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## *4th International Symposium*

# Milk Genomics & Human Health

November 7-9, 2007 – Napa, California

### *COPIA: The American Center for Wine, Food & the Arts*

The 4<sup>th</sup> Symposium of the International Milk Genomics Consortium will assemble scientists from around the world to present and discuss breakthroughs in ongoing milk genomics research, consolidate future collaborative projects and continue to build the tools and applications of genomics to the goals of nutrition and health.

**Day 1** will focus on presentations of recent research breakthroughs by leading International investigators. Topics have been selected to illustrate the underlying principles behind the health values of milk to serve as models for future discovery and application.

**Topics on day 1 include:**

- Evolutionary Genetics
- Bioinformatics, tools and applications
- The Bovine Genome – status and annotation progress
- Genetic diversity in milk and lactation

**Day 2** will focus on the activities of milk and genomics centers from around the world with the goal to increase coordination among researchers, their scientific objectives and accelerating their translation to industrial practice to improve the human condition.

**Topics on day 2 include:**

- Proteomics of milk as a food
- The targets of milk bioactives
- The milk fat globule proteome
- The other consumers of milk: bacteria

**Day 3** will be devoted to an intensive interactive session on the databases, knowledge management tools and Web-based courses tied to the International Milk Genomics Consortium.

**Topics on day 3 include:**

- Applications of the IMGc tools to lactation biology
- IMGc Web tutorial

*4<sup>th</sup> International Symposium*

**Milk Genomics & Human Health**

*Tentative Schedule*

**Wednesday, November 7, 2007**

COPIA: The American Center for Wine, Food & the Arts  
500 First Street – Napa

**8:00 a.m.** Registration

**8:30 – 8:40 a.m.** **Welcome**  
Joseph O'Donnell, California Dairy Research Foundation

**8:40 – 9:00 a.m.** **Opening Remarks – Introduction to Symposium**  
Bruce German, University of California – Davis, USA

The field of genomics has made many important breakthroughs and established the entire genomic sequences of hundreds of organisms. Bioinformaticians are now fully engaged in the science of building these databases into knowledge of biological processes. The tools, strategies and successes of this new field will form a vital new dimension to milk research. Highlights from this rapidly growing field will be presented by the world's experts.

*The Ancestral Mammalian Genome*

**9:00 – 9:45 a.m.** **Nobody is Laughing at Weird Animal Genomics Anymore**  
Jenny Graves, ARC Director for Kangaroo Genomics, Australia  
National University

The goal of understanding mammalian evolution in molecular detail by defining the ancestral genome is being established by breakthrough research carried out by a multi-disciplinary and multi-institution research collaboration. Their success is a model for similar research across the life sciences.

*Bioinformatics: Coming of Age*

The field of bioinformatics, designed to extract knowledge from massive electronic databases is becoming the hottest field in biology.

**9:45 – 10:30 a.m.** **An Integrative Genomics Program to Explore Lactating Systems to Improve Herd Genetics & Develop Dairy Products**  
Peter Williamson, University of Sydney, Australia

**10:30 – 10:45 a.m.** Break

*The Databases: Gold Mines of the Future*

The bovine genome is now a reality and it is now the job of the world's scientists to define its genes and their functions.

**10:45 – 11:45 p.m.**                    **The Bovine Genome Status and Annotation Progress & the Role of Chromatin Conformation in Regulation of Milk Protein Gene Expression**  
Monique Rijnkels, Baylor College of Medicine, USA

**11:45 a.m. – 1:00 p.m.**            Lunch and Poster Setup

*The Databases: Gold Mines of the Future (continued...)*

**1:00 – 1:45 p.m.**                    **Bovine QTL Viewer: A Tool for Mapping Phenotype to Genotype**  
David Adelson, University of Adelaide, Australia

*Gene Diversity and Expression*

The timing and quantities of milk components are defined in part by sequence variation and in part by the active processes of regulating gene expression. New breakthroughs are discovering just how milk component expression is controlled.

**1:45 – 2:30 p.m.**                    **The Genomics of Milk Lipid Synthesis**  
Margaret (Peggy) Neville, University of Colorado Health Sciences Center, USA

**2:30 – 3:15 p.m.**                    **Dutch Milk Genomics Initiative Reveals Large Genetic Variation in Milk-fat Composition**  
Anke Schennink, Wageningen University, The Netherlands

**3:15 – 3:30 p.m.**                    Break and Poster Review

*Research Highlights*

**3:30 – 4:30 p.m.**                    **Highlights from Researchers Around the World (Part I)**

**4:30 – 5:00 p.m.**                    Discussion

The final session of the day will catalyze the discussion for the balance of the symposium. The results of the research and their applications to the problems and opportunities posed in day one will be discussed in open forum.

**6:00 – 7:00 p.m.**                    Reception – River Terrace Inn

## Thursday, November 8, 2007

COPIA: The American Center for Wine, Food & the Arts  
500 First Street – Napa

**8:00 a.m.** Registration

### *Proteomics of Milk as Food*

**8:30 – 9:15 a.m.** **Proteomics of Milk as a Food: Structure-Function Relationships**  
Bo Lönnerdal, UC Davis, USA

### *The Targets of Milk Bioactives*

The components of milk act on specific targets related to human health and we are only now beginning to understand the molecular detail.

**9:15 – 10:00 a.m.** **Intestinal Barrier Function and Immune Gene Expression**  
Sharon Donovan, University of Illinois, USA

**10:00 – 10:45 a.m.** **Intestinal Transporters and Gut Function**  
Helen Raybould, UC Davis, USA

**10:45 – 11:00 a.m.** Break and Poster Review

### *Mammary Epithelia and Milk Production*

**11:00 – 11:45 a.m.** **An accumulation of caseins in the Endoplasmic Reticulum due to  $\alpha_{s1}$ -casein deficiency induces a chronic ER stress**  
Patrice Martin, Institut National de la Recherche Agronomique, France

**11:45 a.m. – 1:30 p.m.** Lunch and Poster Review

### *The Milk Fat Globule Proteome*

Disassembling milk into its components remains a key challenge. Recent breakthroughs in analytical chemistry are providing the tools to understand milk's complex biopolymers in their full molecular complexity.

**1:30 – 2:15 p.m.** **The Milk Fat Globule Proteome**  
Tim Reinhardt, USDA-ARS, National Animal Disease Center, USA

***Bacteria, the New Constituents of Milk as a Delivery System***

The ability of milk to alter health is dictated in part by its direct genetic products and in part by its ability to guide other components to the infant. Few examples of this property are more vivid than the recent research documenting that milk serves as a microbial inoculum.

**2:15 – 3:00 p.m.**

**Bacterial Imprinting of the Immune System**

Anne Donnet-Hughes, Nestlé Research, Switzerland

**3:00 – 3:30 p.m.**

Break and Poster Review

***The Consequences of Milk on Bacterial Metabolism***

Milk oligosaccharides not only provide a competitive advantage to specific bacteria, these bacteria also alter their metabolism in response.

**3:30 – 4:15 p.m.**

**Isotopomer Flux Analysis of Bifidobacterium ssp  
Carbohydrate Metabolism**

Neil J. Price, USDA-ARS-NCAUR, USA

**4:15 – 5:00 p.m.**

Discussion

**7:00 – 10:00 p.m.**

Offsite Dinner (Ticket Required)

## **Friday, November 9, 2007**

COPIA: The American Center for Wine, Food & the Arts  
500 First Street – Napa

**8:00 a.m.** Registration

### ***Research Highlights***

The morning will begin with brief presentations and interactive discussions from various participants in milk genomics research. Students and post-doctorals are encouraged to participate.

**8:30 – 10:00 a.m.** **Highlights from Researchers Around the World (Part II)**

**10:00 – 10:15 a.m.** Break and Final Poster Review

### ***The International Milk Genomics Consortium***

**10:15 – 11:00 a.m.** **IMGC Web Portal: Content & Applications**  
Danielle Lemay, University of California – Davis, USA

A guided tour of information on the IMGC Web Portal will be followed by an example of how bioinformatics tools were used to mine complex genomic data to derive new principles in lactation. Remarkable insights are emerging that challenge our previous assumptions about the regulation of lactation and genetic controls.

**11:00 a.m. – 11:30 a.m.** **IMGC Web Portal: Tutorial**  
Matthew Lange, University of California – Davis, USA

Learn how to view, share and discuss information on the IMGC Web Portal with no programming knowledge in this highly integrative session.

**11:30 a.m. – 12:00 p.m.** **Summary and Future Direction (Final Session)**  
Bruce German, University of California – Davis, USA

**12:00 – 1:30 p.m.** Lunch and Poster Teardown

### ***International Milk Genomics Consortium***

**1:30 – 3:30 p.m.** **International Milk Genomics Consortium**  
Steering Committee Meeting  
(Members Only)

## **Hotel & Travel**

### ***Hotel Reservations***

Symposium participants are responsible for making their own hotel reservations. Special group rates of \$149-179\* have been blocked at the River Terrace Inn in Napa.

River Terrace Inn  
1600 Soscol Avenue  
Napa, CA 94559  
Phone: 866.NAPA.FUN or 707.320.9000  
[www.riverterraceinn.com](http://www.riverterraceinn.com)

Group code: **MILK07**

For your convenience, you may make lodging reservations online at: **[www.riverterraceinn.com](http://www.riverterraceinn.com)** or by contacting Victor Jigalin at **[vjigalin@riverterraceinn.com](mailto:vjigalin@riverterraceinn.com)**.

*\* Plus applicable taxes/other charges. Reservation deadline is October 10, 2007.*

### ***About the River Terrace Inn***

Located along the Napa River, the River Terrace Inn is just minutes from COPIA and the downtown Napa area. The Inn's luxurious guest rooms include high-speed Internet access, laptop storage safes, DVD and CD players, pillow top mattresses, down pillows and more. Parking is free and each room includes a complimentary continental breakfast. The hotel is one of the stops along the local Historic Downtown Trolley route – a free shuttle transporting visitors to dining and retail establishments in the downtown area as well as the Napa Premium Outlet center.

### ***About Napa***

The city of Napa is approximately 50 miles north of San Francisco and 60 miles west of Sacramento. COPIA: The American Center for Wine, Food & The Arts is located at 500 First Street in Napa. For directions, contact (888) 51-COPIA/(707) 259-1600 or visit [www.copia.org](http://www.copia.org).

Nestled in the heart of California's winery-rich Napa Valley, Napa offers unlimited opportunities for wine tasting, fine dining and art as well as outdoor activities like hot air balloon rides, bicycle riding, rafting and more. For visitor information, go to [www.napavalley.com](http://www.napavalley.com). To print a map of Napa Valley wineries, visit [www.napavalley.com/visitorsinfo/Napa\\_Valley\\_Winery\\_Map.pdf](http://www.napavalley.com/visitorsinfo/Napa_Valley_Winery_Map.pdf).

### ***About COPIA***

Named for the goddess of abundance, COPIA: The American Center for Wine, Food & the Arts is an interactive museum and cultural center dedicated to exploring the distinctively American contribution to the character of wine and food in close association with the arts and humanities.

### ***Need information?***

Contact Jennifer Giamboni, Symposium Coordinator, at **(415) 254-4549** or **[info@imgconsortium.org](mailto:info@imgconsortium.org)**.

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www.cdrf.org

### 4th International Symposium



November 7-9, 2007 – Napa, California  
www.milkgenomics.org

#### Registration includes:

- Symposium presentations
- Handouts and materials
- Lunches and refreshments
- Welcome reception

#### Questions?

Call (415) 254-4549 or email

infoimgconsortium.org

#### ATTENDEE REGISTRATION (On-site registration is not available):

Please print clearly, type or attach your business card. This form may be photocopied for additional registrants.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

COMPANY/AFFILIATION \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY, STATE, ZIP \_\_\_\_\_

COUNTRY \_\_\_\_\_ PHONE # \_\_\_\_\_ FAX # \_\_\_\_\_

E-MAIL \_\_\_\_\_

		Advanced: Before September 7, 2007	Regular: After September 7, 2007
<input type="checkbox"/>	Regular Registration	\$450	\$500
<input type="checkbox"/>	IMGC Member Registration	\$400	\$450
<input type="checkbox"/>	Student Registration	\$300	\$325
<input type="checkbox"/>	Dinner Ticket	\$95	\$105

#### Payment (please check method)

Register online at [www.acteva.com/go/CDRF](http://www.acteva.com/go/CDRF)

Check Enclosed\*

Credit Card

Bank Transfer

\* Make checks payable to the *California Dairy Research Foundation* and send to:  
International Symposium – Milk Genomics & Human Health, Symposium Coordinator, CDRF, 502 Mace Blvd., Suite 12, Davis, CA 95618

#### Credit Card

Complete the information below:

Visa  Mastercard  American Express  
 Discover Total Amount: \$ \_\_\_\_\_

Card no: \_\_\_\_\_  
Expiration date: \_\_\_\_\_ Security code: \_\_\_\_\_  
(last three digits located on back of your credit card)

Name (as it appears on card)  
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*Credit card payments will appear as a charge to Acteva and will incur a processing fee.*

#### Bank Transfer (US Funds Only)

Complete the information below and fax form to (530) 753-1453 to complete registration process.

Registration Quantity \_\_\_\_\_  Rate \_\_\_\_\_  
 Transfer fee of \$30 per transaction  
Total Amount: \$ \_\_\_\_\_

**Beneficiary:** California Dairy Research Foundation  
Wells Fargo Bank, 2121 Cowell Boulevard, Davis CA 95618

**Account:** 555 966 3561  
**Routing Number:** 1210 42882  
**Swift Code:** WFB IUS6S

*Please reference IMGC Registration for proper credit.*