Column E Explanation

This form is intended as an aid to completing the Column E explanation. It is not an official form and its use is voluntary. Names, addresses, protocols, veterinary care programs and the like, are not required as part of an explanation. A Column E explanation must be written so as to be understood by a lay persons as well as scientists.

1. Registration Number: 42-G-0001

2. Number _28 (7 in Cat E)_____ of animals in this study.

3. Species (common name) Hamsters of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Hamsters may be inoculated with leptospires using culture medium, liquid culture or tissue homogenate in transport medium administered intraperitoneally inoculation of live leptospires.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

The observation of clinical signs and their stage of advancement will be used to indicate euthanasia. Alleviating or relieving these signs will interfere with assessment. No alternatives to the painful procedure were identified which will allow evaluation of leptospiral virulence. Animals will be weighed once daily beginning on day of inoculation, weight loss of >10% or development of outward clinical signs (observable hemorrhage, ruffled hair coat and isolation, loss of interest in food and water) will warrant euthanasia. (Haake. Current Protocols in Microbiology, 2006 Supp. 2, 12E.2.1)

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102): None

1. Registration Number: 42-G-0001

2. Number _8 (8 in Cat E)_____ of animals in this study.

3. Species (common name) Guin ~~eigs~~ P of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Guinea pigs may be inoculated with leptospira using culture medium, liquid culture or tissue homogenate in transport medium administered intraperitoneally.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

Column E Explanation

The observation of clinical signs and their stage of advancement will be used to indicate euthanasia. Alleviating or relieving these signs will interfere with assessment. Variation in virulence among isolates prohibits the use of specific time frames to indicate progression of disease, the use of observable clinical signs including measured weight loss, evidence of hemorrhage, appearance of ruffled hair coat and isolation, observable loss of interest in food and water allow disease progression to be monitored and the decision to euthanize to be made in a timely manner. No alternatives to the painful procedure were identified which will allow evaluation of leptospiral virulence. Animals will be weighed once daily beginning on day of inoculation, weight loss of >20% or development of outward clinical signs (observable hemorrhage, ruffled hair coat and isolation, loss of interest in food and water) will warrant euthanasia.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102): None

1. Registration Number: 42-G-0001

2. Number 465 (297 in Cat E) _____ of animals in this study.

3. Species (common name) Pigs _____ of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Intranasal inoculation with Porcine Reproductive and Respiratory Syndrome Virus; or a single porcine respiratory disease complex (PRDC) pathogen or their deletion mutants.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

To evaluate the pathogenicity of a virus or bacterial isolate/mutant, or the efficacy of intervention strategies such as vaccination, we will need to evaluate host response which precludes the use of drugs that might alleviate clinical signs thus masking the true pathogenic nature of the inoculum. If severe illness occurs animals will be euthanized.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102): None

1. Registration Number: 42-G-0001

2. Number 382 (277 in Cat E) _____ of animals in this study.

3. Species (common name) Hgs _____ of animals used in the study.

Column E Explanation

4. Explain the procedure producing pain and/or distress.

Intranasal inoculation with influenza A viruses will use physical restraint of the pig and inoculum will be dripped into each nostril. Intratracheal inoculation with influenza A viruses will require anesthetizing the pig. Inoculum will be passed into the trachea via a small plastic tube.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

Only mild clinical signs are anticipated following infection with influenza A viruses. Since the use of drugs would mask the clinical signs of influenza illness, evaluation of clinical signs without the use of drugs is required to meet the project objectives of IAV pathogenesis, transmission, and host response in swine.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102): None

1. Registration Number: 42-G-0001

2. Number _17 (17 in Cat E)_____of animals in this study.

3. Species (common name) Pigs of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Phosphate buffered saline containing Salmonella Typhimurium strain will be administered intranasally.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

The use of exogenous antibiotics or pain-relieving drugs may affect results of the study, which are to characterize the effects of industry-relevant antibiotics on the intestinal microbiome of pigs colonized with multidrug-resistant salmonella, and confound interpretation of the data.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102): None

1. Registration Number: 42-G-0001

2. Number _140 (137 in Cat E)_____of animals in this study.

Column E Explanation

3. Species (common name) Pigs of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Inoculation of porcine epidemic diarrhea virus/swine enteric coronaviruses will be given intranasally or orally.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

Some of the proposed studies require evaluation of protective immunity. If efficacious, pain relieving drugs or other ameliorative treatments would mask clinical signs which would obscure the evaluation of protective immunity. The challenge models are always evaluated to find the best balance of demonstrating failure of protective immunity for the least amount of time.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102): None

1. Registration Number: 42-G-0001

2. Number _328 (294 in Cat E) of animals in this study.

3. Species (common name) Pigs of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Intranasal challenge of pigs with Seneca Valley virus (SVV).

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

Three part answer: 1) To study the pathogenesis of the SVA infection in swine, the host response has to be "normal," no alterations from extraneous treatments. 2) If drugs would be beneficial in reducing pain/distress, then they would have some effect on the pig's response which alters the pathogenesis of the virus. 3) To evaluate the potential efficacy of a vaccine or treatment, the natural expression of the disease is necessary.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102): None

1. Registration Number: 42-G-0001

2. Number _ 395 (66 in Cat E) of animals in this study.

Column E Explanation

3. Species (common name) Turkeys of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Birds will be orally inoculated by gavage with Campylobacter jejuni.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

Campylobacter jejuni infection alone does not directly cause morbidity or mortality in turkeys. However, it is possible that other opportunistic pathogens present in the distal intestinal tract may take advantage of intestinal dysbiosis created by C. jejuni inoculation, causing morbidity (e.g., watery diarrhea) severe enough to warrant euthanasia. Although the development of watery diarrhea prior to or after inoculation by C. jejuni is unlikely, the poults in this study have been placed in category E. They will not be treated for watery diarrhea prior to euthanasia because the goal of this study is to evaluate the ability of different C. jejuni isolates to colonize the intestinal tract of turkeys. Antimicrobial or anti-inflammatory therapy may confound data analysis.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

1. Registration Number: 42-G-0001

2. Number _8 (6 in Cat E) of animals in this study.

3. Species (common name) Cattle of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Aerosol challenge with bovine respiratory syncytial virus (BRSV).

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

In order to determine vaccine efficacy, we need to allow for development of clinical signs (e.g., elevated body temperature, increased respiratory rate, oculonasal discharge, cough).

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102): None

1. Registration Number: 42-G-0001

Column E Explanation

2. Number _31 (5 in Cat E)_____of animals in this study.

3. Species (common name)__Cattle_____of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Dairy calves and cows will be maintained in an on-site herd to allow study of paratuberculosis in subclinical and clinical stages of disease. It is critical that animals are housed as typical dairy cattle, undergoing stressors of gestation, parturition, and lactation in order to progress from subclinical to clinical disease.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

The use of drugs will change the natural course of disease progression and alter the interpretation of the results but in cases of standard veterinary care analgesics will be used.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):None

1. Registration Number:__42-G-0001_____

2. Number _67 (6 in Cat E)_____of animals in this study.

3. Species (common name)__Cattle_____of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Cattle will receive Mycobacterium bovis via aerosol challenge.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

Administration of antibiotics will alter the course of M. bovis infection and administration of anti-inflammatory agents will alter the pathogenesis of infection; thus, either option will compromise the intent of the study.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102): None

1. Registration Number:__42-G-0001_____

2. Number _16 (12 in Cat E)_____of animals in this study.

Column E Explanation

3. Species (common name) Cattle of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Intranasal inoculation with typical virulence bovine viral diarrhea virus.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

Typical treatment would include anti-inflammatories but treatment with these drugs could augment shedding patterns of the pathogen. Altered shedding patterns may interfere with the transmission of the disease which is the purpose for this study and therefore cannot be administered.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102): None