

Name: VIRGINIA S. HINSHAW
Place of Birth: Oak Ridge, Tennessee
Citizenship: U.S.A.
Office Address: Office of the Chancellor
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Academic Degrees:

B.S. 1966 Auburn University, Auburn, Alabama (Laboratory Technology)
M.S. 1967 Auburn University, Auburn, Alabama (Microbiology)
Ph.D. 1973 Auburn University, Auburn, Alabama (Microbiology)

Professional Appointments:

1967-68 Clinical and Research Microbiologist, Department of Microbiology, Medical College of Virginia, Richmond, Virginia
1974-75 Research Virologist, Office of Environmental Research, University of California, Berkeley, California
1975-77 Research Associate, Division of Virology, St. Jude Children's Research Hospital, Memphis, Tennessee
1977-81 Assistant Member, Division of Virology, St. Jude Children's Research Hospital, Memphis, Tennessee
1981-85 Associate Member, Department of Virology and Molecular Biology, St. Jude Children's Research Hospital, and Assistant Professor, Department of Microbiology and Immunology, The University of Tennessee Center for the Health Sciences, Memphis, Tennessee
1983-84 Sabbatical Leave, Department of Microbiology and Molecular Genetics, Harvard Medical School, Boston, Massachusetts
1985-88 Associate Professor, Department of Pathobiological Sciences, School of Veterinary Medicine, University of Wisconsin-Madison, Madison, Wisconsin
1988-2001 Professor, Department of Pathobiological Sciences, School of Veterinary Medicine, University of Wisconsin-Madison, Madison, Wisconsin
1992-93 Interim Associate Dean of Research/Graduate Studies, School of Veterinary Medicine, University of Wisconsin-Madison, Madison, Wisconsin (Feb. 1992-July 1993)
1994-95 Associate Vice-Chancellor, University of Wisconsin-Madison, Madison, Wisconsin
1995-2001 Vice Chancellor for Research and Dean of the Graduate School, University of Wisconsin-Madison, Madison, Wisconsin
2001-present Dean Emerita and Professor Emerita, University of Wisconsin-Madison, Madison, Wisconsin
2001-2007 Provost and Executive Vice Chancellor, University of California-Davis, Davis, California
2002-2007 Professor- **Department of Internal Medicine, School of Medicine**, University of California-Davis, Davis, California
2002-2007 Professor - **Department of Pathology, Microbiology, and Immunology, School of Veterinary Medicine**, University of California-Davis, Davis, California
2007-Present **Chancellor**, University of Hawai'i at Mānoa
2007-Present **Professor** – College of Natural Sciences and John A. Burns School of Medicine

Research Interests: Pathogenesis, immune recognition and ecology of influenza viruses.

Societies:

American Association for the Advancement of Science
American Society for Microbiology
American Society for Virology
Association for Women in Science
Sigma Xi
Sigma Delta Epsilon

Honors and Honorary Societies:

Phi Beta Kappa
Phi Kappa Phi
Phi Zeta
Gamma Sigma Delta
Sigma Xi – WI Chapter; Board of Electors; Sec.-Tres. 1993-94; President-Elect 1994-95;
President 1995-96
P. P. Levine Award - 1991 (Amer. Assoc. of Avian Pathologists)
Veterinary Student Teaching Awards - 1990, 1993
Walter F. Renk Distinguished Professor Award – 1992
Council Member for Zoonotic/Veterinary Virology, Amer. Soc. of Virology (1992-95)
CIC Academic Leadership Program (1992-93)
Distinguished Woman Graduate - Auburn University – 1992
Fellow, Japan Society for Promotion of Science – 1995
Woman of Distinction, Civics Club, Madison, WI - 1997
Outstanding Educator Award from the California National Organization for Women - 2005
Outstanding Volunteer Award, Davis Sacramento Regional, FIRST (For Inspiration and
Recognition of Science and Technology) - 2006

Invited Guest Lectures at Universities, Research Institutes and Societies:

Agracetus, Madison, WI
American Association for Swine Practitioners
Ames Veterinary Research Laboratory, Ames, IA
American Society for Microbiology
American Veterinary Medical Association
American Society for Virology
Audubon Society
Auburn University, Auburn, AL
Cornell Duck Research Laboratory, Long Island, NY
Cornell University, Ithaca, NY
Czechoslovakia Influenza Center, Prague, Czechoslovakia
Graduate Women in Science
Harvard Medical School, Boston, MA
Hokkaido University, Sapporo, Japan
Iowa State University, Ames, IA
Ivanowski Institute, Moscow, USSR
Institute of Virology, Peking, China
Institute of Virology, Justus-Liebig University, Giessen, Germany
Institute of Virology, Phillips-Universitat, Marburg, Germany
John Radcliffe Hospital, Oxford, England
Korea University, Seoul, Korea
Medical College of Georgia, Augusta, GA
Michigan State - U.S.D.A. Regional Poultry Laboratory, East Lansing, MI

National Institutes for Medical Research, London, England
NOBL Laboratories, Sioux City, IA
North Carolina State University, Raleigh, NC
Pasteur Institute, Paris, France
Pennsylvania State University, University Park, PA
Rhodes College, Memphis, TN
Rush-Presbyterian University, Chicago, IL
Sigma Xi
St. Jude Children's Research Hospital, Memphis, TN
St. Louis University, St. Louis, MO
Tri Beta Honor Society
University of Hokkaido
University of Kentucky, Lexington, KY
University of Massachusetts Medical School, Worcester, MA
University of Minnesota, St. Paul, MN
University of North Carolina, Chapel Hill, NC
University of Tennessee, Memphis, TN
University of Tokyo, Tokyo, Japan
University of Wisconsin-Madison, Madison, WI
University of Wisconsin- Milwaukee, Milwaukee, WI
University of Wisconsin-Whitewater, Whitewater, WI
Veterinary Medical Association
Wildlife Disease Association
Women in Science and Engineering
World Health Organization
Worcester Foundation for Research, Worcester, MA

Teaching Activities:

1981-1985

Lectures on virology and immunology and specific virus systems (e.g., influenza, reoviruses, bunyaviruses, arenaviruses) to graduate, dental, medical, and nursing students at the University of Tennessee.

Responsible for honor students from Rhodes College and Christian Brothers College.

1975-1985

Responsible for teaching laboratory techniques, concepts and procedures to visiting investigators and research technologists from the U.S., as well as many other countries (China, Russia, Israel, Canada, Mexico, Venezuela, Hong Kong, Japan, Saudi Arabia, Australia, New Zealand).

1985-1996

Responsible for Veterinary Virology for all veterinary students (80 students/class). (Honorable Mention for Norden Teaching Award - 1990 and 1993)

Participation in graduate student teaching and training in the areas of viral pathogenesis and immunology, including such graduate courses as Viral Pathogenesis (Vet. Sci.), Medical Virology (Med. Micro.), Genetics of Microbial Pathogenesis (Med. Micro.). Participation in undergraduate teaching (Ways of Knowing) and laboratory training for undergraduates. Also, a speaker for Summer Orientation and Registration (SOAR), Faculty Showcase, Founders' Day and Parents' Day for UW-Madison. In addition, a speaker for numerous training programs for faculty, such as

New Faculty Orientation, Women's Mentoring Program, Women in Science, Graduate Women in Science, Orientation for Leaders, Strategies for Tenure, and others.

1996-2007

Freshman seminars, lectures in infectious disease and public health courses, extensive public speaking engagements

Other Activities:

1995 - 2007:

Member, Infectious Diseases Laboratory Scientific Advisory Board, UCLA
Member, Regents' Task Force on University Budget Options (2006-Present)
Vice Chair, Committee to Assess Research Doctorate Programs, National Academy of Sciences (October 2005-December 2008)
Reviewer, Special Emphasis Panel on Influenza, Centers for Disease Control and Prevention (2006)
Member, Internationalization Forum, American Council of Education (2005-Present)
American Leadership Forum (2005-Present)
International House Council of Advisors (2005-Present)
Member, Y-Me Breast Cancer Board of Davis (2004-Present)
Executive Committee, Council for Academic Affairs, NASULGC (2002-2005)
Member, Chief Academic Officers NASULGC (2002-2006)
Member, Chief Academic Officers, Association of American Universities
Chair, Board for Cooperative Institute for Meteorological Satellite Studies (CIMSS) (1995-2001)
Chair, CIC Senior Research Officers (1999-2001)
Chair, Technology Transfer Council, UW-Madison (1999-2000)
President, Association of Graduate Schools (1999-2000)
Member, Association of Graduate Schools Executive Committee (1998-2001)
Member CIC Graduate Deans (1995-2001)
Member, CIC Senior Research Officers; Chair (1999-2001)
Member, NCA Accreditation Team, Boulder, CO (2000)
Member, Review team, University of North Carolina, Chapel Hill (2000)
Member, WiCell Board, Madison, WI (2000-2002)
Member, Technical Advisory Board, Mason-Wells, Milwaukee, WI (2000-2001)
Member, Wisconsin Innovation Network (WIN), Madison, WI (2000-2001)
Member, Bascom Hill Society, UW-Madison (1995-present)
Member, International Women's Forum (1995-present)
Member, Susan Komen "Race for the Cure" Board, Madison, WI (1995-2001)
Member, Town and Gown, Madison, WI
Member (Advisory), University Research Park Board, Madison, WI (1995-2001)
Member, Steering Committee, Wisconsin Alumni Association Cabinet 99 (1995-2001)
Member, Administrative Council for the Biological Sciences; Chair, 1997-99
Member, Chancellor's Advisory Council, UW-Madison (1995-2001)
Member, Deans' Council, UW-Madison (1995-2001)
Member, Leadership Council, UW-Madison (1995-2001)
Member, Campus Vision Group, UW-Madison (1995-2001)
Member, Women's Faculty Mentoring Board (1995-97), UW-Madison
Mentor for Junior Faculty, Academic Staff and Minority Students (1990-present)

Prior to 1995:

Advisor - Vaccines for Avian Species and USDA Avian Respiratory Disease Committee Affiliate
Appointments with UW-Madison Departments of Medical Microbiology, Veterinary Science, Molecular Biology, Institute on Aging Editorial Board, J. Virology (1991-1993; 1994-96)
Invited Reviewer for USDA, NIH, Fogarty, Canadian Research Council, Israel Scientific Agency,

USSR Collaborative Projects

Invited Reviewer for Science, J. Virology, J. Avian Diseases, J. Immunology, Canadian Journal of Microbiology, Marine Mammal Science, Avian Diseases, J. Veterinary Diagnostic Investigations, Archives of Virology, J. Clinical Investigations, Viral Immunology, Vaccine, J. Avian Pathology, J. Nutrition, J. Wildlife Diseases, J. Am. Vet Med Assoc.

Invited Site Visitor for NIH

Member, NIH Biomedical Sciences Study Section (1987-1991)

Member, NIH Reviewers Reserve (1991-95)

Member, USDA Special Grants Study Section (1990)

Member, USDA Molecular and Cellular Basis of Disease Study Section (1991)

Organizing Committee - First, Second and Third International Symposia on Avian Influenza

Session Chairperson for local, national and international meetings

USA-USSR Scientific Exchange Program

World Health Organization Group in Ecology of Influenza Viruses

PUBLICATIONS:

Original Articles

1. Hinshaw, V.S. 1969. Frequency of R factor-mediated multiple drug resistance in *Klebsiella* and *Aerobacter*. *Appl. Microbiol.* 17:214-218.

2. Chatigny, M.A., Wolochow, H., Hebert, I.E., and Hinshaw, V.S. 1975. Effect on cell cultures and virus of decontamination by formaldehyde of a biological safety cabinet. 50th Technical Progress Report of Naval Biomedical Research Laboratory, pp. 285-293.

3. Tam, K.F., and Hinshaw, V.S. 1975. Inactivation of animal viruses with sodium hypochlorite solutions. 50th Technical Progress Report of Naval Biomedical Research Laboratory, pp. 296-303.

4. Hinshaw, V.S., Blank, H., Schaffer, F.L., Dimmick, R.L., and Chatigny, M.A. 1975. Studies of biohazard risk evaluation of oncogenic virus aerosols. 50th Technical Progress Report of Naval Biomedical Research Laboratory pp. 322-329.

5. Hinshaw, V.S., Schaffer, F.L., and Chatigny, M.A. 1976. Evaluation of Moloney murine sarcoma-leukemia complex as a model for airborne oncogenic virus biohazards. Survival of airborne virus and exposure of mice. *J. Natl. Cancer Inst.* 57:775-778.

6. Hinshaw, V.S. and Blank, H.F. 1976. Isolation of feline leukemia virus. 51st Technical Progress Report of Naval Biomedical Research Laboratory, pp. 220-226.

7. Schaffer, F.L., Hinshaw, V.S., Tam, K.F., Wolochow, H., Chatigny, M.A., Blank, H., Latham, A.B., and Clinger, D. 1976. Virological studies on the evaluation of biohazards in viral oncology laboratories. 51st Technical Progress Report of Naval Biomedical Research Laboratory, pp. 87-100.

8. Hinshaw, V.S. and Blank, H.F. 1977. Isolation of feline leukemia virus from clinical specimens. *Am. J. Vet. Res.* 38:55-57.

9. Webster, R.G., Tumova, B., Hinshaw, V.S., and Lang, G. 1977. Characterization of avian influenza viruses. Designation of a newly recognized hemagglutinin. *Bull. Wild. Hlth. Org.* 54:555-560.

10. Webster, R.G. and Hinshaw, V.S. 1977. Matrix protein from influenza A viruses and its role in cross protection in mice. *Infect. Immun.* 17:561-566.
11. Downie, J.C., Hinshaw, V.S., and Laver, W.G. 1977. The Ecology of Influenza. Isolation of type A influenza viruses from Australian pelagic birds. *Aust. J. Exp. Biol. Med. Sci.* 55:635-643.
12. Webster, R.G., Hinshaw, V.S. and Bean, W.J., Jr. 1977. Antigenic shift in myxoviruses. *Med. Microbiol. Immunol.* 164:57-68.
13. Hinshaw, V.S., Bean, W.J., Jr., Webster, R.G. and Easterday, B.C. 1978. The prevalence of influenza viruses in swine and the antigenic and genetic relatedness of influenza viruses from man and swine. *Virology* 84:51-62.
14. Hinshaw, V.S., Bankowski, R.A., and Rosenberger, J.K. 1978. Influenza viruses related to A/Shearwater/Australia/1/72 (Hav6Nav5) in domestic and feral birds. *J. Avian Dis.* 22:24-31.
15. Webster, R.G., Yakhno, M., Hinshaw, V.S., Bean, W.J., and Murti, K.G. 1978. Intestinal influenza: Replication and characterization of influenza viruses in ducks. *Virology* 84:268-278.
16. Hinshaw, V.S., Webster, R.G. and Turner, B. 1978. Novel influenza A viruses isolated from Canadian feral ducks: Including strains antigenically related to swine influenza (Hsw1N1) viruses. *J. Gen. Virol.* 41:115-127.
17. Hinshaw, V.S., Webster, R.G., and Turner, B. 1979. Water-borne transmission of influenza A viruses- *Intervirology* 11:66-68.
18. Hinshaw, V.S., Webster, R.G., and Rodriguez, R.J. 1979. Influenza A viruses: Combinations of hemagglutinin and neuraminidase subtypes isolated from animals and other sources. *Arch. Virol.* 62:281-290.
19. Hinshaw, V.S. and Webster, R.G. 1979. Characterization of a new avian influenza virus subtype and proposed designation of this hemagglutinin as Hav10. *J. Gen. Virol.* 45:751-754.
20. Hinshaw, V.S. and Mora, E.G. 1980. Localization of herpesvirus of turkeys in blood cells. *Poultry Sci.* 59(2):258-263.
21. Schild, G.C., Newman, R.W., Webster, R.G., Major, D. and Hinshaw, V.S. 1980. Antigenic analysis of influenza A virus surface antigens: Considerations for the nomenclature of influenza virus. *Arch. Virol.* 63:171-184.
22. Hinshaw, V.S., Bean, W.J., Webster, R.G. and Sriram, G. 1980. Genetic reassortment of influenza A viruses in the intestinal tract of ducks. *Virology* 102:412-419.
23. Kocan, A.A., Hinshaw, V.S., and Daubney, G.A. 1980. Influenza A viruses isolated from migrating ducks in Oklahoma. *J. Wildlife Dis.* 16:281-285.
24. Hinshaw, V.S., Webster, R.G., and Turner, B. 1980. The perpetuation of orthomyxoviruses and paramyxoviruses in Canadian waterfowl. *Can. J. Microbiol.* 26:622-629.
25. Van Wyke, K.L., Hinshaw, V.S., Bean, W.J., Jr., and Webster, R.G. 1980. Antigenic variation of influenza A virus nucleoprotein detected with monoclonal antibodies. *J. Virol.* 35:24-30.

26. Sriram, G., Bean, W.J., Jr., Hinshaw, V.S., and Webster, R.G. 1980. Genetic diversity among avian influenza viruses. *Virology* 105:592-599.
27. Boudreault, A., Lecomte, L., and Hinshaw, V.S. 1980. Antigenic characterization of influenza A viruses isolated from captured birds in Ontario, Quebec, and the Maritimes during 1977. *Rev. Canadian Biol.* 39:107-114.
28. Hinshaw, V.S., Webster, R.G., Bean, W.J., and Sriram, G. 1981. The ecology of influenza viruses in ducks and analysis of influenza viruses with monoclonal antibodies. *Comp. Immunol. Microbiol. Infect. Dis.* 3:155-164.
29. Thorsen, J., Barker, I.K., and Hinshaw, V.S. 1981. Influenza viruses isolated from waterfowl in Southern Ontario, 1976-78. *Canadian J. Microbiol.* 26:12-15.
30. Hinshaw, V.S., Webster, R.G., Rodriguez, R.J. 1981. Influenza A viruses: Combinations of hemagglutinin and neuraminidase subtypes isolated from animals and other sources. *Arch. Virol.* 67:191-201.
31. Alexander, D.J., Hinshaw, V.S., and Collins, M.S. 1981. Characterization of viruses from doves representing a new serotype of avian paramyxoviruses. *Arch. Virol.* 68:265-268.
32. Webster, R.G., Hinshaw, V.S., Bean, W.J., Jr., van Wyke, K.L., Geraci, J.R., St. Aubin, D.J., and Petursson, G. 1981. Characterization of an influenza A virus from seals. *Virology* 113:712-724.
33. Hinshaw, V.S., Webster, R.G., Easterday, B.C., and Bean, W.J. 1981. Replication of avian influenza A viruses in mammals. *Infect. Immun.* 34 (2):354-361.
34. Webster, R.G., Hinshaw, V.S., and Laver, W.G. 1982. Selection and analysis of antigenic variants of the neuraminidase of N2 influenza viruses with monoclonal antibodies. *Virology* 117:93-104.
35. Geraci, J.R., St. Aubin, D.J., Barker, I.K., Webster, R.G., Hinshaw, V.S., Bean, W.J., Ruhnke, H.L., Prescott, J.H., Early, G., Baker, A.S., Madoff, S., and Schooley, R.T. 1982. Mass Mortality of Harbor Seals: Pneumonia associated with influenza A virus. *Science* 215:1129-1131.
36. Hinshaw, V.S., Air, G.M., Gibbs, A.J., Graves, L., Prescott, B., and Karunakaran, D. 1982. Antigenic and genetic characterization of a novel hemagglutinin subtype of influenza A viruses from gulls. *J. Virol.* 42:865-872.
37. Murphy, B.R., Hinshaw, V.S., Sly, D.L., London, W.T., Hosier, N.T., Wood, F.T., Webster, R.G., Chanock, R.M. 1982. Virulence of avian influenza A viruses for squirrel monkeys. *Infect. Immun.* 37(3):1119-1126.
38. Lu, B.L., Webster, R.G., and Hinshaw, V.S. 1982. Failure to detect hemagglutination-inhibiting antibodies with intact avian influenza virions. *Infect. Immun.* 38:530-535.
39. Murphy, B.R., Sly, D.L., Tierney, E.L., Hosier, N.T., Massicot, J.G., London, W.T., Chanock, R.M., Webster, R.G., and Hinshaw, V.S. 1982. Reassortant virus derived from avian and human influenza A viruses is attenuated and immunogenic in monkeys. *Science* 218:1330-1332.
40. Hinshaw, V.S., Webster, R.G., Bean, W.J., Downie, J., and Senne, D.A. 1983. Swine influenza viruses in turkeys - A potential source of virus for humans- *Science* 220:206-208.

41. Halvorson, D., Karunakaran, D., Senne, D., Kelleher, C., Bailey, C., Abraham, S., Hinshaw, V., and Newman, J. 1983. Epizootiology of avian influenza - simultaneous monitoring of sentinel ducks and turkeys in Minnesota. *Avian Dis.* 27(1):77-85.
42. Hinshaw, V.S., Naeve, C.W., Webster, R.G., Douglas, A., Skehel, J.J., and Bryans, J. 1983. Analysis of antigenic variation in equine 2 influenza A viruses. *Bull. Wild. Hlth. Org.* 61(1):153-158.
43. Naeve, C.W., Webster, R.G., and Hinshaw, V.S. 1983. Phenotypic variation in influenza virus reassortants with identical gene constellations. *Virology* 128:331-340.
44. Hinshaw, V.S., Webster, R.G., Naeve, C.W., and Murphy, B.R. 1983. Altered tissue tropism of human-avian reassortant influenza viruses. *Virology* 128:260-263.
45. Brown, L.E., Hinshaw, V.S., and Webster, R.G. 1983. Antigenic variation in the influenza A virus non-structural protein, NS1. *Virology* 134:134-143.
46. Hinshaw, V.S., Air, G.M., Schild, G.C. and Newman, R.W. 1983. Characterization of a novel hemagglutinin subtype (H13) of influenza A viruses from gulls. *Bull. Wild. Hlth. Org.* 61(4):677-679.
47. Van Deusen, R.A., Hinshaw, V.S., Senne, D.A. and Pellacani, D. 1983. Micro-neuraminidase-inhibition assay for classification of influenza A virus neuraminidases. *Avian Dis.* 27:745-750.
48. Alexander, D.J., Hinshaw, V.S., Collins, M.S. and Yamane, N. 1983. Characterization of viruses which represent further distinct serotypes (PMV-8 and PMV-9) of avian paramyxoviruses. *Arch. Virol.* 78:29-36.
49. Hinshaw, V.S., Bean, W.J., Webster, R.G., Rehg, J.E., Fiorelli, P., Early, G., Geraci, J.R. and St. Aubin, D.J. 1984. Are seals frequently infected with avian influenza viruses- *J. Virol.* 51(3):863-865.
50. Naeve, C.W., Hinshaw, V.S. and Webster, R.G. 1984. Mutations in the hemagglutinin receptor-binding site can change the biological properties of an influenza virus. *J. Virol.* 51(2):567-569.
51. Austin, F.J. and Hinshaw, V.S. 1984. The isolation of influenza A viruses and paramyxoviruses from feral ducks on New Zealand. *Aust. J. Exp. Med. Sci.* 62:89-99.
52. MacKenzie, J.S., Edwards, E.C., Holmes, R.M. and Hinshaw, V.S. 1984. Isolation of ortho- and paramyxoviruses from wild birds in Western Australia, and the characterization of novel influenza A viruses. *Aust. J. Exp. Biol. Med. Sci.* 62(1):89-99.
53. Geraci, J.R., St. Aubin, D.J., Barker, I.K., Hinshaw, V.S., Webster, R.G., and Ruhnke, H.L. 1984. Susceptibility of grey (*Halichoerus grypus*) and harp (*Phoca groenlandica*) seals to the influenza virus and mycoplasma of epizootic pneumonia of harbor seals (*Phoca vitulina*). *Can. J. Fish. Aquat. Sci.* 41:151-156.
54. Murphy, B.R., Buckler, A.J., London, W.T. Harper, J., Tierney, E.L., Miller, N.T., Reck, L.J., Chanock, R.M., and Hinshaw, V.S. 1984. Avian-human reassortment influenza A viruses derived by mating avian and human influenza A viruses. *J. Infect. Dis.* 150:841-850.

55. Laver, W.G., Colman, P.M., Webster, R.G., Hinshaw, V.S., and Air, G.M. 1984. Influenza virus neuraminidase with hemagglutinin activity. *Virology* 137:314-323.
56. Hinshaw, V.S., Alexander, D.J., Aymard, M., Bachman, P.A., Easterday, B.C., Hannoun, C., Kida, H., Lipkind, M., MacKenzie, J.S., Nerome, K., Schild, G.C., Scholtissek, C., Senne, D.A., Shortridge, K.F., Skehel, J.J., Webster, R.G. 1984. Antigenic comparisons of swine-influenza-like H1N1 isolates from pigs, birds and humans: an international collaborative study. *Bull. World. Hlth. Org.* 62(6):871-878.
57. Hinshaw, V.S., J.M. Wood, R.G. Webster, R. Deibel and B. Turner. 1985. Circulation of influenza viruses and paramyxoviruses in waterfowl originating from two different areas of North America. *Bull W.H.O.* 63(4):711-719.
58. Deibel, R., Emord, D.E., Dukelow, Hinshaw, V.S. and Wood, J.M. 1985. Influenza viruses and paramyxoviruses in ducks in the Atlantic flyway 1977-1983, including an H5N2 isolate related to the virulent chicken virus. *Avian Dis.* 29(4):970-985.
59. Hinshaw, V.S., Nettles, V.F., Schorr, L.F., Wood, J.M., Webster, R.G. 1986. Influenza virus surveillance in waterfowl in Pennsylvania after the H5N2 avian outbreak. *Avian Dis.* 30:207-212.
60. Hinshaw, V.S., Bean, W.J., Geraci, J., Fiorelli, P., Early, G. and Webster, R.G. 1986. Characterization of two influenza A viruses from a pilot whale. *J. Virol.* 58:655-656.
61. Matsuzaki, N., V.S. Hinshaw, B.N. Fields, M.I. Greene. 1986. Cell receptors for the mammalian reovirus: Reovirus-specific T cell hybridomas can become persistently infected and undergo autoimmune stimulation. *J. Virol.* 60:259-266.
62. Cooley, A.J., H. Van Campen, M.S. Philpott, B.C. Easterday and V.S. Hinshaw. 1989. Pathological lesions in the lungs of ducks infected with influenza A viruses. *Vet. Pathol.* 26:1-5.
63. Hioe, K. and V.S. Hinshaw. 1989. Induction and activity of Lyt2+, class II-restricted CTLs specific for the influenza H5 hemagglutinin. *J. Immunol.* 142: 2482-2488.
64. Van Campen, H., B.C. Easterday and V.S. Hinshaw. 1989. Destruction of lymphocytes by a virulent avian influenza A virus. *J. Gen. Virol.* 70:467-472.
65. Philpott, M., B.C. Easterday, V.S. Hinshaw. 1989. Phenotypic and antigenic variants of a virulent influenza A virus selected by replication in ducks. *J. Wildlife Dis.* 25:507-513.
66. Rota, P.A., E.P. Rocha, M.W. Harmon, V.S. Hinshaw, M.G. Sheerar, Y. Kawaoka and T.L. Smith. 1989. Laboratory characterization of a swine influenza virus isolated from a fatal case of human influenza. *J. Clin. Path.* 27:1413-1416.
67. Philpott, M., B.C. Easterday, V.S. Hinshaw. 1989. Neutralizing epitopes of the H5 hemagglutinin from a virulent avian influenza virus and their relationship to pathogenicity. *J. Virol.* 63:3453-3458.
68. Van Campen, H., B.C. Easterday and V.S. Hinshaw. 1989. Virulent influenza A viruses: Their effect on avian lymphocytes and macrophages in vivo and in vitro. *J. Gen. Virol.* 70:2887-2895.
69. Sheerar, M. G., B.C. Easterday, and V.S. Hinshaw. 1989. Antigenic conservation of H1N1 swine influenza viruses. *J. Gen. Virol.* 70:3297-3303.

70. Hinshaw, V.S., M.G. Sheerar, and D. Larsen. 1990. Specific antibody responses and generation of antigenic variants in chickens immunized against a virulent avian influenza virus. *Avian Diseases* 34: 80-86.
71. Slemons, R.D., L.N. Locke, M.G. Sheerar, R.M. Duncan, V.S. Hinshaw and B.C. Easterday. 1990. Kidney lesions associated with mortality in chickens inoculated with waterfowl influenza viruses. *Avian Diseases* 34:120-128.
72. Philpott, M., C. Hioe, M. Sheerar, V.S. Hinshaw. 1990. Hemagglutinin mutations related to attenuation and altered cell tropism of a virulent avian influenza A virus. *J. Virology* 64:2941-2947.
73. Hioe, C.E., N. Dybdahl-Sissoko, M.S. Philpott and V.S. Hinshaw. 1990. Overlapping cytotoxic T lymphocyte and B cell antigenic sites on the influenza H5 hemagglutinin. *J. Virology* 64:6246-6251.
74. Morrison, T., V.S. Hinshaw, M. Sheerar, A.J. Cooley, D. Brown, C. McQuain and L. McGinnes. 1990. Retroviral expressed hemagglutinin-neuraminidase protein protects chickens from Newcastle disease virus induced disease. *Microbial Pathogenesis* 9:387-396.
75. Chambers, T.M., V.S. Hinshaw, Y. Kawaoka, B.C. Easterday and R.G. Webster. 1991. Influenza viral infection of swine in the United States 1988-1989. *Arch. Virology* 116:261-265.
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