

Clinton Jones, Ph.D.

Sitlington Professor of Infectious Diseases

Regents Professor
Department of Veterinary Pathobiology
College of Veterinary Medicine

Oklahoma State University

Contact Information:

Email: clint.jones10@okstate.edu

Phone: 405-744-1842

Office: Rm 157C McElroy Hall, Oklahoma State University, Stillwater, OK 74078

Education:

1978: B.S., Biology, Bethany College

1985: Ph.D., Microbiology, University of Kansas

1994-1987: Postdoctoral Fellow, Laboratory of Viral Carcinogenesis, Linus Pauling Institute of Medicine

Academic Appointments:

1987-1989: Assistant Professor, Department of Microbiology, University of Mississippi Medical Center

1989-1995: Associate Professor, Department of Veterinary Sciences, University of Nebraska

1996-2001: Professor, Department of Veterinary and Biomedical Sciences, University of Nebraska

2001-2015: Professor, Department of Veterinary and Biomedical Sciences, University of Nebraska

2000-2015: Associate Director for the Nebraska Center for Virology, University of Nebraska

Honors and Awards:

2015-2020: Editor in Chief: Journal of Virology and Emerging Diseases

March 2019: NIH Study Section (R15 grants)

October 2019: NIH Study Section (NIAID)

2014-2017: Editorial Board: Journal of Virology

2014-2017: Editorial Board: Virus Research

2011-2016: Editorial Board: Virology

2010-2015: Editorial Board: World of Virology

2010-2013: Study Section member for NIH, National Institute of Allergy and Infectious Diseases (NIAID) and Aging Institute.

2010: Outstanding Researcher, Gamma Sigma Delta, Honor Society of Agriculture, University of Nebraska

2001/2003: Ad-Hoc Reviewer for NIH, reviewed program project grants

1996/2001, 2004, and 2006: Panel Manager for USDA Study Section

1993/1998, and 2011: Panel Member for USDA Study Section

Research Support:

Current:

- 6/1/2019-04/30/2023: USDA, NIFA, Regulation of bovine herpesvirus 1 (BoHV-1) reactivation from latency by progesterone and corticosteroids, Awarded: \$480,000
- 4/1/2017-03/31/2020: Regulation of latency-reactivation cycle by ORF2 and beta-catenin/Wnt signaling pathway. USDA, NIFA, Awarded: \$500,000
- 1/15/2018-12/30/2019: Regulation of beta-catenin in neurons during the HSV-1 latency-reactivation cycle. NIH R21, NINDS, Awarded: \$420,000
- 3/1/2015-2/28/2020: NIH, Mechanism of the Antiviral Activity of BAF Against Poxvirus and HSV-1 Infection, Role: Co-PI

Past:

- 10/1/2013-09/30/2018: "Analysis of Bovine Herpesvirus 1 Stress Induced Reactivation from Latency", USDA, National Institute of Food and Agriculture (NIFA), Awarded: \$500,000
- 5/22/2012-5/21/2013: Boehringer Ingelheim Vetmedica, "Vaccine development", Awarded: \$98,0000
- 10/01/09-9/30/13: USDA, NIFA, "Analysis of viral factors that regulate the bovine herpesvirus 1 latency-reactivation cycle", Awarded: \$375,000
- 9/1/2008-8/30/2011: USDA, National Research Initiative Competitive Grants Program (NRICGP), "Functional analysis of bICP0, a BHV-1 gene that stimulates productive infection", Awarded: \$375,000
- 7/5/07-7/4/10: NIH (R21AI069176), "Does the HSV-1 latency associated transcript (LAT) encode a protein?", Awarded: \$401,500.
- 9/15/06-9/14/09: USDA, National Research Initiative Competitive Grants Program, "Functional analysis of proteins encoded by the BHV-1 latency related gene", Awarded: \$374,585
- 9/1/52005-8/30/2008: USDA, National Research Initiative Competitive Grants Program, "Functional analysis of bICP0, a BHV-1 gene that is a promiscuous trans-activator", Awarded: \$350,000
- 11/1/2003 to 10/30/2006: USDA, National Research Initiative Competitive Grants Program, "Regulation of the latency-reactivation cycle by the Bovine Herpesvirus 1 (BHV-1) Latency Related Gene", Awarded: \$320,000
- 2000-2005: COBRE NIH grant PROJECT, "Functional analysis of alpha-herpesvirus latency associated transcripts", Awarded: \$500,000
- 10/01/04-9/30/05: Pfizer, "Analysis of BHV-1 present in aborted fetuses", Awarded: \$60,000
- 9/1/2002-8/30/2005: USDA, National Research Initiative Competitive Grants Program, "Functional analysis of bICP0, a BHV-1 gene that is a promiscuous trans-activator", Awarded: \$300,000
- 2004: NIH, "supplement to purchase Biorad Image Analyzer", Awarded: \$120,000
- 10/1/2000-9/30/2003: USDA, National Research Initiative Competitive Grants Program, "Inhibition of apoptosis by the Bovine Herpesvirus 1 (BHV-1) Latency Related Gene Products", Awarded: \$292,000
- 10/1/1998-9/30/2001: USDA, National Research Initiative Competitive Grants Program, "Analysis of Apoptosis and Pathogenesis by Bovine Herpesvirus 1 and bICP0", Awarded: 319,600.
- 9/97-9/2000: USDA, NRICGP, "Analysis of Bovine Herpesvirus 1 Latency Related Gene", Awarded: \$250,000
- 12/99-12/00: Elsa E. Pardee Foundation, "Identification of genes that are regulated by Fumonisin B1, a carcinogen that is a contaminant of corn and other cereal grains", Awarded: \$60,000
- 10/1/96-9/30/97: Pfizer, "Analysis of latency by a thermosensitive vaccine strain of bovine herpesvirus 1 in cattle", Awarded: \$120,000
- 9/1/96-8/30/98: USDA, PI: Martin Dickman, co-PI: Clinton Jones, "Molecular Mechanism of Fumonisin Induced Pathogenesis in Chickens", Awarded: \$250,000
- 10/95-9/98: USDA, NRICGP, "Analysis of BHV-1 gene expression during reactivation from latency", Awarded: \$250,000
- 10/1/94-9/30/97: USDA, NRICGP, "Analysis of the Bovine Herpesvirus 1 Latency Related Gene", Awarded: \$250,000
- 10/1/92-9/30/94: USDA, "National Research Initiative Competitive Grants Program (NRICGP) Regulation of Bovine Herpesvirus 1 Transcription during a Latent Infection", Awarded: \$300,000
- 4/15/92-4/30/95: USDA, "Is the latency related gene of BHV-1 necessary for a latent infection of cattle?", Awarded: \$250,000
- 7/1/88-6/30/93: NIH, National Cancer Institute, "Mechanistic Approaches to HSV-2 Induced Transformation", Awarded: \$500,000

Selected Publications:

1. Jones, C. and Su, R.T. 1982. DNA polymerase alpha from the nuclear matrix of cells infected with SV40. *Nucleic Acids Res* 10:5517-5531.
2. Jones, C., J. Ortiz, and R.J. Jariwalla. 1986. Localization and comparative nucleotide sequence analysis of the transforming domain in herpes simplex virus DNA containing repetitive genetic elements. *Proc Natl Acad Sci USA* 83:7855-7859.
3. Jones, C. 1989. The minimal transforming fragment of HSV-2 mtrIII can function as a complex promoter element. *Virology* 169:346-353.
4. Jones, C., G. Delhon, A. Bratanich, and D. Rock. 1990. Analysis of the transcriptional promoter which regulates the latency related transcript of bovine herpesvirus 1. *J Virol* 64:1164-1170.
5. Soong, L., C. Ackland-Berglund, C. Jones. 1992. The tumor promoter pristane activates transcription by a cAMP dependent mechanism. *Molec Cell Biochem* 110:75-81.
6. Dhanwada, K.R., V. Veerisetty, F. Zhu, A. Razzaque, K.D. Thompson, and C. Jones. 1992. Characterization of human fibroblasts transformed by HPV-16 and HSV-2. *J Gen Virol* 73:791-799.
7. Bratanich, A.C. and Jones, C. 1992. Localization of cis-acting sequences in the latency-related promoter of bovine herpesvirus 1 which are regulated by neuronal cell type factors and immediate-early genes. *J Virol* 66:6099-6106.
8. Huang, C., M. Dickman, G. Henderson, and C. Jones. 1995. The fungal toxin, fumonisin B1, represses protein kinase C in mammalian cells. *Cancer Res* 55:1655-1659.
9. Hossain, A., L. Schang, and C. Jones. 1995. Identification of gene products encoded by the latency related gene of bovine herpes virus type 1. *J Virol* 69:5345-5352.
10. Wang, H., C. Jones, J. Zanella, T. Holt, D. Gilchrist, M. Dickman. 1996. Fumonisin and *Alternaria alternata* lycopersici toxins: sphinganine analog mycotoxins induce apoptosis in monkey kidney cells. *Proc Natl Acad Sci* 93:3461-3465.
11. Devireddy, L.R. and C. Jones. 1998. Alternative splicing of the latency related transcript of bovine herpes virus type 1 yields RNAs containing unique open reading frames. *J Virol* 72:7294-7301.
12. Winkler, M.T.C., A. Doster, and C. Jones. 1999. Bovine herpesvirus-1 can infect CD4+ T lymphocytes and induce programmed cell death during acute infection of cattle. *J Virol* 73:8657-8658.
13. Ciacci-Zanella, J. M. Stone, G. Henderson, and C. Jones. 1999. The latency related gene of bovine herpesvirus 1 inhibits programmed cell death induced by C6-ceramide or fumonisin B1. *J Virol*, 73:9734-9740.
14. Perng, G.-C., C. Jones, J. Ciacci-Zanella, M. Stone, G. Henderson, A. Yukht, S.M. Slanina, F.M. Hoffman, H. Ghiasi, A.B. Nesburn, S. Wechsler. 2000. Virus-induced neuronal apoptosis blocked by the herpes simplex virus latency-associated transcript (LAT). *Science* 287:1500-1503.
15. Inman, M., G.-C. Perng, G. Henderson, A. B. Nesburn, and S. L. Wechsler, and C. Jones. 2001. Region of Herpes Simplex Virus Type 1 Latency-Associated Transcript Sufficient for Wild-Type Spontaneous Reactivation Promotes Cell Survival in Tissue Culture. *J Virol*. 75:3636-3646.
16. Zhang, Y. and C. Jones. 2001. The bovine herpes virus 1 immediate early protein (bICP0) is associated with histone deacetylase 1 to activate transcription. 2001. *J Virol* 75:9571-9578.
17. Inman, M., J. Zhou, H. Webb, and C. Jones. 2004. Identification of a novel transcript containing a small open reading frame that is expressed during latency, and is antisense to the latency related gene of bovine herpes virus 1 (BHV-1). *J Virol* 78:5438-5447.
18. Saira, K. and C. Jones. 2007. The infected cell protein 0 encoded by bovine herpesvirus 1 (bICP0) induces degradation of interferon response factor 3 (IRF3), and consequently inhibits beta interferon promoter activity. *J Virology* 81:3077-3086.
19. Shen, W. and C. Jones. 2008. Open reading frame 2 encoded by the latency related gene of bovine herpesvirus 1 has anti-apoptosis activity in transiently transfected neuroblastoma cells. *J. Virology*, 82:10940-10945.
20. Shen, S., M. Sa e Silva, T. Jaber, O. Vitvitskaia, S. Li, G. Henderson, and C. Jones. 2009. Two small RNAs encoded within the first 1.5 kb of the herpes simplex virus type 1 (HSV-1) latency-associated transcript (LAT) can inhibit productive infection, and cooperate to inhibit apoptosis. *J. Virology*, 83: 9131-9139.
21. Jaber, T., A. Workman, and C. Jones. Small non-coding RNAs encoded within the bovine herpesvirus 1 latency related gene can reduce steady state levels of infected cell protein 0 (bICP0). 2010. *J Virology*, 84: 6297-6307
22. Workman, A., D. Sinani, D. Pittayakhajonwut, and C. Jones. 2011. A Protein (ORF2) Encoded by the Latency Related Gene of Bovine Herpesvirus 1 Interacts with Notch1 and Notch3. *J Virology*, 85: 2536-2546.
23. Workman, A., J. Eudy, L. Smith, L. Frizzo da Silva, D. Sinani, H. Bricker, E. Cook, A. Doster, and C. Jones. 2012. Cellular transcription factors induced in trigeminal ganglia during dexamethasone-induced reactivation from latency stimulate bovine herpesvirus 1 productive infection and certain viral promoters. *J Virol* 86: 2459-2473.
24. Sinani, D., L. Frizzo da Silva, and C. Jones. 2013. A bovine herpesvirus 1 protein expressed in latently infected neurons (ORF2) promotes neurite sprouting in the presence of activated Notch1 or Notch3. *J of Virology*, 87:1183-1192.

25. Frizzo da Silva, L. I. Kook, A. Doster, and C. Jones. 2013. Bovine herpesvirus 1 regulatory proteins, bICP0 and VP16, are readily detected in trigeminal ganglionic neurons expressing the glucocorticoid receptor during the early stages of reactivation from latency. *J of Virology*, 87: 11214-11222.
26. Devis Sinani, Ethan Cordes, Aspen Workman, Prasanth Thunuguntia, and Clinton Jones. 2013. Stress-induced cellular transcription factors expressed in trigeminal ganglionic neurons stimulate the herpes simplex virus type 1 (HSV-1) infected cell protein 0 (ICP0) promoter. *J of Virology*, 87:1183-1192.
27. Allen, S.J., K.R. Mott, A. Rhode-Kurnow, X. Jiang, D. Carpenter, C.F. Ware, C. Jones, S.L. Wechsler, and H. Ghiasi. 2014. Interactions between Herpesvirus Entry Mediator (TNFRSF14) and Latency-Associated Transcript (LAT) during HSV-1 Latency. *J of Virology*, 88: 1961-1971.
28. Jamin, A., P. Thunuguntla, A. Wicklund, C. Jones, and M.S. Wiebe. Barrier to Autointegration Factor Becomes Dephosphorylated During HSV-1 Infection and Can Act as a Host Defense by Impairing Viral DNA Replication and Gene Expression. 2014. *PLOS One*, 9: e100511.
29. Kook, I., C. Henley, F. Meyer, F.G. Hoffmann, and C. Jones. 2015. Bovine herpesvirus 1 productive infection and immediate early transcription unit 1 promoter are stimulated by the synthetic corticosteroid dexamethasone. *Virology*, 484:377-385
30. El-mayet, F.S., A.S. El-Habbaa, J. D'Offay, and C. Jones. 2019. Synergistic activation of bovine herpesvirus 1 productive infection and viral regulatory promoters by the progesterone receptor and Krüppel-like transcription factor 15. *J of Virology*, 93: e01519-18.
31. Ostler, J.B., K.S. Harrison, K. Schroeder, P. Thunuguntla, and C. Jones. 2019. The glucocorticoid receptor (GR) stimulates Herpes Simplex Virus 1 productive infection, in part because the infected cell protein 0 (ICP0) promoter is cooperatively transactivated by the GR and Krüppel-like transcription factor 15. *J of Virology*, 93: e02063-18.
32. Guo, J., Q. Li, and C. Jones. 2019. The bovine herpesvirus 1 regulatory proteins, bICP4 and bICP22, are expressed during the escape from latency. *J. of Neurovirology*, 25: 42-49.
33. Silvestro, C., C. Jones, A. Bratanich. 2019. Functional analysis of the latency related gene of bovine herpesvirus type 1 and 5. *J Neurovirology*, 25: 1-8.
34. Harrison KL, L. Zhu, P. Thunuguntla, and C. Jones. 2019. Antagonizing the glucocorticoid receptor impairs explant-induced reactivation in mice latently infected with herpes simplex virus 1. *J of Virology*, 93: e00418-19.
35. Rico, A.B. Z. Wang, A.T. Olson, B.L. Bullard E.A. Weaver, C. Jones, M.S. Wiebe. 2019. The Vaccinia B1 and Cellular VRK2 Kinases Promote Vaccinia Replication Factory Formation through Phosphorylation Dependent Inhibition of Vaccinia B12. *J of Virology*, 93: e00855-19.
36. Workman, A. L. Zhu, B.N. Keel, T.P.L. Smith, and C. Jones. 2018. The Wnt signaling pathway is differentially expressed during the bovine herpesvirus 1 latency-reactivation cycle: evidence that two protein kinases associated with neuronal survival (Akt3 and bone morphogenetic protein receptor 2) are expressed at higher levels during latency. *J of Virology* 92: e01937-17
37. Sawant, L., I. Kook, J.L. Vogel, T.M. Kristie, and C. Jones. 2018. The cellular coactivator HCF-1 is required for glucocorticoid receptor-mediated transcription of bovine herpesvirus 1 immediate early genes. *J of Virology*, 92: e00987-18.
38. Jefferson, V.A., K.A. Barber, F.S. El-mayet, C. Jones, B. Nanduri, and Florencia Meyer. 2018. Proteogenomic Identification of a novel bovine herpesvirus 1 gene that expresses a protein readily detected during productive infection. *Viruses*, 10,499; doi:10.3390/v10090499.
39. El-mayet, F.S., L. Sawant, P. Thunuguntla, and Clinton Jones. 2017. Combinatorial effects of the glucocorticoid receptor and Krüppel-like transcription factor 15 on bovine herpesvirus 1 transcription and productive infection. *J of Virology* 91: 91:e00904-17.
40. Zhu, L, J. Thompson, F. Ma, J. Eudy, and C. Jones. 2017. Effects of the synthetic corticosteroid dexamethasone on bovine herpesvirus 1 productive infection. *Virology*., 505: 71-79.
41. Liu, Y., M. Hancock, A. Workman, A. Doster, and C. Jones. 2016. β -catenin, a transcription factor activated by canonical Wnt signaling, is expressed in sensory neurons of calves latently infected with bovine herpesvirus 1. *J of Virology*, 90:3148-3159.
42. Devireddy, L. and C. Jones. 2000. Olf-1, a neuron-specific transcription factor, can activate the herpes simplex virus 1 ICP0 promoter. *J Biol Chem* 275:77-81.
43. Perng, G.-C., C. Jones, J. Ciacci-Zanella, M. Stone, G. Henderson, A. Yukht, S.M. Slanina, F.M. Hoffman, H. Ghiasi, A.B. Nesburn, S. Wechsler. 2000. Virus-induced neuronal apoptosis blocked by the herpes simplex virus latency-associated transcript (LAT). *Science* 287:1500-1503.
44. Zhange, Y., M.B. Dickman, C. Jones. 1999. The mycotoxin Fumonisin B1 transcriptionally activates the p21 promoter through a cis-acting element containing two Sp1 binding sites. *J Biol Chem* 274:12367-12371.
45. Wang, H., C. Jones, J. Zanella, T. Holt, D. Gilchrist, M. Dickman. 1996. Fumonisin and Alternaria alternata lycopersici toxins: sphinganine analog mycotoxins induce apoptosis in monkey kidney cells. *Proc Natl Acad Sci* 93:3461-3465.