

CURRICULUM VITAE

Richard A. Sams

A. CURRENT TITLE/AFFILIATION

Professor and Director
OSU Analytical Toxicology Laboratory
College of Veterinary Medicine
The Ohio State University

B. ADDRESS

OSU Analytical Toxicology Laboratory
OSU Veterinary Hospital
601 Tharp Street
Columbus, Ohio 43210

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C. EDUCATION

Doctor of Philosophy Degree awarded March 1975 by the Graduate School of The Ohio State University; major professor: Louis Malspeis; area of specialization: pharmaceuticals and pharmacokinetics; dissertation title: "Pharmacokinetics of naloxone in the dog".

Bachelor of Science Degree awarded June 1969 by the College of Pharmacy at The Ohio State University

D. WORK HISTORY

| DATE | POSITION OR TITLE | INSTITUTION |
|--------------|---------------------|---|
| 1990-present | Professor | Department of Veterinary Clinical Sciences, College of Veterinary Medicine, OSU |
| 1990-present | Professor | Division of Pharmaceutics, College of Pharmacy, OSU |
| 1982-1990 | Associate Professor | Department of Veterinary Clinical Sciences, College of Veterinary Medicine, OSU |
| 1976-1982 | Assistant Professor | Department of Veterinary Clinical Sciences, College of Veterinary Medicine, OSU |
| 1979-present | Director | Analytical Toxicology Laboratory, OSU |

1974 -1975

Senior Scientist

Ciba-Geigy Corp., Suffern, NY

E. MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Academy of Forensic Sciences
American Academy of Veterinary Pharmacology and Therapeutics
American Association of Pharmaceutical Scientists
American Chemical Society
American Pharmaceutical Association
Association of Official Racing Chemists – associate member
Columbus Society for the Scientific Detection of Crime

F. COURSES TAUGHT

VPHYS 746 Bioanalytical Chemistry (graduate program)
VMED 662 Respiratory System (professional veterinary curriculum)
VMED 693 Clinical Pharmacology of Cardiovascular Drugs (graduate program)
VMED 693 Research Methods (graduate program)
PHARM 881 Bioanalytical Chemistry (graduate program)
VMED 696 Biostatistics (graduate program)

G. DISSERTATIONS/THESES DIRECTED:

Major Professor/Dissertation Advisor for Dr. Timothy Dyke (1995)
Major Professor/Dissertation Advisor for Meir Tzou (1994)
Major Professor/Thesis Advisor for Dr. James M. Donecker (1984)
Major Professor/Thesis Advisor for Ellen L. Harrington (1984)
Major Professor/Thesis Advisor for Dr. Walter W. Ruoff, Jr. (1981)

H. SCHOLARLY ACTIVITIES:

Chairman, Testing Integrity Program, Inc., 2001-present
Member, Testing Integrity Program, Inc., 1994-present
Member, Editorial Board, *Journal of Veterinary Pharmacology and Therapeutics*, 1986 - present
Member, Editorial Board, *American Journal of Veterinary Research*, 1987 - 1989
Grant Reviewer, US Food and Drug Administration, 1989, 1993, 1994
Grant Reviewer, US Department of Agriculture, 1993
Grant Reviewer, Texas Equine Research Fund, 1993
Grant Reviewer, National Institutes on Drug Abuse, 1989
Program Committee Member, ARCI Quality Assurance Program, 1988 - 1992

I. UNIVERSITY ACTIVITIES:

Chairman, Graduate Studies Committee, Department of Veterinary Clinical Sciences, 1983 - 1993; 1997-present
Elected Member, University Research and Graduate Council, 1992 - 1996
Member, Research Committee, University Research and Graduate Council, 1994 - 1996
Member, Curriculum Committee, University Research and Graduate Council, 1992 - 1994
Member, Finley Center Management Committee, 1990 - 2002
Director, OSU Analytical Toxicology Laboratory, 1979 - present
Member, College Promotion and Tenure Committee, 1995-1998

Member, Department Promotion and Tenure Committee, 1998-present.

J. REFEREED PUBLICATIONS

1. R.H. Reuning, R.A. Sams, and R.E. Notari (1973) Role of pharmacokinetics in drug dosage adjustment I. Pharmacologic effect kinetics and apparent volume of distribution of digoxin. *Journal of Clinical Pharmacology* **12**, 127-141.
2. R.A. Sams and L. Malspeis (1976) Determination of naloxone and naltrexone as perfluoroalkyl ester derivatives by electron-capture GLC. *Journal of Chromatography* **125**, 409-420.
3. R.A. Sams and J.D. Baggot (1977) Bioavailability, disposition kinetics and dosage of sulfadimethoxime in dogs - a correction. *Canadian Journal of Comparative Medicine* **41**, 479-480.
4. Y.K. Fung, R.G. Rahwan, and R.A. Sams (1977) Separation of vitamin A compounds by thin-layer chromatography. *Journal of Chromatography* **147**: 528-531.
5. H.D. Mercer, J.D. Baggot, and R.A. Sams (1977) Application of pharmacokinetics to the drug residue profile. *Journal of Toxicology and Environmental Health* **2**, 787-801.
6. R.A. Sams and R.H. Huffman (1978) A thin-layer chromatographic test for reserpine in plasma. *Journal of Chromatography* **161**, 410-419.
7. R.A. Sams (1978) Determination of reserpine in plasma, using high performance liquid chromatography with fluorescence detection. *Analytical Letters* **B11**, 697-707.
8. C.W. Kohn, W.W. Muir, and R.A. Sams (1978) Plasma volume and extracellular fluid volume in horses at rest and following exercise. *American Journal of Veterinary Research* **39**, 871-874.
9. W.W. Muir, C.W. Kohn, and R.A. Sams (1978) Effects of furosemide on plasma volume and extracellular fluid volume in horses. *American Journal of Veterinary Research* **39**, 1688-1691.
10. R.H. Reuning, V.K. Batra, T.M. Ludden, M.Y. Jao, B.E. Morrison, D.A. McCarthy, S.E. Harrigan, S.B. Ashcraft, R.A. Sams, M.S. Bathala, A.E. Staubus, and L. Malspeis (1979) Plasma naltrexone kinetics after intravenous bolus administration in dogs and monkeys. *Journal of Pharmaceutical Sciences* **68**, 411-416.
11. W.W. Muir, R.A. Sams, and R.H. Huffman (1980) Cardiopulmonary, behavioral and pharmacokinetic effects of propoxyphene in horses. *American Journal of Veterinary Research* **41**, 575-580.
12. J.A.E. Hubbell, W.W. Muir, and R.A. Sams (1980) Guaifenesin: cardiopulmonary effects and plasma concentrations in horses. *American Journal Veterinary Research* **41**, 1751-1756.

13. J.T. Robertson, W.W. Muir, and R.A. Sams (1981) Cardiopulmonary effects of butorphanol tartrate in horses. *American Journal of Veterinary Research* **42**, 41-44.
14. S.M. McGuirk, W.W. Muir, and R.A. Sams (1981) Pharmacokinetic analysis of intravenously and orally administered quinidine in horses. *American Journal of Veterinary Research* **42**, 938-942.
15. S.M. McGuirk, W.W. Muir, and R.A. Sams (1981) Pharmacokinetic analysis of intravenously and orally administered quinidine in cows. *American Journal of Veterinary Research* **42**, 1482-1487.
16. W.W. Muir, R.A. Sams, R.H. Huffman, and J.S. Noonan (1982) Pharmacodynamic and pharmacokinetic properties of diazepam in horses. *American Journal of Veterinary Research* **43**, 1756-1762.
17. S.M. McGuirk, W.W. Muir, R.A. Sams, and D.M. Rings (1983) Atrial fibrillation in cows: clinical findings and therapeutic considerations. *Journal of the American Veterinary Medical Association* **182**, 1380-1386.
18. W.W. Muir, R.A. Sams, and S.M. Ashcraft (1984) Pharmacologic and pharmacokinetic properties of methocarbamol in horses. *American Journal of Veterinary Research* **45**, 2256-2260.
19. R.A. Sams (1984) Principles of clinical pharmacokinetics of antimicrobial drugs. *Journal of the American Veterinary Medical Association* **185**, 1068-1071.
20. R.A. Sams and W.W. Ruoff (1985) Pharmacokinetics and bioavailability of cefazolin in horses. *American Journal of Veterinary Research* **46**, 348-352.
21. L.R. Soma, R. Sams, W. Duer, T. Tobin, C. Woodward, and J. McDonald (1985) Plasma and serum concentrations of phenylbutazone and oxyphenbutazone in racing Thoroughbreds 24 hours after treatment with various dosage regimens. *American Journal of Veterinary Research* **46**, 932-938.
22. R.A. Sams, W.W. Muir, R. Detra, and E. Robinson (1985) Comparative pharmacokinetics and anesthetic effects of methohexital, pentobarbital, thiamylal, and thiopental in Greyhound and non-Greyhound dogs. *American Journal of Veterinary Research* **46**, 1677-1683.
23. W.W. Ruoff and R.A. Sams (1985) Pharmacokinetics and bioavailability of cephalothin in horses. *American Journal of Veterinary Research* **46**, 2085-2090.
24. D.F. Gerken and R.A. Sams (1985) Inhibitory effects of intravenous chloramphenicol sodium succinate on the disposition of phenylbutazone in horses. *Journal of Pharmacokinetics and Biopharmaceutics* **13**, 467-476.
25. S.P. Di Bartola, D.J. Chew, M.J. Tarr, and R.A. Sams (1985) Hemodialysis of a dog with acute renal failure. *Journal American Veterinary Medical Association* **186**, 1323-1326.
26. G.H. Spurlock, S.L. Landry, R. Sams, S. McGuirk, and W.W. Muir (1985) Effect of endotoxin administration on body fluid compartments in the horse. *American*

Journal of Veterinary Research **46**, 1117-1120.

27. K.M. Wernette, J.A. Hubbell, W.W. Muir, and R.A. Sams (1986) Doxapram: cardiopulmonary effects in the horse. *American Journal of Veterinary Research* **47**, 1360-1362.
28. T.A. Shepard, J. Hui, A. Chandrasekaran, R.A. Sams, R. H. Reuning, L.W. Robertson, J.H. Caldwell, and R.L. Donnerberg (1986) Digoxin and metabolites in urine and feces: a fluorescence derivatization-high performance liquid chromatographic technique. *Journal of Chromatography* **380**, 89-98.
29. J.M. Donecker, R.A. Sams, and S.M. Ashcraft (1986) Pharmacokinetics of probenecid and the effect of oral probenecid on the pharmacokinetics of cefazolin in mares. *American Journal of Veterinary Research* **47**, 89-95.
30. E.P. Robinson, R.A. Sams, and W.W. Muir (1986) Barbiturate anesthesia in Greyhound and mixed-breed dogs: comparative cardiopulmonary effects, anesthetic effects, and recovery rates. *American Journal of Veterinary Research* **47**, 2105-2112.
31. R.A. Sams and P. Pizzo (1987) Detection and identification of ketamine and its metabolites in horse urine. *Journal of Analytical Toxicology* **11**, 58-62.
32. J.A.E. Hubbell, W.W. Muir, J.T. Robertson, and R.A. Sams (1987) Cardiovascular effects of intravenous sodium penicillin, sodium cefazolin, and sodium citrate in awake and anesthetized horses. *Veterinary Surgery* **16**, 245-250.
33. L.E. Mathes, G. Muschik, L. Demby, P. Polas, D.W. Mellini, H.J. Issaq, and R. Sams (1988) High performance liquid chromatographic determination of 2',3'-dideoxycytidine and 3'-azido-3'-deoxythymidine in plasma using a column switching technique. *Journal of Chromatography* **432**, 346-351.
34. R.A. Sams and W.W. Muir (1988) Effects of phenobarbital on thiopental pharmacokinetics in greyhounds. *American Journal of Veterinary Research* **49**, 245-249.
35. Y. Rikihisa, S.M. Reed, R.A. Sams, J.C. Gordon, and C.I. Pretzman (1990). Serosurvey of horses with evidence of equine monocytic ehrlichiosis. *Journal of the American Veterinary Medical Association* **197**, 1327-1332.
36. C.L. Swenson, R.A. Sams, P.J. Polas, D.F. Michael, and L.E. Mathes (1990). Age-related differences in pharmacokinetics of phosphoformate in cats. *Antimicrobial Agents & Chemotherapy* **34**, 871-874.
37. C.E. Uboh, J.A. Rudy, L.R. Soma, M. Fennell, L. May, R.A. Sams, F.A. Railing, J. Shellenberger, and M. Kahler (1991). Characterization of bromhexine and ambroxol in equine urine: effect of furosemide on identification and confirmation. *Journal of Pharmaceutical & Biomedical Analysis* **9**, 33-39.
38. P.J. Polas, C.L. Swenson, R. Sams, C.M. Cheney, K.A. Hayes, M.J. Tarr, G.J. Kociba, and L.E. Mathes (1990). In vitro and in vivo evidence that the antiviral activity of 2',3'-dideoxycytidine is target cell dependent in a feline retrovirus

animal model. *Antimicrobial Agents & Chemotherapy* **34**, 1414-1421.

39. D.D. Gerken and R.A. Sams (1988) Pharmacokinetics of oxyphenbutazone in horses. *Journal of Veterinary Pharmacology and Therapeutics* **11**, 283-287.
40. R.M. Bednarski, R.A. Sams, L.J. Majors, and S. Ashcraft (1988) Reduction of the ventricular arrhythmogenic dose of epinephrine by ketamine administration in halothane-anesthetized cats. *American Journal of Veterinary Research* **49**, 350-355.
41. K.J. Varma, R.A. Sams, R.D. Lobell, and P.W. Lockwood (1991) Pharmacokinetics and efficacy of a new broad spectrum antibiotic, florfenicol in cattle. *Acta Veterinaria Scandinavica - Supplement* **87**, 102-104.
42. A.D. Jernigan, G.D. St. Jean, D.M. Rings, and R.A. Sams (1991) Pharmacokinetics of rifampin in adult sheep. *American Journal of Veterinary Research* **52**, 1626-1629.
43. M.V. Crisman, J.R. Wilke, R.A. Sams, and D.F. Gerken (1991) Concentrations of phenylbutazone and oxyphenbutazone in post-parturient mares and their neonatal foals. *Journal of Veterinary Pharmacology and Therapeutics* **14**, 330-334.
44. R.A. Sams, R.L. Detra, and W.W. Muir (1992) Pharmacokinetics and metabolism of intravenous doxapram in horses. *Equine Veterinary Journal* **11**, 45-51.
45. W.W. Muir and R.A. Sams (1992) Effects of ketamine infusion on halothane minimal alveolar concentration in horses. *American Journal of Veterinary Research* **53**, 1802-1806.
46. W.W. Muir, R.A. Sams, and S.M. Ashcraft (1992) The pharmacology and pharmacokinetics of high-dose methocarbamol in horses. *Equine Veterinary Journal. Supplement* **11**, 41-44.
47. C.E. Uboh, L.R. Soma, J.A. Rudy, E. Morgan, K. Menringhausen, and R. Sams (1992) Plasma concentrations of furosemide versus specific gravity of urine in predicting dose of administration in race horses. *Research Communications in Chemical Pathology and Pharmacology* **77**, 201-208.
48. C.W. Kohn, R. Sams, J.J. Kowalski, J. Powers, and S. Wallace (1993) Pharmacokinetics of single intravenous and single and multiple dose oral administration of rifampin in mares. *Journal of Veterinary Pharmacology and Therapeutics* **16**, 119-131.
49. K.W. Hinchcliff, K.H. McKeever, W.W. Muir, and R.A. Sams (1993) Effect of furosemide and weight carriage on energetic responses of horses to incremental exertion. *American Journal of Veterinary Research* **54**, 1500-1504.
50. C.W. Kohn, R.A. Sams, J.J. Kowalski, J. Powers, and S. Wallace (1993) Pharmacokinetics of single intravenous and single and multiple dose oral administration of rifampin in mares. *Journal of Veterinary Pharmacology and Therapeutics* **16**, 119-131.
51. S.D. Semrad, R.A. Sams, O.N. Harris, and S.M. Ashcraft (1993) Effects of

concurrent administration of phenylbutazone and flunixin meglumine on pharmacokinetic variables and *in vitro* generation of thromboxane B₂ in mares. *American Journal of Veterinary Research* **54**, 1901-1905.

52. S.D. Semrad, J.T. McClure, R.A. Sams, and L.M. Kaminski (1993) Pharmacokinetics and effects of repeated administration of phenylbutazone in neonatal calves. *American Journal of Veterinary Research* **54**, 1906-1912.
53. J.R. Wilcke, M.V. Crisman, R.A. Sams, and D.F. Gerken (1993) Pharmacokinetics of phenylbutazone in neonatal foals. *American Journal of Veterinary Research* **54**, 2064-2067.
54. S.D. Semrad, R.A. Sams, and S.M. Ashcraft (1993) Pharmacokinetics of and serum thromboxane suppression by flunixin meglumine in healthy foals during the first month of life. *American Journal of Veterinary Research* **54**, 2083-2087.
55. R.A. Sams (1993) Chemical assay of avermectins by high performance liquid chromatography with fluorescence detection. *Veterinary Parasitology* **48**, 59-66.
56. B. Martinsen, T.E. Horsberg, K.J. Varma, and R.A. Sams (1993) Single dose pharmacokinetic study of florfenicol in Atlantic salmon (*Salmo salar*) in seawater at 11 °C. *Aquaculture* **112**, 1-11.
57. K.H. McKeever, K.W. Hinchcliff, D.F. Gerken, and R.A. Sams (1993) Effects of cocaine on incremental treadmill exercise in horses. *Journal of Applied Physiology* **75**, 2727-2733.
58. R.D. Lobell, K.J. Varma, J.C. Johnson, R.A. Sams, D.F. Gerken, and S.M. Ashcraft (1994) Pharmacokinetics of florfenicol following intravenous and intramuscular doses to cattle. *Journal of Veterinary Pharmacology and Therapeutics* **17**, 253-258.
59. R.A. Sams, D.F. Gerken, and S.M. Ashcraft (1995) Pharmacokinetics of ketoprofen after multiple intravenous doses in horses. *Journal of Veterinary Pharmacology and Therapeutics* **18**, 108-116.
60. L.A. Mitten, K.W. Hinchcliff, and R.A. Sams (1995) A portable blood gas analyzer for equine blood. *Journal of Veterinary Internal Medicine* **9**, 353-356.
61. S.D. Stanley, R.A. Sams, J.D. Harkins, G.D. Mundy, J. Boyles, W.E. Woods, and T. Tobin (1995) Frequency distribution of post race urine pH from standardbreds compared with thoroughbreds: research and regulatory significance. *Equine Veterinary Journal* **27**, 471-473.
62. J.D. Harkins, S.D. Stanley, G.D. Mundy, R.A. Sams, W.E. Woods, and T. Tobin (1995) A review of the pharmacology, pharmacokinetics, and regulatory control in the US of local anesthetics in the horse. *Journal of Veterinary Pharmacology and Therapeutics* **18**, 397-406.
63. K.W. Hinchcliff, K.H. McKeever, W.W. Muir, and R.A. Sams (1995) Pharmacologic interaction of furosemide and phenylbutazone in horses. *American Journal of Veterinary Research* **56**, 1206-1212.

64. M.C. Tzou, R.A. Sams, and R.H. Reuning (1995) Specific and sensitive determination of digoxin and metabolites in human serum by high performance liquid chromatography with cyclodextrin solid-phase extraction and pre-column fluorescence derivatization. *Journal of Pharmaceutical and Biomedical Analysis* **13**, 1531-1540.
65. R.P. Herd, R.A. Sams, and S.M. Ashcraft (1996) Persistence of ivermectin in plasma and feces following treatment of cows with ivermectin sustained-release, pour-on or injectable formulations. *International Journal for Parasitology* **26**, 1087-1093.
66. T.M. Dyke, K.W. Hinchcliff, R.A. Sams, K.H. McKeever, and W.W. Muir (1996) The effects of submaximal exercise on the pharmacokinetics of furosemide in horses. *Journal of Veterinary Pharmacology and Therapeutics* **19**, 164-166.
67. R.A. Sams, D.F. Gerken, R.A. Detra, S.D. Stanley, W.E. Wood, T. Tobin, J.-M. Yang, H.-H. Tai, A. Jegananthan, and D.S. Watt (1996) Identification of metabolites of azaperone in horse urine, *Journal of Pharmaceutical Sciences* **85**, 79-84.
68. J.D. Lillich, A.L. Bertone, L.M. Schmall, A.J. Ruggles, and R.A. Sams (1996) Plasma, urine, and synovial fluid disposition of methylprednisolone acetate and isoflupredone acetate after intra-articular administration. *American Journal of Veterinary Research* **57**, 187-192.
69. W.W. Muir, R.A. Sams, and S.F. Schall (1996) Haemodynamic, electrocardiographic, electrophysiologic and pharmacokinetic activity of 4'-hydroxypropranolol in dogs. *Journal of Veterinary Pharmacology and Therapeutics* **19**, 259-267.
70. J.D. Harkins, G.D. Mundy, S. Stanley, W.E. Woods, R.A. Sams, D.R. Richardson and T. Tobin (1996) Character and duration of pharmacological effects of intravenous isoxsuprine. *Equine Veterinary Journal* **28**, 320-326.
71. K.W. Hinchcliff, K.H. McKeever, W.W. Muir, and R.A. Sams (1996) Furosemide reduces accumulated oxygen deficit in horses during brief intense exertion. *Journal of Applied Physiology* **81**, 1550-1554.
72. J.D. Harkins, G.D. Mundy, S. Stanley, W.E. Woods, J. Boyles, R.A. Arthur, R.A. Sams, and T. Tobin (1996) Regulatory significance of procaine residues in plasma and urine samples: preliminary communication. *Equine Veterinary Journal* **28**, 121-125.
73. M.V. Crisman, J.R. Wilcke, and R.A. Sams (1996) Pharmacokinetics of flunixin meglumine in healthy foals less than twenty-four hours old. *American Journal of Veterinary Research* **57**: 1759-1761.
74. R.A. Sams, D.F. Gerken, and S.M. Ashcraft (1997) Pharmacokinetics of intravenous and oral prethcamide in horses. *Journal of Pharmaceutical and Biomedical Analysis* **15**: 639-651.
75. G. Jacobs, T. Whitem, R.A. Sams, C. Calvert, and D. Ferguson (1997) Pharmacokinetics of propranolol in healthy cats during euthyroid and

hyperthyroid states. *American Journal of Veterinary Research* **58**: 398-403.

76. L.J. Rivas, K.W. Hinchcliff, C.W. Kohn, R.A. Sams, and D.J. Chew (1997) Effect of sodium bicarbonate administration on renal function of horses. *American Journal of Veterinary Research* **58**: 664-671.
77. J.A. Hubbell, K.W. Hinchcliff, W.W. Muir, J.T. Robertson, and R.A. Sams (1997) Cardiorespiratory and metabolic effects of walking, standing, and standing with a splint during the recuperative period from maximal exercise in horses. *American Journal of Veterinary Research* **58**: 1003-1009.
78. M.C. Tzou, R.H. Reuning, and R.A. Sams (1997) Quantitation of interference in digoxin immunoassay in renal, hepatic, and diabetic disease. *Clinical Pharmacology and Therapeutics* **61**: 429-441.
79. T.M. Dyke, R.A. Sams, S.B. Cosgrove (1997) Disposition of flunixin after intramuscular administration to horses. *Journal of Veterinary Pharmacology and Therapeutics* **20**: 330-332.
80. R.A. Sams, D.F. Gerken, T.M. Dyke, S.M. Reed, and S.M. Ashcraft (1997) Pharmacokinetics of intravenous and intragastric cimetidine in horses. *Journal of Veterinary Pharmacology and Therapeutics* **20**: 355-361.
81. J.D. Harkins, G.D. Mundy, S.D. Stanley, R.A. Sams, and T. Tobin (1997) Lack of local anaesthetic efficacy of Sarapin in the abaxial sesamoid block model. *Journal of Veterinary Pharmacology and Therapeutics* **20**, 229 - 232.
82. L.J. Rivas, K.W. Hinchcliff, C.W. Kohn, R.A. Sams, and D.J. Chew (1997) Effect of sodium bicarbonate administration on blood constituents of horses. *American Journal of Veterinary Research* **58**: 658-663.
83. S.O. Wagner, R.A. Sams, and M. Podell (1998) Chronic phenobarbital therapy reduces plasma benzodiazepine concentrations after intravenous and rectal administration the dog. *Journal of Veterinary Pharmacology and Therapeutics* **21**, 335 - 341.
84. C.R. Short, R.A. Sams, L.R. Soma, T. Tobin (1998) The regulation of drugs and medicines in horse racing in the United States. The Association of Racing Commissioners International Uniform Classification of Foreign Substances Guidelines. *Journal of Veterinary Pharmacology and Therapeutics* **21**, 145-153.
85. J.D. Harkins, G.D. Mundy, S. Stanley, W.E. Woods, R.A. Sams, D.R. Richardson, S.C. Grambow, and T. Tobin (1998). Absence of detectable pharmacological effects after oral administration of isoxsuprine. *Equine Veterinary Journal* **30**, 294-299.
86. T.M. Dyke and R.A. Sams (1998). Detection and determination of theobromine and caffeine in urine after administration of chocolate-coated peanuts to horses. *Journal of Analytical Toxicology* **22**, 112-116.
87. J.R. Wilcke, M.V. Crisman, W.K. Scarratt, and R.A. Sams (1998). Pharmacokinetics of ketoprofen in healthy foals less than twenty-four hours old. *American Journal of Veterinary Research* **59**, 290-292.

88. T.M. Dyke, R.A. Sams, and K.W. Hinchcliff (1998). Antipyrine pharmacokinetics and urinary excretion in female horses. *American Journal of Veterinary Research* **59**, 280-285.
89. T.M. Dyke, R.A. Sams, and K.W. Hinchcliff (1998). Intensity-dependent effects of acute submaximal exercise on the pharmacokinetics of bromsulphalein in horses. *American Journal of Veterinary Research* **59**, 1481-1487.
90. T.M. Dyke, R.A. Sams, K.G. Thompson, and S.M. Ashcraft (1998). Pharmacokinetics of multiple-dose administration of eltenac in horses. *American Journal of Veterinary Research* **59**, 1447-1450.
91. T.M. Dyke, J.A.E. Hubbell, R.A. Sams, and K.W. Hinchcliff (1998). Hepatic blood flow in horses during the recuperative period from maximal exercise. *American Journal of Veterinary Research* **59**, 1476-1480.
92. T.M. Dyke, R.A. Sams, and K.W. Hinchcliff (1998). Exercise-training induced alterations in hepatic function in mares. *Journal of Applied Physiology* **85**, 1442-1447.
93. T.M. Dyke, J.A.E. Hubbell, D.A. Grosenbaugh, W. Beard, L. Mitten, R.A. Sams, K.W. Hinchcliff (1998) The pharmacokinetics of furosemide in anesthetized horses after bilateral ureteral ligation. *Journal of Veterinary Pharmacology and Therapeutics* **21**, 298-303.
94. M. Podell, S.O. Wagner, and R.A. Sams (1998) Lorazepam concentrations in plasma following its intravenous and rectal administration in dogs. *Journal of Veterinary Pharmacology and Therapeutics* **21**, 158-160.
95. T.M. Dyke, K.W. Hinchcliff, and R.A. Sams (1999). Attenuation by phenylbutazone of the renal effects and excretion of frusemide in horses. *Equine Veterinary Journal* **31**:289-295.
96. J.A.E. Hubbell, K.W. Hinchcliff, M. Schmall, W.W. Muir, J.T. Robertson, and R.A. Sams (1999) Cardiorespiratory and metabolic effects of xylazine, detomidine, and a combination of xylazine and acepromazine administered after exercise in horses. *American Journal of Veterinary Research* **60**: 1271-1279.
97. R.A. Sams, D.F. Gerken, and S.M. Ashcraft (1999) Detection and identification of flunixin after multiple intravenous and intramuscular administration doses to horses. *Journal of Analytical Toxicology* **23**: 372-379.
98. T. Tobin, J.D. Harkins, and R.A. Sams (1999) Testing for therapeutic medications: analytical/pharmacological relationships and "limitations" on the sensitivity of testing for certain agents. *Journal of Veterinary Pharmacology and Therapeutics* **22**, 220-233.
99. M.D. Barnhart, J.A.E. Hubbell, W.W. Muir, R.A. Sams, and R.M. Bednarski (2000) Pharmacokinetics, pharmacodynamics, and analgesic effects of morphine after rectal, intramuscular, and intravenous administration in dogs. *American Journal of Veterinary Research* **61**: 24-28.

100. R.J. Geor, K.W. Hinchcliff, and R.A. Sams (2000) β -Adrenergic blockade augments glucose utilization in horses during graded exercise. *Journal of Applied Physiology* **89**: 1086-1098.
101. R.J. Geor, K.W. Hinchcliff, L. J. McCutcheon and R.A. Sams (2000) Epinephrine inhibits exogenous glucose utilization in exercising horses. *Journal of Applied Physiology* **88**: 1777-1790.
102. R.J. Geor, K.W. Hinchcliff, and R.A. Sams (2000) Glucose infusion attenuates endogenous glucose production and enhances glucose use of horses during exercise. *Journal of Applied Physiology* **88**: 1765-1776.
103. J.A.E. Hubbell, K.W. Hinchcliff, L.M. Schmall, W.W. Muir, J.T. Robertson, R.A. Sams (2000) Anesthetic, cardiorespiratory, and metabolic effects of four anesthetic regimens administered intravenously after maximal exercise in horses. *American Journal of Veterinary Research* **61**: 1-8.
104. L.M. Dickow, D.F. Gerken, R.A. Sams, and S.M. Ashcraft (2001) Simultaneous determination of 2,4-D and MCPA in canine plasma and urine by HPLC with fluorescence using 9-anthryldiazomethane (ADAM). *Journal of Analytical Toxicology* **25**, 35-39.
105. W.W. Muir, R.A. Sams, J.A.E. Hubbell, K.W. Hinchcliff, and J. Gadawski (2001) Effects of enalaprilat on cardiorespiratory, hemodynamic, and hematologic variables in exercising horses. *American Journal of Veterinary Research* **62**: 1008-1013.
106. R.E. Toribio, C.W. Kohn, D.J. Chew, R.A. Sams, and T.J. Rosol (2001) Comparison of serum parathyroid hormone and ionized calcium and magnesium concentrations and fractional urinary clearance of calcium and phosphorus in healthy horses and horses with enterocolitis. *American Journal of Veterinary Research* **62**: 938-947.
107. E. Jose-Cunilleras, K.W. Hinchcliff, R.A. Sams, S.T. Devor, and J. K. Linderman (2002) Glycemic index of a meal fed before exercise alters substrate use and glucose flux in exercising horses. *Journal of Applied Physiology* **92**: 117-128.
108. P.A. March, M. Podell, and R.A. Sams (2002) Pharmacokinetics and toxicity of high-dose oral potassium bromide administration in Beagles. *Journal of Veterinary Pharmacology and Therapeutics* **25**, 425-432.
109. R.E. Toribio, C. W. Kohn, R.A. Sams, C.C Capen, and T.J. Rosol (2003) Hysteresis and calcium set-point for the calcium parathyroid hormone relationship in healthy horses. *General and Comparative Endocrinology* **130**: 279-288.

K. RESEARCH SUPPORT:

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| Title of Project: | Specific assay for cardiac glycosides by ECD-GLC and HPLC |
| Source of Funding: | American Heart Association, Central Ohio Chapter |
| Amount of Funding: | |

Grant Period: 1980-1981
Principal Investigator: Richard Sams

Title of Project: Determination of dipyridamole in plasma samples
Source of Funding: Boehringer-Ingelheim Pharmaceuticals
Amount of Funding:
Grant Period: 1981-1985
Principal Investigator: Richard Sams

Title of Project: Chloramphenicol effects on phenylbutazone metabolism and disposition in the horse
Source of Funding: College of Vet. Med., Equine Research Grant
Amount of Funding:
Grant Period: 1983
Co-investigators: Diane Gerken and Richard Sams

Title of Project: Pharmacokinetics of cefazolin and cephalothin in the horse
Source of Funding: College of Vet. Med., Equine Research Grant
Amount of Funding:
Grant Period: 1980-1981
Principal Investigator: Richard Sams

Title of Project: Pharmacokinetics of probenecid and its effects on the pharmacokinetics of cefazolin in horses
Source of Funding: College of Vet. Med., Equine Research Grant
Amount of Funding:
Grant Period: 1982-1983
Principal Investigator: Richard Sams

Title of Project: Cefadroxil and cephalexin comparative pharmacokinetic study in the horse
Source of Funding: Bristol Laboratories
Amount of Funding:
Grant Period: 1983-1984
Principal Investigator: Richard Sams

Title of Project: Effects of oxyphenbutazone on the pharmacokinetics of phenylbutazone in horses
Source of Funding: College of Vet. Med., Equine Research Grant
Amount of Funding:
Grant Period: 1985-1986
Co-investigators: Diane Gerken and Richard Sams

Title of Project: Determination of We-941 in human plasma samples
Source of Funding: Boehringer-Ingelheim Pharmaceuticals
Amount of Funding:
Grant Period: 1985-1986
Principal Investigator: Richard Sams

Title of Project: Determination of mazindol metabolites in horses
Source of Funding: American Horse Shows Assoc.
Amount of Funding:
Grant Period: 1985-1986
Principal Investigator: Richard Sams

Title of Project: Determination of prethcamide in horses
 Source of Funding: American Horse Shows Assoc.
 Amount of Funding:
 Grant Period: 1985-1986
 Principal Investigator: Richard Sams

Title of Project: ¹⁴C-Phenylbutazone elimination in horses
 Source of Funding: College of Vet. Med., Equine Research Grant
 Amount of Funding:
 Grant Period: 1986-1989
 Co-investigators: Diane Gerken and Richard Sams

Title of Project: Vitamin K Bioavailability and Vitamin K therapy in brodifacoum toxicosis
 Source of Funding: College of Vet. Med., Canine Research Grant
 Amount of Funding:
 Grant Period: 1986-1987
 Co-investigators: Diane Gerken and Richard Sams

Title of Project: Vitamin K Bioavailability during brodifacoum toxicosis
 Source of Funding: American. Animal Hosp. Assoc. and Ohio Animal Health Foundation
 Amount of Funding:
 Grant Period: 1987-1988
 Co-investigators: Diane Gerken and Richard Sams

Title of Project: Xenobiotic metabolism in isolated horse hepatocytes
 Source of Funding: College of Vet. Med., Equine Research Grant
 Amount of Funding:
 Grant Period: 1988-1989
 Co-investigators: Joyce Griffiths, Diane Gerken, and Richard Sams

Title of Project: Immunoaffinity extraction of dexamethasone from horse urine
 Source of Funding: College of Vet. Med., Equine Research Grant
 Amount of Funding:
 Grant Period: 1988-1989
 Co-investigators: Diane Gerken and Richard Sams

Title of Project: Detection of flunixin after multiple dose administration
 Source of Funding: Schering-Plough Animal Health
 Amount of Funding:
 Grant Period: 1993-1994
 Investigator: Richard Sams

Title of Project: Determination of eltenac in test samples collected from horses
 Source of Funding: Schering Plough Animal Health
 Amount of Funding:
 Grant Period: 1993-1994
 Investigator: Richard Sams

Title of Project: Effects of acute and chronic exercise on hepatic function in

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| | horses |
| Source of Funding: | College of Vet. Med. Equine Research Grant |
| Amount of Funding: | |
| Grant Period: | 1994-1995 |
| Co-investigators: | Timothy Dyke and Richard Sams |
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| Title of Project: | Development of confirmation methods for detomidine administration to the horse |
| Source of Funding: | Racing Commissioners International, Inc. |
| Amount of Funding: | |
| Grant Period: | 1994-1995 |
| Co-investigators: | Richard Sams |
| | |
| Title of Project: | Development of confirmation methods for medetomidine administration to the horse |
| Source of Funding: | Racing Commissioners International, Inc. |
| Amount of Funding: | |
| Grant Period: | 1995-1996 |
| Co-investigators: | Diane Gerken and Richard Sams |

L. CONTINUING EDUCATION

Pharmacokinetics for Pharmaceutical Scientists, University of California at San Francisco, San Francisco, California, February, 1989.

Forensic Urine Drug Testing, University of Utah, Salt Lake City, Utah, February 1990.

Achieving Accreditation for Your Laboratory, A2LA, Washington, D.C., October 1991.

M. CONSULTATION

Consultant or expert witness for racing commissions in Washington, California, Louisiana, Oklahoma, Kentucky, Texas, Minnesota, Pennsylvania, West Virginia, Nebraska, and Ohio

Expert witness for Drug Enforcement Administration in Miami, Florida and Columbus, Ohio and for the American Horse Shows Association

Consultant for Industrial Laboratories Inc., Merck, Schering-Plough Animal Health, Heska, Ciba-Geigy Corporation, and Hoechst-Roussel Animal Health

Consultant to the Medication Research and Testing Consortium – 2001 – present.

N. OTHER SUPPORT

The Ohio State University Analytical Toxicology Laboratory is the official testing laboratory of the Ohio State Racing Commission and has served in that capacity since 1965. The laboratory annually tests approximately 37,000 blood and urine samples collected from horses racing at seven commercial racetracks and at approximately sixty county fairs in Ohio. The samples are tested for the presence of drugs prohibited by the Ohio State Racing Commission. Laboratory staff members work closely with commission veterinarians, racing commissioners and staff persons, and with the Ohio Attorney General's office to carry out its role as the official laboratory of the Commission. As a

result of this effort the OSU College of Veterinary Medicine is awarded research funds (..... in 2001) for research on the horse.

Title of Project: Analysis of Blood and Urine Samples from Racehorses
Source of Funding: Ohio State Racing Commission
Amount of Funding: approximately (annual budget in excess ofin 2002-2003)
Contract Period: 1979-2003
Project Director: Richard Sams

The Ohio State University Analytical Toxicology Laboratory is the official testing laboratory of the Ohio Department of Agriculture and has served in that capacity since 1995. The laboratory annually tests approximately 1,000 hair and urine samples collected from livestock entered in livestock shows at county fairs and the Ohio State Fair. The samples are tested for the presence of drugs prohibited by state law. Laboratory staff members work closely with Department of Agriculture veterinarians and staff persons, fair officials and fair veterinarians, and with the Ohio Attorney General's office to carry out its role as the official laboratory.

Title of Project: Analysis of Hair and Urine Samples from Livestock
Source of Funding: Ohio Department of Agriculture
Amount of Funding: approximately (annual budget of about)
Contract Period: 1995-2003
Project Director: Richard Sams

The Ohio State University Analytical Toxicology Laboratory was designated one of two Research and Reference Centers for the national Uniform Drug Testing and Quality Assurance Program of the National Association of State Racing Commissioners (NASRC) in 1981. OSU Analytical Toxicology Laboratory developed new methods for detecting drugs in horse samples, prepared proficiency and blind test samples for other laboratories participating in the program, conducted research on the pharmacokinetics and metabolism of drugs in horses, and evaluated test procedures and data submitted by other laboratories. From 1988-1992, the Ohio laboratory was the only Research and Reference Center of a new Quality Assurance Program organized by the Association of Racing Commissioners International (ARCI). The activities of the laboratory under this new program were similar to those under the older program but were broader in scope.

Title of Project: NASRC/ARCI Quality Assurance Program
Source of Funding: National Association of State Racing Commissioners/Association of Racing Commissioners International, Inc.
Amount of Funding:
Contract Period: 1981-1992
Project Director: Richard Sams
