



Hyun Soon Lillehoj, Ph.D.

Dr. Lillehoj received her B.S. degree in Biology from the University of Hartford, M.S. degree in Microbiology from the University of Connecticut, and Ph.D. in Immunology from Wayne State University, School of Medicine. After graduation, she was a NIH post-doctoral fellow in the Department of Immunology and Microbiology, Wayne State University to conduct research on the immunology of prostate cancer and immunogenetics of autoimmune diseases. In 1981, she was appointed as a staff fellow in the Laboratory of Immunology, NIAID, NIH where she studied T-cell immunity. Since 1984, Dr. Lillehoj worked at the Agricultural Research Service of the USDA at the Beltsville Agricultural Research Center. Since joining the USDA-ARS, she has progressively risen in the ranks to where she is now highest grade level, Supergrade. Her research career has focused on the immunobiology of host-pathogen interactions, vaccine development, mucosal immunology, and immunogenetics. Dr. Lillehoj developed the first set of mouse monoclonal antibodies detecting chicken lymphocyte subpopulations that have been commercialized and used by poultry scientists world-wide and have been instrumental for investigation of avian cell-mediated immunity. More recently, Dr. Lillehoj constructed the first chicken intestinal cDNA microarray which has been of seminal importance in national and international poultry genomics research. Her research has resulted in more than 350 papers in peer-reviewed journals, 18 book chapters, 300 meeting abstracts, and 6 U.S. patents. She has been awarded more than \$ 12 million in research funding, including 8 CSREES NRI, BARD, IFASA, and Food Safety Initiative grants, and 35 formal collaborations (CRADAs) with private industry since she joined ARS. In addition, she has served on numerous editorial boards, national grant panels, award and technical committees of the AAAPV and PSA, and chaired multiple sessions at national and international meetings. Dr. Lillehoj holds adjunct professorships at the University of Delaware, the University of Maryland, Mississippi State University and the University of Guelph and has guided the research of 95 junior scientists and graduate students from Asia, Europe, and South America. Her accomplishments have been recognized by the BARC Technology Transfer Award (1998), the ARS Technology Transfer Award (1999), the Federal Laboratory Consortium (FLC) Technology Transfer Award (1999), the Helen Cecil Leadership Award (2001), the AVMA Pharmacia/Upjohn Animal Health Achievement Award (2001), the Korean Poultry Science Association Distinguished Scientist Award (2001), the Beltsville Agricultural Research Center Senior Scientist of the Year Award (2003), the ARS Outstanding Scientist of the Year Award (2004), Merck Achievement Award (2006), the Levine P.P Award (AAAPV, 2006), the Pfizer Animal Health (Embrex) Fundamental Science Award (2007), Beltsville ARS Technology Transfer Award (2008), and Phibro Animal Health Award (2011) for her sustained excellence in research in poultry diseases and health over a period of 27 years or more.

Contact Information:

Hyun Lillehoj, Ph. D.
Senior Research Immunologist
Animal and Natural Resources Institute
U.S. Department of Agriculture
Agricultural Research Service
Building 1040, BARC-East
Beltsville, MD 20705
Phone:301-504-8771/6170

FAX:301-504-5103/5306

E-mail: Hyun.Lillehoj@ARS.USDA.GOV

For information on research activity, visit these websites:

<http://www.ars.usda.gov/pandp/people/people.htm?personid=3369>

<http://www.ars.usda.gov/is/AR/archive/aug08/genomics0808.htm>

<http://www.ars.usda.gov/IS/np/ha/han25.htm>

<http://www.ars.usda.gov/is/pr/2006/061208.htm>

<http://www.ars.usda.gov/is/pr/2004/041207.htm>

<http://www.ars.usda.gov/is/pr/2004/040122.soty.lillehoj.htm>

VITAE AND PUBLICATIONS LISTS

NAME: Hyun S. Lillehoj, Ph.D.

TITLE: Senior Research Immunologist (Supergrade ST)

ADDRESS:

USDA, Agricultural Research Service
Animal Parasitic Diseases Laboratory
Animal & Natural Resources Institute
Beltsville Agricultural Research Center
Building 1040, Room 100A, BARC-East
Beltsville, MD 20705
Tel: 301-504-8771
Fax: 301-504-5103
Email: Hyun.Lillehoj@ARS.USDA.GOV

EDUCATION:

1970-1974 B.S. in Biology
University of Hartford, Hartford, CT
1974-1975 M.S. in Microbiology
University of Connecticut, Storrs, CT
1976-1979 Ph.D. in Immunology
School of Medicine, Wayne State University, Detroit, MI
(Mentor: Dr. Noel R. Rose; Thesis: Studies on the Genetic Control of
Experimental Autoimmune Thyroiditis in Inbred Strains of Rats)

BRIEF CHRONOLOGY OF EMPLOYMENT:

1969-1975 Medical Technologist
Hartford Hospital, Hartford, CT
1979-1981 Research Associate, Department of Immunology
Wayne State University, School of Medicine, Detroit, MI
1981-1983 Staff Fellow, Laboratory of Immunology
National Institute of Allergy and Infectious Diseases, National Institute of Health,
Bethesda, MD
1984-Present, Research Immunologist, ST (Supergrade), U. S. Department of
Agriculture, Agricultural Research Service, Animal & Natural Resources Institute
Animal Parasitic Diseases Laboratory, Beltsville, Maryland

TEACHING EXPERIENCE:

1975-1976 Graduate Teaching Assistant
University of Southern Illinois, Carbondale, IL
1976-1979 Graduate Teaching Assistant
Wayne State University, Detroit, MI

HONORS AND OTHER SPECIAL SCIENTIFIC RECOGNITION:

University Scholarship, University of Hartford
Special Doctoral Award, University of Southern Illinois
Graduate Research Assistantship II, Wayne State University
NIH Postdoctoral Training Fellow, Wayne State University

Associate Editor, Immunology Section, Poultry Science, 1989-1992.

Editorial board; Poultry Science (1990-1992); Avian Diseases (1990-present); Veterinary Immunology and Immunopathology (2000-2008); Journal of Japanese Poultry Science (2002-present). Korean Journal of Animal Science and Technology (2009-present).

Gamma Sigma Delta Award for Professional Achievement, University of Maryland, National Capital Area Chapter, 1990.

Appointed as the Honorary Scientist at the Rural Development Administration of the Republic of Korea, 2004-present.

Invited to serve on the Scientific Advisory Board of the National Veterinary Research and Quarantine Service (NVRQS), Ministry of Food, Agriculture, Forestry and Fisheries, 2007-present.

Serves on the international member of the Korean Society of Animal Sciences and Technology

ADJUNCT FACULTY APPOINTMENTS:

Department of Veterinary Medicine, University of Guelph, Guelph, Canada

Department of Pathobiology/Population Medicine, Mississippi State University

Department of Veterinary Medicine, University of Maryland, College Park, MD Department of Animal and Food Sciences, Univ of Delaware

Department of Veterinary Medicine, Academy of Agricultural Science in Guangdong, Guangzhou, China

College of Veterinary Medicine, Gyeongsang National University, Jinju, Korea

AWARDS:

USDA Awards of Merit for Outstanding Performance 1987-2004.

Beltsville Agricultural Research Center Technology Transfer Award "Development and Transfer of Immunological Reagents and Coccidia Vaccine Delivery Technologies to the United States Poultry Industry", Beltsville, MD. 1998.

ARS Technology Transfer Award "For Significant Contributions in the Area of Technology Transfer on the Development and Transfer of Immunological Reagents and Coccidia Vaccine Delivery Technologies to the United States Poultry Industry", USDA, ARS, 1999.

Federal Laboratory Consortium (FLC) Technology Transfer Award "Significant Contribution in the Area of Technology Transfer of Immunological Reagents and Coccidia Vaccine Development Technologies to the United States Poultry Industry", Salt Lake City, UT, April 21, 1999.

Helen Cecil Leadership Award, Poultry Science Association, Indianapolis, IN. July 27, 2001.

Pharmacia/Upjohn Animal Health Achievement Award, American Association of Avian Pathologists, American Association of Veterinary Medicine, Boston, MA. July 16, 2001.

Distinguished Research Achievement Award by the Korean Poultry Science Association, Korea, November 26, 2001.

Beltsville Agricultural Research Center Senior Scientist of Year Award, US Department of Agriculture, Agricultural Research Service, "For Outstanding Contribution to Poultry Science and Biotechnology and Demonstrated Major Impact on Poultry Industry relating to Disease Control of Coccidiosis and Internationally Recognized Scientific Leadership for Young Scientists", Beltsville, MD. 2003.

ARS Outstanding Scientists of Year. "For Outstanding Contribution to Poultry Science and Disease Control of Coccidiosis", New Orleans, LA. 2004.

Merck Award (Plaque and \$ 1,500) for Achievement in Poultry Science. "Significant contributions in agricultural biotechnology on the host-pathogen relationships of many poultry diseases that forms the foundation for new control strategies", July 20, 2006.

P. P. Levine Award (Plaque and \$ 1,000) by the American Association of Avian Pathologists on July 17, 2006, in Honolulu, Hawaii.

Pfizer (Embrex) Fundamental Science Award (Plaque and \$ 1,000). "In recognition of Devoted Service and Lasting Contribution to the Poultry Industry and the Poultry Science Association" sponsored by the Embrex, Inc (Pfizer). July 11, 2007. San Antonio, Texas.

Technology Transfer Award, "For Outstanding Research and Global Technology Transfer Activities Contributing to the Development of Drug-free Control Strategies Against Poultry Mucosal Pathogens", Beltsville Agricultural Research Center, MD. September 18, 2008.

USDA AWARDS OF MERIT FOR OUTSTANDING PERFORMANCE (LAST 5 YEARS):

1998, "Outstanding Research to Assess the Role of Mucosal Immunity and of Specific Cytokine in Controlling Coccidiosis Infections in Chickens".

1999, "Developed Novel Means for Controlling Infectious Diseases in Chickens and Effectively Transferred Knowledge to Industry Collaborators".

2000, "Developing Poultry Genome Mapping Project and Identifying a Quantitative Trait Loci that Control Coccidiosis Disease Resistance".

2001, "Outstanding Research to Define the Complex Immune Interactions that Occur During Coccidiosis Infections in Chickens. Coordinated International Research Effort to Define Immune and Genetic Control Points for Chicken Coccidiosis. Initiated and Coordinated Major Collaborations with Industry Partners to Enhance These Research Activities. Reorganized Laboratory to More Effectively and Safely Performed This Broad Array of Research Activities".

2002, "Outstanding Research to Elucidate the Immunological and Genetic Response of Avians Against Coccidia Parasites".

2003, "For Outstanding Performance During the Rating Period of January 1, 2003 to December 31, 2003".

2004, "For outstanding performance during the rating period January 1, 2004 through December 31, 2005"

2005, "For outstanding performance during the rating period January 1, 2005 through December 2006"

2006, "For superior performance during the rating period January 1, 2006 through December 2006" 2004, "For outstanding performance during the rating period January 1, 2007, "For outstanding performance during the rating period January 1, 2007 through December 2007"

2008, "For superior performance during the rating period January 1, 2008 through December 2008"

GRANTS, TRUST, CRADA

1265-32000-050-23R (Reimbursable Agreement with Veterinary Medical College, University of Maryland).

Development of in vitro cytokine assays for studying mucosal immunity in chickens

Investigator: Hyun Lillehoj

Funding: \$ 192,827

Start: 09/01/2000

Termination: 08/31/2005

1265-31320-070-15R (CSREES National Research Initiative Grant)

Mapping quantitative trait associated with disease resistance in commercial broiler chickens

Investigator: Hyun Lillehoj

Funding: \$ 200,000

Start: 01/01/2003

Termination: 12/30/2005

1265-31320-014-04T (Trust Agreement with Ghen Immunology Institute, Japan)

Development of novel immunological control strategy using hyperimmune egg antibodies to prevent against coccidiosis

Investigator: Hyun Lillehoj

Funding: \$ 20,000

Start: 03/01/2001

Termination: 02/28/2006

1265-31320-070-10T (Trust agreement with Avicore Biotechnology Inc., South Korea)

Avian functional genomics technology: application to improve poultry health

Investigator: Hyun. S. Lillehoj

Funding: \$ 80,000

Start: 04/01/2001

Termination: 03/31/2006

1265-31320-070-20T (Trust agreement with Imagilin LLC.)

Protection against avian coccidiosis using probiotics.

Investigator: Hyun. S. Lillehoj

Funding: \$ 50,000

Start: 09/01/2004

Termination: 09/06/2006

1265-31320-070-06T (Trust Agreement with Novus International Inc.)

Assessment of coccidia immune response using interferon-gamma assay

Investigator: Hyun Lillehoj

Funding: \$ 189,659

Start: 06/01/1997

Termination: 05/30/2007

1265-31320-072-04T (Trust with Zeon Biological Science, Japan)

DNA vaccine development against avian coccidiosis.

Investigator: Hyun Lillehoj

Funding: \$ 180,000

Start: 04/01/2003

Termination: 3/30/2008

1265-31320-070-19R (CSREES National Research Initiative Grant)

Molecular and cellular immune mechanisms in salmonellosis and avian coccidiosis

Investigator: Hyun Lillehoj

Funding: \$ 270,000

Start: 09/01/2003

Termination: 8/30/2007

ARS SEPRL, GA: ARS fund to collaborate on avian cDNA microarray on avian influenza project

Investigator: Hyun Lillehoj

Funding: \$ 60,000

Start: 08/01/2006

Termination: 9/01/2007

1265-31320-070-22S (Specific Cooperative Agreement with University of Delaware)

Avian genomics for avian coccidiosis.

Investigator: Hyun. S. Lillehoj

Funding: \$ 46,375

Start: 10/01/2004

Termination: 08/31/2008

1265-31320-070-18T (Trust agreement with Rural Development Administration, South Korea)

Development of in vitro assays to evaluate plant phytonutrients

Investigator: Hyun. S. Lillehoj

Funding: \$ 72,000

Start: 05/01/2004

Termination: 05/31/2007

1265-31320-070-27R (Reimbursable agreement with Veterinary Medical College, University of Maryland).

Application of cDNA microarray technology to avian influenza infection.

Investigator: Hyun Lillehoj

Funding: \$ 71,500

Start: 09/01/2007

Termination: 08/30/2008

1265-32000-086-12T (Trust agreement with Pfizer Animal Health)

Development of novel adjuvant technology for avian coccidiosis molecular vaccines.

Investigator: Hyun Lillehoj

Funding: \$ 150,000.

Start: 07/17/2007

Termination: 07/16/2012

1265-31320-072-17T (Trust agreement with Axiss, France)

Development of drug-free technology against avian coccidiosis.

Investigator: Hyun Lillehoj

Funding: \$ 55,000

Start: 06/01/2007

Termination: 05/30/2009

1265-31320-070-21T (Trust agreement with Diversa Cooperation)

Development of recombinant DNA vaccines against avian coccidiosis

Investigator: Hyun. S. Lillehoj

Funding: \$ 169,761

Start: 07/10/2004

Termination: 07/19/2009

1265-31320-072-10T (Trust agreement with Indian Immunology Laboratory, India)

Development of recombinant DNA vaccine technology against avian coccidiosis.

Investigator: Hyun Lillehoj

Funding: \$ 50,000

Start: 06/01/2007

Termination: 05/30/2009

1265-31320-070-00D (CRADA with Guardian Biotechnology Company, Canada)

Development of recombinant peptide vaccine against avian coccidiosis

Investigator: Hyun. S. Lillehoj

Funding: \$ 15,000

Start: 05/01/2005

Termination: 06/01/2009

1265-32000-086-14T (Trust agreement with Guardian Biotechnology, Canada)

Development of recombinant peptide vaccine against avian coccidiosis

Investigator: Hyun Lillehoj

Funding: \$ 352,098

Start: 11/01/2007

Termination: 10/30/2009

1265-31320-072-09T (Trust agreement with Canadian Food Inspection Service, Canada)

Embryo vaccination technology for DNA vaccine against avian influenza

Investigator: Hyun Lillehoj

Funding: \$ 75,000

Start: 04/01/2007

Termination: 03/30/2010

1265-32000-086-16T (Trust agreement with Hipra Laboratories, Spain)

Development of novel immune enhancing technology for poultry diseases

Investigator: Hyun Lillehoj

Funding: \$ 144,000

Start: 03/01/2008

Termination: 12/30/2010

1265-31320-070-25R (CSREES National Research Initiative Grant through University of Massachusetts). U.S.

Veterinary Immune Reagent Network Consortium Grant

Investigator: Hyun Lillehoj

Funding: \$ 201,000

Start: 12/01/2005

Termination: 11/30/2010

Former Soviet Union-ISTC Agreement. (Science & Technology Centre, Ukraine; Institute of Zoology Uzbek Academy of Sciences; USDA, ARS, Office of International Research Programs) Cell-mediated immunity studies in poultry mucosal pathogens.

Investigator: Hyun S. Lillehoj

Funding: \$ 40,000

Start: 10/01/2008

Termination: 09/01/2010

1265-31320-070-28T (Trust agreement with Investigacion Aplicada S. A., Mexico)

Development of protective immunity by passive immunity using hyperimmune IgY antibodies.

Investigator: Hyun Lillehoj

Funding: \$ 82,500

Start: 06/01/2006

Termination: 03/30/2011

1265-32000-086-21T (Trust agreement with Veterinary Research and Quarantine Service, NVRQS, Ministry of Agriculture and Forestry, Republic of Korea) Development of multiplex peptide nucleotide acid chip for detection and vaccine development for food-poisoning pathogens.

Investigator: Hyun Lillehoj

Funding: \$ 200,000

Start: 04/01/2009

Termination: 03/01/2011

1265-32000-086-13T (Trust agreement with Pancosma, Switzerland)

Development of drug-free technology for poultry disease control

Investigator: Hyun Lillehoj

Funding: \$ 128,000

Start: 06/01/2008

Termination: 05/31/2011

1265-32000-086-11T (Trust agreement with Pfizer Animal Health)

Recombinant vaccine technology for avian influenza

Investigator: Hyun Lillehoj
Start: 09/01/2007

Funding: \$ 50,000
Termination: 08/30/2010

1265-31320-072-21T (Trust agreement with Seppic, France)

Development of novel recombinant vaccine technology against avian coccidiosis

Investigator: Hyun Lillehoj
Start: 03/01/2009

Funding: \$ 100,000
Termination: 03/01/2013

1265-32000-086-15T (Trust agreement with Danisco/Agtech company)

Immune mechanisms mediated by direct-fed microbials and host-pathogen studies in field outbreak case of gangrene dermatitis.

Investigator: Hyun Lillehoj
Start: 05/01/2008

Funding: \$ 240,000
Termination: 04/01/2012

1265-31320-086-R Reimbursable Interagency Agreement (IAA) with the Department of Homeland Security.

Development of immune markers for Th17 and NK cells.

Investigator: Hyun Lillehoj/Joan Lunney
Start: 10/1/2009

Funding: \$ 200,000
Termination: 09/30/2010

1265-31320-086-R (AFRI, NIFA Grant through University of Massachusetts). U.S. Veterinary Immune Reagent Network Consortium Grant

Investigator: Hyun Lillehoj
Start: 3/01/2010

Funding: \$ 237,032
Termination: 2/28/2013

1265-32000-086-25T Kerry's Bromeliad Nursery CRADA

Investigator: Hyun Lillehoj
Start: 01/01/2010

Funding: \$ 45,000
Termination: 12/31/2013

PROFESSIONAL MEMBERSHIP:

American Association of Immunology
American Association of Avian Pathologists
American Association of Veterinary Parasitologists
Helminthological Society of Washington
Poultry Science Association
Society for Mucosal Immunology
World Veterinary Poultry Association
American Association of Veterinary Immunologists
American Association for the Advancement of Science
Japanese Poultry Science Association

PUBLICATIONS:

Patents

1. Jenkins, M.C., Lillehoj, H. S., Dame, J.B., Danforth, H. D., and Ruff, M.D. 1992. Cloned genes coding for avian coccidiosis antigens which induce a cell-mediated immune response. US Patent 5,122,471.
2. Lillehoj, H. S. 1995. Monoclonal antibodies against chicken T-lymphocytes. US Patent 5,449,610.
3. Lillehoj, H. S., Tsuzuki, Y., Choi, K. D., and Kamogawa, K. 1998. Novel cytokines and recombinants thereof and uses thereof. U.S. Patent, Filed April 15.
4. Kim J. K., Han, J. Y., Song, K. D., and Lillehoj, H.S. 2002. Recombinant ScFv antibodies specific to *Eimeria* spp. responsible for coccidiosis. Patent Korean (File no. 2001-52934), Japan (File no. 2001-266333), and US (File serial number 10/083,424; Patent No. 10/083,424, filed February 26, 2002, approved May 17, 2004). US 6,790,937 B2, September 14, 2004. 6,790,937 Issued September, 14, 2004.
5. Lillehoj, H. S. and Nichols, M. 2002. Chicken monoclonal antibodies specific for coccidial antigens involved in invasion of host lymphocytes. US Patent 6,451,984. Issued September 17, 2002.
6. Lillehoj, H.S. and Yasuda. Cloning of *Eimeria* GAPDH as a potential vaccine against coccidiosis. Filed US patent, 2003. 6924135. Issued 8/02/2005.
7. Invention report on immunopotentiating Effect of *Fomitella fraxinea* Mushroom Lectin on Poultry Immunity to Coccidiosis. US Patent in process, USDA Docket No. 0161.03. July, 2005.
8. Invention disclosure on “Novel Antimicrobial Activity of Chicken NK-2 Peptide Against Apicomplexan Protozoa”. Filed April, 2009.

Original Papers:

1. Lillehoj, H. 1979. Studies on the genetic control of experimental autoimmune thyroiditis in inbred strains of rats. Ph.D. dissertation.
2. Lillehoj, H., and Rose, N. 1981. Relationship between genetic control of T cell mitogenic response and thyroiditis susceptibility in inbred rats. *Cell. Immunol.* 62: 156-163.
3. Lillehoj, H., Beisel, K., and Rose, N. 1981. Genetic factors controlling the susceptibility to experimental autoimmune thyroiditis in inbred rat strains. *J. Immunol.* 127: 654-659.
4. Choe, B., Pontes, E., Lillehoj, H., and Rose, N. 1981. Immunohistological approaches to human prostatic epithelial cells. *Prostate* 1: 383-398.
5. Lillehoj, H., and Rose, N. 1982. Humoral and cellular immune response to thyroglobulin in different rat strains. *Clin. Exp. Immunol.* 47: 661-669.
6. Lillehoj, H., Choe, B. K., and Rose, N. R. 1982. Monoclonal anti-human prostatic acid phosphatase antibodies. *Mol. Immunol.* 19: 1199-1202.
7. Lillehoj, H., Choe, B. K., and Rose, N. R. 1982. Monoclonal antibodies to human prostatic acid phosphatase: Probes for antigenic study. *Proc. Natl. Acad. Sci. USA* 79: 5061-5065.
8. Choe, B. K., Lillehoj, H. S., Dong, M. K., Gleason, S., Barron, M., and Rose, N. R. 1982. Characterization of antigenic sites of human prostatic acid phosphatase. *Ann. N. Y. Acad. Sci.* 390: 16-26.
9. Burek, L., Rose, N. R., and Lillehoj, H. 1982. Cell-mediated immunity in autoimmune disease. In "Principles of Clinical Immunology," pp. 247-295. Humana Press, Clifton, NJ.
10. Lillehoj, H. S., Malek, T., and Shevach, E. M. 1984. Differential effects of cyclosporin A on the expression of T and B lymphocyte function antigens. *J. Immunol.* 133: 244-250.
11. Lillehoj, H. S., and Shevach, E. M. 1985. A comparison of the effects of cyclosporin A, dexamethasone, and ouabain on the interleukin-2 cascade. *J. Immunopharmacol.* 7: 267-284.
12. Lillehoj, H. S. 1986. Immune response during coccidiosis in SC and FP chickens. I. In vitro assessment of T cell proliferation response to stage-specific parasite antigens. *Vet. Immunol. Immunopathol.* 13:321-328.
13. Lillehoj, H. S., and Ruff, M. D. 1986. Comparison of disease susceptibility and subclass specific antibody response in SC and FP chickens experimentally inoculated with *E. tenella*, *E. acervulina* or *E. maxima*. *Avian Dis.* 31:112-119.
14. Lillehoj, H. S., Allen, P. S., and Ruff, M. D. 1986. Comparative studies of humoral and cellular immune responses in two inbred strains of chickens showing different susceptibility to coccidiosis. In *Research in Avian Coccidiosis*, pp. 470-482. McDougald, L. R., Joyner, L. P., and Long, P. L. (eds.). University of Georgia, Atlanta, GA.
15. Lillehoj, H. S. 1987. Effects of immunosuppression on avian coccidiosis. Cyclosporin A but not hormonal bursectomy abrogates host protective immunity. *Infect. Immunity* 55: 1616-1621.

16. Lillehoj, H. S. 1987. Production and flow cytometric analysis of monoclonal antibodies reactive with subpopulations of chicken lymphocytes. In *Avian Immunology*, pp. 87-98. Weber, W. T., and Ewert D. L. (eds.). Alan R. Liss, Inc., New York, NY.
17. Lillehoj, H. S. 1987. Secretory IgA response in SC and FP chickens experimentally inoculated with *E. tenella* and *E. acervulina*. In *Recent Developments in Mucosal Immunology*, pp. 977-980. Mestecky, J., McGhee, J. R., Ogra, P. L., and Bienenstock, J. (eds.). Plenum Press. New York, NY.
18. Dubey, J. P., Hughes, H. P. A., Lillehoj, H. S., Gamble, H. R., and Munday, B. L. 1987. Placental transfer of specific antibodies during ovine congenital toxoplasmosis. *Am. J. Vet. Res.* 48:474-476.
19. Lillehoj, H. S. 1988. Influence of inoculation dose, inoculation schedule, host age, and host genetics on disease susceptibility and development of resistance to *Eimeria tenella* infection. *Avian Dis.* 32:437-444.
20. Lillehoj, H. S., and Chai, J. Y. 1988. Comparative natural killer cell activities of thymic, bursal, splenic, and intestinal intraepithelial lymphocytes. *Dev. Comp. Immunol.* 12:629-643.
21. Lillehoj, H. S., Jenkins, M. C., Bacon, L. D., Fetterer, R. H., and Briles, W. E. 1988. *Eimeria acervulina*: Evaluation of the cellular and antibody responses to the recombinant coccidial antigens in B-congenic chickens. *Exp. Parasitol.*, 67:148-152.
22. Lillehoj, H. S., Kim, S., Lillehoj, E. P., and Bacon, L. D. 1988. Quantitative differences in Ia antigen expression in the spleens of 15I5-B congenic and inbred chickens as defined by a new monoclonal antibody. *Poultry Sci.* 67:1525-1535.
23. Lillehoj, H. S., Lillehoj, E. P., Weinstock, D., and Schat, K. 1988. Functional and biochemical characterizations of avian T lymphocyte antigens identified by monoclonal antibodies. *Eur. J. Immunol.* 18:2059-2065.
24. Chai, J. Y., and Lillehoj, H. S. 1988. Isolation and functional characterization of chicken intestinal intraepithelial lymphocytes showing natural killer cell activity against tumor target cells. *Immunology* 63:111-117.
25. Jenkins, M. C., Lillehoj, H. S., and Dame, J. B. 1988. *Eimeria acervulina*: DNA cloning and characterization of recombinant sporozoite and merozoite antigens. *Exp. Parasitol.* 66:96-106.
26. Lillehoj, H. S. 1989. Unique intestinal cytotoxic cells conferring a disease resistance against coccidiosis. In *Coccidia and Intestinal Coccidiomorphs*, pp.577-590. Yvone, P. (ed.). INRA Serv. Pub., Versailles, Cedex, France.
27. Lillehoj, H. S. 1989. Intestinal intra-epithelial and splenic natural killer cell response in inbred chickens following eimerian infections. *Infect. Immunity* 57:1879-1884.
28. Lillehoj, H. S., and Jenkins, M. C. 1989. Effects of MHC genes and various antigen presentations on protective host immunity following eimerian infections and immunization with a recombinant coccidial antigen. In *Coccidia and Intestinal Coccidiomorphs*, pp. 634-638. Yvone, P. (ed.). INRA Serv. Pub., Versailles, Cedex, France.
29. Lillehoj, H. S., Keller, L., and Sevoian, M. 1989. Avian lymphokine secreted by JMV T cell lymphoma protect against coccidiosis. In *Coccidia and Intestinal Coccidiomorphs*, pp. 545-549. Yvone P., (ed.). INRA Serv. Pub., Versailles, Cedex, France.

30. Lillehoj, H. S., Kang S. Y., Keller, L., and Sevoian, M. 1989. Eimeria tenella and Eimeria acervulina: Lymphokines secreted by an avian T cell lymphoma or by sporozoite-stimulated immune T lymphocytes protect chickens against avian coccidiosis. *Exp. Parasitol.* 69:54-64.
31. Lillehoj, H. S., Ruff, M. D., Bacon, L. D., Lamont, S., and Jeffers, T. 1989. Genetic Control of immunity to Eimeria tenella. Interaction of MHC genes and non-MHC genes influence levels of disease susceptibility. *Vet. Immunol. Immunopathol.* 20:135-148.
32. Kim, K. S., Lillehoj, H. S., and Jenkins, M. C. 1989. Evaluation of serum and secretory antibody responses to an immunodominant recombinant merozoite surface antigen, P150, using a sensitive enzyme-linked immunosorbent assay. *Avian Dis.* 33:431-438.
33. Kim#, K. S., Jenkins, M. C., and Lillehoj, H. S. 1989. Immunization of chickens with live Escherichia coli expressing Eimeria acervulina merozoite recombinant antigen induces partial protection against coccidiosis. *Infect. Immunity* 57:2434-2440.
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