

DOUGLAS P. GLADUE, Ph.D.

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Plum Island Animal Disease Center
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PERSONAL STATEMENT

Principal investigator focused on developing novel vaccine platforms for foreign animal diseases in swine including African swine fever virus (ASFV) and classical swine fever (CSFV). Expertise in rational vaccine design by identification and deletion or mutation of critical determinants of virulence, with patents for both ASFV and CSFV vaccines. Currently ASFV is spreading out of control in Asia and Europe, and threatening the world's protein supply. My recent efforts have resulted in three different patented vaccine platforms that offer complete protection against African swine fever (ASF). Currently I am focused on creating a next-generation ASF vaccine platform by introducing a DIVA (Differentiating infected from vaccinated animals) maker, and identifying ASF proteins that are required for immunity to rationally create a subunit vaccine for ASF. My future goal is to adapt what I learn in swine diseases to continue to make vaccines against devastating diseases that affect both humans and animals.

EDUCATION

2007 **Ph.D. Molecular Genetics and Microbiology:** Stony Brook University, Stony Brook, NY
2001 **B.S. Microbiology:** University of Rhode Island, Kingston, R.I.

RESEARCH EXPERIENCE

2017-Present **Plum Island Animal Disease Center (ARS/USDA) GS-14**

Senior Scientist / Research Microbiologist / Principal Investigator

- Identification of target genes to introduce a DIVA into live-attenuated African swine fever (ASF) vaccines
- Development of CRISPR/Cas9 gene editing for ASFV field strains
- Development of a novel live-attenuated vaccine platform for ASF (patent pending)
- Mapping of non-linear binding domains for host proteins in classical swine fever virus (CSFV) E2, currently testing mutations in these domains as potential determinants of virulence
- Development of a stable cell line to support ASFV vaccine production
- Mentoring of ORISE and University Fellows
- Establishment of fluorescent cell sorting core facility for the unit (Sony SH-800)

2015- 2017 **Plum Island Animal Disease Center (ARS/USDA) GS-13**

Senior Scientist / Research Microbiologist / Principal Investigator

- Rational development of experimental live-attenuated African swine fever vaccines by deletion of known virulence genes (3 vaccine patented vaccine platforms)
- Identification of host-protein interactions in foreign swine diseases African swine fever virus (ASFV) and classical swine fever virus (CSFV)
- Establishment next generation sequencing core facility (Illumina & Nanopore platforms)
- Rational vaccine design using a targeted approach to disrupt virus defense mechanisms
- Viral protein functional discovery and the role in putative vaccines
- Mentoring of ORISE and University Fellows

2010-2015 **University of Connecticut / Plum Island Animal Disease Center**

Department of Pathobiology and Veterinary Science

Research Associate

Advisors: Dr. Manuel Borca (PIADC)/ Dr. Guillermo Risatti (UCONN)

- Development of rationally designed vaccines for foreign animal diseases, ASFV and CSFV
- Evaluation of putative vaccine candidates for highly pathogenic foreign animal diseases ASFV, CSFV and foot-and-mouth disease virus (FMDV).
- Preparation and propagation of recombinant virus for vaccine testing

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- Identification of critical host protein binding domains that affect viral replication
- Identification of uncharacterized ASFV proteins by functional genomics
- Mentoring of recently graduated undergraduate Researchers

2007-2010

Plum Island Animal Disease Center (ARS/USDA)

Postdoctoral Fellow/Microbiologist

Advisor: Dr. Manuel Borca

- Identification by novel functional domains or protein binding motifs in CSFV viral proteins.
- Characterization of CSFV p7 as a viroporin, and determined critical residues for pore formation
- Propagation and classification of CSFV vaccine candidates lacking functional domains or protein binding motifs.
- Analyzed changes in gene expression during CSFV infection via microarray
- Designed novel adenovirus based vaccine candidates for CSFV
- Fluency in operations and procedures for research conducted in a BSL-3 laboratory.

2001-2007

Stony Brook University

Graduate Researcher

Advisor: Dr. James Konopka

- Identified host protein interactions by a split ubiquitin yeast two-hybrid
- Adapted human G-protein coupled receptors for expression and signaling in yeast
- Developed a specific high throughput G-protein receptor signaling assay
- Used scanning mutagenesis substitution of cysteine residues to introduce unique thiol groups for crosslinking into the predicted interface of both Ste2p and Gpa1p (G-alpha)
- Mentoring of undergraduates and graduate students

2000

Alexion Pharmaceuticals, Cheshire, CT

Summer Internship

Supervisor: Jeremy Springhorn, Ph.D. / Krista Johnson

- Examined the immune response to different proprietary antagonists
- Developed a promoter assay to quantitate the activity of proprietary cytokine inhibitors by FACS analysis using mammalian cell lines
- Confirmed the activity of these cytokine inhibitors on primary T cells

1999

Pfizer Global Research and Development, Groton, CT

Summer intern: Department of Metabolic Diseases

Supervisor: Andrew Swick, Ph.D. / Josephine Spitzer

- Worked in a research lab studying obesity
- Protein expression and secretion in different tissues from various strains of mice to help evaluate novel drugs

1998

Pfizer Global Research and Development, Groton, CT

Summer Intern, Department of Animal Health Research

Supervisor: Craig Findly, Ph.D. / Dennis Pelletier

- Focus on DNA cloning making several deletions myostatin promoter
- Transfect constructs into animal cells and determine the differences between clones using luciferase assays

PUBLICATIONS:

Cited 954 times *i10* index of 25; h-index of 20 (Google Scholar)

1. Borca MV, O'Donnell VO, Holinka L, Risatti GR, Ramirez- Medina E., Vuono EA, Shi J, Pruitt S, Rai A, Silva E, Velazquez-Salinas L, and **Gladue DP**. Deletion of CD2-like gene from the genome of African swine fever virus strain Georgia does not attenuate virulence in swine *Submitted Scientific Reports* 8/30/19
2. Borca MV, Vuono EA, Ramirez- Medina E., Azzinaro P, Berggren K.A., Singer M, Rai A, Pruitt S, Silva E and **Gladue DP**. Interaction of structural glycoprotein E2 of classical swine fever virus with host protein dynactin subunit 6 (DCTN6) alters virus virulence in swine. *Under Revision* 8/27/19 *Journal of Virology*

3. Zhu JJ, Ramanathan P, Bishop EA, O'Donnell V, **Gladue DP**, Borca MV. Mechanisms of African swine fever Virus Pathogenesis and Immune Evasion Inferred from Gene Expression Changes in Infected Swine Macrophages. *Under Revision Plos One* 09/11/19
4. Ramirez-Medina E, Vuono E, O'Donnell V, Holinka LG, Silva E, Rai A, Pruitt S, Carrillo C, **Gladue DP**, and Borca MV. Differential effect of the deletion of African swine fever virus virulence-associated genes in the induction of attenuation of the highly virulent Georgia strain. *Viruses* 2019 Jul 2;11(7)
5. Vuono E, Baker-Bransteter R, Holinka LG, Ramirez E, Borca MV, **Gladue DP**. (2019) Classical swine fever virus structural protein E2 binds Protein Phosphatase 1 to modulate phosphates activity. *Viruses* Mar 29;11(4) **featured on issue cover*
6. **Gladue DP**, Largo E, de la Aguilera I, Aguilera V, Alcaraz A, Carrillo C, Nieva J, Borca MB.(2018) Molecular characterization of the viroporin function of foot and mouth disease virus non-structural protein 2B. *Journal of Virology*. Nov 12;92(23)
7. Borca MV, Holinka LG, Ramirez-Medina E, Vuono EA, Berggren K, **Gladue DP**.(2018) Identification of structural glycoprotein E2 domain critical to mediate Classical Swine Fever Virus replication. *Virology*. Oct 16;526:38-44.
8. **Gladue DP**, Largo E, Holinka LG, Ramirez-Medina E, Vuono EA, Berggren KA, Risatti GR, Nieva JL, Borca MV. (2018) Classical Swine Fever Virus p7 Protein Interacts with Host Protein CAMLG and Regulates Calcium Permeability at the Endoplasmic Reticulum. *Viruses*. Aug 28;10(9).
9. Borca MV, Berggren KA, Ramirez-Medina E, Vuono EA and **Gladue DP**. (2018). CRISPR/Cas Gene Editing of a Large DNA Virus: African Swine Fever Virus. *Bio-protocol* 8(16). *Invited submission*
10. Valazquez-Salinas L, Ramirez E, Bracht AJ, Hole K, Brito BP, **Gladue DP**, Carrillo CC.(2018) Molecular epidemiology of parapoxvirus genus identified from clinical cases of vesicular disease in Mexico (2007-2011). *Infection, Genetics and Evolution Infect Genet Evol*. 2018 Jul 4;65:12-14.
11. Borca MV, O'Donnell V, Holinka LG, Ramirez E, Clark BA, Vuono E, Berggren K, Alfano MA, Carey L, Richt JA, Risatti G, **Gladue DP**. (2018) The L83L ORF of African swine fever virus strain Georgia encodes for a non-essential gene that interacts with the host protein IL-1 β . *Virus Research*. Apr 2;249:116-123.
12. Borca MV, Holinka LG, Berggren KA, **Gladue DP**.(2018) CRISPR-Cas9, a tool to efficiently increase the development of recombinant African swine fever viruses. *Scientific Reports*. Feb.16;
13. Stenfeldt C, Arzt J, Pacheco JM, **Gladue DP**, Smoliga GR, Silva EB, Rodriguez LL, Borca MV. (2018)A partial deletion within foot-and-mouth disease virus non-structural protein 3A causes clinical attenuation in cattle but does not prevent subclinical infection. *Virology*. Jan 12;516:115-126.
14. Largo E, **Gladue DP**, Torralba J, Aguilera VM, Alcaraz A, Borca MV, Nieva JL. (2018)Mutation-induced changes of transmembrane pore size revealed by combined ion-channel conductance and single vesicle permeabilization analyses. *Biochim Biophys Acta*. Jan 6; 1860(5):1015-1021
15. Borca MV, O'Donnell V, Holinka LG, Stanford B, Azzinaro PA, Risatti GR, **Gladue DP**. (2017) Development of a fluorescent ASFV strain that retains the ability to cause disease in swine. *Scientific Reports*. Apr 24;7:46747.
16. Holinka LG, O'Donnell V, Risatti GR, Azzinaro P, Arzt J, Stenfeldt C, Velazquez-Salinas L, Carlson J, **Gladue DP**, Borca MV.(2017) Early protection events in swine immunized with an experimental live attenuated classical swine fever marker vaccine, FlagT4G. *PLoS One*. 2017 May 24;12(5)
17. O'Donnell V, Risatti G, Holinka LG, Krug P, Carlson J, Velazquez-Salinas L, Azzinaro PA, **Gladue DP**, Borca MV. (2016) Simultaneous deletion of the 9GL and UK genes from the African swine fever virus Georgia 2007 isolate results in virus attenuation and may be a potential virus vaccine strain. *Journal of Virology*. Dec 16; 91(1).
18. L. G. Holinka, E. Largo, **D. P. Gladue**, V. O'Donnell, G. R. Risatti, K. L. Nieva, and M. V. Borca.(2016) Alteration of a second putative fusion peptide of structural glycoprotein E2 of Classical Swine Fever Virus alters virus replication and virulence in swine. *Journal of Virology* Oct 28;90(22):10299-10308.
19. Carlson J, O'Donnell V, Alfano M, Velazquez Salinas L, Holinka LG, Krug PW, **Gladue DP**, Higgs S and Borca MV.(2016) Association of the Host Immune Response with Protection Using a Live Attenuated African Swine Fever Virus Model. *Viruses*. Oct 22;8(10)
20. Borca MV, O'Donnell V, Holinka LG, Stanford B, Krug PW, Carlson J, Lu Z, **Gladue DP**. (2016) The Ep152R ORF of African swine fever virus strain Georgia encodes for an essential gene that interacts with host protein BAG6. *Virus Research*. Sep 2;223:181-9
21. O'Donnell V, Holinka LG, Sanford B, Krug PW, Carlson J, Pacheco JM, Reese B, Risatti GR, **Gladue DP**, Borca MV.(2016) African swine fever virus Georgia isolate harboring deletions of 9GL and MGF360/505 genes is highly attenuated in swine but does not confer protection against parental virus challenge. *Virology*. Jul;494:178-89
22. Velazquez-Salinas L, Risatti GR, Holinka LG, O'Donnell V, Carlson J, Alfano M, Rodriguez LL, Carrillo C, **Gladue DP**, Borca MV. Recoding structural glycoprotein E2 in classical swine fever virus (CSFV) produces complete virus attenuation in swine and protects infected animals against disease. *Virology*. 2016 Jul;494:178-89

23. Sanford B, Holinka LG, O'Donnell V, Krug PW, Carlson J, Alfano M, Carrillo C, Wu P, Lowe A, Risatti GR, **Gladue DP**, Borca MV. (2016) Deletion of the thymidine kinase gene induces complete attenuation of the Georgia isolate of African swine fever virus. *Virus Research* 2016 Feb 2;213:165-71
24. Velazquez-Salinas L, Zarate S, Eschbaumer M, Pereira Lobo F, **Gladue DP**, Arzt J, Novella IS, Rodriguez LL. Selective Factors Associated with the Evolution of Codon Usage in Natural Populations of Arboviruses. *PLoS One*. 2016 Jul 25;11(7)
25. O'Donnell V, Holinka LG, Krug PW, **Gladue DP**, Carlson J, Stanford B, Alfano M, Kramer E, Lu Z, Arzt J, Reese B, Carrillo C, Risatti GR, Borca MV.(2015) African Swine Fever Virus Georgia 2007 with a Deletion of Virulence-Associated Gene 9GL (B119L), when Administered at Low Doses, Leads to Virus Attenuation in Swine and Induces an Effective Protection against Homologous Challenge. *Journal of Virology*.16:8556-66.
26. O'Donnell V, Holinka LG, **Gladue DP**, Sanford B, Krug PW, Lu X, Arzt J, Reese B, Carrillo C, Risatti GR, Borca MV.(2015) African swine fever virus Georgia isolate harboring deletions of MGF360 and MGF505 genes is attenuated in swine and confers protection against challenge with the virulent parental virus. *Journal of Virology* Jun;89(11):6048-56.
27. Krug PW, Holinka LG, O'Donnell V, Reese B, Sanford B, Fernandez-Sainz IJ, **Gladue DP**, Arzt J, Rodriguez LL, Risatti GR, Borca MV. (2015) "The progressive adaptation of a Georgian isolate of African swine fever virus to Vero cells leads to a gradual attenuation of virulence in swine corresponding with major modifications of the viral genome. *Journal of Virology* Feb 15;89(4):2324-32
28. Holinka LG, Fernandez-Sainz IJ, Stanford, O'Donnell V, **Gladue DP**, Carlson J, Z Lu, GR Risatti, Borca MV. (2014) Development of an improved live attenuated antigenic marker CSF vaccine strain candidate with an increased genetic stability. *Virology* Dec;471-473:13-8
29. O'Donnell V, Pacheco JM, Pauszek S, LaRocco M, **Gladue DP**, Somliga G, Krug P, Baxt B, Borca MV, Rodriguez LL. (2014). Virus-host interactions in FMDV persistently infected cells derived from bovine pharynx. *Virology*. Sep 9;468-470C:185-196
30. **Gladue DP**, O'Donnell V, Fletcher P, Baker-Branstetter R, Holinka LG, Fernandez-Sainz IJ, Sanford B, Carlson J, Lu Z, Borca MV. (2014). Interaction of structural Core protein of Classical Swine Fever Virus with endoplasmic reticulum-associated degradation pathway protein OS9. *Virology*, Jul; 460-461:173-9
31. Fernández-Sainz IJ, Largo E, **Gladue DP**, Holinka LG, O'Donnell V, Nieva JL, Borca MV. (2014). Effect of specific amino acid substitutions in the putative fusion peptide of structural glycoprotein E2 on Classical Swine Fever Virus replication. *Virology*. May; 456-457:121-130
32. **Gladue DP**, O'Donnell V, Pacheco JM, Baker-Branstetter R, Holinka LG, Fernandez-Sainz IJ, Fletcher P, Lu Z, Rodriguez LL, Borca MV. (2014). Interaction of foot-and-mouth disease virus nonstructural protein 3A with host protein DCTN3 is important for viral virulence in cattle. *Journal of Virology*, Mar; 88(5):2737-47
33. **Gladue DP**, Baker-Branstetter R, Holinka LG, Fernandez-Sainz IJ, O'Donnell V, Fletcher P, Lu Z, Borca MV. (2014). Interaction of CSFV E2 protein with swine host factors as detected by yeast two-hybrid system. *PLoS One*, Jan 8;9(1)
34. Largo E, **Gladue DP**, Borca MV, Nieva JL. (2014). Pore-forming activity of pestivirus p7 in a minimal model system supports genus-specific viroporin function. *Antiviral Research*, Jan;101:30-6
35. Pacheco JM*, **Gladue DP***, Holinka LG, Arzt J, O'Donnell V, Fernandez Sainz I, Piccone ME, Rodriguez L, Borca MV. (2013). A partial deletion in non-structural protein 3A can attenuate foot-and-mouth disease virus in cattle. *Virology*, Nov;446(1-2):260-7
*co-first authors
36. **Gladue DP**, O'Donnell V, Baker-Branstetter R, Holinka LG, Pacheco JM, Fernandez Sainz I, Lu Z, Brocchi E, Piconne ME, Rodriguez L, and Borca MV. (2013). Foot-and-mouth disease virus modulates cellular vimentin for virus replication. *Journal of Virology*, Jun;87(12):6794-803
37. **Gladue DP**, O'Donnell V, Baker-Branstetter R, Pacheco JM, Holinka LG, Fernandez Sainz I, Lu Z, Brocchi E, Baxt B, Piconne ME, Rodriguez L, and Borca MV. (2012). Foot-and-mouth disease virus 2C protein interacts with Beclin1 modulating virus replication. *Journal of Virology*, Nov;86(22):12080-90
38. **Gladue DP**, Holinka LG, Largo E, O'Donnell V, Fernandez-Saintz I, Baker-Branstetter R, Lu Z, Ambriggrio X, Risatti GR, J.L. Nieva, Borca MV.(2012). Classical swine fever virus p7 protein is a viroporin and is involved in the process of virulence in swine. *Journal of Virology*, June 15;86(12):6778-91 *Spotlight article*
39. Fernandez Sainz I, Holinka LG, **Gladue DP**, O'Donnell V, Lu Z, Gavrilov BK, Risatti GR, Borca MV. (2011). Substitution of specific cysteine residues in the E1 glycoprotein of classical swine fever virus strain Brescia affects formation of E1-E2 heterodimers and alters virulence in swine. *Journal of Virology*, Jul;85(14):7264-72
40. **Gladue DP**, Holinka LG, Fernandez-Saintz I, Prarat MV, Lu Z, Risatti GR, Borca MV. (2011). Interaction between Core protein of classical swine fever virus with cellular IQGAP1 protein appears essential for virulence in swine. *Virology*, March 30;412(1):68-74
41. **Gladue DP***, Gavrilov BK*, Holinka LG, Fernandez-Saintz I, Prarat MV, Lu Z, Risatti GR, Borca MV. (2011). Identification of an NTPase motif in classical swine fever virus NS4B protein. *Virology*, March 1;411(1):41-9. *co-first authors

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42. **Gladue DP**, Zhu J, Holinka LG, Fernandez-Sainz I, Carrillo C, Prarat MV O'Donnell V, Borca MV. (2010). Patterns of gene expression in swine macrophages infected with classical swine fever virus detected by microarray. *Virus Research*, July;151(1):10-8
43. **Gladue DP**, Holinka LG, Fernandez-Saintz I, Prarat MV, Lu Z, Rissatti GR, Borca MV. (2010). Effects of the interactions of classical swine fever virus Core protein with proteins of the SUMOylation pathway on virulence in swine. *Virology*, November 10;407(1):129-136
44. Fernandez Sainz I, **Gladue DP**, Holinka LG, O'Donnell V, Gudmundsdottir I, Prarat MV, Patch JR, Golde WT, Lu Z, Risatti GR, Zhu J, Borca MV. (2009). Mutations in classical swine fever virus NS4B affect virulence in swine. *Journal of Virology*, February;84(3):1536-49
45. Fernandez-Sainz I, Holinka LG, Gavrilov BK, Prarat MV, **Gladue DP**, Lu Z, Jia W, Risatti GR, Borca MV. (2009). Alteration of the N-linked glycosylation condition in E1 glycoprotein of classical swine fever virus strain Brescia alters virulence in swine. *Virology*, March 30; 386(1):210-6.
46. Holinka LG, Fernandez-Sainz I, O'Donnell V, Prarat MV, **Gladue DP**, Lu Z, Risatti GR, Borca MV. (2009). Development of a live attenuated antigenic marker classical swine fever vaccine. *Virology*, February 5;384(1):106-13
47. **Gladue DP**, Konopka JB. (2008). Mapping the scanning mutagenesis of regions in the G α protein Gpa1 that are predicted to interact with yeast mating pheromone receptors. *FEMS Yeast Research*, February;8(1):71-80.
48. **Gladue DP**. Regulation of G Protein-Coupled Receptor Signaling in Yeast. State University of New York at Stony Brook, ProQuest Dissertations Publishing, 2007. 3334903 *Doctoral Thesis* (<https://www.academia.edu/1418853/>)
49. Ballon DR, Flanary PL, **Gladue DP**, Konopka JB, Dohlman, Thorner JW. (2006). DEP domains link a regulator-of-G-protein-signaling protein to its cognate G-protein-coupled receptor. *Cell*, 126:1079-93.
50. Lin JC, Saracino M, Berkettis M, **Gladue DP**, Duell K and Konopka JB. (2003). Genetic approaches for the analysis of G-protein-coupled receptors. *Recent Research Developmental Molecular Cell Biology*, 4:209-230.

PUBLICATIONS IN PREPRATION

- Borca MV, Ramirez E, Siva E, Vuono E, Rai A, Pruitt S, Holinka LG, Velazquez-Salinas L, Zhu J, **Gladue DP**. Development of a highly effective African swine fever virus vaccine by deletion of the XXX gene results in sterile immunity against the current epidemic Eurasia strain. *Awaiting patent filing, expected submission to Nature Communications once approved*

GRANTS FUNDED

Total funding received \$1,912,537

- Agricultural Research Service Innovation fund Round 9 "Countermeasures to Control and Eradicate Foreign Animal Diseases of Swine" (2019-2021) Award Amount \$25,0000
- The US Department of Homeland Security, Science and Technology Directorate, Award# 70RSAT19KPM000056 Targeted Advanced Development (DHS S&T TAD) team " Systematic Identification of all Non-Essential ASFV Gene Targets for Developing Next Generation ASFV Vaccines with Increased Safety" (2019-2020) Award Amount \$402,136
- National Bio and Agro-defense Facility Biorepository Transition funding "Assistance to Characterize ASFV isolate Samples by Next-generation sequencing" (2019-2021) Award Amount \$750,000
- The US Department of Homeland Security, Science and Technology Directorate, Award # 70RSAT18KPM000138 Targeted Advanced Development (DHS S&T TAD) team "Exploration into a stable cell line capable to support African Swine Fever Growth" (2018-2020) Award amount: \$350,000
- The National Bio and Agro-Defense Facility (NBAF) workforce development with Mississippi State University "Development and evaluation of a next generation ASFV live attenuated vaccine" (2018-2020) Award Amount: \$265,401
- The National Pork Checkoff and the Kansas Bioscience Authority matching grant to Kansas State University's Center of Excellence for Emerging and Zoonotic Animal Diseases , Award No. 16-184, "Determination of the Role of L83L, an Uncharacterized ASFV Protein that Binds Il-1 Beta During ASFV Infection"(2017-2018) Award Amount: \$120,000

PATENTS

- A rationally developed African swine fever attenuated strain protects swine against challenge with parental virus Georgia2007 isolate. **US Patent No 9,808,520 (2017)**
- Live attenuated classical swine fever vaccine based in genetic manipulation of a putative fusion peptide area in the virus structural glycoprotein E2. **US Patent No. 9,814,771 (2017)**
- Attenuated African swine fever virus vaccine based in the deletion of MGFs genes. Invention Report **US Patent No. 9,528,094 (2016)**
- Attenuated African swine fever virus strain induces protection against challenge with the homologous virulent parental virus Georgia2007 isolate. **US Patent No. 9,463,234 B2 (2016)**
- Construction of Recombinant vaccines against African swine fever virus using poxviral vectors. **Invention Report Docket No 0130.17 6/22/2017**
- A potent single dose vaccine for African swine fever by deletion of XXX gene that protects against current outbreak strain Georgia. (2019) **patent in preparation by USDA (expected filing 9/2019)**

SCIENTIFIC COMMITTEES

- Member of the Plum Island Animal Disease Center Interagency African swine fever virus task force (2018-present)
- Coordinator for the North East United States World Society for Virology Membership review committee (2018-present)
- African Swine Fever Outbreak Laboratory Response Tabletop: Role: ARS Research leader/ASFV expert (2019)
- USDA-NIFA Grant Reviewer (2018)
- National Pork Board Research project proposal reviewer (2017 & 2018)
- Canadian Food Inspection Agency research project proposal reviewer (2017 & 2018)
- German Research Foundation project proposal reviewer (2019)
- Abstract Reviewer: International Conference on Biological Information and Biomedical Engineering. (2018,2019)
- Scientific Committee Member for Global African Swine Fever Virus Research Alliance (2016)
- Scientific Committee Member for African Swine Fever Virus annotation on the Viral Bioinformatics Resource Centre (2016-2017)

EDITORIAL BOARDS : 67 completed manuscripts

Verified editorial records: <https://publons.com/author/506025/douglas-gladue#profile>

- Senior Editor: Scientific Reports (2019-Present)
- Editorial Board Member: PLOS one (2018-Present)
- Editorial Board Member: Frontiers Virology Section (2018-Present)
- Associate Editor: Scientific Reports (2018-2019)
- Editorial Board Member: International Journal of Veterinary Science and Research (2015-2019)
- Editorial Board Member: SM Virology (SMJV) (2016-2019)

JOURNAL REVIEWER 147 reviews completed

Verified reviews at: <https://publons.com/author/506025/douglas-gladue#profile>
(date of last completed review)

- Science (9/14/2019)
- Ciencia Rural (9/13/2019)
- Viruses MDPI (09/09/2019)
- PLoS biology (8/20/19)
- Journal of Virology (8/8/2019)
- Journal of Clinical Microbiology (07/21/2019)
- mSphere (07//19/2019)
- Veterinary Microbiology (5/22/2019)
- mSystems (3/30/19)
- Virus Genes (2/12/2019)
- ACS synthetic Biology (2/10/2019)
- Open Life Sciences (1/04/2019)
- BMC biotechnology (1/03/2019)
- Transboundary and emerging diseases (12/7/2018)
- Research in Veterinary Science (10/01/2018)
- Frontiers in Microbiology (9/7/2018)
- Scientific Reports (9/05/2018)
- Veterinary Immunology (8/15/2018)
- Journal of Virological Methods (06/08/2018)
- Plant Biotechnology (05/25/2018)

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- Applied and Environmental Microbiology (04/20/2018)
- Antiviral Research (05/25/2018)
- International Conference BIBE (03/23/2018)
- Veterinary Research (03/19/2018)
- Applied and Environmental Microbiology(11/07/2017)
- International Journal of Veterinary Science and Medicine (10/24/2017)
- Clinical and Vaccine Immunology(9/24/2017)
- BMC Genomics (8/23/2017)
- Genomics (7/26/2017)
- Journal of General Virology (6/22/2017)
- Virology Journal (5/15/17)
- BMC Veterinary Research (3/25/17)
- Infection, Genetics and Evolution (11/14/2016)
- SM Virology(8/29/2016)
- Clinical and Vaccine Immunology (8/15/2016)
- PLOS One (6/3/2016)
- Peer J (4/11/2016)
- Virus Research (1/12/2016)
- Clinical Microbiology Reviews (9/24/2015)
- Canadian Journal of Microbiology (8/06/2015)
- Journal of General and Molecular Virology (11/6/2014)
- Life Sciences (7/7/2014)
- Virology & Mycology(6/30/2014)

TECHNIQUES and SKILLS

- **Molecular Biology:** (traditional and recombination/gateway cloning), site directed mutagenesis, primer design, genomic DNA isolation, DNA sequencing, RNA purification and cDNA generation, transfection and electroporation of cells, plasmid and protein purification, southern blotting, protein purification in E.coli and mammalian cell culture (Protein A and Ni-NTA columns). Yeast two-hybrid, mammalian two-hybrid, alanine scanning mutagenesis
- **Immunology:** indirect, sandwich and competitive enzyme-linked immunosorbent assays (ELISA), cellular cytotoxicity assays, cell proliferation in response to stimulus, cytokine response assays, T-cell functional assays, flow cytometry, single cell sorting
- **Virology:** Viral genome mutagenesis and viral cloning techniques (recombination and infectious clone manipulation), viral particle propagation (Adenovirus, CSFV, FMDV, ASFV), purification of viral particles, titration, genome isolation and sequencing.
- **Bioinformatics:** Microarray normalization and analysis (GenePix, ACUITY), Protein Arrays, BLAST, Sequencher, SMART, Bioedit, CLC genomic workbench, Swiss PDB, ELM Functional domain prediction. NGS sequencing and analysis, RNAseq analysis.
- **Proteomics:** SDS PAGE, Western blotting, quantitative western blotting via Li-Cor Odyssey, far-western blotting, coomassie staining, protein crosslinking, Co-immunoprecipitation, *in vitro* transcription/translation, protein array analysis
- **In vivo:** Animal handling techniques: mice including blood collection, and dissection, Vaccine study design (bovine/swine)
- **Yeast:** protein expression and purification, GPCR signaling assays, mating assays, yeast plasmid recovery, Beta-galactosidase assays
- **Next-Generation Sequencing:** Proficiency on illumina MiSeq /NextSeq and Nanopore Minlon platforms. Nucleic Acid purification, Library Preparation, Data Analysis.
- **Select Agent:** Federal select agent program training, maintained FBI select agent clearance, Select inventory records and compliance
- BSL-3 and BSL-3ag laboratory experience

SUPERVISORY/MENTORING EXPERIENCE

2019-present	Supervision of a Post-doctorate (Lauro Velazquez-Salinas) Characterization of ASFV host-viral protein interactions
2018-present	Supervision of a Post-doctorate (Edidine Siva) development of immunological assays for ASFV
2018-present	Supervision of a Technician (Sarah Pruitt) isolation of swine macrophages for ASFV vaccine development
2018-present	Supervision of a Technician (Ayushi Rai) developing a cell line to support ASFV growth
2017-present	Supervision of a Post-doctorate (Elizabeth Vuono) characterizing CSFV host-viral protein interactions
2016-present	Supervision of a Post-doctorate (Elizabeth Rameriz) construction of recombinant FMDV & ASFV
2016-2018	Supervision of a technician (Keith Berggren) Identification of novel host protein interactions with viral proteins for ASFV and CSFV. *Currently Pursuing a Ph.D Princeton,NJ
2016-2017	Supervision of a technician (Paul Azzinaro) determining novel host protein interactions with various uncharacterized ASFV proteins * Currently United States Department of Agriculture Scientist
2014-2016	Supervision of a technician (Marialexia Alfano) determining novel host protein interactions with various uncharacterized ASFV proteins * Currently a Regulatory Analyst/Biological Scientist USDA-APHIS

DOUGLAS P. GLADUE

- 2010- 2012 Supervision of a technician (Ryan Baker-Branstetter) conducting screens to determine novel host protein interactions with various FMDV proteins. * Currently Associate Scientist John Hopkins University
- 2009 - 2010 Mentored a Postdoc (Michael Puckette) in studying viral protein interactions in FMDV and viral-host protein interactions with FMDV 2B. * Senior Scientist Department of Homeland Security
- 2009- 2010 Supervision of a technician (Kara Rogers) conducting screens for porcine reproductive and respiratory syndrome virus (PRRSV) proteins. * Currently a Research Technician at University of Connecticut
- 2005-2007 Mentored an Undergraduate student (Jay Yang) studying human GPCR signaling in yeast, using reduced temperature growth conditions. He received a Howard Hughes research award during this time.
- 2006 Mentored a graduate student (Xiayun Wu) Studying expression of human GPCRs in yeast with novel surface expression sequences * currently runs a social media advertisement company in Beijing, China.

INVITED PRESENTATIONS

- Global African Swine Fever Research Alliance (GARA) Gap Analysis of Vaccines .IICA-PROCINORTE Workshop Emerging Swine Pathogens that Pose a Threat to North America. Mexico City, Mexico September 9, 2019
- Developing a live-attenuated vaccine for current outbreak strains of African swine fever. Harbin Veterinary Research Institute under the Chinese Academy of Agricultural Sciences. Harbin China May 24, 2019
- Rationally Designed Live Attenuated Vaccines for African swine fever for current outbreak strains. Conference on the Cooperation and Collaboration on Prevention and Control of Animal Diseases. Hang Zhao, China May 21, 2019
- African swine fever- Updates on Progress toward a live-attenuated vaccine. World Vaccine Congress Washington D.C. April 17, 2019
- A Career in Government Scientific Research. What it is like to work at Plum Island, and workforce development for NBAF. University of New Haven, March 25, 2019
- African Swine Fever- Global Gap Analysis. 5th International Biosafety and Biocontainment Symposium. Baltimore, MD, USA. February 14, 2019
- ASFV vaccine status: Rapid production of recombinant ASFV for live attenuated vaccines. U.S. China Dialogue and Workshop on the Challenges of Emerging Infections, Laboratory Safety, Global Health Security and Responsible Conduct in the Use of Gene Editing in Viral Infectious Disease Research. Harbin, China January 8, 2019
- Rapid development of experimental live attenuated vaccines for outbreak strains of African swine fever viruses. North American PRRS Symposium. Chicago, IL December 1st, 2018
- Rational approaches to developing a live attenuated vaccine for African swine fever virus. National Veterinary Research Institute. Pulawy, Poland July 10th 2018
- The core protein of Classical Swine Fever Virus and protein interactions with the host. Workshop of Prevention and Control Strategies for CSFV. Shanghai, China. October 16, 2017
- The role of Viroporin p7 in Classical swine fever for replication and viral virulence. Symposium of Prevention and Control Strategies for Classical Swine Fever. Beijing, China October 12, 2017
- Rational approaches to developing a live attenuated vaccine for African swine fever virus. World Vaccine Congress. Washington D.C. April 11, 2017
- Identification of mutations during progressive adaptation of African swine fever virus to vero cells using next-generation sequencing. Computational Biology Core Open House, University of Connecticut, Farmington CT February 24, 2017
- Status of African Swine Fever Vaccines, Novel Vaccine Platforms and Universal Vaccine Concepts Workshop and CEEZAD Annual Meeting, Nebraska City, NE. November 1st, 2016
- A systematic approach for identification of virus-host protein interactions as a tool for vaccine discovery. University of Connecticut. Storrs, CT November 11, 2013
- A targeted approach to vaccine development against select agent viruses. Feinstein Institute Manhasset, NY March 9, 2012

INVITED CONFERENCE CHAIR

- Viral Pathogenesis session at the 99th Annual Conference of Research workers in Animal Diseases. Chicago, IL December 1st 2017
- Virology & Pathogenesis Session Chair at 3rd annual Global African Swine Fever Research Alliance Scientific Workshop. Ploufragan, France. September 7, 2016

DOUGLAS P. GLADUE

- Virology, Pathogenesis and Vaccine Breakout group at 3rd annual Global African Swine Fever Research Alliance Scientific Workshop. Ploufragan, France. September 8-9,2016
- Exceptional Researchers' Discovery Institute Luncheon and Panel Discussion. Long Island University, NY August 20,2015

ORAL PRESENTATIONS

- Identification of structural glycoprotein E2 domain critical to mediate Classical Swine Fever Virus replication. 100th Annual Conference of Research workers in Animal Diseases. Chicago, IL December 4st 2018
- Rapid development of experimental live attenuated vaccines for outbreak strains of African swine fever viruses.100th Annual Conference of Research workers in Animal Diseases. Chicago, IL December 4st 2018
- CRISPR-Cas9, a tool to efficiently increase the development of recombinant African swine fever viruses. 4th annual Global African Swine Fever Research Alliance Scientific Workshop April 12, 2018
- Foot-and-mouth disease virus non-structural protein 2B functions as a viroporin. 99th Annual Conference of Research workers in Animal Diseases. Chicago, IL December 1st 2017
- Understanding the diverse roles of viroporin activity of classical swine fever virus protein p7. 99th Annual Conference of Research workers in Animal Diseases. Chicago, IL December 1st 2017
- The Ep152R ORF of African swine fever virus strain Georgia encodes for an essential gene that interacts with host protein BAG6. 3rd annual Global African Swine Fever Research Alliance Scientific Workshop. Ploufragan, France . September 7,2016
- Ep152R ORF of African swine fever virus strain Georgia encodes for an essential gene that interacts with host protein BAT3. American Society for Virology, Blacksburg, VA, June 18, 2016
- Foot and mouth disease virus non-structural protein 3A interaction with DCTN3 is essential for virus virulence. American Society for Virology, Fort Collins, CO. June 21, 2014
- Foot-and-mouth disease virus modulates cellular vimentin for virus replication American Society for Virology, State College, PA July 22, 2013
- Interaction between structural core protein of classical swine fever virus with IQGAP protein appears essential for virus virulence in swine. American Society for Virology, Bozeman, MT. July 19, 2010
- Sumoylation of the core protein in classical swine fever virus is essential for virulence in swine. American Society for Virology Vancouver B.C. Canada. July 14, 2009.
- A site-directed crosslinking approach for mapping the interface between receptor and G-protein. Keystone Symposia G-Protein-Coupled Receptors: Evolving Concepts and New Technologies. Keystone CO Feb 13, 2006.
- Applications of a novel split ubiquitin two hybrid system to study GPCRs. Keystone Symposia G-Protein-Coupled Receptors: Evolving Concepts and Drug Discovery. Taos, N.M. Feb 20, 2004
- Application of a novel yeast two-hybrid assay for analysis of G-protein-coupled receptors interaction *in vivo*. G-Protein Signaling Workshop. Rockefeller University. NY April 29, 2004.

ABSTRACTS

- Vuono E, Baker-Bransteter R, Holinka LG, Ramirez E, Borca MV, **Gladue DP**. Classical swine fever virus structural protein E2 binds Protein Phosphatase 1 to modulate phosphates activity. American Society for Virology. Minneapolis M.N. July 2019
- Borca MV, O'Donnell V, Holinka LG, Ramirez E, Clark BA, Vuono E, Berggren K, Alfano MA, Carey L, Richt JA, Rissatti G, **Gladue DP**. The L83L ORF of African swine fever virus strain Georgia encodes for a non-essential gene that interacts with the host protein IL-1 β . XX International Poxvirus Asfarvirus and Iridovirus Conference Taipei, Taiwan, May 29,2018
- Borca MV, O'Donnell V, Holinka LG, Alfano MA, Azzinaro PA, Alonso C, **Gladue DP**. Characterization of ASFV proteins by functional prediction and determining host protein binding partners. XXI International Poxvirus Asfarvirus and Iridovirus Conference. Le Bischenberg, France. July 2,2016
- **Gladue DP**, Holinka LG, Largo E, O'Donnell V, Fernandez-Saintz I, Baker-Bransetter R, Lu Z, Ambriggio X, Rissatti GR, J.L. Nieva, Borca MV. 2012. Classical swine fever virus p7 protein is a viroporin and is involved in the process of virulence in swine . American Society for Virology Madison, W.I. July 22,2012
- **Gladue DP**, Holinka LG, Baker-Bransetter R, O'Donnell V, Gavrillov BK , Fernandez-Saintz I, Lu Z, Ambriggio X, Rissatti GR, Borca MV. 2011. The role of p7 protein in classical swine fever virus infection. American Society for Virology Minneapolis M.N July 18,2011 Abstract number 676
- **Gladue DP**, Holinka LG, Baker-Bransetter R, O'Donnell V, Fernandez-Saintz I, Lu Z, Borca MV. 2011 Host protein interactions with classical swine fever virus core protein. American Society for Virology Minneapolis M.N July 18,2011 Abstract Number 684

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- **Gladue DP**, Holinka LG, O'Donnell V , Fernandez-Saintz I, Lu Z, Rissatti GR, Borca MV 2010 Novel host protein interaction partners for the viral p7 protein in classical swine fever virus American Society for Virology Bozeman, M.T. July 18,2010 Abstract Number P10-11
- **Gladue DP**, Konopka JB. 2006. A site-directed crosslinking approach for mapping the interface between receptor and G-protein. Keystone Symposia G- Protein- Coupled Receptors: Evolving Concepts and New Techniques. Keystone, C.O. Feb 13, 2006 Abstract Number 130
- **Gladue DP**,Konopka JB. 2004. Identification of proteins that interact with the alpha-factor mating pheromone receptor (Ste2p), using the split ubiquitin two-hybrid assay. Yeast Genetics and Molecular Biology Seattle, W.A. July 28 2004 Abstract number 208A
- **Gladue DP**, Konopka JB. 2004. Applications of a novel split ubiquitin two hybrid system to study GPCRs. Keystone Symposia G-Protein-Coupled Receptors: Evolving Concepts and Drug Discovery. Feb 18, 2004 Taos, N.M. Abstract number 119.

PROFESSIONAL MEMBERSHIPS

- 2018-Present International Committee on Taxonomy of Viruses (ICTV)
- 2007-Present American Association of the Advancement of Science
- 2018-Present World Society of Virology (NE USA membership Chair)
- 2017-Present International Veterinary Vaccinology Network

AWARDS and HONORS

- Research Accomplishment cited in the FY 2020 President's budget request to Congress "Using Gene Editing as a Tool to Engineer an African Swine Fever Vaccine"
- Research Accomplishment cited in the FY 2018 President's budget request to Congress "Understanding the genetics of a glycoprotein and its potential as a vaccine candidate for Classical Swine Fever."
- Agricultural Research Service performance award 2008, 2009, 2010, 2015, 2016, 2017, 2018
- Stony Brook University; Microbiology Department Distinguished Service Award 2005
- Yeast Molecular Genetics Meeting Travel Award 2004
- Keystone Meeting Travel Award 2004
- URI centennial scholarship recipient.
- Golden Key National Honor Society (URI)
- Dean's List URI
- Eagle Scout 1994

VOLUNTEER ACTIVITIES

- Judge: Shelter Island High School Science Fair 2016,2017,2018
- Judge: Connecticut State Science Fair URBAN Challenge 2016,2017,2018,2019
- Finalist Judge: Connecticut State Science Fair URBAN Challenge 2016,2017,2019
- Judge: Connecticut State Science Fair: Biotechnology 2016
- Judge: Connecticut Invention Convention (CIC) 2016, 2018
- Take your kid to work day, Liquid Nitrogen Ice Cream demonstrations 2017, 2018, 2019

INVITED PRESENTATIONS HOMEBREWING

- Brewing Sour Beer at Home: Coolships, Wild Strains, and Commercial Sources. HomebrewConn Providence, RI June 28, 2019
- Aging Beer in a Barrel or Wood Alternatives from Stouts to Sours. HomebrewConn. Portland, OR June 30, 2018
- Achieving the Flavor Profile You Want from the Microorganisms in Your Homebrew. HomebrewConn. Minneapolis, MN June 16, 2017
- How to Manage Yeast for the Home Brewery. National Homebrewers Conference. Grand Rapids, MI June 12, 2014

CERTIFICATIONS

- Beer Judge Certification Program (BJCP) National Beer Judge (2012)

DOUGLAS P. GLADUE

- Firefighter I (2007)
- Hazmat Training (2007)
- Certified Beer Server Cicerone level 1 (2002)
- Emergency Medical Technician (1997)