

Sponsors

We thank the following sponsors:

Platinum

Bayer Animal Health
National Pork Board
Pfizer Animal Health

Silver

Boehringer Ingelheim Vetmedica, Inc.

Bronze

Cargill
Merck Animal Health
Novartis Animal Health

Copper

AgStar Financial Services
Elanco Animal Health
IDEXX
Newport Laboratories
PIC USA
PRRS CAP

University of Minnesota Institutional Partners

College of Veterinary Medicine
University of Minnesota Extension
College of Food, Agriculture and Natural Resources Sciences

Formatting

Tina Smith Graphics
www.tinasmithgraphics.com

CD-ROM

David Brown
www.davidhbrown.us

Logo Design

Ruth Cronje, and Jan Swanson;
based on the original design by Dr. Robert Dunlop

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, or sexual orientation.

Maternal Immune Cell Transfer across the Piglet Neonatal Intestine and the influence of the Endogenous Opioid on this Transfer

Elmubark G, Bandrick M, Brown D, Vulchanova-Hart L, Baidoo S, Jones, B and Molitor T W.
Department of Veterinary Population Medicine, University of Minnesota, Saint Paul, MN

Abstract

Previous studies have shown that colostrums contains immune cells and immunoglobulins that play a crucial role in the initial protection of newborn piglets from pathogens, Different studies have shown that maternally derived T cells make their way into the infant's circulation and potentially protect the infant via adoptive transfer of maternal T cells. Beta-Casomorphine-7, (BCM7), a naturally occurring opioid peptide in milk, generated in the intestine during milk casein digestion (Peters, J. A. 2008) it is a peptide with mu-opioid receptor agonist .BCM-7, has been shown to exert an immunomodulatory effect by stimulating the proliferation of human PBMCs and increasing their level of IL-4 secretion and lowering of their IFN alpha- secretion (Kayser and Meisel e 2011, Fiedorowicz 2010)

In this study we used live neonatal intestine in a Ussing chamber to examine the mechanism associated with lymphocyte migration across the porcine neonatal intestine and to study the effect of BCM7 on this transfer. Only colostrum lymphocytes from dam mother were significantly detected within neonatal intestinal mucosa, in contrast cells from non dam mothers or from dam peripheral blood mononuclear cells did not penetrate the intestinal mucosa, similarly BCM7 treatment of immune cells enhances the transfer of the dam mother lymphocytes and this effect was blocked by the treatment with the mu receptor antagonist, naloxone.

Together these finding are indicate that maternal transfer cells across the intestinal epithelium is an active, source dependent process and BCM7 influences this transfer .