-13:00** – LUNCH BREAK

**12:00-13:00 (and beyond)** – LUNCH WORKSHOPS

**Room 104A**

**Molecular, structural and physical bases of cell activation by endotoxin**

**12:00-12:10** - Physicochemical characterization and endotoxic activity of synthetic monophosphoryl analogues of lipid A – Kent Myers, Klaus Brandenburg

**12:10-12:20** - Physicochemical characterization and biologic activity of lipooligosaccharides from *Neisseria meningitidis* – Susu Zughair

**12:20-12:30** - A region of MD-2 required for the antagonistic activity of lipid IVA – M Muroi

**12:30-12:40** - Inhibition of cell activation: Shedding new light on antagonism – Andra Schromm

**12:40** → OPEN DISCUSSION

**Room 104B**

**Regulation of endotoxin-dependent and –independent TLR signaling**

**12:00-12:10** - Involvement of lipid rafts in lipopolysaccharide -induced downregulation of surface TLR4 expression in TLR4/MD-2/CD14-CHO cells – Tsuyoshi Shuto

**12:10-12:20** - The tetraspanins CD37 and CD81 are involved in LPS signaling – Holger Heine

**12:20-12:30** - *P. gingivalis* and *E. coli* LPS differentially activate human gingival fibroblasts and alter EGF and P<sub>2</sub>X<sub>7</sub> nucleotide receptor expression – Beatriz Quinchia-Rios

**12:30-12:40** - IL-10 released by concomitant TLR2 stimulation blocks the induction of a subset of Th1 cytokines that are specifically induced by TLR4 or TLR3 in human dendritic cells – Fabio Re

**12:40** → OPEN DISCUSSION

**13:00-14:30** – POSTER VIEWING (47-147)

## **SESSION B – CHEMISTRY AND BIOLOGY OF ENDOTOXIN II**

*Moderators: Kenichi Tanamoto, Ernst Rietschel*

**14:40-15:00** – Mareike MÜLLER (9)

Endotoxin: Physical requirements for cell activation

**15:00-15:20** – Kensuke MIYAKE (10)

Innate immune recognition of LPS by TLR4/MD-2

**15:20-15:40** – Theresa GIOANNINI (11)

Mechanisms of action of endotoxin agonists and antagonists

**15:40-16:00** – Roman JERALA (12)

Structural interactions of LPS with MD-2 and neutralizing antagonists

**16:00-16:20** – BREAK

**16:20-16:40 – Nicholas GAY (13)**

Structural determinants of Toll signaling: Spaetzle and MD-2

**16:40-17:00 – Kate FITZGERALD (14)**

TRIF-related adaptor molecule (TRAM): A central player in LPS signaling

**17:00-17:20 – Aisling DUNNE (35A)**

Mal: processing and post-translational modification

**17:20-17:30 -- Selected ABSTRACT -- Jérôme PUGIN (89)**

Soluble MD-2 activity in plasma from patients with severe sepsis and septic shock

**17:30-17:40 -- Selected ABSTRACT -- Susumu MATSUO (96,97)**

Molecular and functional dissection of I $\kappa$ B-zeta, an endotoxin-induced transcriptional regulator

**17:40-17:50 – Selected ABSTRACT – Mya Mya MU (100)**

Inhibition of mitogen and stress-activated protein kinase 1/2 induces mitochondria-mediated apoptotic cell death in lipopolysaccharide-stimulated RAW 264.7 macrophage cells

-----→ **Wednesday, November 17**

**8:00-8:30 – Continental Breakfast, Poster Viewing**

### **SESSION C – NEGATIVE REGULATION OF ENDOTOXIN ACTIVITY**

*Moderators: Takashi Yokochi, Ulrich Seydel*

**8:30-8:55 – Robert MUNFORD (16) -- Overview**

Detoxifying endotoxin: Time, place and person

**8:55-9:15 – Patrick RENSEN (17)**

Apolipoproteins modulate inflammatory responses to LPS in rodents and humans: implications for sepsis

**9:15-9:35 – Richard KITCHENS (18)**

Endogenous apolipoprotein E (apoE) and ATP-binding cassette transporter A1 (ABCA1) promote LPS efflux from macrophages

**9:35-9:55 – Richard CHABY (19)**

Interactions between LPS and surfactant proteins

**9:55-10:15 – BREAK**

**10:15-10:35 – Mathias HORNEF (20)**

Toll-like receptor-mediated recognition by intestinal epithelial cells

**10:35-10:55 – Christopher KARP (21)**

Negative regulation of TLR4 signaling by RP105

**10:55-11:15 -- Mingfang LU (22)**

Taming the humoral immune response to Gram-negative bacteria

**11:15-11:25 -- Selected ABSTRACT – Katharina BRANDL (122)**

A complex of soluble TLR4 and MD-2 blocks LPS activity *in vitro*

**11:25-11:35 -- Selected ABSTRACT -- Hyun-Ku LEE (159)**

Double-stranded RNA-mediated TLR3 activation is enhanced by CD14

**11:35-11:55 – Ralf SCHUMANN (23)**

Non-LPS actions and targets of LBP (LPS binding protein)

**12:00-14:00 – LUNCH BREAK**

**12:10-13:10 – LUNCHEON SEMINAR**

**Co-organized by Seikagaku Corporation**

**New developments in (1,3)-beta-D-Glucan research**

*Moderators: Emilio Jirillo, Hiroshi Tamura*

Structural Specificities of beta-Glucans on Receptor-Binding and Immunostimulatory Activity

*Yoshiyuki Adachi, Dept of Immunology Tokyo Univ of Pharmacy & Life Science*

Molecular Basis for Innate Immune Recognition of (1,3)-beta-D-Glucan as a Pathogen-Associated Molecular Pattern.

*Tatsushi Muta, Dept of Molecular & Cellular Biochemistry Kyushu Univ.*

(1,3)-beta-D-Glucan: Recent Developments as a Diagnostic Analyte and Biological Response Modifier.

*Malcolm A. Finkelman, Associates of Cape Cod Inc Falmouth Technology Park*

**SESSION D – CHEMISTRY AND BIOLOGY OF OTHER MICROBIAL TARGETS OF INNATE IMMUNITY**

*Moderators: Yoshio Kumazawa, Artur Ulmer*

**14:00-14:25 – Kiyoshi TAKEDA (24) -- Overview**

Evolution and integration of innate immune recognition systems: The Toll-like receptors

**14:25-14:40 – Roman DZIARSKI (25) – Overview**

Peptidoglycan recognition and innate immunity

**14:40-15:00 – Dominique MENGIN-LECREULX (26)**

Bacterial cell wall peptidoglycan: structure, function and metabolism

**15:00-15:20 – Roy MARIUZZA (27)**

Crystal structure of PGRP domains ( $\pm$  ligand)

**15:20-15:40 – BREAK**

**15:40-16:00 – Stephen GIRARDIN (28)**

Nod1 and Nod2 are pattern-recognition molecules involved in peptidoglycan recognition

**16:00-16:20 – Thomas HARTUNG (29)**

Structural and molecular determinants of pro-inflammatory properties of lipoteichoic acids

**16:20-16:40 – Kasper HOEBE (30)**

CD36 as a sensor of diacylglycerides acting in conjunction with TLR2 and TLR6

**16:40-17:00 – Ken-Ichiro SHIBATA (31)**

Structure-activity relationships of bacterial lipopeptides with TLR2/heterodimers

**17:00-18:30 – BUSINESS MEETING**

**18:30 BANQUET**

-----→ **Thursday, November 18**

**8:00-8:30 – Continental Breakfast, Poster Viewing**

**SESSION E – BASIC AND CLINICAL CONCEPTS IN INNATE IMMUNITY I**

*Moderators: Haruhiko Takada, Alan Cross*

**8:30-8:55 – Jean-Marc REICHHART (32) -- Overview**

Evolution and integration of innate immune systems from fruit flies to man: Lessons and questions

**8:55-9:15 – Neal SILVERMAN (33)**

Monomeric and polymeric Gram-negative peptidoglycan, but not purified LPS, activate *Drosophila* IMD pathway

**9:15-9:35 – Teizo FUJITA (34)**

Pattern recognition and lectin-complement pathway

**9:35-9:45 – Selected ABSTRACT – Sandra S.H. TAN (168)**

Recombinant C-reactive protein from the horseshoe crab is a potent pathogen recognition receptor (PRR)

**9:45-10:05 – BREAK**

**10:05-10:25 – Akihiko YOSHIMURA (36)**

SOCS1 and SOCS3 are central regulators for macrophage and dendritic cell activation

**10:25-10:45 – Jean-Marc CAVAILLON (37)**

Reprogramming of circulatory cells in sepsis and SIRS

**10:45-11:05 – Tsukasa SEYA (38)**

TLRs and their adaptors in adjuvant immunotherapy for cancer

**11:05-11:25 -- Kenya HONDA (15)**

Identification of a cytosolic complex involving MyD88 and the transcription factor IRF-7 that triggers Toll-like receptor-induced IFN- $\alpha/\beta$  gene expression

**11:25-11:35 -- Selected ABSTRACT – Minou ADIB-CONQUY (188)**

Cross-talk between Nod1, Nod2 and Toll-like receptors (TLRs) for cytokine production by macrophages in response to Gram-positive bacteria

**11:35-11:45 -- Selected ABSTRACT -- Ofer LEVY (208)**

Human newborn blood monocytes demonstrate low TNF- $\alpha$  but high IL-6 responses to an array of Toll-like receptor ligands: role of a low-molecular weight plasma inhibitor of TNF- $\alpha$  release

**11:45-11:55 -- Selected ABSTRACT -- Basel AL-RAMADI (196)**

CD154 is essential for protection against Gram-negative *Salmonella* infections

**11:55-12:05 -- Selected ABSTRACT -- Dawn BOWDISH (184)**

The host defence peptide LL-37 is a multi-functional immunomodulator which interacts directly with the effector cells of the innate immune response

**12:05-13:00 -- LUNCH BREAK**

**12:15-13:15 (and beyond) – LUNCH WORKSHOPS**

**Room 104A**

**Host responses to infection: Innate immune mechanisms**

**12:15-12:25 - The acute phase protein haptoglobin prevents hemoglobin-induced dispersion of LPS aggregates and suppresses the hemoglobin-mediated enhancement of cellular activation by LPS – Christian Alexander**

**12:25-12:35 - CD14 and TLR2 Pattern Recognition Receptors differentially modulate host response to *S. pneumoniae* in vivo and in vitro — Regina Landmann**

**12:35-12:45 - Pattern recognition receptor deficiency compromises host resistance to pneumonic Tularemia – Tim Sellati**

**12:45-12:55 - A non-tolerizing dose of Gram-negative bacterial lipopolysaccharide primes anti-bacterial host defenses: a model for the role of endotoxin in innate immunity – Alan Cross**

**12:55 → OPEN DISCUSSION**

**Room 104B**

**Structural bases of interactions between acylated bacterial compounds (endotoxin and beyond) and host peptides/proteins**

**12:15-12:25 - Structure/function studies on endotoxin-neutralizing and antibacterial peptides derived from NK-lysin -- Jörg Andrä**

**12:25-12:35 - Biophysical characterization of the interaction of *Limulus polyphemus* endotoxin-neutralizing protein (ENP) with LPS – Klaus Brandenburg**

**12:35-12:45 - MARCKS-LPS interaction in epithelial cells and its effect on actin filament depolymerization – Roman Jerala**

**12:45-12:55 - Structure -activity relationship of signaling by synthetic lipopeptides through TLR2/TLR6 and TLR2/TLR1 heterodimers – Artur Ulmer**

**12:55 → OPEN DISCUSSION**

**13:00-14:30 – POSTER VIEWING (148-232)**

**SESSION F -- BASIC AND CLINICAL CONCEPTS IN INNATE IMMUNITY II**

*Moderators: Hiroshi Fukui, Jérôme Pugin*

**14:35-15:00 – Stefanie VOGEL (39) -- Overview**

Genetic bases of host responses to endotoxin and resistance to infection

**15:00-15:20 – Moshe ARDITI (40)**

TLRs and Atherosclerosis

**15:20-15:40 – Mathias CHAMAILLARD (41)**

Nod2: from human genetics to pathophysiology of Crohn's Disease

**15:40-16:00 – Hans FISCHER (42)**

Toll like receptor 4 discriminates pathogens from commensals through pathogen specific recognition receptors

**16:00-16:20 – BREAK**

**16:20-16:40 – Anne PUEL (43)**

Inherited human IRAK-4 deficiency and infectious diseases

**16:40-17:00 – David PERSING (44)**

Short- and long-term suppression of atopic responses in the airways by TLR-4 agonists

**17:00-17:20 – Alfred AYALA (45)**

The role and regulation of apoptosis in sepsis

**17:20-17:40 – Kelly SMITH (46)**

A systems approach to study of sepsis and innate immunity

**17:40 Closing Remarks; ADJOURNMENT**