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Education

Ph.D. 2004	Iowa State University, Ames
D.V.M. 2002	Iowa State University, Ames
M.S. 1997	Iowa State University, Ames
B.S. 1993	Western Kentucky University, Bowling Green

Professional Experience

2006-Present	Veterinary Medical Officer, USDA-ARS National Animal Disease Center, Ames, IA.
2004-2006	Veterinary Medical Officer and Postdoctoral Research Associate, USDA-ARS National Animal Disease Center, Ames, IA.
1998-2004	Graduate Research Assistant, Iowa State University, Ames, IA

Selected Refereed Research Publications (of 84 total)

Vincent, A.L., Ciacci-Zanella, J.R., Lorusso, A., Gauger, P.C., Zanella, E.L., Kehrli, M.E., Jr., Janke, B.H., Lager, K.M., 2010, Efficacy of inactivated swine influenza virus vaccines against the 2009 A/H1N1 influenza virus in pigs. Vaccine 28, 2782-2787.

Pena, L., **Vincent, A.L.**, Ye, J., Ciacci-Zanella, J.R., Angel, M.*, Lorusso, A., Gauger, P.C.,* Janke, B.H., Loving, C.L., and Perez, D.R. 2011. Modifications in the polymerase genes of a swine-like triple reassortant influenza virus to generate live attenuated vaccines against 2009 pandemic H1N1 viruses. J. Virol. 85(1):456-469.

Gauger, P.C., **Vincent, A.L.,** Loving, C.L., Henningson, J.N., Lager, K.M., Janke, B.H., Kehrli, M.E., Jr., Roth, J.A., 2012. Kinetics of Lung Lesion Development and Pro-Inflammatory Cytokine Response in Pigs With Vaccine-Associated Enhanced Respiratory Disease Induced by Challenge With Pandemic (2009) A/H1N1 Influenza Virus. Vet Pathol 49, 900-912.

Vincent, A.L., Ma, W., Lager, K.M., Richt, J.A., Janke, B.H., Sandbulte, M.R., Gauger, P.C., Loving, C.L., Webby, R.J., Garcia-Sastre, A., 2012. Live attenuated influenza vaccine provides superior protection from heterologous infection in pigs with maternal antibodies without inducing vaccine-associated enhanced respiratory disease. Journal of virology 86, 10597-10605.

Nelson, M.I., **Vincent**, **A.L.,** Kitikoon, P., Holmes, E.C., and Gramer, M.R.. 2012. The evolution of novel reassortant A/H3N2 influenza viruses in North American swine and humans. 2009-2011. J. Virol. 86(16):8872-8.

Kitikoon, P., **Vincent**, **A.L.,** Gauger, P.C., Schlink, S.N., Bayles, D.O., Gramer, M.R., Darnell, D., Webby, R.J., Lager, K.M., Swenson, S.L., and Klimov, A.. 2012. Pathogenicity and transmission in pigs of the novel A(H3N2)v influenza virus isolated from humans and characterization of swine H3N2 viruses isolated in 2010-2011. J. Virol. 86(12):6804-6814.

Nelson, M.I., Gramer, M.R., **Vincent, A.L.,** Holmes, E.C., 2012b. Global transmission of influenza viruses from humans to swine. J Gen Virol 93, 2195-2203.

Kitikoon P., Nelson M.I., Killian M.L., *Anderson T.K.*, Koster L., Culhane M.R., **Vincent A.L.**, 2013. Genotype patterns of contemporary reassorted H3N2 virus in US swine. J Gen Virol. Jun;94(Pt 6):1236-41.

Loving, C.L., Lager, K.M., **Vincent, A.L.**, Brockmeier, S.L., Gauger, P.C., *Anderson, T.K., Kitikoon, P.,* Perez, D.R., Kehrli, M.E., Jr., 2013. Efficacy in Pigs of Inactivated and Live Attenuated Influenza Virus Vaccines against Infection and Transmission of an Emerging H3N2 Similar to the 2011-2012 H3N2v. J Virol 87, 9895-9903.

Khurana, S., Loving, C.L., Manischewitz, J., King, L.R., Gauger, P.C., Henningson, J., **Vincent, A.L.,** Golding, H., 2013. Vaccine-Induced Anti-HA2 Antibodies Promote Virus Fusion and Enhance Influenza Virus Respiratory Disease. Science translational medicine 5, 200ra114.

Anderson T.K., Nelson M.I., *Kitikoon P.*, Swenson S.L., Korslund J.A., **Vincent A.L.**, 2013. Population dynamics of cocirculating swine influenza A viruses in the United States from 2009 to 2012. Influenza Other Respir Viruses. Dec;7 Suppl 4:42-51.

Kitikoon P., Gauger P.C., *Anderson T.K.*, Culhane M.R., Swenson S., Loving C.L., Perez D.R., **Vincent A.L.**, 2013 Swine influenza virus vaccine serologic cross-reactivity to contemporary US swine H3N2 and efficacy in pigs

infected with an H3N2 similar to 2011-2012 H3N2v. Influenza Other Respir Viruses. Dec;7 Suppl 4:32-41.

Gauger P.C., Loving C.L., Lager K.M., Janke B.H., Kehrli M.E. Jr, Roth J.A., **Vincent A.L.**, 2013 Vaccine-associated enhanced respiratory disease does not interfere with the adaptive immune response following challenge with pandemic A/H1N1 2009. Viral Immunol. 2013 Oct;26(5):314-21.

Lewis, N.S., *Anderson, T.K., Kitikoon*, P., Skepner, E., Burke, D.F., and **Vincent, A.L**. 2014. Substitutions near the hemagglutinin receptor binding site determine the antigenic evolution of influenza A H3N2 viruses in U.S. swine. J. Virol. 88(9):4752-63.

Lorusso A, Ciacci-Zanella JR, Zanella EL, Pena L, Perez DR, Lager KM, Rajão DS, Loving CL, Kitikoon P, **Vincent AL**. Polymorphisms in the hemagglutinin gene influenced the viral shedding of pandemic 2009 influenza virus in swine. J Gen Virol. 2014 Dec;95(Pt 12):2618-26.

Rajão DS, Loving CL, Gauger PC, Kitikoon P, **Vincent AL**. Influenza A virus hemagglutinin protein subunit vaccine elicits vaccine-associated enhanced respiratory disease in pigs. Vaccine. 2014 Sep 8;32(40):5170-6.

Loving CL, Brockmeier SL, **Vincent AL**, Gauger PC, Zanella EL, Lager KM, Kehrli ME Jr. Cross-fostering to prevent maternal cell transfer did not prevent vaccine-associated enhanced respiratory disease that occurred following heterologous influenza challenge of pigs vaccinated in the presence of maternal immunity. Viral Immunol. 2014 Sep;27(7):334-42.

Nelson MI, Wentworth DE, Culhane MR, **Vincent AL**, Viboud C, LaPointe MP, Lin X, Holmes EC, Detmer SE. Introductions and evolution of human-origin seasonal influenza a viruses in multinational swine populations. J Virol. 2014 Sep 1;88(17):10110-9.

Gauger PC, Loving CL, Khurana S, *Lorusso A*, Perez DR, Kehrli ME Jr, Roth JA, Golding H, **Vincent AL**. Live attenuated influenza A virus vaccine protects against A(H1N1)pdm09 heterologous challenge without vaccine associated enhanced respiratory disease. Virology. 2014 Oct 28;471-473C:93-104.

Henningson JN, Rajao DS, Kitikoon P, Lorusso A, Culhane MR, Lewis NS, Anderson TK, Vincent AL. Comparative virulence of wild-type H1N1pdm09 influenza A isolates in swine. Vet Microbiol. 2014 Dec 31. pii: S0378-1135(14)00594-X. doi: 10.1016/j.vetmic.2014.12.021. [Epub ahead of print]

Nelson MI, Vincent AL. Reverse zoonosis of influenza to swine: new perspectives on the human-animal interface. Trends Microbiol. 2015 Jan 4. [Epub ahead of print]

Ongoing research support

Intervention Strategies to Control Viral Diseases of Swine, 3625-32000-108-00D USDA/ARS/NP-103 Animal Health. 01/01/12 – 12/31/17. Expected outcomes of this research will be improved diagnostic methods and vaccine strategies that will aid in the control of these swine diseases and efficient production of wholesome pork for consumers. Role: Co-Investigator

USDA Swine Influenza Virus Surveillance System: Continuation of *In vivo* pathogenesis and transmission and associated in vitro studies. 03/2014 - 09/2016 with USDA-APHIS-VS. ($500,000). The objectives are *in vitro* and *in vivo* studies of swine influenza viruses identified in the USDA Swine Influenza Virus (SIV) Surveillance System. Role: PI.

USDA Swine Influenza Virus Surveillance System: Computational evolutionary biology of whole genome sequences. 10/2014 - 09/2016 with USDA-APHIS-NVSL ($201,018). The objective is to conduct computational evolutionary sequence analysis in the context of contemporary and historical SIV for determination of phylogenetic relationships, lineages, and reassortment events. Role: PI.

Characterization and utilization of a novel immune-compromised pig for biomedical modeling. 08/2013-06/2015 with Iowa State University Bailey Grant ($28,774). The objective is to evaluate the pathogenesis of influenza A virus infection in immune-compromised pigs. Role: PI.

Characterization of the evolution of influenza A viruses (IAV) in swine and pathotyping of IAV in the natural host. 10/2013-09-2020 with NIH-Centers for Excellence in Influenza Research and Surveillance ($1,750,000). The objectives are to monitor the evolution of influenza A viruses in swine, objectively quantify antigenic changes important for population immunity, and assess the risk of emerging or evolving strains of IAV in the swine host.