

Column E Explanation

This form is intended as an aid to completing the Column E explanation. 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 lay persons as well as scientists.

1. **Registration number:** 51-G-0001
2. **Number of animals used under Column E conditions in this study.** 3
3. **Species (common name) of animals used in this study.** Feline (domestic cat)
4. **Explain the procedure producing pain and/or distress, including reason(s) for species selected.**

To maintain a source of oocysts for experiments and for bioassays to assess food samples of unknown status, cats are allowed to consume animal tissues known positive for *Toxoplasma gondii* or suspect animal tissues. The cats fed *Toxoplasma*-infected tissues usually do not become sick; however, occasionally a small percentage of cats (estimated less than 3%) may die acutely without presenting signs or develop other complications that may not respond to treatment following infection. This work cannot be performed in any other species because *Toxoplasma* oocysts are produced only in the cat. Oocysts are needed to study efficacy of vaccines and to develop protocols to reduce environmental contamination due to this parasite. *Toxoplasma* oocysts cannot be produced in cell culture or any other animal species. Cats are also needed to detect parasites in tissues of farm animals, because they are the most sensitive animal to use for the bioassay.

5. **Provide a scientific justification for why pain and/or distress could not be relieved by use of anesthetics, analgesics or tranquilizers.**

For the present research, viable *Toxoplasma* oocysts are needed for experiments and for collaborative research with other investigators. For unknown reasons, viable oocysts cannot be produced by in vitro methods and can only be propagated in the intestine of cats. The oocysts are typically shed in the feces 5 -14 days after infection, during which time most cats remain asymptomatic until euthanasia at 22 days post-infection. These animals are classified as USDA Pain/Distress Category D because animals are given appropriate analgesics and/or anesthetics to relieve pain/distress that may occur. Occasionally a small percentage of cats (estimated 3%) may die acutely without presenting signs or develop other complications that may not respond to treatment following infection. These animals are reported as Category E.

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1. **Registration number:** 51-G-0001
2. **Number of animals used under Column E conditions in this study.** 30
3. **Species (common name) of animals used in this study.** Chicken
4. **Explain the procedure producing pain and/or distress, including reason(s) for species selected.**

The experimental birds were infected with an intestinal parasite (*Eimeria maxima*). The infection can cause reduction in growth, diarrhea, and in rare cases death. *Eimeria maxima* is very species specific and can only infect chickens. Our goal for the study was to determine whether *Eimeria maxima* infection is ameliorated in birds that are thought to be resistant to some parasitic infection (Egyptian Fayoumi chickens)

5. **Provide a scientific justification for why pain and/or distress could not be relieved by use of anesthetics, analgesics or tranquilizers.**

In order to study the effects of *Eimeria* infection by the host it is necessary to induce a clinical infection in the host (mild lethargy, diarrhea, and decreased feed intake resulting in decreased weight gain). Anti-coccidials or other drugs cannot be used during infection, because these may change the results of the research. For example if anti coccidials are implemented the changes in gene expression can decrease because the disease state is being alleviated. However, if any animal becomes moribund it will be euthanized.

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1. **Registration number:** 51-G-0001
2. **Number of animals used under Column E conditions in this study:** 600
3. **Species (common name) of animals used in this study.** Chickens
4. **Explain the procedure producing pain and/or distress, including reason(s) for species selected.**

Infection with *Clostridium perfringens*. Chickens were selected because the main objectives of the proposed studies are to investigate host-pathogen interactions using immunological and genomics technology to develop antibiotic-free alternative strategies to prevent poultry necrotic enteritis. These infections are species specific so another species could not be used.

5. **Provide a scientific justification for why pain and/or distress could not be relieved by use of anesthetics, analgesics or tranquilizers.**

Birds cannot be given anesthetics, sedatives, or analgesics for pain relief after challenge because these agents are known to alter the immune response in blood and tissue (local and systemically) as well as the bird's behavior/activity level. We are monitoring changes in all of these parameters to better understand the bird's response during the acute infection period. All birds will be humanely euthanized within a few days after challenge. However, we anticipate that a small percentage may become moribund and die before euthanasia can be performed, and are reporting these birds as Category E.

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