

ANNUAL REPORT PROJECT NC-229

PERIOD COVERED: June 2008 to November 2009

INSTITUTION OR STATION:

A. NC-229 REPRESENTATIVE:

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Other PRINCIPAL LEADERS associated with the projects

Will Laegreid, UIUC; Eric Nelson, SDSU, Jane Christopher-Hennings, SDSU, Fernando Osorio, UNL

B. PROGRESS OF WORK AND PRINCIPAL ACCOMPLISHMENTS:

*Per station for ALL Accomplishment = Maximum 3,000 characters including spaces;
Full NC229 report for ALL Accomplishment = Maximum 30,000 characters):*

Objective 1. Elucidate the mechanisms of host-pathogen(s) interactions.

Indicate progress in the following areas.

1. Research related to pathogenesis/persistence
2. Research related to virus evolution
3. Research related to mechanisms of transmission
4. Research related to viral Immunity and cross-protection
5. Research related to epidemiology

Objective 2. Understand the ecology and epidemiology of PRRSV and emerging viral diseases of swine.

Indicate progress in the following areas.

1. Research related to pathogenesis/persistence
2. Research related to virus evolution
3. Research related to mechanisms of transmission
4. Research related to viral Immunity and cross-protection
5. Research related to epidemiology

Objective 3. Develop effective and efficient approaches for detection, prevention and control of PRRSV and emerging viral diseases of swine.

Indicate progress in the following areas.

1. Research related to pathogenesis/persistence
2. Research related to virus evolution

Research at University of Wisconsin has begun to characterize genetic and antigenic diversity within PRRS virus, in an effort to identify a small number of representative viral genotypes for further testing, and that can be eventually incorporated into a polyvalent vaccine. Because of the large number of PRRSV sequences available (over 10,000 in the literature), the computational aspect of this work is challenging. A post-doctoral researcher has been employed for these analyses, and we have secured additional personnel support through an international exchange program with the University of Torino, Italy. The project has just begun, and data are currently being compiled and edited.

3. Research related to mechanisms of transmission
4. Research related to viral Immunity and cross-protection
5. Research related to epidemiology

C. IMPACT AND VALUE OF RESEARCH TO STAKEHOLDERS:

Impact statements (500 characters per statement)

Antigenic/genetic variation in PRRSV is a major impediment to vaccine development. By “distilling” this diversity down to a manageable unit, we are hoping to provide guidance for the development of next-generation polyvalent vaccines that have maximum broad efficacy.

D. PRRS PUBLICATIONS ISSUED OR “IN PRESS”

1) Refereed publications

N/A

2) Abstracts or Proceedings

N/A

3) Book chapters or monographs

N/A

E. FUNDING SOURCES FOR PRRSV RESEARCH

1) Current

PRRS-CAP funds

F. WORK PLANNED FOR NEXT YEAR

Complete analysis of PRRSV diversity and generate data to inform the development of effective polyvalent vaccines.