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A: Submit paper by November 17, 2014.
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Q: How long should my paper be?
A: • POSTER presentations – limit paper to one page of text plus one table OR figure, formatted according to these guidelines
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A: • File #1: Create TEXT in Word and place within its own file, separate from tables, figures and photos.
• File #2: Create TABLES in Word (not Excel). Send them in a separate file from the text of the manuscript.
• File #3: Create GRAPHS/FIGURES in Excel and submit as .xls files. Figures may also be submitted as .eps files. NO Power Point files. Do not paste the figures into the Word document containing the text of the manuscript. Figures for seminar papers must be black and white. The judicious use of color is permitted in figures for all other papers.
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Q: How shall I format my paper?
A: • Format your paper in a one-column, single-spacing layout. Use sentence capitalization style (capitalize the first letter of the first word only) in title and headings.
• Do not send paper in outline form.
• Do not use bold or underlined text for title, headings or in the body text. Use italics only for genus and species names, titles of books and journals. Titles and headings can be emphasized by using a larger font (see sample).
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• PLEASE REFER TO THE PAPER SAMPLE FOR DETAILED FORMATTING INSTRUCTIONS.

SUBMISSION DUE DATE IS NOVEMBER 17, 2014
Immune response and effect of maternal antibody interference on vaccination with a bivalent swine influenza vaccine

Pravina Kitikoon,1 DVM, MS; Eileen Thacker,1 DVM, PhD, Diplomate ACVIM
Dachit Nilbul,1 DVM, MS; Shiu Yu,1 DVM, MS; Barbara Ericson,1 MS
Bruce Janke,2 DVM, PhD; Thyager Hoover,3 DVM, Steve Sormon,3 DVM, MS
1Iowa State University, Ames, Iowa; 2Pfizer Animal Health, New York, New York

Introduction
Vaccination against swine influenza virus (SIV) is an important management tool. Maternally-derived antibodies (MDA) can be detected in pigs up to 16 weeks of age and may affect vaccination. The objective of this study was to investigate the immune response to a commercial bivalent SIV vaccine and the effect that the presence of MDA may have immunologically and on vaccine efficacy in pigs experimentally infected with a heterogeneous H1N1 SIV isolate.

Materials and methods
Ninety-six crossbred pigs were procured at 10-12 days of age from 2 herds serologically negative for PRRSV and Mycoplasma hyopneumoniae. Pigs in the groups with MDA were obtained from a SIV vaccinated sow herd. Pigs in the MDA groups had hemagglutination inhibition assay (HI) titers of 1:40-1:80 at the time of the first vaccination. The experimental design is summarized in Table 1. Pigs were vaccinated with a commercial vaccine (Flusure® bivalent swine influenza vaccine, Pfizer Animal Health, NY, USA) at 3 and 5 wks of age. Two weeks after the second vaccination, a virulent classic H1N1 strain, A/swine/IA/40776/92, with minimal cross-reactivity with vaccine induced antibodies was administered intratracheally at the dose of 10^5 TCID50/ml (10 ml) to the challenged groups. Clinical signs including cough, respiratory rate and rectal temperature were evaluated prior to challenge as daily for 7 days post infection (DPI). Pigs were necropsied at 5 and 21 DPI. Lesions consistent with SIV were sketched onto a standard diagram to confirm infection and immunity. Nasal swabs were collected at 1, 3, 5, and 7 DPI to confirm virus isolation. Bronchoalveolar lavage and nasal washings were assayed for SIV-isotype specific antibodies as previously described.1 Serum was collected prior to each vaccination, prior to challenge and at 4 and 20 DPI. SIV antibodies from sera and lung were measured using HI assay. Analysis of variance was used to analyze the data. A P value < 0.05 was considered significant.

Results and discussion
Rectal temperatures on days 1.7-7 DPI were significantly higher in all SIV challenged groups compared to the non-challenged groups (Figure 1). Vaccination in the absence of MDA significantly reduced the percentage of SIV-induced pneumonia at 5 DPI by macroscopic and microscopic evaluation (Table 2). Interestingly, the percentage of lung lesions was significantly higher in pigs with MDA at the time of the first vaccination (group 4). Virus was isolated from all challenged groups up to 5 DPI (Figure 2). At 3 and 5 DPI, the SIV vaccinated and challenged group without MDA (group 6) had significantly lower levels of virus compared to the rest of the challenged groups. Pigs with MDA (group 8) had significantly increased levels of virus compared to group 6. In the pigs without MDA, antibody levels to both virus antigens increased in response to vaccination and challenge (Figure 3 and 4). The non-vaccinated challenged pigs developed antibodies by 20 DPI and had higher titers to the challenge antigen than the vaccine antigen, although cross-reactivity with the vaccine virus occurred. By 20 DPI, the vaccinated MDA positive group had strong antibody responses to both viral antigens demonstrating that an amnestic response occurred. Vaccination enhanced the local immunity in the respiratory tract of the challenged pigs as measured by SIV-specific IgG and IgA from BALs. The increased disease observed in vaccinated pigs with MDAs on vaccine was unexpected and the exact mechanism for the increased severity of disease is unknown. This study shows that MDAs are not completely protective against pneumonia and confirm their impact on vaccine efficacy. These results indicate that vaccination in the presence of MDA appears to prime the immune system to respond more quickly to infection. The results of this study provide important information on the immune response to SIV vaccination in the presence of MDAs. The results of this trial demonstrate that a bivalent SIV vaccine administered in the absence of MDA significantly reduced pneumonia and nasal viral load in pigs experimentally infected with a heterogeneous H1N1 SIV isolate. However, the presence of MDA during vaccination was shown to interfere with vaccine efficacy based on the percentage of SIV-induced pneumonia at 5 DPI and the amount of virus isolated from the nasal cavity.

Acknowledgments
The authors would like to thank Nancy Upchurch for technical support and the students from the Thacker Lab for their assistance with the animal work.

REFERENCES:
File #2: Tables

TABLES:
• Create tables in Word.
• Create tables with black ink only. Please do not use color.

Table 1: Experimental design

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<th>Group</th>
<th>Maternal antibodies</th>
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<th>SIV challenge</th>
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File #3: Figures

FIGURES:
• Create figures in Excel and submit in .xls files. Figures may also be submitted as .eps files. If your software does not allow you to create eps files, you may send pdfs.

Figure 1: Rectal temperature from pigs challenged with SIV

Figure 2: Virus isolation (VI) ± standard deviation determined by cell culture and immunocytochemistry staining

File #4: Photos

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