Column E Explanations

Registration Number: 54-R-0001

WVU Internal Protocol Number 11-0401:

- Rabbits
- Number Used in category E = 56

- Procedures that are considered to cause pain or distress:

  Rabbits are given 2% cholesterol in the diet to induce beta amyloid deposits which has been shown to produce Alzheimer's pathology. Over the course of the ten weeks that rabbits are on the diet, cholesterol elevates serum cholesterol and may produce atherosclerosis and liver toxicity.

- Scientific justification why pain and/or distress could not be relieved:

  The cholesterol-fed rabbit is not only the classic model for atherosclerosis but is also becoming a model for Alzheimer's Disease because rabbits fed cholesterol show increased beta amyloid deposits in the brain compared to controls fed normal chow. These deposits only start forming after 6 weeks on the diet and become a model for Alzheimer's pathology when the rabbit has been fed the diet for at least 8 weeks. The longer the rabbit is on a diet, the more Alzheimer's-like pathology we see. If we stop feeding cholesterol the beta amyloid deposits regress and the rabbit is no longer a good model for Alzheimer's disease.

WVU Internal Protocol Number 09-0104:

- Rabbits
- Number Used in category E = 14

- Procedures that are considered to cause pain or distress:

  Induction of inflammation in rabbits – During the injection of inflammatory agent, an anesthetic combination, xylazine/ketamine will be used. Hence, the distress to the animal should be minimal. The animals develop chronic intestinal inflammation with the peak beginning on day 14. During this period, no drugs will be administered to relieve the symptoms of inflammation except in the group where pharmaceuticals will be administered. During the drug injections where the route is intramuscular, the injection sites can develop sensitivity.

- Scientific justification why pain and/or distress could not be relieved:

During the gastric innoculation of E. magna, an anesthetic combination, xylazine/ ketamine will be used. Hence, the distress to the animal during the procedure should be minimal. E. magna is given at the minimum effective dose. This dose was worked out by Sundaram and West (1997) [Sundaram U., and West A. B. (1997) Effect of chronic inflammation on electrolyte transport in rabbit ileal villus and crypt cells. Am. J. Physiol. 272 :G732–G741].

The animals develop chronic intestinal inflammation with the peak being on day 14. During this period, no drugs will be administered to relieve the symptoms of inflammation except in the group where pharmaceuticals will be administered. Since we are investigating specifically the effects of certain drugs on the regulation of glutamine transporters in the brush border membrane of enterocytes of the small intestine and the intracellular signalling pathways regulating these transporters during chronic intestinal inflammation, injecting additional drugs would taint the results.

Supportive care can be given to the animals in the form of feed such as hay if they show symptoms of diarrhea just after being transported from the vendor to the vivarium. This will help the animals to get to their normal state before starting any procedure on them. The animals are usually given 1-2 weeks to get acclimatized before stating any procedure.