



2006 Annual Report

International Scientific Association for Probiotics and Prebiotics

January 1 – December 31, 2006

Contents

Introduction

Message from the President

2007 Objectives

2006 Board of Directors

ISAPP Publications to date

Appendix A: Summary of 4th International ISAPP Workshop, Coleraine, N. Ireland

Appendix B: Summary of ISAPP-sponsored meeting in Tucuman, Argentina

Introduction

ISAPP is an international non-profit collaboration of scientists dedicated to advancing the science of probiotics and prebiotics. The mission statement of ISAPP is: To engender and disseminate information on high quality, multidisciplinary, scientific investigation in the fields of probiotics and prebiotics, and to advance the development of scientifically substantiated, health-promoting probiotic and prebiotic products worldwide. ISAPP is the only scientific organization dedicated specifically to probiotics and prebiotics, bringing together scientists from all pertinent disciplines, including food science, microbiology, immunology, biochemistry, nutrition, molecular biology and medicine. As a scientific society, ISAPP strives to have all activities focused on science, not the promotion of any specific commercial products.

For additional details, see website www.isapp.net

Message from the President

In 2006, ISAPP continue to grow from strength to strength. The Workshop hosted by Ian Rowland and colleagues in Coleraine, Northern Ireland was a big success, with an excellent location, program and group interactions. The guest lectures and Late Breaking News sessions were well attended and provided up-to-date information on scientific issues of importance to probiotics and prebiotics. There was a productive IAC meeting and good suggestions were made by our partners for future activities. These included a continued presence in the peer-reviewed scientific literature, especially in response to topics that unfairly damage the field. Four of the IAC suggestions have already been implemented at year's end: (i) Recruitment of new Board members, namely Jim Versalovic and Karen Scott; (ii) Holding an event that is open to all interested parties, namely the Open Forum Conference to be held in London UK in June, 2007; (iii) Discussion of animal probiotics and prebiotics, one of the two topics to be discussed at the UK event; and (iv) Involving 'members' in more activities – ISAPP is not permitted to have 'members' per se, but the more active and updated web site, and sending of information to all past attendees at ISAPP meetings and other people who have expressed an interest in the organization, have at least engaged a wider community in ISAPP's activities.

I was honoured to be entrusted with the Presidency of ISAPP in October of this year, being comforted by the continued presence of Glenn Gibson as Vice President, and Mary Ellen



Sanders as Executive Director. Mary Ellen is such a key part of this organization, having been the main driving force behind its creation and success, that it wouldn't be the same without her. Both she and Glenn are sounding boards for everything that goes on, and now Jim Versalovic and Karen Scott, from two outstanding research centres, have joined the team and are already making a difference with their ideas, enthusiasm and administrative assistance. Jim represented ISAPP at the Second International Symposium on Lactic Acid Bacteria in Tucuman, Argentina, and by all accounts was an outstanding contributor.

In 2006, ISAPP continued to be involved (as participant, organizer, or sponsor) in satellite events. These included:

- (i) the American Academy of Microbiology's colloquium held in Baltimore "**Probiotic Microbes: The Scientific Basis**" <http://www.asm.org/Academy/index.asp?bid=2093>
- (ii) Along with Drug Information Association, ISAPP convened a meeting on October 16-17, 2006 in Adelphi, MD, entitled "**Developing Probiotics as Foods and Drugs - Scientific and Regulatory Challenges**". The Conference Proceedings will be published as a Supplement in Clinical Infectious Diseases. ISAPP Board members spoke out strongly against FDA's apparent consideration of requiring INDs for probiotic research, a move that would severely limit progress on many fronts. The last minute withdrawal of the FDA from the conference suggested an unwillingness of the agency to engage experts in the areas of probiotics and prebiotics.
- (iii) Although not on official ISAPP business, Board members traveled extensively in 2006 to all continents, reflecting the mounting interest in the field, and high esteem aligned with the organization.
- (iv) A number of **peer-reviewed publications** continue to emerge from the ISAPP workshops and responses to published articles. These comprised:
 - Guarner F, Bourdet-Sicard R, Brandtzaeg P, Gill HS, McGuirk P, van Eden W, Versalovic J, Weinstock JV, Rook GA. 2006. Mechanisms of disease: the hygiene hypothesis revisited. *Nat Clin Pract Gastroenterol Hepatol.* 3(5):275-84.
 - Anukam KC, Osazuwa EO, Reid G. 2006. Knowledge of probiotics by Nigerian clinicians. *Int. J. Probiotics Prebiotics*, 1: 57-62.
 - Reid G, Gibson GR, Gill HS, Klaenhammer TR, Rastall RA, Rowland I, Sanders ME. 2007. Use of genetically modified microbes for human health. *Microbial Ecol. Health Dis.* In press.
 - Sanders ME, Hamilton-Miller, J, Reid G, Gibson G. 2007. A non-viable preparation of *L. acidophilus* is not a probiotic. *Clin Infect. Dis.* 44:886.
 - Lenoir-Wijnkoop I, Sanders, M.E., Van Loo, J., Rayes, N., Timmerman, H., Sherman, P. Cabana, M., Corthier, G., Charbonneau, D., Vaneechoutte, M., Caglar, E., Wolvers, D., Manneck, I. Probiotic and prebiotic influence beyond the intestinal tract. *Nutr Rev.* In Press.

I set myself two **goals** for my term as President:

1. To bring ISAPP and its message to a wider audience of scientists, healthcare providers (physicians, nurses, nutritionists), different types of industry (consumer, pharma, biotech, food, animal products), and lay people especially in the developing world; and
2. To continue to drive home the importance of scientific and clinical vigor in research on probiotics and prebiotics, and adherence to appropriate Guidelines defining what we mean by these terms.



As we head into 2007, we can only be excited at the emergence and recognition of probiotic and prebiotic science. ISAPP more than ever is an important component of the future expansion of these areas. We may operate as volunteers, in limited numbers, and we may find our lives even busier than before, but together we can make a difference to probiotic and prebiotic research, and the translation of our findings to the health and welfare of animals and people around the globe.

Many thanks to all who provide support, encouragement and their personal time to the organization, from Board Members to IAC members, the Office in California and the spouses, partners, families and friends who keep us sane!

A handwritten signature in blue ink that reads "Gregor Reid". Below the signature is a simple blue horizontal line.

Signed: Gregor Reid

- **Board of Directors Meeting**

- June 15 and 17, 2006, Coleraine, Northern Ireland, UK
- September, 2006 by telephone.

2007 Objectives

- Hold an Open Forum, on June 27-28, 2007, at the Royal College of Physicians , London UK, with a scientific program that covers “Prebiotics and Probiotics for Animals” and “Taking Probiotics and Prebiotics to Eastern Europe and the Developing World: What Are the Key Issues?”
- Assign various ‘mini-projects’ to Board members and affiliates, with a small budget, to allow them to develop small working groups to explore ‘best approaches’ for evaluation of efficacy for probiotics and prebiotics in say pregnant women, fetuses and children; or, to write a “best clinical approaches” needed to satisfy regulatory concerns over efficacy of probiotics; or, to investigate new technologies to delivery clinically effective probiotic and prebiotic products while maintaining suitable shelf-life. The aim would be to publish the outcomes of these discussions.
- Continue to strive to develop and have various parties implement a ‘standard of identity’ for the use of the term ‘probiotic’. If adopted, products using this term on product labels would have to meet certain minimum criteria of safety, product composition and efficacy, based upon the 2002 Expert Panel Working Group Guidelines published by the Food and Agriculture Organization of the United Nations and the World Health Organization.
- Organize and prepare for the 2008 US Workshop.

2006 Highlights

- Along with the Drug Information Association, ISAPP co-sponsored a meeting convened October 16-17, 2006 in Adelphi , MD titled "**Developing Probiotics as Foods and Drugs - Scientific and Regulatory Challenges**". The Conference Proceedings will be published as a Supplement in Clinical Infectious Diseases. The aim of this conference was to provide an



overview of the historical and current human use of probiotics, what is known regarding the properties of the organisms, mechanisms of action, and the translation of basic science advances into clinical studies and potentially new probiotic applications. The current level of scientific evidence supporting the use of probiotics in the management of disease conditions or in maintaining well-being was discussed. The conference addressed the US regulatory status of probiotics, both as "foods" — including dietary supplements, and as "drugs." The discussion included a review of the global marketplace for probiotics, as well as the current US regulatory milieu and its impact on scientific research and evaluation of safety and biologic activity. Research and policy recommendations which would advance the field of probiotics were made by experts present at the meeting.

October, 2006 Board of Directors

President

Gregor Reid, B.Sc. Hons Ph.D. MBA
Lawson Health Research Institute
Room F2-116, 268 Grosvenor Street
London, Ontario, N6A 4V2, Canada
Tel: 519-646-6100 x65256; Fax: 519-646-6031.
Laboratory, Lawson Health Research Institute,
Room 369
Tel: 519-646-6100 x65120
gregor@uwo.ca

Vice President

Glenn Gibson, Ph. D.
Food Microbial Sciences Unit
School of Food Biosciences
The University of Reading
Whiteknights
PO Box 226
Reading
RG6 6AP UK
Tel: +44 (0)118 935 7220
Fax: +44 (0)118 935 7222
g.r.gibson@reading.ac.uk
www.fst.rdg.ac.uk/research/fmsu/Index.html

Secretary

Jim Versalovic M.D.
Departments of Pathology
Baylor College of Medicine,
Texas Children's Hospital
6621 Fannin St, MC 1-2261
Houston TX 77030, USA
Tel: 832-824-2213
Fax: 832-825-0164
jxversal@texaschildrenshospital.org

Treasurer

Karen Scott PhD
Microbial Ecology
Gut Health Division
Rowett Research Institute
Greenburn Road
Bucksburn
Aberdeen
AB21 9SB
Tel: 01224 712751 ext 2224
K.Scott@rri.sari.ac.uk

Bruno Pot, Ph.D.
Bacteriology of Ecosystems
Institut Pasteur de Lille (IBL)
1, rue du Prof Calmette

BP245
59019 Lille Cedex
France
Tel. Direct: +33 (0)3 20871189
Tel. Secretary: +33 (0)3 20871187
Fax: 33(0)320871192
bruno.pot@ibl.fr; bruno.pot@pandora.be

Harsharnjit S. Gill, BVSc., MSc., Ph.D.
Primary Industries Research Victoria
Australia
Phone:
Mobile:
Fax:
harsharn.gill@dpi.vic.gov.au

Todd Klaenhammer, Ph.D.
Department of Food Science
North Carolina State University
P.O. Box 7624
Raleigh, NC 27695-7624 USA
919-515-2972
919-515-7124 fax
klaenhammer@ncsu.edu

Bob Rastall, Ph.D.
School of Food Biosciences,
The University of Reading,
Whiteknights,
P.O. Box 226,
Reading RG6 6AP,
U.K.
Email: r.a.rastall@reading.ac.uk
<http://www.food.rdg.ac.uk/people/afsrast/>
Tel: (0118) 931 6726
Fax: (0118) 931 0080

Ian Rowland, Ph.D. (elected September 2002)
Northern Ireland Centre for Food and Health
University of Ulster
Coleraine, BT52 1SA
Northern Ireland
Tel: 44(0)2870 32 3039
Fax: +44(0)2870 32 3023
Mobile: 07967 725254
i.rowland@ulst.ac.uk

Executive Director

Mary Ellen Sanders, Ph.D.
Dairy and Food Culture Technologies
7119 S. Glencoe Ct.
Centennial, CO 80122-2526 USA



• **ISAPP publications to date**

- Reid, G., Probiotics and prebiotics – key issues of strain selection, functionality, life stage applications. (Summary of Coleraine Conference) Submitted
- Reid, G. 2007. How science will help shape future clinical applications of probiotics. Clin. Infect. Dis. in press.
- Sanders ME, Hamilton-Miller, J, Reid G, Gibson G. 2007. A non-viable preparation of *L. acidophilus* is not a probiotic. Clin Infect. Dis. 44:886.
- Reid G, Gibson GR, Gill HS, Klaenhammer TR, Rastall RA, Rowland I Sanders ME. 2007. Use of genetically modified microbes for human health. Microbial Ecol. Health Dis. In press.
- Reid, G. 2006. Flawed conclusion of more concern than the lactobacilli they discuss. BMJ online Letter. <http://www.bmj.com/cgi/eletters/333/7576/1006>
- Anukam KC, Osazuwa EO, Reid G. 2006. Knowledge of probiotics by Nigerian clinicians. Int. J. Probiotics Prebiotics, 1: 57-62.
- Guarner F, Bourdet-Sicard R, Brandtzaeg P, Gill HS, McGuirk P, van Eden W, Versalovic J, Weinstock JV, Rook GA. 2006. Mechanisms of disease: the hygiene hypothesis revisited. Nat Clin Pract Gastroenterol Hepatol. 3(5):275-84
- Reid G, Anand S, Bingham MO, Mbugua G, Wadstrom T, Fuller R, Anukam K Katsivo M. 2005. Probiotics for the developing world. J Clin Gastroenterol. 39(6):485-8.
- Anukam KC, Reid G. 2005. Providing probiotics to sub-Saharan Africa: ethical principles to consider. J. Complem. Integrat. Med. 2(1) www.bepress.com/jcim/vol2/iss1/10/.
- Rastall R, Gibson G, Gill H, Guarner F, Klaenhammer T, Pot B, Reid G, Rowland I, Sanders ME. 2005. Modulation of the microbial ecology of the human colon by probiotics, prebiotics and synbiotics to enhance human health: an overview of enabling science and potential applications. FEMS Microbial Ecology 52(2): 145-152.
- Sanders ME, Tompkins T, Heimbach J, Kolida S. 2005. Weight of evidence needed to substantiate a health effect for probiotics and prebiotics: scientific and regulatory considerations in Canada, EU, and U.S. Eur J Nutr. 44(5):303-10.
- Sanders ME, Guarner F, Mills D, Pot B, Rafter J, Rastall R, Reid G, Ringel Y, Rowland I, Saarela M, Tuohy K. 2005. Selected topics in probiotics and prebiotics: meeting report for the 2004 International Scientific Association for Probiotics and Prebiotics. Cur Iss Intestinal Microbiol. 6: 55-68.
- Sanders ME. 2005. Objectives and activities of the International Scientific Association for Probiotics and Prebiotics. In, Cesare Schiavi (Ed.) Probiotics, Biotherapeutics & Health. Mofin Alce, Novara, Italy., p. 206-216.
- Tompkins TA, Sanders ME. 2004. Good intentions, poor study design. Can Fam Physician. 50:1499-500.
- Mack D. 2004. D(-)-lactic acid producing probiotics, d(-)-lactic acidosis and infants. Canadian J Gastroenterol. 18:671-5.
- Reid G, Guarner F, Gibson G, Tompkins T, Gill H, Rowland I, Rastall B, Pot B, Sanders ME. 2004. Discussion on toll-like receptor 9 signaling mediates the anti-inflammatory effects of probiotics in murine experimental colitis. Gastroenterology. 127:366-7.
- Reid G., Sanders ME, Gaskins HR, Gibson GR, Mercenier A, Rastall R, Roberfroid M, Rowland I, Cherbut C, Klaenhammer T R. 2003. New scientific paradigms for probiotics and prebiotics. J Clin Gastroenterol. 37:105-118.
- Ferber D. 2002. Much ferment on the probiotics front. ASM News. 68:369-370.



Appendix A. 4th Meeting of ISAPP Held at University of Ulster in Coleraine, Northern Ireland June 16-18, 2006

The International Scientific Association for Probiotics and Prebiotics (ISAPP) convened a 4th by-invitation meeting June 16-18, 2006. Hosted by Dr. Ian Rowland on the campus of the modern University of Ulster, Coleraine, Northern Ireland, 84 scientists from 19 countries and four continents. The meeting included four presentations in the Plenary Session by Jeff Leach (Paleobiotics Lab, Silver City NM), Alexander Swidsinski (The University Hospital Charité of the Humboldt University of Berlin, Germany), Phil Sherman (Hospital for Sick Children, University of Toronto, Canada), and Lesley Houghton (University of Manchester, UK). This Plenary Session was followed by an informal session highlighting controversies in the probiotic and prebiotic fields, and a Late Breaking News session featuring 5 minute talks by selected scientists on new developments in their laboratories. The signature event for these meetings is discussion sessions which were held the following day on the topics of: Probiotics as anti-infectives: prevention and adjunct therapy, chaired by Gregor Reid; Influence of culture preparation, delivery matrix and encapsulation/co-encapsulation on probiotic and prebiotic functionality, co-chaired by Paul Ross and Claude Champagne; Probiotics and prebiotics for the control of colorectal cancer: facts and promises, co-chaired by Ian Rowland and Francisco Guarner ; Mechanisms of gut flora, probiotic and prebiotic influence on sites distant from the intestinal tract, co-chaired by Mary Ellen Sanders and Irene Lenoir; Animal uses for probiotics and prebiotics: impact on antibiotic use, chaired by Bob Rastall; Functional genomics of probiotics, chaired by Jim Versalovic; and What determines the bacteria we inherit?, co-chaired by Glenn Gibson and Karen Scott. A report from the 2006 meeting titled "Probiotics and prebiotics - strain selection, dosage, functionality, omics and applications" has been prepared by Gregor Reid and submitted for publication in Trends in Microbiology. Other publications summarizing conclusions from certain individual groups are also forthcoming.

Appendix B. Report from ISAPP-sponsored meeting in Tucuman, Argentina

Second International Symposium on Lactic Acid Bacteria

ISAPP supported Dr. Jim Versalovic to travel to and speak at this important conference in South America . This conference was held in San Miguel de Tucuman , Argentina on October 11-13, 2006 and was composed of plenary and keynote lectures in addition to poster sessions. This international meeting also included the first Argentinean LAB Net meeting. The conference included participants from Argentina and several neighboring countries including Brazil , Chile , Uruguay ,and Peru . Speakers traveled from the USA and Europe to provide cutting edge perspectives on lactic acid bacteria, probiotics, and prebiotics. The conference immediately followed the celebration of the thirtieth anniversary of CERELA, the only institute of its kind in South America dedicated to research of lactobacilli and probiotics.

The conference highlighted key areas of emerging importance for lactic acid bacteria (LAB) and pertinent applications such as prebiotics and probiotics. Oscar Kuipers of the Netherlands and Ana Rute Neves of Portugal presented functional genomics and metabolic studies of the model organism, *Lactococcus lactis*. Roel van der Meulen and Douwina Bosscher updated the audience regarding prebiotics and specific applications of oligofructose and inulin, while Jim Versalovic and Jean Michel Antoine and provided an update regarding probiotics research with



emphases on *Lactobacillus* and *Bifidobacterium*. Monique Zagorec provided a synopsis of the *Lactobacillus sakei* genome, and Pasquale Ferranti described functional foods including new classes of peptides derived from dairy products. Interesting findings were presented regarding lactic acid bacteria such as vitamin B12 production by *Lactobacillus reuteri*, citrate metabolism in LAB, exopolysaccharide production by LAB, and microbial:host interactions. At the conclusion of the conference, government officials spoke with optimism regarding national support of life sciences research, the universities, and institutes like CERELA. The scientific interchange evident at this conference points to a bright future for research in areas of LAB, probiotics, and prebiotics in Latin America .

Report written by Jim Versalovic.