

Omega-3 Research Institute Inc. Satellite Symposium

Omega-3 Fatty Acids in Type 2 Diabetes Mellitus: An Update

Sunday 23 July 2006, 8:00 am-1:00 pm

Cairns International Hotel, Cairns, North Queensland, Australia

<http://www.issfal2006.org.au/>

- 8:00 am **Morning Session I**; Chairpersons: *Joyce A. Nettleton and Robert Katz*
- 8:00-8:05 Welcome and Opening Remarks: *Robert Katz*
- 8:05-8:45 Omega-3 (n-3) Polyunsaturated Fatty Acids (PUFA) in Prevention and Therapy of Type 2 Diabetes Mellitus (T2DM)
Mark A. Deeg
- 8:45-9:25 Metabolic Inter-Relationships Between n-3 PUFAs, peroxisome proliferator-activated receptor-alpha (PPAR-alpha), stearoyl-CoA-desaturase 1 (SCD 1), and sterol regulatory element binding protein-1c (SREBP 1c) in T2DM
James Ntambi
- 9:25-10:05 Oxidative Stress in Type 2 DM: The Role of n-3 LC-PUFA
Trevor A. Mori
- 10:05-10:45 n-3 LC PUFA Biomarkers and Clinical Trials in T2DM
Clemens von Schacky
- 10:45-11:15 Break
- 11:15 am **Morning Session II**; Chairpersons: *Mark Deeg and Andrew Sinclair*
- 11:15-11:30 Lifestyle Changes as Prevention and Therapy in T2DM and Metabolic Syndrome
Joyce A. Nettleton
- 11:30 11:45 The Potential of n-3 FAs in the Prevention of Childhood T2DM
Robert Katz
- 11:45-12:00 High Throughput n-3 FA/Lipid Analysis of Clinical Samples and Population Screening: How to Overcome the Time Factor
Norman Salem Jr.
- 12:00-12:05 Break
- 12:05-1:00 Panel/Audience Discussion and Closing Remarks. Leader: *Mark A. Deeg*
1:00 pm Lunch (included)

Organizing Committee:

Robert Katz, Ph. D., Omega-3 Research Institute, Inc. Bethesda, Maryland, USA
Joyce A. Nettleton, D.Sc., R.D., ScienceVoice Consulting, Denver, Colorado, USA

Speakers and Panel

Mark A. Deeg, M.D., Ph.D., Indiana University Purdue University-Indianapolis,
Indianapolis, Indiana, USA
James Ntambi, Ph.D., University of Wisconsin-Madison, Madison, Wisconsin, USA
Trevor A. Mori, Ph.D., University of Western Australia, Perth, W.A. Australia
Clemens von Schacky auf Schönfeld, M.D., Medical University of Munich, Munich,
Germany
Joyce A. Nettleton, D.Sc., R.D., ScienceVoice Consulting, Denver, Colorado, USA
Robert Katz, Ph.D., Omega-3 Research Institute, Inc., Bethesda, Maryland, USA
Norman Salem Jr., Ph.D., National Institute of Alcoholism and Alcohol Abuse, NIH,
Rockville, Maryland, USA

Symposium Objectives

To present and discuss the latest basic and clinical research findings on the role of omega-3 (n-3) polyunsaturated fatty acids (PUFA) in type 2 diabetes mellitus (T2DM). Answers will be sought to the following two major questions:

- a. What positive roles can presently be attributed to n-3 PUFA in the etiology, pathophysiology, prevention and therapy of T2DM?
- b. What should be the focus of future scientific efforts to further elucidate the physiologic importance of n-3 LC-PUFA in T2DM?

Symposium Scope

1. An overview will be presented on theories of lipid and fat involvement in the etiology and pathophysiology of T2DM and development of interventions for the prevention and treatment of T2DM. Examples of issues covered include the role of obesity and insulin resistance in pre-diabetes and T2DM, control of blood glucose levels with new insulin analogs and other drugs, and the role of n-3 PUFA.
2. Elucidating the mechanistic inter-relationships between regulation of fatty acid metabolism and the evolutionary development of the diabetic state from normal subject, to pre-diabetic state, to T2DM patients. The involvement of peroxisome proliferator-activated receptor-alpha (PPAR-alpha), stearoyl-CoA-desaturase 1 (SCD 1), sterol regulatory element binding protein-1c (SREBP 1c), and PUFA will form the backbone of the presentation.

3. Understanding the role of oxidative stress in T2DM and its complications, with special emphasis on the oxidative stress of PUFAs.
4. Comparing PUFA biomarkers for use in T2DM-related clinical trials with Omacor™ alone or with Omacor™ in conjunction with known or new diabetes drug therapies as preventive or therapeutic strategies. An overview of ongoing clinical trials with OMACOR™ will provide the basis for the biomarker comparison.
5. Understanding the impact of lifestyle changes in preventing and treating T2DM. The need to emphasize the control of obesity, insulin resistance, T2DM and hyperlipidemias in adults with diet and exercise will be discussed.
6. Identifying and defining the reasons for the epidemic of T2DM in children. The role of obesity and the development of insulin resistance will be emphasized.
7. Reducing the time element of FA/lipid profile analysis of plasma and RBC membranes. High throughput n-3 PUFA/lipid analysis of clinical samples and population screening will be presented.