1. **Registration Number:** 93-R-0435/9194

2. **Species:** Guinea Pigs

3. **Number of Animals:** 20

4. **Explain the procedure producing pain and/or distress:**
   
   (a) Vaccination for tuberculosis (TB) and (b) exposure to the TB organism (bacteria). The vaccine is given on one or more occasions to each guinea pig into the skin (intradermal), into the muscle (intramuscular), or under the skin (subcutaneous). At various times after vaccination, the guinea pigs are skin-tested to evaluate their immune response to the vaccine. This procedure is identical to the skin test normally performed on people (“TB testing”). Guinea pigs are later exposed (challenged) to an aerosol containing the TB organism. This exposure itself (inhalation) is not painful or distressful to the animals. One potentially painful event would be if a guinea pig developed a skin sore as a result of the vaccination or the skin test, as it occasionally happens in BCG-vaccinated people. During the past year, we have observed one such event, which the veterinarian treated successfully with topical analgesics (painkillers). Another instance that may potentially cause pain or distress is if the infection affects the membrane surrounding the lungs (pleura). As the disease progresses, the infected guinea pigs lose their appetite and also lose weight. Animals are weighed daily to monitor progression of the disease, and they are immediately euthanized if they lose more than 10% of their initial body weight or of clinically warranted in the opinion of the attending veterinarian.

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:**
   
   The only interventions that could possibly relieve any discomfort from TB would be the use of antituberculosis antibiotics or the administration of general painkillers. Treating the animals with antibiotics would defeat the purpose of the experiment, which is to assess the efficacy of a vaccine. General painkillers such as opiates (morphine-like) or NSAID (such as Advil or Celebrex) markedly affect the inflammatory and immune responses invalidating the experimental results. If skin sores were noticed, a rare occurrence, the veterinarian would relieve the guinea pig’s condition with a topical or local painkiller, such as novocaine.