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Education.

University of Wisconsin-Madison, Department of Veterinary Science, Ph.D. Animal Virology, 1985.

University of Wisconsin-Madison, Department of Veterinary Science, M.Sc. Animal Virology, 1982,

School of Veterinary Medicine, National University, Heredia, Costa Rica, D.V.M. 1979

Professional experience.

2005- present	Research Leader, Foreign Animal Disease Research Unit, and Senior Leadership Group Agency Representative, Plum Island Animal Disease Center, Agricultural Research Service, USDA, Greenport New York.
2002- 2005	Research Leader, Foot-and-Mouth Disease Research Unit, Plum Island Animal Disease Center, Agricultural Research Service, USDA, Greenport New York.
1997- 2002	Lead Scientist, Vesicular Stomatitis Virus Project, Plum Island Animal Disease Center, Agricultural Research Service, USDA, Greenport New York.
1995-1997	Visiting Scientist, Molecular Biology Section, Special Pathogens Branch, Division of Viral and Ricketttsial Diseases, National Center for Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia.
1988-1995	Director, Tropical Disease Research Program, School of Veterinary Medicine, Universidad Nacional, Costa Rica.
1985-1995	Professor of Virology, School of Veterinary Medicine, Universidad Nacional, Costa Rica.
1980-1985	Research Assistant University of Wisconsin-Madison

Publications.

1. Borca MV, Pacheco JM, Holinka LG, Carrillo C, Hartwig E, Garriga D, Kramer E, Rodriguez L, Piccone ME. (2011) Role of arginine-56 within the structural protein VP3 of foot-and-mouth disease virus (FMDV) O1 Campos in virus virulence. **Virology** (In press)

2. Barrette RW, Szczepanek SM, Rood D, Challa S, Avery N, Vajdy M, Kramer E, Rodriguez L, Silbart LK. (2011) Use of Inactivated Escherichia coli Enterotoxins To Enhance Respiratory Mucosal Adjuvanticity during Vaccination in Swine. **ClinVaccine Immunol.** 18(11):1996-8.

3. Krug PW, Larson CR, Eslami AC, Rodriguez LL. 2011. Disinfection of foot-and-mouth disease and African swine fever viruses with citric acid and sodium hypochlorite on birch wood carriers. **Veterinary Microbiology** (in press).

4. Pauszek SJ, Barrera JDC, Goldberg T, Allende R., Rodriguez LL. 2011. Genetic And Antigenic Relationships Of Vesicular Stomatitis Viruses From South America. **Archives of Virology** 156(11): 1961-8

5. Krug PW, Lee L J., Eslami, A C., Larson C R., and Rodriguez LL. (2011) Chemical Disinfection Of High-Consequence Transboundary Animal Disease Viruses On Nonporous Surfaces. **Biologicals** 39(4):231-5

6. Charleston B, Rodriguez LL. (2011) Understanding foot-and-mouth disease virus early pathogenesis and immune responses. **Transboundary and Emerging Diseases**: 58(4):281-2.

7. Arzt, J., Baxt, B., Grubman, M.J., Jackson, T., Juleff, N., Rhyan, J., Rieder, E., Waters, R., Rodriguez, L.L. (2011). The Pathogenesis of Foot-and-Mouth Disease II: Viral Pathways in Swine, Small Ruminants, and Wildlife; Myotropism, Chronic Syndromes, and Molecular Virus-Host Interactions. **Transboundary and Emerging Diseases. 58(4): 305-26**

8. Arzt, J., Juleff, N., Zhang, Z., Rodriguez, L.L. (2011). The Pathogenesis of Foot-and-Mouth Disease I: Viral Pathways in Cattle. **Transboundary and Emerging Diseases: 58(4):291-304.**

9. Dietzgen, R.G., Calisher, C.H., Kurath, G., Kuzmin, I.V., Rodriguez, L.L., Stone, D.M., Tesh, R.B., Tordo, N., Walker, P.J., Wetzel, T., Whitfield, A.E. (2011) Rhabdoviridae. In: Virus taxonomy: classification and nomenclature of viruses: **Ninth Report of the International Committee on Taxonomy of Viruses**. Ed: King, A.M.Q., Adams, M.J., Carstens, E.B. and Lefkowitz, E.J. San Diego: Elsevier

10. Brito BP, Perez AM, König GA, Cosentino B, and Rodriguez LL. (2011) Factors associated with within-herd transmission of serotype A foot-and-mouth disease virus in Argentina, 2001. **Transboundary and Emerging Diseases**: 58(5):387-93.

11. Rodriguez L.L. and Gay C.G. (2011). Development Of Vaccines Toward The Global Control And Eradication Of Foot-And-Mouth Disease. **Expert Reviews Vaccines** 10(3), 377–387.

12. Piccone ME, Diaz-San Segundo F, Kramer E, Rodriguez LL, de los Santos T. (2011) Introduction of tag epitopes in the inter-AUG region of foot and mouth disease virus: effect on the L protein. **Virus Research, 155(1): p. 91-7**.

13. Arroyo, M, Perez AM, and Rodriguez LL. (2011). Characterization of the temporal and spatial distribution and reproductive ratio of vesicular stomatitis outbreaks in Mexico in 2008. **American Journal of Veterinary Research 72(2): p. 233-8)**

14. Smith PF, Howerth EW, Carter D, Gray EW, Noblet R, Smoliga G, Rodriguez LL, Mead DG. (2011) Domestic cattle as a non-conventional amplifying host of vesicular stomatitis New Jersey virus. **Medical and Veterinary Entomology**: 25(2):184-91.

15. Reis, J.L., Jr., Rodriguez, L.L., Mead, D.G., Smoliga, G., Brown, C.C. (2011) Lesion Development and Replication Kinetics During Early Infection in Cattle Inoculated With Vesicular Stomatitis New Jersey Virus Via Scarification and Black Fly (Simulium vittatum) Bite. **Veterinary Pathology** 48, 547-557.

16. O'Donnell, V., Pacheco, J.M., LaRocco, M., Burrage, T., Jackson, W., Rodriguez, L.L., Borca, M.V., Baxt, B. (2010). Foot-and-mouth disease virus utilizes an autophagic pathway during viral replication. **Virology 410, 142-150**.

17. Durk RC, Singh K, Cornelison CA, Rai DK, Matzek KB, Leslie MD, Schafer E, Marchand B, Adedeji A, Michailidis E, Dorst CA, Moran J, Pautler C, Rodriguez LL, McIntosh MA, Rieder E, Sarafianos SG. (2010). Inhibitors of Foot and Mouth Disease Virus Targeting a Novel Pocket of the RNA-Dependent RNA Polymerase. **PLoS One 5(12): e15049.**

18. Pacheco JM, Piccone ME, Rieder AE, Pauszek SJ, Borca MV and Rodriguez LL. (2010). Domain disruptions of individual 3B proteins of foot-and-mouth disease virus do not alter growth in cell culture or virulence in cattle. **Virology 405 (2010) 149–156**

19. Arzt J; Pacheco JM and Rodriguez LL. (2010). The Early Pathogenesis of Foot-and-Mouth Disease in Cattle After Aerosol Inoculation; Identification of the Nasopharynx as the Primary Site of Infection. **Veterinary Pathology 47(6) 1048-1063.**

20. Carrillo C, Prarat M, Vagnozzi A, Calahan JD, Smoliga G, Nelson WM, Rodriguez LL. (2010) Specific detection of Rinderpest virus by real-time reverse transcription-PCR in preclinical and clinical samples from experimentally infected cattle. **J Clin Microbiol:** 48(11):4094-101.

21. Adell AD, Perez AM, Navarro R, Lopez I, Paz P, and Rodriguez LL (2010). Time to seroconversion to vesicular stomatitis New Jersey virus 1 in sentinel cattle in southern Mexico. **American Journal of Veterinary Research 71(12): 1451-1456.**

22. Perez AM, Pauszek SJ, Jimenez D, Kelley WN, Whedbee Z, and Rodriguez LL. (2010). Overwintering of Vesicular Stomatitis Virus in the United States. **Preventive Veterinary Medicine. 93(4):258-264.**

23. Piccone ME, Pacheco JM, Pauszek SJ, Kramer E, Rieder AE, Borca MV, and Rodriguez LL. (2010). The Region Between The Two Polyprotein Initiation Codons Of Foot-And-Mouth Disease Virus Is Critical For Virulence In Cattle. **Virology 396:152–159.**

24. Pacheco JM, Arzt J and Rodriguez LL. (2010). Early events in foot-and-mouth disease pathogenesis in cattle after controlled aerosol exposure. **The Veterinary Journal** 183: 46–53

25. Trujillo CM, Rodriguez L, Rodas JD, Arboleda JJ. (2010). Experimental infection of Didelphis marsupialis with vesicular stomatitis New Jersey virus. **Jounal of Wildlife Diseases:** 46(1):209-17.

26. Arzt J, Gregg D, Clavijo A, and Rodriguez LL. (2009). Optimization of immunohistochemical and immunofluorescent techniques for localization of foot-and-mouth disease virus in animal tissues. **Journal of Veterinary Diagnostic Investigation. 21(6):779-92.**

27. Rodriguez LL, Grubman MJ. (2009). Foot and mouth disease virus vaccines. **Vaccine. Nov 5;27 Suppl 4:D90-4**.

28. Mead DG, Lovett KR, Murphy MD, Pauszek SJ, Smoliga G, Gray EW, Noblet R, Overmyer J, Rodriguez LL. (2009). Experimental transmission of vesicular stomatitis New Jersey virus from Simulium vittatum to cattle: clinical outcome is influenced by site of insect feeding. **Journal of Medical Entomology 46(4):866-72**.

29. Reis Jr. J.L., D. Mead, L. Rodriguez and C. Brown. (2009). Transmission And Pathogenesis of Vesicular Stomatitis Viruses**. Brazilian Journal of Veterinary Pathology. 2(1) 49-57.**

30. Piccone, M. E., Pauszek, S., Pacheco, J., Rieder, E., Kramer, E., and Rodriguez, L. L. (2009). Molecular characterization of a foot-and-mouth disease virus containing a 57-nucleotide insertion in the 3'untranslated region. **Archives of Virology** 154(4): 671-6.

31. Wilson, W. C., Letchworth, G. J., Jimenez, C., Herrero, M. V., Navarro, R., Paz, P., Cornish, T. E., Smoliga, G., Pauszek, S. J., Dornak, C., George, M., and Rodriguez, L. L. (2009). Field evaluation of a multiplex real-time reverse transcription polymerase

chain reaction assay for detection of Vesicular stomatitis virus. **Journal of Veterinary Diagnostic Investigation** 21(2): 179-86.

32. Rainwater-Lovett K, Pacheco JM, Packer C, Rodríguez L. (2008). Detection of foot-and-mouth disease virus infected cattle using infrared thermography. **The Veterinary Journal** 180(3)**:** 317-24.

33. Pauszek, S. J., Allende R. and Rodriguez L. L. (2008). Characterization of the full-length genomic sequences of vesicular stomatitis Cocal and Alagoas viruses. **Archives of Virology** 153(7): 1353-7.

34. Balinsky CA, Delhon G, Smoliga G, Prarat M, French RA, Geary SJ, Rock DL, Rodriguez LL. (2008). Rapid preclinical detection of sheeppox virus by a real-time PCR assay. **Journal of Clinical Microbiology** 46(2): 438-42.

35. Schumann KR, Knowles NJ, Davies PR, Midgley RJ, Valarcher JF, Raoufi AQ, McKenna TS, Hurtle W, Burans JP, Martin BM, Rodriguez LL, Beckham TR. (2008) Genetic characterization and molecular epidemiology of foot-and-mouth disease viruses isolated from Afghanistan in 2003-2005. **Virus Genes** 36(2):401-13.

36. Kitching P, Hammond J, Jeggo M, Charleston B, Paton D, Rodriguez L, Heckert R. Global FMD control--is it an option? **Vaccine.** (2007) Jul 26;25(30):5660-4.

37. Rainwater-Lovett K, Steven J. Pauszek, William N. Kelley, and Luis L. Rodriguez. (2007). Molecular epidemiology of vesicular stomatitis New Jersey virus from the 2004–2005 US outbreak indicates a common origin with Mexican strains. **Journal of General Virology** 88: 2042 - 2051.

38. Tomasula P. M., M. F. Kozempel, R. P. Konstance, D. Gregg, S. Boettcher, B. Baxt, and L. L. Rodriguez. (2007). Thermal Inactivation of Foot-and-Mouth Disease Virus in Milk Using High-Temperature, Short-Time Pasteurization. **Journal of Dairy Science** 90: 3202–3211.

39. Scherer, C. F. C., V. O'Donnell, W.T. Golde, D. Gregg, D. M. Estes, and L. Rodriguez. (2007). Vesicular stomatitis New Jersey virus (VSNJV) infects keratinocytes and is restricted to lesion sites and local lymph nodes in bovine, a natural host. **Veterinary Research** 38: 375–390

40. Jackson, A.L., O'Neill, H., Maree, F, Blignaut, B., Carrillo, C., Rodriguez, L., Haydon, D.T. (2007). Mosaic structure of foot-and-mouth disease virus genomes, **Journal of General Virology.** 88: 487-492

41. Budowle, B, Schutzer, S.E, Burans, J.P., Beecher, D.J., Cebula, T.A., Chakraborty, R., Cobb, W.T., Fletcher, J. s, Hale, M.L., Harris, R.B., Heitkamp, M.A., Keller, F.P., Kuske, C., LeClerc, J.E., Marrone, B.L., McKenna, T.S., Morse, S.A., Rodriguez, L.L., Valentine, N.B, Yadev, J. (2006). Quality sample collection, handling, and preservation

for an effective microbial forensics program. **Applied and Environmental Microbiology** 72: 6431-6438

42. Golde, W. T., Pacheco, J. M., Duque, H., Doel, T., Penfold, B., Ferman, G. S., Gregg, D.R., Rodriguez, L. L., (2005). Vaccination against foot-and-mouth disease virus confers complete clinical protection in 7 days and partial protection in 4 days: Use in emergency outbreak response. **Vaccine** 23, 5775-5782

43. Golde, W. T., Gollobin, P., Rodriguez, L. L., (2005). A rapid, simple, and humane method for submandibular bleeding of mice using a lancet. **Laboratory Animal** (NY) 34, 39-43.

44. Rodriguez, L.L., Lubroth, J., Dekker, A. (2005) Chapter 31 Vesicular Diseases. Barbara Straw, Editor, **Diseases of Swine, Ninth Edition**, Iowa State Press, Ames, Iowa, Blackwell Publishing, p.517-535.

45. Martinez I, Barrera J, Rodriguez L L, Wertz G W. (2004). Recombinant vesicular stomatitis (Indiana) virus expressing New Jersey and Indiana glycoproteins induces neutralizing antibodies to each serotype in swine, a natural host. **Vaccine** 22: 4035-4043

46. Rodriguez LL, Barrera JC, Kramer E, Lubroth J, Brown F, Golde WT. (2003). A synthetic peptide containing the consensus sequence of the G-H loop region of foot-and-mouth disease virus type-O VP1 and a promiscuous T-helper epitope induces peptide-specific antibodies but fails to protect cattle against viral challenge, **Vaccine** 21: 3751-3756

47. Magnuson RJ, Triantis J, Rodriguez LL, Perkins A, Meredith CO, Beaty B, McCluskey B, Salman M .(2003). A single-tube multiplex reverse transcription-polymerase chain reaction for detection and differentiation of vesicular stomatitis Indiana 1 and New Jersey viruses in insects, **Journal of Veterinary Diagnostic Investigations** 15: 561-567

48. Martinez I., Rodriguez L.L., Jimenez C., Pauszek S.J. and Wertz G.W. (2003). Vesicular Stomatitis Virus Glycoprotein is a Determinant of Pathogenesis in Swine, a Natural Host. **Journal of Virology** 77: 8039-8047.

49. Meissner F., Maruyama T., Frentsch M., Hessell A. J. Rodriguez L.L., Geisbert T.W., Jahrling P.B., Burton D.R., and Parren W.H.I. (2002). Detection of Antibodies against the Four Subtypes of Ebola Virus in Sera from Any Species Using a Novel Antibody-Phage Indicator Assay. **Virology** 300: 236-243

50. Llewellyn, Z., M.D. Salman, S. J. Pauszek, and L.L. Rodriguez. (2002). Growth and Molecular Evolution of Natural Isolates of Vesicular Stomatitis Virus Serotype New Jersey in Insect Cells. **Virus Research** 89: 65-73.

51. Rodriguez, L.L., S.J. Pauszek, T. A. Bunch and K.R. Schumann. (2002). Full-Length Genome Analysis of Natural Isolates of Vesicular Stomatitis Virus (Indiana 1 Serotype) from North, Central and South America. **Journal of General Virology** 83: 2475-2483.

52. Rodriguez L L. (2002). Emergence and Re-Emergence of Vesicular Stomatitis in The United States. **Virus Research** 85: 211-219

53. Flanagan, E. B., J. M. Zamparo, L. A. Ball, L. L. Rodriguez, and G. W. Wertz. (2001). Rearrangement of the genes of vesicular stomatitis virus eliminates clinical disease in the natural host: new strategy for vaccine development. **Journal of Virology** 75: 6107-6114.

54. Rodriguez, L L, Bunch T A, Fraire M, and Llewellyn Z. (2000). Re-emergence of vesicular stomatitis in the western United States is associated with distinct viral genetic lineages. **Virology** 271: 171-181.

55. Rodriguez L.L. and Nichol S.T. (1999). Vesicular Stomatitis Viruses. In R.G. Webster and A. Granoff eds., **Encyclopedia of Virology 2nd Edition** (Academic Press, London).

56. Letchworth G.J., Rodriguez L.L. , and Barrera J.C. (1999). Vesicular Stomatitis (review) **Veterinary Journal** (BR), 157: 239-260.

57. Maruyama T., Rodriguez L.L. Jahrling P., Sanchez A., Khan A.S., Nichol S.T., Peters C.J., Parren P.W.H.I., Burton D.R. (1999). Ebola virus can be effectively neutralized by antibody produced in natural human infection. **Journal of Virology**: 73: 6024-6030.

58. Rodriguez L.L., De Roo A., Guimard Y., et. al. (1999). Persistence and genetic stability of Ebola virus during the outbreak in Kikwit, Democratic Republic of Congo, (1995). **Journal of Infectious Diseases**, 179 (Suppl 1): S170-S176.

59. Maruyama T., Parren P., Sanchez A., Rensink I., Rodriguez L.L., Khan A.S., Peters C.J., and Burton D. (1999). Recombinant human monoclonal antibodies to Ebola virus. **Journal of Infectious Diseases**, 179 (Suppl 1): S235-S239.

60. Rowe A.K., Bertolli J., Khan A.S., Mukunu R., Muyembe-Tamfum J.J., Bressler D., Williams A.J., Peters C.J., Rodriguez L.L., et. al (1999). Clinical, Virologic, and Immunologic Follow-up of Convalescent Ebola Hemorrhagic Fever Patients and Their Household Contacts, Kikwit, Democratic Republic of Congo. **Journal of Infectious Diseases**, 179 (Suppl 1): S28-35.

61. Van Weeren P.R., Morales J.A., Rodriguez L.L., Cedeño H., Villalobos, J., and Poveda, L.J. (1999). Mortality Supposedly Due to Intoxication by Pyrrolidizine Alkaloids from *Heliotropium indicun* in a Horse Population in Costa Rica: A Case Report**. Veterinary Quarterly**, 21:59-62.

62. Rodriguez, L.L., Owens J.O., Peters C.J., and Nichol S.T. (1998). Genetic reassortment among viruses causing hantavirus pulmonary syndrome. **Virology: 242:99-106.**

63. Marcus P.I., Rodriguez, L. L., and Sekellick M.J. (1997). Interferon induction as a quasi-species marker of vesicular stomatitis virus populations. **Journal of Virology** 72: 542-549.

64. Rodriguez L.L., Maupin G.O., Ksiazek T.G., Rollin, P.E., Khan, A.,. Schwartz T.F., Lofts R.S., Smith J.F., Noor A.M., Peters C.J., and Nichol S.T. (1997). Molecular investigation of a multisource outbreak of Crimean-Congo hemorrhagic fever in the United Arab Emirates. **American Journal of Tropical Medicine and Hygiene** 57: 512-518.

65. Rodriguez, L. L., Fitch, W. M., and Nichol, S. T. (1996). Ecological factors rather than temporal factors dominate the evolution of vesicular stomatitis virus natural variants. **Proceedings of the National Academy of Sciences**, 93: 13030-13035.

66. Letchworth, G.J., J. C. Barrera, J.R. Fishel and L. L. Rodriguez. (1996). Vesicular Stomatitis New Jersey virus RNA persists in cattle following convalescence. **Virology**, 219: 480-484.

67. Jiménez, A. E., Jiménez, C. F., Castro, L. and Rodriguez, L. L. (1996). Serological survey of small mammals in a vesicular stomatitis virus enzootic area. **Journal of Wildlife Diseases,** 32: 274-279.

68. Vanleeuwen, J.A., Rodriguez, L.L., Waltner-Toews, D. (1995). Cow, farm and ecological risk factor of clinical vesicular stomatitis on Costa Rican dairy farms. **American Journal of Tropical Medicine and Hygiene,** 53: 342-350.

69. Jiménez, C., Bonilla, J.A., Dolz, G., Rodriguez, L.L, Herrero, L., Bolaños, E., Cortés, M.R., and Moreno, E. (1995). Bovine leukaemia-virus infection in Costa Rica. **Journal of Veterinary Medicine. B.** 42: 385-390.

70. Herrero, M.V., Jimenez, A.E., Rodriguez, L.L., and Pereira, R. (1994). Phlebotomines (Diptera: Psychodidae) collected at a Costa Rican dairy farm in a vesicular stomatitis endemic area. **Journal of Medical Entomology,** 31: 911-914.

71. Rodriguez, L. L., G.J. Letchworth, Spiropoulou, C.F. and S.T. Nichol. (1993). Rapid detection of vesicular stomatitis New Jersey virus in clinical samples by using the polymerase chain reaction. **Journal of Clinical Microbiology,** 31: 2016-2020.

72. Atwill, E.R., L. L. Rodriguez, D.W. Hird, and O. Rojas. (1993). Environmental and host factors associated with seropositivity to New Jersey and Indiana vesicular stomatitis viruses in Costa Rican cattle. **Preventive Veterinary Medicine,** 15: 303-314.

73. Rodriguez, L. and L. Luconi. (1992). Vaccination of heifers with a temperature sensitive strain of bovine herpesvirus 1 (IBR/IPV) by intravulvar-submucosal injection. **Ciencias Veterinarias (Costa Rica),** 13:23-30.

74. Rodriguez, L. L., S. Vernon, A. Morales, and G.J. Letchworth. (1990). Serological monitoring of vesicular stomatitis New Jersey Virus in Endemic Regions of Costa Rica. **American Journal of Tropical Medicine and Hygiene,** 42:373-281.

75. Vernon S., L. L. Rodriguez, and G.J. Letchworth. (1990). Vesicular stomatitis new jersey virus glycoprotein gene sequence and neutralizing epitope stability in an enzootic focus. **Virology**, 177:209-215.

76. Hird D., E. Perez, M. Caballero, L. L. Rodriguez and J. Velazquez. (1990). Identification of selected disease agents from calves on Costa Rica tropical cloud-forest dairy farms**.** **Preventive Veterinary Medicine**. 9:221-231.

77. Rodriguez, L. L. (1989). Opportunities of biotechnology use in animal production in Central America. In: Document series from technical events, **I.I.C.A**., San Jose Costa Rica, p. 104-125.

78. Rodriguez L. L., and S. Fernandez. (1988). Isolation of bovine herpesvirus 1 associated with vulvovaginitis and conjunctivitis in dairy herds of Costa Rica. **Ciencias Veterinarias (Costa Rica)** 19: 105-110.

79. Ducreux, F., E. Arrieta, C. Jimenez, L. L. Rodriguez and E. Moreno. (1988). Prevalence of bovine leukemia in Bos indicus of Costa Rica. **Ciencias Veterinarias (Costa Rica)** 19: 95-100.

80. Marshall, R.L., L. L. Rodriguez and G.J. Letchworth. (1986). Characterization of the envelope proteins of infectious bovine rhinotracheitis virus (BHV-1) by biochemical and immunological methods. **Journal of Virology**. 57: 745-753.

81. Rodriguez, L. L., E.J. Homan, and B.C. Easterday. (1984). Characterization of bovine herpesvirus I isolated from trigeminal ganglia of clinically healthy cattle. **American Journal of Veterinary Research**. 45: 1069-1072.

82. Rodriguez, L. L., E.J. Homan, and B.C. Easterday. (1984). Studies on bovine herpesvirus I (BHV-1) isolated from trigeminal ganglia of clinically normal cattle. In: **Bovine Respiratory Disease: A symposium.** R.W. Loan (ed.), Texas A&M.

Patents:

U.S. Patent. "A rapid, simple, and humane method for submandibular bleeding of mice using a lancet" (2005).

U.S. Patent (pending). "Development of a Marker Foot and Mouth Disease Virus Vaccine Candidate That is Attenuated in the Natural Host" (2009).

Professional awards.

2007 Federal Laboratory Consortium for Technology Transfer Award for Excellence in Technology Transfer: Humane Device for Bleeding Mice.
2005 USDA, Agricultural Research Service Technology Transfer Award For the Invention of A rapid, simple, and humane method for submandibular bleeding of mice using a lancet.
Centers for Disease Control and Prevention, Group Honor Award, International Health, Nicaraguan Epidemic Investigation, 1996
Centers for Disease Control and Prevention, Group Honor Award, Research - Epidemiology and Laboratory, Ebola Epidemic, 1996
National Science and Technology Award "Clodomiro Picado Twight" (Presented by the President of Costa Rica, 1992).

Other Experience and Professional Memberships/Honors

Journal of Transboundary and Emerging Diseases; Editorial Board Member since 2008

International Committee for Taxonomy of Viruses (ICTV): vesiculovirus working group 2009.

National Bio and Agro Defense Facility (NBAF); ARS Representative and Subject Matter Expert; Building Design Committee.

USDA-ARS Animal Health Research Center at the University of Connecticut – Storrs, CT; ARS Representative and Subject Matter Expert; Building Design Committee.

Global Foot-and-Mouth Disease Research Alliance (GFRA); Founding Member of Executive Committee since 2005.

Institutional Animal Care and Use Committee, Plum Island Animal Disease Center. Chairman 2000-2003.

American Society for Virology, since 1985.

Veterinary Medical Association, Costa Rica, since 1979