Quality Assurance Program for Greyhound Racing Dogs

INTRODUCTION

The greyhound parimutuel industry has operated in the United States without a formal program to evaluate and improve the drug-testing capabilities of the racing laboratories whose directive it is to provide protection to this industry and the public from drug abuse. While a quality assurance (QA) program exists in the equine racing industry, most greyhound jurisdictions do not participate in it because of limited correlation of the equine to greyhound testing programs. The purpose of this outline is to stimulate discussion regarding a greyhound QA program that could serve both the analytical community and the greyhound racing industry for the purpose of improving drug testing.

PURPOSE OF QA PROGRAM

A. To test the ability of existing analytical methods to detect drug use in greyhound racing dogs.

B. To develop new methodologies if existing methods do not prove to be adequate.

C. To determine the length of time, post-administration, that a drug and/or its metabolites can be detected at maximum sensitivity of a given method.

D. To provide racing chemistry laboratories with the opportunity to evaluate the effectiveness of their methods to detect drug usage, or to provide them with proven methods to do so.

E. To assess the ability of laboratories to detect drug usage under "actual" conditions and to use this information to evaluate the efficacy of greyhound drug testing as it relates to the purposes and economics of individual racing commissions.

PROCEDURE

A. Determination of target drugs
  1. Likely use in greyhound dogs
    a. Known usage (historical)
    b. Input from veterinarians
    c. Rumors
    d. Investigations

  2. Classes of drugs with physiologically effective properties
    a. Narcotic alkaloids
    b. Stimulants
    c. Depressants
    d. Tranquilizers
    e. Muscle relaxants
    f. Steroids
    g. Anti-inflammatory agents
    h. Analgesics
    i. Antibiotics

B. Establishment of a facility to perform drug administration studies on greyhound dogs and dispense samples
  1. Test existing screening methods typically used in racing laboratories
    a. Survey methods in use
      1. Literature review
      2. Personal communications with laboratories
    b. Determine optimal general screening methods from (a)
    c. Use these methods on samples from greyhound drug administrations
    d. Collect confirmatory data on parent compounds and metabolites as underivatized or, if necessary, derivatized (TMS groups or acyl groups) adducts

1. GC retention index
2. HPLC retention index
3. TLC retention factor
4. Mass spectra (EI and CI)
   a. from GC
   b. probe
   c. other ionization modes
5. UV spectra off LC
6. Infrared spectra
   a. Off GC
   b. KBr
   c. Diffuse reflectance
2. Develop new methods as needed for compounds not detected by existing screening methods
   a. Modify methods in use for drug testing in horses
   b. Immunoassays
   c. Single ion monitoring
3. Dispense samples and methods from administration studies to participating laboratories
   a. Prepare samples
   b. Provide known methods of detection
      1. General
      2. Specific
   c. Provide confirmatory data
   d. Provide temporal excretion profile
   e. Provide literature review on administered drugs
4. Provide racing jurisdictions with samples that can be used as "blind test" samples. These would be introduced to the testing laboratories at random with the real samples and contain only compounds that all racing laboratories have tested.
   a. Provide each laboratory with a list of drugs and metabolites which will be the subject of the blind test
   b. Target laboratory must do the analysis
   c. Report of positives by the laboratory will be as a "real" situation
   d. Evaluation by QA lab
      1. Determine laboratory's ability to detect drugs of interest
      2. Review effectiveness of current methods used in laboratories
   e. Communicate "blind test" results regularly to commissions and their laboratories

C. Meet with laboratory directors and racing jurisdiction officials on an annual basis to discuss the efficacy of drug testing as it relates to the greyhound racing industry. This forum will evaluate current or proposed methods as well as address specific analytical problems.

CONCLUSION

It is our experience, from personal communications, that many analysts involved with greyhound drug testing would like an objective way of evaluating their drug detection capabilities and that the results of these evaluations should be used constructively for improvement of their testing programs. We believe that a program of research, sharing of information and evaluation, similar to this proposal, could accomplish these goals, at an affordable price.

The purpose of preparing this proposal is to provide a basic framework upon which to build a QA program that satisfies the needs, goals and budgets of the greyhound racing community. We invite and welcome your input.