### Applications of Milk Extracellular Vesicles

**Moderated by Distinguished Professor Bruce German, University of California Davis, Davis, USA**

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>8:45-9:00 a.m.</td>
<td>Knowledge to Practice: Lactation as the Guide for Biotechnology in the 21st Century&lt;br&gt;Bruce German, University of California Davis, CA, USA</td>
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<td>9:05-9:40 a.m.</td>
<td>Keynote Address: Emerging Prospects of Bovine Milk-Derived Extracellular Vesicles for Arthritis Therapy&lt;br&gt;Fons van de Loo, Radboud Institute for Medical Sciences, Nijmegen, Netherlands</td>
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<td>9:45-10:10 a.m.</td>
<td>Industrial Large-Scale Isolation of Milk Extracellular Vesicles for Utilization in Infant Nutrition&lt;br&gt;Marie Stampa Ostenfeld, Arla Foods Ingredients, Aarhus, Denmark</td>
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<td>10:15-10:40 a.m.</td>
<td>Genetically Altered Milk Exosomes Facilitate Nutrition Research and Drug Delivery&lt;br&gt;Janos Zempleni, University of Nebraska, NE, USA</td>
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<td>10:40-11:10 a.m.</td>
<td>Refreshment Break</td>
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<td>11:10-11:35 a.m.</td>
<td>Many Human Milk Extracellular Vesicle Proteins are Lost in Human Digestion, Do the Survivors Convey Beneficial Effects?&lt;br&gt;Sarah Andres, Oregon Health &amp; Science University, OR, USA</td>
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<td>11:40 a.m.-12:05 p.m.</td>
<td>Bovine Milk-Derived Exosomes as a Novel Injury-Targeting Drug Delivery System&lt;br&gt;Spencer Marsh, The Tiny Cargo Company, VI, USA</td>
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<td>12:10 a.m.-12:35 p.m.</td>
<td>Identification of Human Milk-Derived microRNAs Associated with Low Milk Supply, Reduced Infant Growth and Early Breastfeeding Cessation&lt;br&gt;Shannon Kelleher, University of Massachusetts Lowell, MA, USA</td>
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<td>12:35-1:35 p.m.</td>
<td>Lunch</td>
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### Hottest Topics in Milk Science

**Moderated by Dr. Leila Strickland, BIOMILQ, NC, USA**

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<tr>
<td>1:35-2:10 p.m.</td>
<td>Keynote Address: Hot Topics in Human Milk Research – Milk as a Biological System and COVID-19 Update&lt;br&gt;Shelley McGuire, Idaho State University, ID, USA</td>
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<td>2:15-2:40 p.m.</td>
<td>Cellular and Transcriptional Diversity Over the Course of Human Lactation&lt;br&gt;Brittany Goods, Dartmouth College, NH, USA</td>
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2:45-3:00 p.m. **Student Award Presentation:** Stimulated Preterm Infant Digestion of Human Milk Processed by High Pressure Processing and Holder Pasteurization Using the TIM-1 Dynamic Model  
*Michael Pitino, University of Toronto, Canada*

3:05-3:20 p.m. **Invited Presentation:** SPLASH!® Milk Science Update: 10th Anniversary: Highlights and Upcoming Topics  
*Danielle Lemay, USDA, ARS, WHNRC, Davis, CA, USA*

3:20-3:50 p.m. **Refreshment Break**

3:50-4:15 p.m. **High Temperature Processing and Subsequent Storage of Infant Formulas Induces Protein Modifications, Gut Dysfunction, and Inflammation in Preterm Pigs**  
*Stine Brandt Bering, University of Copenhagen, Copenhagen, Denmark*

4:20-4:35 p.m. **Student Award Presentation:** Infant Feeding Practices and Parental Perceptions During the 2022 United States Infant Formula Shortage Crisis  
*Karina Cernioglo, University of California Davis, CA, USA*

4:40-4:55 p.m. **Student Award Presentation:** Microbiome Based Mastitis Therapeutics  
*Kevin Linehan, University College Cork, Cork, Ireland*

5:00-5:25 p.m. **FinnBrain Birth Cohort Study – Human Breast Milk Metabolites Over 24 Months Lactation Associate with Infant Socio-Emotional Development**  
*Ulrik Sundekilde, Aarhus University, Aarhus, Denmark*

6:00-8:00 p.m. **Poster Reception**

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**Day 2 – Wednesday, October 19, 2022**

### Functional Discoveries of the Microbiome

*Moderated by Professor Henrik Jørgen Andersen, Arla Foods amba, Aarhus, Denmark*

8:30-9:05 a.m. **Keynote Address:** Developing a Metabolic Taxonomy of Pregnancy and the Newborn-Scientific Rationale and Use Case  
*Karl Sylvester, Stanford University, CA, USA*

9:10-9:35 a.m. **Invited Presentation:** Human Milk Non-Protein Nitrogen is Utilized by Commensal Bifidobacteria and is Interconnected with Carbohydrate Metabolism within the Infant Gut Microbiome  
*David Sela, University of Massachusetts, MA, USA*

9:40-9:55 a.m. **Student Award Presentation:** Human Milk Oligosaccharide DSLNT and Gut Microbiome, but not Breast Milk Microbiome, in Preterm Infants Predicts Necrotizing Enterocolitis  
*Andrea Chiara Masi, Newcastle University, Newcastle, UK*

9:55-10:25 p.m. **Refreshment Break**
10:25-11:00 a.m. Invited Presentation: Feedomics: Omics-Based Nutrition to Improve Milk Production and Nutritional Composition
Lelu Guan, University of Alberta, Alberta, Canada

11:05-11:30 a.m. The Genetic Basis of Gene Expression in Human Milk and Effects on the Infant Gut Microbiome
Kelsey Johnson, University of Minnesota, MI, USA

11:35 a.m.-12:00 p.m. Human Milk Feeding Reduces Infant Carriage of Antimicrobial Resistance Genes, Even in Antibiotic Exposed Infants
Diana Taft, University of Florida, FL, USA

12:00-1:00 p.m. Lunch

**Immunity Tackles 21st Century Challenges**

*Moderated by Dr. Danielle G. Lemay, USDA, ARS, WHNRC, Davis, USA*

1:00-1:35 p.m. Keynote Address: From Farm to Table – Gut Microbiome and Immune Development in Farming-Lifestyle Infants
Kiri Jarvinen-Seppo, University of Rochester, NY, USA

1:40-2:05 p.m. Comparative Profiles of SARS-CoV-2 Spike-Specific Human Milk Antibodies Elicited by mRNA- and Adenovirus-Based COVID-19 Vaccines
Rebecca Powell, Icahn School of Medicine, NY, USA

2:10-2:35 p.m. Anti-SARS-Co-V-2 Milk Antibodies Over the Course of Lactation, After Infection and Vaccination
Yarden Golan, University of California San Francisco, CA, USA

2:35-3:05 p.m. Refreshment Break

3:05-3:40 p.m. Keynote Address: Colostrum as Nutrition and Therapy in Pediatrics
Per Sangild, University of Copenhagen, Copenhagen, Denmark

3:45-4:10 p.m. Invited Presentation: *B. Infantis* EVC001 Colonization in Breastfed Infants Modulates Enteric Inflammation Leading to Improved Health Outcomes
Bethany Henrick, Infinant Health, CA, USA

4:15-4:40 p.m. Influence of Human Milk Oligosaccharides on the Vaginal Microbiota and Colonization by Neonatal Pathogen Group B Streptococcus
Katy Patras, Baylor College of Medicine, TX, USA

5:45-10:00 p.m. Dinner Reception
Day 3 – Thursday, October 20, 2022

Discovery of Novel Applications of Milk Bioactives

Moderated by Distinguished Professor Bruce German, University of California Davis, CA, USA

9:00-9:35 a.m.  Outstanding Legacy Career Award & Keynote Address: Bioactive Milk Proteins and their Impact on Infant Health and Development
Bo Lonnerdal, University of California Davis, CA, USA

9:40-10:05 a.m.  Invited Presentation: Human Immune System Imprinting by Environmental Factors in Early Life
Petter Brodin, Imperial College London, London, UK

10:10-10:35 a.m.  Invited Presentation: Understanding the Function of Milk Components on Infant Health
Carolyn Slupsky, University of California Davis, CA, USA

10:40-10:55 a.m.  Student Award Presentation: From Colostrum to Milk: Key Changes in Bovine IgG N-Glycosylation
Inge Gazi, Utrecht University, Utrecht, Netherlands

10:55-11:25 a.m.  Refreshment Break

11:25-11:40 a.m.  2021 Most Valuable Presentation Award (Dr. Tian Tian): Structural Insights on Oligosaccharides in Commercial Infant Formula Products with Ion Chromatography-Mass Spectrometry
Neil Rumachik, Thermo Fisher Scientific, CA, USA

11:45 a.m.-12:00 p.m.  Student Award Presentation: Bovine Caseinomacropeptide: Mass Spectrometric Characterization, Digestive Survival in Adults and the In Vivo Bioactivity in Adults with IBS
Yunyao Qu, Oregon State University, OR, USA

12:05-12:30 p.m.  Determination of the Effect of High-Pressure Processing Conditions on Bile Salt-Stimulated Lipase Activity in Human Milk
Ningjian Liang, Oregon State University, OR, USA

12:35-1:00 p.m.  Effects of 12-Month Supplementation of Term Infants with Bovine Milk Fat Globule Membrane on Neurodevelopmental Outcome Measured at 12 Months of Age
Bing Wang, Charles Sturt University, Canberra, Australia

1:05-1:15 p.m.  Closing Remarks: The Future of IMGC
Jennifer Smilowitz, University of California Davis, CA, USA

1:15-2:15 p.m.  Lunch

2:15 p.m.  End of Conference