Welcome and Opening Remarks

Lars Bode¹ and William D. Rhine²

THE ADVANTAGES OF HUMAN MILK over formula feeding are well established, particularly for premature infants who are at greater risk of morbidity and mortality. Human milk provides nutritional benefits and protects against illness and infection, such as sepsis and necrotizing enterocolitis. Increasing evidence suggests that human milk may also impact long-term health and developmental outcomes. Current research aims to characterize the important bioactive components of milk and their role in infection, inflammation, immune development, microbial colonization, and potential influence on developmental and metabolic health outcomes. Researchers are also evaluating factors that may impact the composition of human milk, such as pasteurization and fortification techniques, as well as the importance of maternal determinants, such as diet and ethnicity.

The Sixth Annual International Conference on Human Milk Science and Innovation (ICHMSI), sponsored by Pro-lacta Bioscience, Inc., brought together scientists and clinicians from a broad range of backgrounds to discuss current research in the field of human milk science and lactation. This year's program included presentations ranging from the basic science of human milk to its clinical application. However, as reflected in the speakers' backgrounds and the topics presented, it is becoming harder to separate basic and clinical research as the field of human milk advances and they become more intertwined, highlighting that both basic and clinical research combined will be required to uncover the full potential of human milk.

The Sixth ICHMSI began with a keynote speech on the differences between donor milk and mother's own milk, as well as techniques that may help to promote the use of mother's own milk and improve the quality of donor milk. The biology and science portion of the conference focused on the potential for human milk to reduce long-term risk of cardiovascular and metabolic diseases and to improve human capital. This portion of the conference also included a discussion on the role of the maternal microbiome in establishing

the infant microbiome and its effect on the development of metabolic diseases, as well as a review on breast milk lipids and how this research can be used to improve health during infancy and throughout the life span.

During the clinical portion of the conference, Dr. Steven Townsend was awarded the Ruth A. Lawrence Investigator Award for Research in Human Milk Science for his research on human milk oligosaccharides (HMOs), specifically how they recognize and modulate pathogens, such as Group B streptococcus, and how they can be developed as novel antimicrobial agents. The clinical portion of the conference also included presentations on potential strategies to improve fortification of human milk, the benefits and barriers to prioritizing mother's own milk feedings in the neonatal intensive care unit, and methods used to support optimal growth in infants with chronic diseases. The role of the infant gut microbiome and human milk bioactives, including HMOs and lactoferrin, in preventing infection and the development of chronic diseases was also discussed.

Highlights from the Sixth ICHMSI are summarized in these proceedings. This unique and important conference highlights the complexity of human milk and the positive short- and long-term effects associated with an exclusive human milk diet for infants. As researchers and clinicians in this field, it is our responsibility to expand on this knowledge and increase awareness of the clinical benefits of human milk and breastfeeding to help improve the health and well-being of mothers, infants, and children.

Address correspondence to:

Lars Bode, PhD

*Larsson-Rosenquist Foundation Mother-Milk-Infant
Center of Research Excellence (LRF MOMI CORE)*

*University of California–San Diego
La Jolla, CA 92093*

E-mail: lbode@ucsd.edu

¹Larsson-Rosenquist Foundation Mother-Milk-Infant Center of Research Excellence (LRF MOMI CORE), University of California–San Diego, La Jolla, California.

²Stanford University School of Medicine, Palo Alto, California.

© Lars Bode and William D. Rhine, 2019; Published by Mary Ann Liebert, Inc. This Open Access article is distributed under the terms of the Creative Commons License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.