Truth in Testimony Disclosure Form

In accordance with Rule XI, clause 2(g)(5)* of the *Rules of the House of Representatives*, witnesses are asked to disclose the following information. Please complete this form electronically by filling in the provided blanks.

Committee: Oversight and Accountability

Subcommittee: Select Subcommittee on the Coronavirus Pandemic

Hearing Date: 07/11/23

Hearing Title :

"Investigating the Proximal Origin of a Cover Up"

Witness Name: Robert Francis Garry

Position/Title: Professor/Associate Dean, Tulane University School of Medicine

Witness Type: ○ Governmental ● Non-governmental

Are you representing yourself or an organization? ● Self ○ Organization

If you are representing an organization, please list what entity or entities you are representing:

FOR WITNESSES APPEARING IN A NON-GOVERNMENTAL CAPACITY

Please complete the following fields. If necessary, attach additional sheet(s) to provide more information.

Are you a fiduciary—including, but not limited to, a director, officer, advisor, or resident agent—of any organization or entity that has an interest in the subject matter of the hearing? If so, please list the name of the organization(s) or entities.

Co-founder, Zalgen Labs, LLC

Please list any federal grants or contracts (including subgrants or subcontracts) related to the hearing's subject matter that you or the organization(s) you represent have received in the past thirty-six months from the date of the hearing. Include the source and amount of each grant or contract.

Dr. Garry does not personally receive any federal grant funding, and he is appearing before the Subcommittee in his personal capacity. Nonetheless, to provide as much information to the Subcommittee as possible, please see attached, as Exhibit C, a list of coronavirus-related research that is supported by federal funding. Given the topic of the hearing, Dr. Garry has not included other grants related to research on non-coronaviruses.

Please list any contracts, grants, or payments originating with a foreign government and related to the hearing's subject that you or the organization(s) you represent have received in the past thirty-six months from the date of the hearing. Include the amount and country of origin of each contract or payment.

Dr. Garry is appearing before the Subcommittee in his personal capacity, and he does not personally receive any foreign funding. Further, Dr. Garry receives no foreign funding for coronavirus-related research. Given the topic of the hearing, he has not included other grants related to research on non-coronaviruses.

Please complete the following fields. If necessary, attach additional sheet(s) to provide more information.

☑ I have attached a written statement of proposed testimony.

☑ I have attached my curriculum vitae or biography.

***** Rule XI, clause 2(g)(5), of the U.S. House of Representatives provides:

(5)(A) Each committee shall, to the greatest extent practicable, require witnesses who appear before it to submit in advance written statements of proposed testimony and to limit their initial presentations to the committee to brief summaries thereof.

(B) In the case of a witness appearing in a non-governmental capacity, a written statement of proposed testimony shall include— (i) a curriculum vitae; (ii) a disclosure of any Federal grants or contracts, or contracts, grants, or payments originating with a foreign government, received during the past 36 months by the witness or by an entity represented by the witness and related to the subject matter of the hearing; and (iii) a disclosure of whether the witness is a fiduciary (including, but not limited to, a director, officer, advisor, or resident agent) of any organization or entity that has an interest in the subject matter of the hearing.

(C) The disclosure referred to in subdivision (B)(ii) shall include— (i) the amount and source of each Federal grant (or subgrant thereof) or contract (or subcontract thereof) related to the subject matter of the hearing; and (ii) the amount and country of origin of any payment or contract related to the subject matter of the hearing originating with a foreign government.

(D) Such statements, with appropriate redactions to protect the privacy or security of the witness, shall be made publicly available in electronic form 24 hours before the witness appears to the extent practicable, but not later than one day after the witness appears.

False Statements Certification

Knowingly providing material false information to this committee/subcommittee, or knowingly concealing material information from this committee/subcommittee, is a crime (18 U.S.C. § 1001). This form will be made part of the hearing record.

Robert F. Garry

Witness signature

7/6/23

Date

Truth in Testimony Disclosure Form
Dr. Robert F. Garry, PhD

Attachment A

Written Statement of Dr. Robert F. Garry
Professor and Associate Dean, Tulane University School of Medicine

United States House of Representatives
Oversight and Accountability Committee
Select Subcommittee on the Coronavirus Pandemic
"Investigating the Proximal Origin of a Cover Up."
Tuesday, July 11, 2023
2154 Rayburn House Office Building
Washington, DC 20515

Written Statement of Dr. Robert F. Garry
Professor & Associate Dean, Tulane University School of Medicine

Chairman Wenstrup, Ranking Member Ruiz, distinguished members of the Subcommittee, thank you for inviting me to testify today. For the last forty years, I have worked as a professor at Tulane University School of Medicine. I've devoted my life's work to understanding emerging viruses, such as HIV, Ebola virus, Lassa virus and the first SARS virus, and helping to develop diagnostics, drugs and vaccines to help stop those viruses. At the outset, it is important to note that I make these statements in my personal capacity, and I am not speaking on behalf of Tulane University.

Although we have all lived through a very challenging viral pandemic, my personal perspective has been different than most. For nearly 20 years, I've worked closely with scientists and clinicians at the Kenema Government Hospital (KGH) in Sierra Leone. KGH is a major site for research on the virus that causes Lassa fever. Ten years ago, Ebola virus emerged just 50 miles from KGH.[1] Ultimately, the Ebola outbreak that occurred in Sierra Leona between 2013 and 2016 claimed 12,000 lives, including the lives of dozens of healthcare workers at KGH. Having previously lost many close colleagues to an outbreak of a deadly virus, the December 2019 reports of cases of a novel pneumonia in Wuhan, China were ominous. The reports raised the specter of a

[1] Goba A *et al.* 2016. An Outbreak of Ebola Virus Disease in the Lassa Fever Zone. *J Infect Dis* 15: S110-S121; *see also*

possible impending global disaster caused by a novel airborne virus – one I worried that the world would be ill-equipped to handle.

Shortly after the first release of the SARS-CoV-2 genetic sequence,[2] I participated in an in-depth molecular and phylogenetic analysis of the virus with a group of three other scientists, Dr. Kristian Andersen, Dr. Eddie Holmes, and Dr. Andrew Rambaut. The four of us, as well as a fifth co-author, Dr. Ian Lipkin, wrote a peer-reviewed publication, titled "The Proximal Origin of SARS-CoV-2." In the paper, we concluded that it was likely that SARS-CoV-2 had evolved naturally.[3]

Importantly, however, we specifically did not rule out a laboratory origin. Instead, in our paper, we discussed three possible origin scenarios. The first scenario was direct spillover from a bat to a human, and the second scenario was spillover from a bat to an intermediate animal and then to a human. The third scenario we discussed in the paper was a lab origin. Specifically, we discussed the possibility that some of the SARS-CoV-2 Spike protein's features, including a receptor binding domain (RBD) that effectively binds human angiotensin-converting enzyme 2 (ACE2) and a furin cleavage site (FCS), may have arisen during passage in a laboratory.[4] However, because we observed these notable features in related coronaviruses, which provided a straightforward evolutionary route for SARS-CoV-2 to emerge in nature, we concluded that the natural origin scenarios were most plausible and that, based on the then-available scientific evidence, we did not believe that laboratory-based scenarios, including bioengineering, were plausible.

---

[2] Holmes E. 2020. Novel 2019 coronavirus genome, available at https://virological.org/t/novel-2019-coronavirus-genome/319.
[3] Andersen KG *et al*. 2020. The proximal origin of SARS-CoV-2. *Nat Med* 26:450-452.
[4] Passage is the process of growing a virus in iterations in different environments (either in cultures or animals), either to observe or achieve mutations and changes.

Based on evidence that has accumulated since we wrote Proximal Origin, it is my opinion that SARS-CoV-2 emerged via the wildlife trade in a market in Wuhan, China.[5] Peer-reviewed papers provide robust evidence supporting that the virus spilled over from a bat through an intermediate animal or animals to humans, one of three origin scenarios discussed in Proximal Origin. First, the Huanan Market in Wuhan, China was the early epicenter of the COVID-19 outbreak.[6] Most of the earliest diagnosed human COVID-19 cases from December 2019 lived in the immediate neighborhood around this market, including those that did not work or shop there. The ascertainment of cases in late 2019 was by local health officials, not the central Chinese Centers for Disease Control, and was not biased by linkage to the Huanan Market [6].[7] The two campuses of the Wuhan Institute of Virology (WIV) are considered the prime suspects for a lab origin of SARS-CoV-2 because they are the sites of the most advanced research programs on coronaviruses in the city.[8] However, there was no clustering of diagnosed cases of COVID-19 in December 2019 around either the Wuchang or Jiangxi campuses of the WIV, which are 7 and 15 miles respectively, from the Huanan Market, as would be expected if entry of SARS-CoV-2 into humans involved a laboratory accident.

Second, despite official denials from China, it was determined that Huanan Market vendors sold illegal SARS-CoV-2 susceptible wildlife in November 2019, the most likely timeframe in

---

[5] Garry RF. 2022. The evidence remains clear: SARS-CoV-2 emerged via the wildlife trade. Proc Natl Acad Sci USA. 119:e2214427119.

[6] Holmes EC *et al.* 2021. The origins of SARS-CoV-2: A critical review. *Cell* 184:4848-4856; Worobey M. 2021. Dissecting the early COVID-19 cases in Wuhan. *Science* 374:1202-1204; Worobey M *et al.* 2022. The Huanan Seafood Wholesale Market in Wuhan was the early epicenter of the COVID-19 pandemic. *Science* 377:951-959.

[7] Worobey M. 2021. Dissecting the early COVID-19 cases in Wuhan. *Science* 374:1202-1204.

[8] Chan A and Ridley M. *Viral: The Search for the Origin of COVID-19* (News Corp: Harper-Collins, New York, 2021); Harrison NL and Sachs JD (2022), A call for an independent inquiry into the origin of the SARS-CoV-2 virus. *Proc Natl Acad Sci USA* 119(21):e2202769119.

which SARS-CoV-2 emerged.[9] Environmental sampling was performed at the Huanan Market after it was shut down on January 1, 2020 and after illegal wildlife had been removed.[10] SARS-CoV-2 positive samples clustered in the southwest corner of the Huanan Market, where live SARS-CoV-2 susceptible mammals were sold. Specifically, an iron cage, carts used to move cages and animals, and drainage from this area were positive for SARS-CoV-2.[11] It is difficult to reconcile this striking distribution of the SARS-CoV-2 positive environmental samples in the Huanan Market with the theory that SARS-CoV-2 originated at the WIV or another Wuhan laboratory.

Third, analyses of the environmental samples also indicated that at least two separate spillovers of SARS-CoV-2 from animals to humans occurred at the Huanan Market.[12] In this regard, the emergence of SARS-CoV-2 resembles the first outbreaks of a SARS coronavirus in China that happened between 2002 and 2004 in which there were multiple spillovers from live animals sold in the wildlife trade. There are no plausible lab origin scenarios that are compatible with two independent spillovers of SARS-CoV-2 at the same market location.

Finally, in November 2022, my co-authors and I obtained access to large files containing the DNA and RNA sequences from the environmental samples taken at the Huanan Market in early 2020. This long-suppressed data not only showed that live raccoon dogs, civet cats, and other mammals susceptible to SARS-CoV-2 infection were present, but also pin-pointed their precise

---

[9] Xiao X et al. 2021. Animal sales from Wuhan wet markets immediately prior to the COVID-19 pandemic. *Sci. Rep.* 11:11898 (2021); Huang C *et al.* 2020. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 395: 497–506.

[10] Liu WJ et al. 2023. Surveillance of SARS-CoV-2 at the Huanan Seafood Market. *Nature.* 2023 Apr 5. doi: 10.1038/s41586-023-06043-2.

[11] Liu WJ et al. 2023. Surveillance of SARS-CoV-2 at the Huanan Seafood Market. *Nature.* 2023 Apr 5. doi: 10.1038/s41586-023-06043-2; Crits-Christoph *et al.* 2023. Genetic evidence of susceptible wildlife in SARS-CoV-2 positive samples at the Huanan Wholesale Seafood Market, Wuhan: Analysis and interpretation of data released by the Chinese Center for Disease Control https://doi.org/10.5281/zenodo.7754299.

[12] Pekar JE *et al.* 2022. The molecular epidemiology of multiple zoonotic origins of SARS-CoV-2. *Science*. 377:960-966.

locations within the market. Raccoon dog and civet cat DNA and RNA were present in the wildlife stall that contained the highest numbers of SARS-CoV-2 positive samples in the market.[13] This is equivalent to finding a smoking gun carrying the main suspect's DNA at the exact scene of the crime. All of this evidence demonstrates that the simplest explanation is that live animals were shedding SARS-CoV-2 at the Huanan Market in late 2019.

Theories of COVID-19 origin must be investigated in a transparent manner. In prior testimony, this Subcommittee has heard scientific testimony regarding SARS-CoV-2 that is not fully accurately. For example, the Subcommittee has been told that there is no FCS in any other SARS-like virus.[14] However, an FCS exists in the first SARS-CoV near putative fusion peptides.[15] Moreover, other SARS-like viruses are but a single mutation from having an FCS, which could evolve in a single step.[16] The Subcommittee was also told that cleavage at the FCS reorients the RBD so it can specifically bind to human ACE2.[17] This is inaccurate. The same witness described "human" arginines, which do not exist.

Three and a half years into the COVID-19 pandemic, it is still my opinion that there is no credible scientific evidence to support a lab-based origin for SARS-CoV-2. I support the efforts of the Subcommittee to better understand the origins of coronavirus pandemics, as understanding viral origin plays an important role in developing strong policies to help prevent the next potential

---

[13] Crits-Christoph *et al.* 2023. Genetic evidence of susceptible wildlife in SARS-CoV-2 positive samples at the Huanan Wholesale Seafood Market, Wuhan: Analysis and interpretation of data released by the Chinese Center for Disease Control https://doi.org/10.5281/zenodo.7754299.

[14] Testimony of Nicholas Wade on 8 March 2023 to the House Select Subcommittee on Coronavirus Pandemic; Testimony of Jamie Metzl, PhD on 8 March 2023 to the House Select Subcommittee on Coronavirus Pandemic.

[15] Sainz B Jr *et al.* 2005. Identification and characterization of the putative fusion peptide of the severe acute respiratory syndrome-associated coronavirus spike protein. *J Virol* 79: 7195-206.

[16] Sander, AL., Moreira-Soto, A., Yordanov, S. *et al.* 2022. Genomic determinants of furin cleavage in diverse European SARS-related bat coronaviruses. *Commun Biol* 5: 491.

[17] Testimony of Robert Redfield, MD on 8 March 2023 to the House Select Subcommittee on Coronavirus Pandemic.

pandemic. The global community remains ill-equipped to prevent or manage the emergence of novel viruses.[18] Prevention efforts for the next coronavirus emergence should focus on obtaining a greater understanding of the diversity of the *Coronaviridae* family in wild animals, increased surveillance at the animal-human interface, and stringent oversight of the wildlife and fur trade. As mentioned earlier, I've spent much of my career developing countermeasures for emerging viruses. Diagnostics, vaccines and therapeutics for potentially pandemic coronaviruses and other high-risk viruses, can and must be developed and prepositioned.[19]

[18] Goodrum F, et al. 2023. Virology under the microscope—a call for rational discourse. *J Virol* 97:e00089-23.

[19] Graham B and Corbett KS. 2020. Prototype pathogen approach for pandemic preparedness: world on fire. *J Clin Invest* 130: 3348-3349.

Attachment B

Curriculum Vitae of Dr. Robert F. Garry

7-5-23

CURRICULUM VITAE

NAME: **Robert Francis Garry, Jr.**

tel: 504-988-2027
fax: 504-988-1994
e-mail: rfgarry@tulane.edu

Date and place of birth: August 7, 1951. Terre Haute, Indiana.

Marital status: Married to Jeanette P. Alexander-Garry (three children).

Education:

1978	Ph.D. in Microbiology. The University of Texas at Austin, Texas. (Marilynn R. Fairfax Waite, advisor).
1974	B.S. in Life Science. Indiana State University at Terre Haute, Indiana.

Academic positions held:

2012-date	Associate Member. Broad Institute of Harvard and MIT
2012-date	Adjunct Professor. Tuskegee University
2006-date	Assistant Dean for Graduate Studies in Biomedical Sciences, Tulane University
2004-2006	Director, Interdisciplinary Program in Molecular and Cellular Biology
1993-date	Professor of Microbiology and Immunology. Tulane University School of Medicine at New Orleans, Louisiana. 70112.
1987-1993	Associate Professor of Microbiology and Immunology (appointment with tenure 1989) Tulane University School of Medicine at New Orleans, Louisiana. 70112.
1991	Fogarty Visiting Professor of Molecular Biology (Gebhard Koch, sponsor). University of Hamburg at Hamburg, Germany.
1983-1987	Assistant Professor of Microbiology and Immunology. Tulane University School of Medicine at New Orleans, Louisiana. 70112.
1985	Visiting Professor of Pathology (Suraiya Rasheed, sponsor). University of Southern California at Los Angeles, California.
1982-1983	Instructor of Microbiology. The University of Texas at Austin, Texas. 78712.
1979-1983	Post-doctoral (Henry R. Bose, Jr., sponsor). The University of Texas at Austin, Texas. 78712.

Other Appointments:

2016	Center for Viral Systems Biology. Co-Director.

2016 Tulane Center of Excellence under the Global Viral Network. Director.

2013 African Centre of Excellence for Genomics of Infectious Disease [ACEGID], which is part of the NIH/Wellcome Trust H3Africa Consortium. Founding member.

2012 Viral Immunotherapeutics Consortium. Member.

2010 Co-founder Zalgen Labs. Germantown, Maryland and Aurora, Colorado.

2008 Viral Hemorrhagic Fever Consortium [VHFC, vhfc.org]. Program Manager.

Research interests:

Investigations at the molecular level of cytopathic, immunodisruptive and carcinogenic mechanisms of human viruses. Development of countermeasures: diagnostics, therapeutics and vaccines.

Key words:

viruses, Lassa fever, Ebola, SARS/COVID-19, dengue, influenza, HIV, AIDS, hepatitis C virus, cytopathology, molecular biology, genetics, immunology.

Research Support (Selected):

National Institute of Allergy and Infectious Diseases. "Consortium for Viral Systems Biology (CViSB)" (5U19AI135995). 02/01/2018 – 01/31/2028. Principal Investigator: Andersen, K. Director of subcontract.

European & Developing Countries Clinical Trials Partnership (EDCTP) "Lassa Fever Vaccine Efficacy and Prevention for West Africa" (RIA2019LV-3053) 01/01/22 – 12/31/26. Principal Investigator: Swati Gupta (International AIDS Vaccine Initiative). Director of subcontract.

National Institute of Allergy and Infectious Diseases. "West African Emerging Infectious Disease Research Center" (U01AI151812) 05/21/2020 – 04/30/2025. Multiple Principal Investigators: Garry, Kristian Andersen (Scripps Research) and Pardis Sabeti (Harvard).

Wellcome Trust Foundation (U.K.) "Incidence studies in support of Lassa fever vaccine development." (215858/Z/19/Z) 07/01/2020-02/26/2023 Principal Investigator: Gupta, S. Director of subcontract.

National Institute of Allergy and Infectious Diseases. "Consortium for Immunotherapeutics against Emerging Viral Threats" (5U19AI142790). 05/01/2019-01/30/2024. Principal Investigator: Saphire, E. Investigator.

National Institute of Allergy and Infectious Diseases. "Preclinical evaluation of a potent Lassa Fever immunotherapeutic antibody cocktail" (1R01AI132223-. 06/26/17 – 05/31/23. Principal Investigator.

National Institute of Allergy and Infectious Diseases. "Structure-based design of novel Lassa virus glycoproteins for vaccine development" (1 R01AI132244-. 07/14/17 – 06/30/23. Principal Investigator.

National Eye Institute "Pathogenesis of Uveitis in EVD Survivors" (5R01EY029594-02A1) 07/01/2020-06/30/2024. Principal Investigator: Yeh, S. Director of subcontract.

BARDA "Recombinant vesicular stomatitis virus pseudotyped Sudan glycoprotein (rVSV pseudotyped SUDV GP) vaccine/" (BAA-18-100-SOL-00003). 01/01/2022 – 12/31/2023 Principal Investigator: Price, M. Director of subcontract.

Coalition for Epidemic Preparedness Innovations. "Lassa virus multi-country serum supply and multi-lineage recombinant antigens" (INTU1901). 1/1/19 – 12/30/22. Principal Investigator.

Coalition for Epidemic Preparedness Innovations "Lassa neutrality-Production of HIV-1 Env pseudotyped virus batches-Task Order 2" (CCIDA09212-CEPI) 07/01/2021-09/30/2022 Principal Investigator: Gupta, S. Director of subcontract.

Coalition for Epidemic Preparedness Innovations."Cross-Sectional Multi-Site Seroprevalence Study to Estimate Lassa Virus Infection in West African Countries" (ESEP1904) 07/1/2019 – 6/30/2022. Multiple Principal Investigators: Garry, Grant (Sierra Leone), Happi (Nigeria).

National Heart Lung and Blood Institue. NIH. LA-CEAL: Louisiana Community-Engagement Research Alliance Against COVID-19 in Disproportionately Affected Communities. (HL158260) 09/09/21 – 09/08/21. Principal Investigators: Krousel-wood (Tulane) and Sarpong (Xavier) Investigator.

Burroughs Wellcome Foundation. "Postdoc Program for Underrepresented Minorities" 09/01/20 – 08/31/23. Principal Investigator.

Centers for Disease Prevention and Control. "Immune Response to SARS CoV-2 in Special Populations" (co75D30120C08472) 07/01/20 – 06/30/21. Principal Investigator: Fusco (Tulane). Investigator.

National Institute of Allergy and Infectious Diseases. "Consortium for Immunotherapeutics against emerging viral diseases." (U19AI109762). 03/15/2014 – 02-28-19. Principal Investigator: Erica Saphire (TRSI/LaJolla Institue for Immunology). Director of Project 3.

National Institute of Allergy and Infectious Diseases. "Identification and validation of novel human T cell epitopes in Lassa fever." (HHSN272201400048C. 03/15/2014 – 02-28-19. Principal Investigator: Michael B. A. Oldstone (TRSI). Program Manager and Director of subcontract.

National Institute of Allergy and Infectious Diseases. "International Collaboration in Infectious Disease Research on Lassa fever and Ebola" (U19 AI115589. 01/01/15 – 12/31/20. Principal Investigator.

National Institute of Human Genome Sciences. "Genomic Characterization and Surveillance of Microbial Threats in West Africa " (U54 HG007480). 06/01/17 – 05/31/22 Principal Investigator: Erica Saphire (TRSI/LaJolla Institue for Immunology). Role: Director of subcontract.

Coalition for Epidemic Preparedness and Innovations. "A Vaccine for Prevention of Lassa Fever based on a Live Vesicular Stomatitis Virus-Lassa Virus Chimera." Principal Investigator: Swati Gupta (International AIDS Vaccine Initiative). Director of subcontract.

National Institute of Allergy and Infectious Diseases. "Preclinical development of recombinant antigen diagnostics for Lassa fever" (AI082778). 04/14/09 - 05/13/14. Principal Investigator. Direct costs: $7,073,538.

National Institute of Allergy and Infectious Diseases. Peptide inhibitors of influenza entry" (AI082778). 04/01/09 - 3/30/12. (Wilson, PI). Director of Subcontract). Direct costs: $1,304,709 (Tulane subaward: $672,091 - first year only, years 2-3 TBD).

National Institute of Allergy and Infectious Diseases. "Roles of protective or pathogenic B cell epitopes in human Lassa fever." (Robinson, PI). 09/15/09 - 09/14/14. Program Manager. Direct costs: $15,280,399.

Louisiana Board of Regents. "Design, Delivery and Development of Therapeutic Peptides" (RC-0013-07) 9/1/07 – 7-31-10. Principal Investigator. Direct costs: $5,800,000.

National Institute of Allergy and Infectious Diseases. Host Genetic Factors in Resistance to Lassa Hemorrhagic Fever 10/01/10 – 09/30/15. Co-Principal Investigator. Direct costs: $7,698,856

National Institute of Allergy and Infectious Diseases. Recombinant antigen diagnostics for filoviruses-FAST TRACK. 04/01/2009 - 03/31/12 Investigator. Direct costs: $1,995,760

National Institute of Allergy and Infectious Diseases. Recombinant antigen multiagent diagnostic assays for Lassa and other arenaviruses (AI067188). 7/1/05 – 6/30/08. Principal Investigator. $3,860,593

National Institute of Diabetes and Digestive and Kidney Diseases "HIV-1 Tat modulation of HCV replication and pathogenesis (DK070551)" 4/1/05-3/31/08. Principal Investigator. Direct costs: $275,000

National Institute of Allergy and Infectious Diseases. Development of molecular diagnostic assays for systemic autoimmune diseases (AI068221)" 12/1/05 – 11/30/06. (Kolakovsky- PI) Investigator. Direct costs: $100,000.

National Institute of Allergy and Infectious Diseases. "Peptide drugs against influenza virus (AI068230)". 7/1/06 – 6/30/08. Principal Investigator. Direct costs: $700,000.

National Institute of Allergy and Infectious Diseases. Peptide inhibitors of dengue virus infectivity (AI64617)" 7/1/06 – 6/30/07. Principal Investigator. Direct costs: $300,000.

National Institute of Allergy and Infectious Diseases. "Rapid screen for Ebola virus membrane interactions/drugs." (AI54626) 4/1/03 – 3/31/06. Direct costs: $525,000 Principal Investigator.

National Institute of Allergy and Infectious Diseases. "Rapid screen for HIV TM membrane interactions/drugs." (AI54238) 4/1/03 – 3/31/05 Direct costs: $300,000 Principal Investigator.

Wall Fund "Upgrade to Biosafety Level Three facilities" 7/1/03-6/30/06 Direct costs: $500,000.

National Center for Research resources. "Primate pilot study: coincident AIDS/relapsing malaria." (AI 34764) 7/1/03 – 6/30/05 Direct costs: $816,720. Principal Investigator.

National Cancer Institute. CA08921 (Srikanta Dash, PI) Garry: Investigator Hepatitis C virus and hepatocellular carcinoma Direct costs: $900,000 7/1/01 - 6/30/06. Investigator.

Roche Molecular Systems/Autoimmune Technologies. "Blinded trial to define the role of a HMTV in breast cancer" Direct costs: $25,000, 7/1/02 – 8/31/02 Principal Investigator.

Department of Defense. "Role of a human endogenous retrovirus in breast cancer." (BC990847) 9/1/00 - 10/31/03. Direct costs: $225,000. Principal Investigator.

National Institute of Allergy and Infectious Diseases. "Alterations of ion transport by HIV". (AI 34764) 12/1/93 - 11/30/02 Direct costs: $1,785,110 Principal Investigator.

National Institute of Dental Research. "Sjogren's Xerostomia: Viral/Immunogical Etiology NIH-DE10862-01 Direct costs: $1,250,873 ($291,007 for Garry Laboratory - subcontract from LSU to Tulane) 3/1/93 - 2/29/00 Co-principal Investigator (William R. Gallaher, Principal Investigator).

National Cancer Institute. "Molecular characterization of HIV-1 and HHV-8 from a 1968 AIDS/KS case" 11/30/96 - 12/1/99 Direct costs: $278,491. Principal Investigator.

Teaching:

2018-23	Short course in Medical Microbiology. Johns Hopkins School of Public Health and Tropical Medicine. Lecturer.
2013-date	ACEGID summer Program. Broad Institute of Harvard and MIT.
2010-2019	Tulane University Ethics course (lecture on peer review)
2006-date	BMS Seminar series (course director)
2005-date	Instructor/Co-coordinator of Advanced Virology course. (team taught Laura Levy, Cindy Morris, Lilia Melnik, etc. Tulane Medical School, New Orleans.
2003	Instructor in Structural Biology course (Course Director: Sam Landry). Tulane University, New Orleans
1998	Instructor in Environmental Ethics course (Course Director: William Tuscano). Tulane University, New Orleans

1991-2001 Instructor in Molecular and Cellular Pathogenesis course. (Course director, Gil Morris). Tulane University, New Orleans.

1983-date Instructor in Medical Microbiology and Immunology course (Virology lectures and general laboratory; Course director 1998-99. Tulane Medical School, New Orleans).

1983-2005 Instructor/Co-coordinator of Advanced Virology course. (team taught with Laura Levy). Tulane Medical School, New Orleans.

1983-1990 Instructor in Cancer Biology course. (Course director, M. Mizell). Tulane University, New Orleans.

1982-1983 Instructor/Coordinator of Introductory Virology courses. University of Texas, Austin.

1974 Student Teaching Internship in Biological Science. Broadripple High School, Indianapolis, Indiana.

Invited Lectureships and Symposia:

2021 Global Viral Network – Forefront of Virology Webinar Series. Invited Speaker. (On-line meeting).

2021 Fifteenth International Conference on Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases. Keynote Speaker (On-line meeting).

2020 Viral Immunotherapeutics Consortium Annual Meeting, La Jolla California. Invited Speaker.

2019 Viral Hemorrhagic Fever Consortium Annual Meeting, Boulder Colorado. Organizer.

2019 Global Virus Network. Barcelona Spain. Invited Speaker.

2019 CEPI Biological Standards and Assays workshop. Oslo Norway. Invited Speaker.

2019 H3Africa Annual Meeting, Dakar Senegal. Invited Speaker.

2019 National Institute of Allergy and Infectious Diseases. Systems Biology for Infectious Diseases Annual Meeting, Galveston Texas. Invited Speaker.

2018 Global Viral Network. Annecy, France.

2018 Institute of Human Virology. Baltimore Maryland. Invited Speaker.

2018 National Institute of Allergy and Infectious Diseases. Bethesda, MD. Invited Speaker.

2018 Antibodies as Drugs (Keystone meeting). Whistler, BC. Invited speaker.

2017 United States Embassy, Freetown Sierra Leone. Invited speaker.

2017 Global Viral Network meeting. Melbourne, Invited Speaker.

2017 Coalition for Epidemic Preparedness and Innovations. Kickoff meeting. Invited participant. Paris.

2017 PEGS Boston. Symposium Speaker/Session Chair.

2017 ASM Biothreats. Keynote address (replacing Thomas M. Countryman, Under Secretary for Arms Control and International Security) and Session Chair.

2012 Annual Meeting Division of Microbiology and Infectious Diseases, National Institute of Allergy and Infectious Diseases, NIH. Keynote address.

2012 Improving Malaria Vaccine Strategies through the Application of Immunological Principles. Division of Allergy, Infection and Transplantation, National Institute of Allergy and Infectious Diseases, NIH. Invited Workshop participant

2011 World Health Organization meeting on Lassa Fever. Freetown, Sierra Leone.

2011 HBIOMED-SL Symposium, Freetown, Sierra Leone. Invited Speaker.

2010 World Health Organization. Geneva, Switzerland, Invited Speaker.

2010 HBIOMED-SL Symposium, Freetown, Sierra Leone. Keynote Address.

2009 Global Viral Forecasting Initiative. San Francisco. Invited Speaker.

2009 Irrua Specialist Teaching Hospital, Nigeria. Invited Symposium Speaker.

2009 Division of Microbiology and Infectious Diseases (DMID), National Institutes of Health. Rockville, MD. Invited Speaker.

2008 XIV International Congress of Virology. Istanbul, Turkey. Invited Speaker.

2008 International Symposium on Filoviruses. Libreville, Gabon. Participant.

2008 Synexis Symposium on Hepatitis C Virus. Research Triangle Park, North Carolina. Invited Speaker.

2007 Biomedical Research Symposium. Tuskegee University. Keynote Speaker.

2006 International Research in Infectious Diseases Annual Meeting. Washington, DC. Speaker.

2005 Novartis. Boston, MA. Invited Speaker.

2004 11th International Symposium on Hepatitis C Virus and Related viruses. Heidelberg, Germany. Invited Speaker.

2004 XVI International AIDS Congress. Bangkok, Thailand. Participant.

2004 International Seminar on Viruses and Neoplasias. Keynote Speaker. Santigo Caballeros, Dominican Republic.

2003 International workshop on hepatitis C virus. Kyoto, Japan. Speaker.

2003 Workshop on receptors and entry of oncogenic viruses. Park City, Utah. Invited speaker.

2003 American Society for Virology. Speaker

2002 NIH symposium of the role of viruses in human breast cancer. Bethesda, Maryland. Invited speaker.

2002 Roche Molecular Systems, Alameda, California. Invited speaker.

2001 International Congress of the Hellenic Society for Breast Cancer Research, Athens, Greece. Invited Keynote Speaker.

2000 Viruses and Human Cancer: New Associations. Fred Hutchinson Cancer Center. Seattle, Washington. Invited Symposium Speaker.

2000 Viral Cause of Human Breast Cancer. North Shore University Hospital, Manhasset, New York. Invited Symposium Speaker.

1999 International Congress of the Hellenic Society for Breast Cancer Research, Herakleion, Crete. Invited Plenary Speaker.

1999 Duke University School of Medicine, Durham, North Carolina, Invited Speaker.

1999 International Congress of Virology, Sydney, Australia, Invited speaker.

1998 Symposium on Ion Channels and Disease. Kelso, Scotland. Invited Symposium Speaker.

1998 British Society for Nutritional and Environmental Medicine. Oxford, England. Invited Symposium Speaker.

1998 University of Tennessee School of Medicine, Memphis Tennessee, Invited Speaker.

1997 American Society for Virology Annual National Meeting. Hamilton, Montana. Invited Symposium Chair.

1996 Southern Association of Clinical Microbiologists Annual Meeting, Nashville, Tennessee. Invited Symposium Speaker

1996 American Society for Microbiology Annual National Meeting. New Orleans, Louisiana. Invited Symposium Speaker.

1996 Baylor University School of Medicine, Houston, Texas. Invited

Speaker.

1996 National Institutes of Health, National Cancer Institute Bethesda, Maryland. Invited Speaker.

1995 American Society for Virology Annual National Meeting. Austin, Texas. Invited Symposium Chair.

1995 American Society for Microbiology Annual Regional Meeting. Invited Symposium Chair.

1995 Calypte Biomedical, Berkeley, California. Invited Speaker.

1995 Rheumatology on the Beach. Destin, Florida. Keynote Speaker.

1995 Laboratory of Tumor Cell Biology Annual Meeting. Washington, D.C. Invited Symposium Speaker.

1994 Baylor University School of Medicine, Houston, Texas. Invited Speaker.

1993 National Sjögren's Syndrome Foundation Annual Meeting. New Orleans, Louisiana. Invited symposium speaker.

1992 Smith-Kline Beecham, Inc. King of Prussia, Pennsylvania. Invited speaker.

1992 Louisiana State University, Baton Rouge, Louisiana. Lectureship in Molecular Biology.

1991 University of Bern, Bern, Switzerland. Invited speaker.

1991 Robert Koch Institute, Berlin, Germany. Invited speaker.

1991 Max Plank Institute, Martinsreid (Munich), Germany. Invited speaker.

1991 Conference on Translational Controls in Virus-infected Animal Cells. Sigüenza, Spain. Invited symposium speaker.

1991 St. Luke's/Roosevelt Hospital at Columbia University. New York, New York. Invited speaker.

1991 Guthrie Research Foundation. Sayre, Pennsylvania. Invited speaker.

1991 Boehringer Ingelheim, Inc. Ridgefield, Connecticut. Invited speaker.

1991 New York University School of Medicine. New York, New York. Invited speaker.

1988-89 American Academy of Dermatology National Meetings. Washington D.C. and San Francisco. Invited symposium speaker.

1988 St. George's University Medical School. London, England. Invited speaker.

1988 University of Eppendorf-Krankenhaus, Hamburg, Federal Republic of Germany. Invited speaker.

1987 Conference on Membrane-mediated Controls. Hamburg, Federal Republic of Germany. Invited participant/session chairman.

1987 University of Hamburg. Hamburg, Federal Republic of Germany. Invited speaker.

1987 National Medical Association National Meeting. New Orleans.Invited symposium speaker.

1986 International Symposium on Immunological Adjuvants and Nonspecific Resistance to Microbial Infections. Columbia, MD. Invited speaker.

1984 Alberta Heritage Foundation Lecture. University of Edmondton, Alberta, Canada. Invited speaker.

1982 Conference on Membrane-mediated Controls. Hamburg, FederalRepublic of Germany. Invited speaker.

Honors, Awards and Fellowships:

2020 Health Care Hero (*City Business*)

2015 100 Global Thinkers (*Foreign Policy*)

2015 Health Care Hero (*City Business*)

2003-2019 Research Scholar Awards (10 awards) – Tulane University

1996 Dean’s Distinguished Faculty Forum

1994 Louisiana Innovator of the Year

1991 Fogarty Foundation Senior International Fellowship

1991 Alexander von Humboldt Award

1990 Outstanding Young Investigator Award (Tulane University)

1987 Owl Club Teaching Award.

1979-1981 NIH Individual Postdoctoral Research Fellowship.

1978 Margaret Jane McKinney Lewis Fellowship.

1977-1979 University Fellow Award.

1974 Sigma Xi Undergraduate Research Award.

1969-1974 Indiana Scholarship Commission Fellowship.

Professional Societies:

American Association for the Advancement of Science

American Society for Microbiology.

American Society for Virology.

Public Service:

2005-2007	President, South Central Branch of the American Society for Microbiology.
2004-2012	Founding Editor-in-Chief of *Virology Journal* (BioMed Central).
1995-date	All the Virology on the World Wide Web (www.virology.net) with Dr. David Sander.

National and International Committees, Official Appointments and Directorships:

2022	Chair, National Institute of Allergy and Infectious Diseases. NIH. *Biocontainment Facility Improvements and Building System Upgrades to Support Pandemic Preparedness* Study Section
2021	Chair, and Infectious Diseases. NIH. Infectious diseases and Immunology Study Section
2020	Chair, NIAID COVID-19 Review meeting
2018-20	Chair, 40-year review of the US-Israel Binational Agricultural Research and Development Fund.
2020	Deutsche Forschungsgemeinschaft (DFG - German Research Foundation), ad hoc reviewer
2020	National Institute of Allergy and Infectious Diseases. NIH. Member, HIV AIDS Clinical Trials Units Review Meeting
2020	National Institute of Allergy and Infectious Diseases. NIH. Chair, Advanced Development of Vaccine Candidates for Biodefense and Emerging Infectious Diseases.
2020	National Institute of Allergy and Infectious Diseases. NIH. Member, Targeted Prevention for Tick-borne Diseases.
2019	National Institute of Allergy and Infectious Diseases. NIH. Member, NIH Director's Early Independence Awards (DP5).
2018	Member, World Health Organization Lassa fever Taskforce.
2018	Member, Executive Committee, Global Viral Network.

2018 National Institute of Allergy and Infectious Diseases. NIH. Member, Cellular and Molecular Immunology-B Study Section (Special SEP, Member conflicts).

2018 World Health Organization Ebola and Lassa fever Roadmap Meetings. London. January 16-19, 2018. Invited consultant/speaker.

2012-2018 National Institute of Allergy and Infectious Diseases. NIH. Member, AIDS Study Section (AIDSRRC).

2016,2017 National Institute of Allergy and Infectious Diseases. Member or Chair, 3 Special ZIKA virus Study sections.

2009, 2010 National Institute of Allergy and Infectious Diseases. NIH. Chair, AIDS Vaccine Study Section.

2009 National Institute of Allergy and Infectious Diseases. NIH. Chair. Calicivirus Study Section.

2009 National Institute of Allergy and Infectious Diseases. NIH. Co-Chair, Regional Centers of Excellence for Biodefense Study Sections.

2008-2011 National Institute of Allergy and Infectious Diseases. NIH. Member, NIAID Conferences Study Section.

2007-2010 National Institutes of Health. Member. "Bugs and Drugs" Study Section.

2003-2007 National Institute of Allergy and Infectious Diseases. Chair, SBIR Biodefense Study Section.

2003 National Institute of Allergy and Infectious Diseases. Chair, Vaccines Adjuvants Therapeutics and Drugs for Biodefense Study Section.

2003 National Institutes of Health. Member, SBIR Biodefense Study Section.

2002 National Heart, Lung and Blood Institute, NIH. Member, Special AIDS Study Section.

2002 National Heart, Lung and Blood Institute, NIH. Member, Special AIDS Study Section.

2001 National Institute of Allergy and Infectious Diseases, NIH. Member of 2 Special AIDS Molecular Biology Study Sections.

2000 Institute of Women's Health. National Institutes of Health. Invited participant in research hearings.

1998 National Institute of Allergy and Infectious Diseases. NIH. Chair, Special AIDS Molecular Biology Study Section.

1998 National Institute of Diabetes and Digestive and Kidney Diseases. NIH. Invited participant in special panel to evaluate "Environmental etiology of type I diabetes: viruses and other factors."

1998 North Carolina Institute of Technology, External reviewer.

1997 British Medical Devices Agency, Invited participant in research hearings.

1997-2008 National Institute of Allergy and Infectious Diseases. Member, Centers for AIDS Research Study Section.

1997 National Institute of Allergy and Infectious Diseases, NIH. Member, or Chair of 3 Special AIDS Molecular Biology Study Sections.

1996 National Institute of Allergy and Infectious Diseases, NIH. Member, AIDS Molecular Biology Study Section.

1995 National Institute of Allergy and Infectious Diseases, NIH. Member, AIDS Molecular Biology Study Section.

1995 National Institute of Allergy and Infectious Diseases, NIH. Member, four Special AIDS Study Sections.

1995 Research Council of British Columbia. Member site visit committee.

1994 National Institute of Allergy and Infectious Diseases, NIH. Member, AIDS Molecular Biology Study Section.

1994 National Institute of Allergy and Infectious Diseases, NIH. Member, two Special AIDS Study Sections.

1994 National Heart, Lung and Blood Institute, NIH. Member of two Special AIDS Study Sections.

1994 National Institute of General Medical Sciences, NIH. Member, General Clinical Reseach Center Study Section.

1993-1997 NIH, Member Reviewers Reserve.

1993 National Institute of Allergy and Infectious Diseases, NIH. Member, Chronic Fatigue Syndrome Study Section.

1988-1993 National Institute of Allergy and Infectious Diseases, NIH. Member, AIDS Molecular Biology Study Section (ARRC, Chartered 1990).

1992 World Health Organization, Member, Advisory panel on unexplained immunodeficiency without evidence of HIV infection.

1992 Public Health Service, Member, Centers for Disease Control Advisory panel on idiopathic CD4+ lymphocytopenia.

1992 National Institute of General Medical Sciences, NIH. Member, MBRS Study Section.

1987-date National Research Council of Canada. Grant reviewer.

1989, 1992 American Society for Microbiology Annual Meeting Committee

1988	Presidential Commission on the Human Immunodeficiency Virus Epidemic. Invited participant in research hearings.

Committees (Intramural):

2006-date	Emergency Preparedness Committee (member 2006-11, Faculty Chair 2012-date)
1994-2000 2011-2015	Personnel and Honors Committee.
1988-date	Institutional Biosafety Committee (Vice-Chair, 1988-95; Chair, 1995-2002).
2006-date	Biomedical Sciences Steering Committee (Ex officio)
2006-2011	Graduate Council
1999-2006	University Senate (elected 1999; re-elected 2002)
2000 - date	Department of Microbiology and Immunology Promotion and Tenure Committee (Chair or Member)
2001	Molecular and Cellular Biology Program Review (Chair)
2000	University Senate Governance Review Committee
1998-date	Dean’s Scholars Selection Committee
1998	Chancellor's Teaching Scholar Award Committee
1998	Search Committee for Chair of Pathology
1997-1999	Faculty Advisory Committee (elected 1997)
1997	Information Technology Committee (Chair Research subcommittee)
1997	Faculty Incentive Committee
1996-1999	University Senate Budget Advisory Committee
1995	Tulane Center for Molecular Medicine Organizing Committee
1995	Tulane Center for Infectious Diseases Organizing Committee
1994-2000	Molecular and Cellular Biology Steering Committee (Program Co-Director 94-95)
1990-date	Tulane: LSU General Clinical Research Center Steering Committee
1988-1999	Student Services Committee.
1991-1993	Molecular and Cellular Biology Curriculum Committee
1988,1995	Shaffer Award Competition Committee.

1987-1989 Graduate School Curriculum Committee.

1986-1993 American Cancer Society Institutional Grant Committee.

Dissertation/Thesis Committees:

Biomedical Sciences – Tulane University
Phil Ferro, Ph.D. (2007, Committee Chair, currently Director, Special Projects, ASPR, Director, Office of Portfolio Management, Biomedical Advanced Research and Development Authority, Assistant Secretary for Preparedness and Response (ASPR),Department of Health and Human Services).
David Nielson (Committee Chair)
Lilia Melnick (2011, Committee Chair, LEQSF Fellowship)
Nathalia Holt, Ph.D. (Acting Committee Chair, Major Advisor Dr. Paula Cannon)
Racheal Yenni (2016, Committee Chair)
Matt Boisen (2014 Committee Chair)
Luis Branco (2012, Committee Chair, Currently CSO, Zalgen, LLC)
Eric Mucker (2014, Acting Committee Chair)
Jessica Grove, Ph.D (2016, Committee Chair, LEQSF Fellowship)
Jennifer Spence, Ph.D (2015, Committee Chair, LEQSF Fellowship)
Trevor Gale,. Ph.D. (2017, Committee Chair; currently >>>)
Brandon Beddingfield, PhD (2020, Committee Chair; currently post-doctoral fellow Chad Roy lab TNPRC
Andrew Hoffman, Ph.D. (2020 Committee Chair; currently post-doctoral fellow Garry lab)
Allison Smither, Ph.D. (2021, Committee Chair; currently post-doctoral fellow University of Texas Medical Branch at Galveston)
Antoinette Bell-Kareem (Committee Chair)
Alex Berry (Committee Chair)
Joe Corey Berta (Committee Chair)

Bioinnovation Program
Kaylynn Genemaris (Committee Chair (2023; currently Food and Drug Administration)
Karissa Chao (Committee Chair)

Microbiology and Immunology-Tulane Medical School
Lynn Bonham, Ph.D. (1987)
Karin Levesque, Ph.D. (1990)
M. Nasar Qureshi, M.D., Ph.D. (1990, Committee Chair; currently Mt. Sinai Medical School, Associate Professor)
Lucy Freytag, Ph.D. (1991)
Darrenn Hart, Ph.D. (1993, Committee Chair n; currently LSUHSC)
Scott A. Tenenbaum, M.S., Ph.D. (1994, Committee Chair; postdoctoral fellow Duke University, currently Albany Medical College, Tenured Associate Professor)
Thomas G. Voss, Ph.D. (1994, Committee Chair; currently Vanderbilt University Professor)
Paul Gatti, Ph.D. (1998, Committee Chair; currently CSO-founder, Biocompare)
Bongkun Choi, Ph.D. (1998, Committee Chair; currently Samsung Corp., Korea)
Angelique Habis, Ph.D. (2000)
Joshua M. Costin, Ph.D. (2005, Committee Chair, currently post-doctoral fellow Florida Gulf Coast University)

Bruno Sainz, Ph.D. (2005, Committee Chair; NIH individual predoctoral fellowship, post-doctoral fellow at Scripps; currently: University of Chicago)
Yancey Hrobowski, Ph.D. (2006, Committee Chair, currently Director Virology Laboratory for the District of Columbia)
Mark Soboleski. Ph.D.

Molecular and Cellular Biology Program - Tulane University
Douglas R. Plymale, M.B.A., J.D., Ph.D. (1996; Committee Chair; postdoctoral fellow Harvard University; Tulane Law School; currently in private patent law practice)
Sara Sobel, M.D., Ph.D. (Committee Chair; currently University of Texas at Houston Assistant Professor)
David Sander, Ph.D. (1997, Committee Chair; LEQSF Fellowship; currently CSO Sander and Associates)
Heather Jaspan M.D./Ph.D. (1999, Committee Chair; NIH Individual Predoctoral Fellowship Awardee, Residency Univ. Washington and University, Johns Hopkins University faculty, currently University of Cape Town/University of Washington faculty)
Sonja Sumac, Ph.D. (1998)
Jing-Zhou Hou, Ph.D. (1998)
Laura Simpson, Ph.D. (1998; Tulane Regional Primate Center)
Anita M. Trichel, DVM, Ph.D. (1998; Tulane Regional Primate Center)
Sangeeta L. Peshori, Ph.D. (1999)
Debra Sullivan, Ph.D. (1999)
Hong Du, Ph.D. (1999)
Karen Ruli, Ph.D. (2000)
Raj Kalkeri Ph.D. (Committee Chair; 2000; currently Project Director, Vertex Pharmaceuticals, Cambridge, MA)
Micheal Bolton, Ph.D., M.D. (Committee Chair; 2001; LEQSF Fellowship; University of Califoria Medical School, M.D. 2005, currently: Seattle Veteran's Hospital)
Sarah Nangle, Ph.D. (2006, Committee Chair)
Baiking Pei, Ph.D.
Chandtip Chandhasin, Ph.D.
Samantha Finstad, Ph.D.
Kristin Ruff, Ph.D.
Claudia Copeland, Ph.D.
Guy Odum, Ph.D.
Harris McFerrin, Ph.D.
Ali Shibahi, Ph.D. (2009, Committee Chair)

Biochemistry- Tulane Medical School
Rana Khan
Nilufar Inamdar
Geetha Kothandaraman

Pharmacology- Tulane Medical School
Claire Moss
Issac Rondon, Ph.D. (1993)
Khatidja Ali, M.S. (2000)
Christopher Williams, Ph.D. (2003)

Physiology- Tulane Medical School
Steve Antrobus (M.S., 1991)

Chemistry- Tulane University

Cheng-Feng Chiang (Ph.D. 1995, Committee Co-Chair; currently Clarke Medical School, Atlanta)

Microbiology, Immunology and Parasitology- LSU Medical School
Angela Martin, M.S. (1988); Ph.D. (1992)
Al Mock, M.S. (1999)

Biochemistry and Molecular Biology - LSU Medical School
James B. Chen, Ph.D. (1990)
Carol B. Hovda (M.S. (1994)

University of British Columbia. External reviewer. Dissertation committee of Paul E. Kowalski, Ph.D. (1998, Major advisor: Dr. Dixie Mager).

University of Minho in Porto, Portugal. PhD Thesis committee
Tiago Mota, Ph.D. (2019, Major Advisor: Dr. Matthias Schnell).

Post-doctoral students
Tam David-West, Ph.D.
Linda L. Moore, Ph.D.
Yan Cao, M.D.
Scott A. Tenenbaum, Ph.D. (Judith Graham Poole Postdoctoral Fellowship)
Ramesh Prabhu, Ph.D.
Suzanne Tomchuck, Ph.D.
Lilia Melnik, Ph.D.
Jessica N. Hartnett, Ph.D.
Lina M Moses, Ph.D.
Andrew Hoffmann, Ph.D.

Publications in Referred Journals:

Straub, S.X., Garry, R.F., and Magee, W.E. Interferon induction by poly I: poly C enclosed in phospholipid particles. Infection and Immunity 10:783-792, 1974.

Bishop, J.M., Maldonado, R.L., Garry, R.F., Allen, P.T., Bose, H.R. (Jr.), and Waite (Fairfax), M.R.F. Effect of medium of lowered NaCl concentration on virus release and protein synthesis in cells infected with reticuloendotheliosis virus. Journal of Virology 17:446-452, 1976.

Moore, R.N., Berry, L.J., Garry, R.F., and Waite (Fairfax), M.R.F. Effect of Sindbis virus infection on hydrocortizone-induced hepatic enzymes in mice. Proceedings Society for Experimental Biology and Medicine 157:125-128, 1978.

Bell, J.W., Garry, R.F., and Waite (Fairfax), M.R.F. Effect of low NaCl medium on the envelope glycoproteins of Sindbis virus. Journal of Virology 25:764-769, 1978.

Garry, R.F., Bishop, J.M., Parker, S., Westbrooke, K., Lewis, G., and Waite (Fairfax), M.R.F. Na^+ and K^+ and the regulation of protein synthesis in Sindbis virus-infected chick cells. Virology 96:108-120, 1979.

Garry, R.F. and Waite (Fairfax), M.R.F. Na^+ and K^+ and the regulation of the interferon system in chick cells. Virology 96:121-128, 1979.

King, C.C., King, M.W., Garry, R.F., Wan, K.M., Ulug, E.T., and Waite (Fairfax), M.R.F. Effect of incubation time on the generation of defective interfering particles during serial undiluted passage of Sindbis virus in Aedes albopictus cells. Virology 96:229-238, 1979.

Garry, R.F., Westbrooke, K., and Waite (Fairfax), M.R.F. Differential effects of ouabain on host- and Sindbis virus-specified protein synthesis. Virology 99:179-182, 1979.

Moore, R.N., Shackleford, G.M., Garry, R.F., and Berry, L.J. Effect of Sindbis virus infection on survival of mice in the cold. Journal of Applied Physiology 47:923-926, 1979.

Sanders, B.G., Wan, K.M., Kline, K., Garry, R.F., and Bose, H.R., Jr. Chicken fetal antigens: Role as cell surface receptors for Sindbis virus hemagglutinin. Virology 106:183-186, 1981.

Garry, R.F., Moyer, M.P., Bishop, J.M., Moyer, R.C., and Waite (Fairfax), M.R.F. Transformation parameters induced in chick cells by incubation in media of altered NaCl concentrations. Virology 111:427-439, 1981.

Lewis, R.B., McClure, J., Rup, B.J., Niesel, D.N., Garry, R.F., Hoelzer (Pierce), J., Nazerian, K., and Bose, H.R., Jr. Avian reticuloendotheliosis virus: Identification of the hematopoietic target cell for transformation. Cell 25:421-432, 1981.

Garry, R.F. and Bose, H.R., Jr. Secretion of a virus-regulated factor by clonal variants of reticuloendotheliosis virus-transformed cells. Virology 113:403-407, 1981.

Garry, R.F., Ulug, E.T., and Bose, H.R., Jr. Induction of stress proteins in Sindbis virus- and vesicular stomatitis virus-infected cells. Virology 129:319-332, 1983.

Ulug, E.T., Garry, R.F., and Bose, H.R., Jr. Alterations in monovalent cation transport in Sindbis virus-infected chick cells. Virology 132:118-130, 1984.

Garry, R.F., Shackleford, G.M., Berry, L.J. and Bose, H.R., Jr. Inhibition of hepatic phosphoenolpyruvate carboxykinase by avian reticuloendotheliosis viruses. Cancer Research 45:5020-5026, 1985.

Garry, R.F., Bostick, D., Schram, R., and Waite (Fairfax), M.R.F. The ratio of plasma membrane cholesterol to phospholipid and the inhibition of Sindbis virus maturation by low NaCl medium. Journal of General Virology 66:1171-1177, 1985.

Garry, R.F. and Bostick, D.A. Intracellular K^+ and the expression of transformation parameters by chick cells transformed with the Bryan strain of Rous sarcoma virus. Virology 150:439-450, 1986.

Rasheed, S., A. A. Gottlieb, and R.F. Garry. Cell killing by UV-inactivated human immunodeficiency virus. Virology 154:395-400, 1986.

Garry, R.F., Bostick, D.A., and Ulug, E.T. Sindbis virus increases hexose transport in quiescent cells. Virology 155:378-391, 1986.

Garry, R.F. and Bostick, D.A. Induction of the stress response: Alterations in membrane-associated transport systems and protein modification in heat shocked or Sindbis virus-infected cells. Virus Research 8:245-259, 1987.

Garry, R.F., and Bose, H.R., Jr. Autogenous growth factor production by reticuloendotheliosis virus-transformed hematopoietic cells. J. Cellular Biochemistry 37:327-338, 1988.

Henderson, L.A., Qureshi, M.N., Rasheed, S., and Garry, R.F. HIV induced cytotoxicity for $CD8^+$ cells from some normal donors and virus specific induction of a suppressor factor. Clinical Immunol. Immunopath. 48:174-186, 1988.

Moore, L.L., Bostick, D.A., and Garry, R.F. Sindbis virus infection decreases intracellular pH: Alkaline medium inhibits processing of Sindbis virus polyproteins. Virology 166:1-9, 1988.

Garry, R.F., Witte, M., Gottlieb, A.A., Elvin-Lewis, M., Gottlieb, M., Witte, C., Alexander, S.S., Cole, W.R., Drake, W.L., Jr. Documentation of an AIDS virus infection in 1968. Journal of the American Medical Association 260:2085-2087, 1988.

Garry, R.F. Poliovirus protease 2A is required for interference with vesicular stomatitis virus-induced protein synthesis. Arch. Virology 103:133-137, 1988.

Garry, R.F., Witte, M., Gottlieb, A.A., Elvin-Lewis, M., Gottlieb, M., Witte, C., Alexander, S.S., Cole, W.R., Drake, W.L., Jr. HIV infection in 1968 (letter). Journal of the American Medical Association 261:2199, 1989.

Garry, R.F. Alteration of intracellular monovalent cation concentrations accounts for inhibition of protein synthesis by a poliovirus mutant which encodes a defective 2A protease. Virus Research, 13:129-142, 1989.

Gallaher, W.R., Ball, J.M., Garry, R.F., Griffin, M.C., and Montelaro, R.C. A general model for the transmembrane proteins of HIV and other retroviruses. AIDS Research and Human Retroviruses 5:431-440, 1989.

Ulug, E.T., Garry, R.F., and Bose, H.R., Jr. The role of monovalent cation transport in Sindbis virus maturation and release. Virology 172:42-50, 1989.

Talal, N., Dauphinee, M.J., Dang, H., Alexander, S.S., Hart, D.J., and Garry, R.F. Evidence suggesting a retroviral etiology for autoimmune diseases. Progress in Immunology 7:837-841, 1989.

Qureshi, M.N, Coy, D.H., Garry, R.F., and Henderson, L.A. Characterization of a putative cellular receptor for the HIV-1 TM glycoprotein using synthetic peptides. AIDS 4:553-558, 1990.

Garry, R.F., and Witte, M. Early case of AIDS in the United States (letter). Nature 347:509, 1990.

Talal, N., Dauphinee, M.J., Dang, H., Alexander, S.S., Hart, D.J., and Garry, R.F. Detection of serum antibodies to retroviral proteins in patients with

primary Sjögren's syndrome (autoimmune exocrinopathy). Arthritis and Rheumatism 33:774-781, 1990.

Talal, N. Garry, R.F., Alexander, S.S., Dauphinee, M.J., Ballester, A., Takei, M., and Dang, H. A conserved idiotype and antibodies to retroviral proteins in systemic lupus erythematosus. J. Clinical Invest. 85:1866-1871, 1990.

Garry, R.F. Extensive antigenic mimicry by retrovirus capsid proteins. AIDS Research and Human Retroviruses 6:1361-1362, 1990.

Garry, R.F., Fermin, C.D., Hart, D.J., Alexander, S.S., Donehower, L.A., and Luo-Zhang, H. Detection of a human intracisternal A-type retroviral particle antigenically-related to HIV. Science 250:1127-1129, 1990.

Miller, M.A., Garry, R.F., Jaynes, J.M., and R.C. Montelaro. A structural correlation between lentivirus transmembrane proteins and natural cytolytic peptides. AIDS Research and Human Retroviruses 7:511-519, 1991.

Garry, R.F., Kort, J.J., Koch-Nolte, F., and Koch, G. Similarities of viral proteins and toxins that interact with monovalent cation channels. AIDS 5:1381-1384, 1991

Stransky, G., Garry, R.F., and Gay, S. Detection of p24 in HIV-infected cells embedded in LR White and Lowicryl K4M. Histochemical Journal, 23:381-384, 1991.

Dang, H., Feghali, C. A., Dauphinee, M.J., Talal, N., Garry, R.F., Seibold, J.R., Medsger, T.A., Jr., Alexander, S. Serum antibody to retroviral proteins in systemic sclerosis. Arthritis and Rheumatism 34:1336-1337, 1991.

Garry, R.F. Intracisternal A-type retroviruses and immune dysfunctions. The Lancet 340: 787-788, 1992.

Garry, R.F., Hart, D.J., Tenenbaum, S.A., Luo-Zhang, H., Breeding, S.A.L., and Alexander, S.S. Sjögren's Syndrome and retroviral infection. Arthritis and Rheumatism 35, 1405, 1992.

Garry, R.F. and Koch, G. Tat contains a sequence related to snake neurotoxins. AIDS 6, 1541-1542, 1992.

Fermin, C.D., and Garry, R.F. Cytopathic effects linked to interactions of human immunodeficiency virus with the cell surface. Virology 191, 941-946, 1992.

Garry, R.F., and Fermin, C.D. Viral burden in AIDS. Nature 365, 301-302, 1993.

Tenenbaum, S.A., Leissinger, C.A., and Garry, R.F. Seroreversion in AIDS. Journal of the American Medical Association. 270:2178, 1993.

Garry, R.F. Sindbis virus-induced inhibition of protein synthesis is partially reversed by medium containing an elevated potassium concentration. J. General Virology 75, 411-415, 1994.

Tenenbaum, S.A. Voss, T.G., Gallaher, W.R. and Garry, R.F. Sequence similarities between retroviral proteins and components of the spliceosome. AIDS Res. Human Retro. 10, 521-522. 1994.

Gallaher, W.R., Ball, J.M., Garry, R.F., Martin, A.M., and Montelaro, R.C. A general model for the surface glycoproteins of HIV and other retroviruses. AIDS Research and Human Retroviruses 11, 191-201, 1995.

Garry, R.F. Sequence similarities between latency membrane protein LMP-1 of Epstein-Barr virus, integral membrane protein $p12^{I}$ of human T-cell leukemia/lymphotropic virus type 1, E5 transformation protein of bovine papilloma virus, and the transmembrane proteins of oncoviruses. 11, 431-432, 1995.

Cuéllar, M.L., Scopelitis, E., Tenenbaum, S.A., Garry, R.F., Silveira, L.H., Cabrera, G., and Espinoza, L.R. Serum antinuclear antibodies in women with silicone breast implants. J. Rheumatology 22, 236-240, 1995.

Jaspan, J.B., Luo, H., Ahmed, B., Tenenbaum, S.A., Voss, T.G., Sander, D.M., Bollinger, K., Baquet, T., and Garry, R.F. Evidence for a retroviral trigger in Graves' disease. Autoimmunity 20, 135-142, 1995.

Plymale. D.R., D.S. Ng Tang, Fermin, C.D., Lewis, D.E., Martin, D.S., and Garry, R.F. Comparison of DNA fragmentation and color thresholding for objective quantitation of apoptotic cells. Scanning Microscopy 9, 833-842, 1995.

Chiang, C.-F., Tenenbaum, S.A., Verret, C.R., Leissinger, C.A., and Garry, R.F. Activity of granzyme A, a serine protease in the killing granules of cytotoxic T-lymphocytes, is reduced in cells from HIV-infected hemophiliacs. AIDS Res. Hum. Retroviruses 12, 235-239, 1996.

Ulug, E.T., Garry, R.F., and Bose, H.R. Jr. Inhibition of Na+K+ATPase activity in membranes of Sindbis virus infected chick cells. Virology 216, 299-308, 1996.

Garry, R.F., Fermin, C.D., Kohler, P.F., Markert, M.L., and Luo, H. Antibodies against retroviral proteins and nuclear antigens in a subset of idiopathic CD4+ T-lymphocytopenia patients. AIDS Res. Hum. Retroviruses, 12, 931-940, 1996.

Voss, T.G., Fermin, C.D., Forbush, B. III, Garry, R.F. Reduction of human immunodeficiency virus production and cytopathic effects by inhibitors of the Na+/K+/2Cl- cotransporter. Virology, 219, 291-294, 1996.

Voss, T.G., Fermin, C.D., Levy, J.A., Vigh, S., Choi, B., and Garry, R.F. Alteration of intracellular Na+ and K+ concentrations correlates with induction of cytopathic effects by HIV. J. Virol. 70, 5447-5454, 1996.

Makutonina, A., Plymale, D.R., Fermin, C.D., Norris, C.H., Vigh, S., and Garry, R.F. Human immunodeficiency virus infection of T-lymphoblastoid cells decreases intracellular pH. J. Virol. 70, 7049-7055, 1996.

Jaspan, J.B., Bryer-Ash, M., Sullivan, K., Wolfe, M., Clejan, S., Cao, Y., Sander, D.M., Tenenbaum, S.A., Ahmed, B., and Garry, R.F. 1996. The interaction of a type A retrovirus particle and HLA class II HLA susceptibility genes in the pathogenesis of Graves' disease. J. Clin. Endocrin. Metabol. 81, 2271-2279, 1996.

Hart, D.J., Luo, H., and Garry, R.F. Biochemical characterization of the reverse transcriptase of a human intracisternal A-type particle. AIDS Research and Human Retroviruses 12, 1367-1372, 1996.

Scandurro, A.B., Rondon, I.J., Wilson, R.B., Tenenbaum, S.A., Garry, R.F., and Beckman, B.S. Interaction of erythropoietin RNA binding protein with erythropoietin RNA requires an association with heat shock protein 70. Kidney International 51, 579-584, 1997.

Tenenbaum, S.A, Rice, J.C., Espinoza, L.R., Cuéllar, M.L., Plymale, D.R., Sander, D.M., Williamson, L.L., Haislip, A.M., Gluck, O.S., Tesser, J.R.P., Stribrny, K.M., Bevan, J.A., and Garry, R.F. Antipolymer antibody test in silicone breast implant recipients. Lancet 349, 449-454, 1997.

Comardelle, A.M., Norris, C.H., Plymale, D.R., Gatti, P.J., Fermin, C.D., Tencza, S.B., Meitzner, T.A., Montelaro, R.C., and Garry, R.F. A synthetic peptide correponding to the carboxy terminus of the human immunodeficiency virus type 1 transmembrane glycoprotein induces alterations in the ionic permeability of *Xenopus leavis* oocytes. AIDS Research and Human Retroviruses 13, 1525-32, 1997.

Tenenbaum, S.A., Rice, J.C., Espinoza, L.R., and Garry, R.F. Antipolymer antibodies, SBI and fibromyalgia. Lancet 349, 1172-1173, 1997.

Tenenbaum, S.A, and Garry, R.F. Antipolymer antibodies, silicone breast implants, and fibromyalgia. Lancet 350, 740-741, 1997.

Deas, J. E., L. G. Liu, J. J. Thompson, D. M. Sander, S. S. Soble, R. F. Garry, and W. R. Gallaher. Reactivity of sera from systemic lupus erythematosus and Sjogren's syndrome patients with peptides derived from human immunodeficiency virus p24 capsid antigen. Clin., Diag. Lab. Immunol. 5:181-185, 1998.

Mason, A.L., Xu, L., Guo, L., Munoz, S., Jaspan, J.B., Bryer-Ash, M., Cao, Y., Sander, D.M., Shoenfeld, Y., Ahmed, A., Van de Water, J., Gershwin, M.E., and Garry, R.F. Detection of retroviral antibodies in primary biliary cirrhosis and other idiopathic biliary disorders. Lancet 351, 1620-1624, 1998.

Choi, B., Gatti, P.J., Haislip, A.M., and Garry, R.F. Role of potassium in HIV production and cytopathic effects. Virology 247, 189-199, 1998.

Gatti, P.J., Fermin, C.D.,and Garry, R.F. Inhibition of HIV-1 production by hygromycin B. AIDS Research and Human Retroviruses 14, 883-890, 1998.

Garry, R.F. Silicone Breast Implants. Journal of Nutritional and Environmental Medicine, 8, 373-374, 1998.

Lan, M.S., Mason, A., Coutant, R., Chen,Q.-Y., Vargas, A., Rao, J., Gomez, R., Chalew, S., Garry, R.F. and Maclaren, N.K. HERV-K10s and Immune-Mediated (Type 1) Diabetes. Cell 95, 14-16, 1998.

McBurney, E.I., Hickham, P.R., Garry, R.F., and Reed, R.J. Lupus erythematosus-like features in patients with cutaneous T-cell lymphoma. Int. J. Dermatol. 37, 579-585, 1998.

Hart, D.J., Heath, R.G., Sautter, F.J., Schwartz, B.D., Garry, R.F., Choi, B., Beilke, M.A. and Hart, L.K. Antiretroviral antibodies: Implications for schizopphrenia, schizophrenia spectrum disorders, and bipolar disorder. Biological Psychiatry 45, 704-14, 1999.

Davis D. L. and Garry, R.F. Breast implant safety. Science 283, 1644, 1999.

Garry, R.F. BMJ's editors should publish their own conflicts of interest regularly. British Medical Journal 318, 464, 1999.

Halim, A.-B., Garry, R.F., Dash, S. and Gerber, M.A. Effect of schistosomiasis and hepatitis on liver disease. American Journal Tropical Medicine and Hygiene 60, 915-920, 1999.

Plymale, D.R., Makutonina, A., Fermin, C.D., Ng Tang, D., Lewis, D.E, and Garry, R.F. Both apoptosis and necrosis contribute to killing of CD4+ cells. AIDS 13, 1827-1839, 1999.

Deas, J.E.,Thompson, J.J., Fermin, C.D., Liu, L.L., Martin, D. Garry, R.F, and Gallaher, W.R. Viral induction, transmission and apoptosis among cells infected by a human intracisternal A-type retrovirus. Virus Res. 61, 19-27, 1999.

Plymale, D.R., Makutonina, A., Fermin, C.D., Tencza, S.B., Meitzner, T.A., Montelaro, R.C., and Garry, R.F. Concentration-dependent differential induction of necrosis or apoptosis by HIV-1 lytic peptide 1. Peptides 20, 1275-1283, 1999.

Asa, P.B., Cao, Y., and Garry, R.F. Antibodies to squalene in Gulf War Syndrome. Experimental and Molecular Pathology 68, 55-64, 2000.

Asa, P.B., Cao, Y., and Garry, R.F. Antibodies to squalene in Gulf War Syndrome - Reply. Experimental and Molecular Pathology 68, 197-198, 2000.

Karavattathayyil, S., Kalkeri, G., Gaglio, P., Garry, R.F., Krauss, J. and Dash, S. Detection of hepatitis C virus RNA sequences in B-cell non-Hodgkin lymphoma. American Journal of Clinical Pathology 113, 391-398, 2000.

Dash S, Saxena R, Myung J, Rege T, Tsuji H, Gaglio P, Garry RF, Thung SN, Gerber MA. HCV RNA levels in hepatocellular carcinomas and adjacent non-tumorous livers. J Virol Methods. 90, 15-23. 2000.

Kalkeri, G., Garry, R.F., Fermin, C.D. and Dash, S. Hepatitis C virus protein expression induces apoptosis in HepG2 cells. Virology 282, 26-37, 2001.

Kalkeri G, Khalap N, Akhter S, Garry RF, Fermin CD, Dash S. HCV affects cell viability and membrane permeability. Experimental and Molecular Pathology 71, 194-208, 2001.

Mendez EA, DeSalvo KB, Cao Y, Garry RF, Espinoza LR. Familial erosive arthritis associated with seroreactivity to human intracisternal retroviral particle type I (HIAP-I). Rheumatology 40, 227-228, 2001.

Myung, J. Khalap, N., Kalkeri, G., Garry, R.F. and Dash, S. Inducible model to study negative strand RNA synthesis and assembly of hepatitis virus from a full-length cDNA clone. J. Virological Methods. 94, 55-67, 2001.

Dash, S., Kalkeri, G., McClaire, H.M., Garry, R.F., Clejan, S., Thung, S.N., and Murthy, K.K. Transmission of HCV to a chimpanzee using virus particles produced in an RNA transfected HepG2 cell culture. J. Medical Virology 65, 276-81, 2001.

Hara, J., DR. Plymale, DL. Shepard, H. Hara′ RF. Garry, T. Yoshihara, H-P. Zenner, M. Bolton, R. Kalkeri and CD. Fermin. Avian Dark Cells. European Archives of Otorhinolaryngoly. 259:121-141, 2002.

Asa PB, Wilson RB, Garry RF. Antibodies to squalene in recipients of anthrax vaccine. Exp Mol Pathol. 73:19-27, 2002.

Jaspan, H.B., Gaumer, R.H., and Garry, R.F. QT-RT-PCR is not a useful method for quantitation of CD4 andCD8 cell status during HIV infection. BioMed Central: Journal of Negative Results in Biomedicine (Biomed Central):2, 1, 2003.

Jaspan, H.B., Gaumer, R.H., and Garry, R.F. Granzyme B is reduced in a subset of HIV-infected individuals. Experimental and Molecular Pathology 74:13-16, 2003..

Garry, R.F. Unexpected similarity between the carboxyl termini of lentivirus and pestivirus envelope proteins. AIDS 17: 276-277, 2003.

Gallaher, W. R., and R. F. Garry. Model of the pre-insertion region of the spike (S2) fusion glycoprotein of the human SARS coronavirus: Implications for antiviral therapeutics. http://www.virology.net/Articles/sars/s2model.html May 1, 2003.

Garry, R.F. and Dash, S. Proteomics computational analyses suggest that hepatitis C virus E1 and pestivirus E2 envelope glycoproteins are truncated class II fusion proteins. Virology 307: 255-265, 2003.

Qi Z., Kalkeri G., Hanible J., Prabhu R., Bastian F., Garry R.F. and Dash S. Stem-loop structures (II-IV) of the 5' untranslated sequences are required for the expression of the full-length hepatitis C virus genome. Archives of Virology 148, 449-67, 2003.

Bellows, C.F., Garry, R.F., and Jaffe, B.M. Vaccinia virus-induced inhibition of nitric oxide production. J. Surgical Research 111: 127-35, 2003.

Akhter S., Liu H., Prabhu R., DeLuca C., Bastian F., Garry R.F., Thung S.N. and Dash S. Epstein-Barr virus and human hepatocellular carcinoma. Cancer Letters 192, 49-57, 2003.

Prabhu R., Garry R.F., Bastian F., Haque S., Regenstein F., Thung S.N. and Dash S. Interferon a-2b inhibits negative strand RNA and protein expression from a full-length HCV1a clone. Experimental and Molecular Pathology 76: 242-252, 2004.

Garry C.E., Garry J.A., and Garry R.F. Treatment of warts. N Engl J Med. 351(16):1692-3, 2004.

Sainz B. Jr., Mossel E.C., Peters C.J., Garry R.F. Interferon-beta and interferon-gamma synergistically inhibit the replication of severe acute respiratory syndrome-associated coronavirus (SARS-CoV). Virology. 329:11-7, 2004

Prabhu R., Khalap N., Burioni R., Clementi M., Garry R.F., Dash S. Inhibition of hepatitis C virus nonstructural protein, helicase activity, and viral replication by a recombinant human antibody clone. Am J Pathol. 165:1163-73, 2004.

Jaspan H.B., Robinson J.E., Amedee A.M., Van Dyke R.B., Garry R.F. Amniotic fluid has higher relative levels of lentivirus-specific antibodies than plasma and can contain neutralizing antibodies. J Clin Virol. 31:190-7, 2004.

Bastian F.O., Dash S., Garry R.F. Linking chronic wasting disease to scrapie by comparison of Spiroplasma mirum ribosomal DNA sequences. Exp Mol Pathol. 77:49-56, 2004

Garry C.E., Garry R.F. Proteomics computational analyses suggest that the carboxyl terminal glycoproteins of Bunyaviruses are class II viral fusion proteins (beta-penetrenes). Theor Biol Med Model. 1:10, 2004.

Hrobowski Y.M., Garry R.F., Michael S.F. Peptide inhibitors of dengue virus and West Nile virus infectivity. Virol J. 2:49, 2005

Sainz B. Jr, Rausch J.M., Gallaher W.R., Garry R.F., Wimley W.C. Identification and characterization of the putative fusion peptide of the severe acute respiratory syndrome-associated coronavirus spike protein. J Virol. 79:7195-206, 2005

Sainz B. Jr, LaMarca H.L., Garry R.F. Morris C.A. Synergistic inhibition of human cytomegalovirus replication by interferon-alpha/beta and interferon-gamma. Virol J. 2:14, 2005.

Sainz B. Jr., Rausch J.M., Gallaher W.R., Garry R.F., Wimley W.C. The aromatic domain of the coronavirus class I viral fusion protein induces membrane permeabilization: putative role during viral entry. Biochemistry. 44:947-58, 2005.

Sander D.M., Wolfsheimer K., Gallaher W.R., Fermin C.D., Haislip A.M., Garry R.F. Seroreactivity to A-type retrovirus proteins in a subset of cats with hyperthyroidism. Microsc Res Tech. 68:235-8, 2005.

Szabo S., Haislip A.M., Traina-Dorge V., Costin J.M., Crawford B.E. 2nd, Wilson R.B., Garry R.F.. Human, rhesus macaque, and feline sequences highly similar to mouse mammary tumor virus sequences. Microsc Res Tech. 68:209-21, 2005.

Hazari S., Patil A., Joshi V., Sullivan D.E., Fermin C.D., Garry R.F., Elliott R.M., Dash S. Alpha interferon inhibits translation mediated by the internal ribosome entry site of six different hepatitis C virus genotypes. J Gen Virol. 86:3047-53, 2005.

Tenenbaum S.A., Morris C.A., Alexander S.S., McFerrin H.E., Garry R.F., Leissinger C.A. Evidence of HIV exposure and transient seroreactivity in archived HIV-negative severe hemophiliac sera. Virol J. 2:65, 2005

Bastian F.O., McDermott M.E., Perry A.S., Carver L.A., Dash S., Garry R.F. Safe method for isolation of prion protein and diagnosis of Creutzfeldt-Jakob disease. J Virol Methods. 130(1-2):133-9, 2005. Epub 2005 Aug 15.

Cabrera-Batista B., Skewes-Ramm R., Fermin C.D., Garry R.F. Dengue in the Dominican Republic: epidemiology for 2004. Microsc Res Tech. 68:250-4, 2005.

Sander D.M., Szabo S., Gallaher W.R., Deas J.E., Thompson J.J., Cao Y., Luo-Zhang H., Liu L.G., Colmegna I., Koehler J., Espinoza L.R., Alexander S.S., Hart D.J., Tom D.M., Fermin C.D., Jaspan J.J., Kulakosky P.C., Tenenbaum S.A., Wilson R.B., Garry R.F. Involvement of human intracisternal A-type retroviral particles in autoimmunity. Microsc Res Tech. 68:222-34, 2005

Mossel E.C., Sainz B. Jr, Garry R.F., Peters C.J. Synergistic inhibition of SARS-coronavirus replication by type I and type II IFN.

Adv Exp Med Biol.;581:503-6, 2006.

Sainz B. Jr, Mossel E.C., Gallaher W.R., Wimley W.C., Peters C.J., Wilson R.B., Garry R.F.. Inhibition of severe acute respiratory syndrome-associated coronavirus (SARS-CoV) infectivity by peptides analogous to the viral spike protein. Virus Res. 120:146-55, 2006 Epub 2006 Apr 17.

Prabhu R., Garry R.F., Dash S. Small interfering RNA targeted to stem-loop II of the 5' untranslated region effectively inhibits expression of six HCV genotypes. Virol J. 23:100, 2006

Petrik M.S., Wong M.C., Tabata R.C., Garry R.F., Shaw C.A. Aluminum adjuvant linked to gulf war illness induces motor neuron death in mice. Neuromolecular Med. 9:83-100, 2007

Fair J.N., Jentes E., Inapogui A. Kourouma K., Goba A., Bah A., Tounkara M., Coulibaly, M., Garry, R. F. and Bausch, D. G. Lassa Virus-Infected Rodents in Refugee Camps in Guinea: A Looming Threat to Public Health in a Politically Unstable Region, Vector-borne and Zoonotic Diseases, 7:167-72, 2007

Costin J.M, Rausch J.M., Garry R.F., Wimley W.C. (2007). Viroporin potential of the lentivirus lytic peptide (LLP) domains of the HIV-1 gp41 protein. *Virol J.* **4**, 123.

Khan S.H., Goba A., Chu M., Roth C., Healing T., Marx A., Fair J., Guttieri M.C., Ferro P., Imes T., Monagin C., Garry R.F., Bausch D.G.; for the Mano River Union Lassa Fever Network. (2008). New opportunities for field research on the pathogenesis and treatment of Lassa fever. *Antiviral Res*. 78: 103-15.

Choi B., Gatti P.J., Fermin C.D., Vigh S., Haislip A.M., Garry R.F. (2008). Down-regulation of cell surface CXCR4 by HIV-1. *Virol J.* 5:6.

Colmegna I., Sainz B. Jr., Citera ., Maldonado-Cocco J.A., Garry R.F., Espinoza L.R. (2008). Anti-20S Proteasome Antibodies in Psoriatic Arthritis. *J Rheumatol.* 35:674-676.

Garry C.E., Garry R.F. (2008). Proteomics computational analyses suggest that baculovirus GP64 superfamily proteins are class III penetrenes. *Virol J.* **5**:28.

Branco, L., Matschiner, A., Fair, J.N., Goba, A., Ferro, P., Cashman, K., Sampey, D., Schoepp, R., Tesh, R., Bausch, D.B., Garry, RF, and Guttieri, M.C., 2008. Bacterial-based systems for expression and purification of recombinant Lassa virus proteins of immunological relevance. *Virology Journal* **5**:73.

Illick M.M., Branco L.M., Fair J.N., Illick K.A, Matschiner A., Schoepp R., Garry R.F., Guttieri M.C. (2009). Uncoupling GP1 and GP2 expression in the Lassa virus glycoprotein complex: implications for GP1 ectodomain shedding. *Virology Journal* 5:161.

Garry,,C.E., and Garry, R.F. (2009). Proteomics computational analyses suggest that the bornavirus glycoprotein is a class III viral fusion protein (gamma penetrene). *Virology Journal* 6:145.

Branco,, L.M., and Garry, RF. (2009). Characterization of the Lassa virus GP1 ectodomain shedding: implications for improved diagnostic platforms. *Virology Journal* 6:147.

Koehler, J.W., Bolton, M., Rollins, A., Snook, K., deHaro, E., Henson, E., Rogers, L., Martin, L.N., Krogstad, D.J., James, M.A., Rice, J., Davison, B., Veazey, R.S., Prabhu, R., Amedee, A.M., Garry, R.F., Cogswell, F.B. (2009). Altered immune responses in rhesus macaques co-infected with SIV and Plasmodium cynomolgi: an animal model for coincident AIDS and relapsing malaria. *PLoS One* 4: e7139.

Safronetz D., Lopez J.E., Sogoba N., Traore' S.F., Raffel S.J., Fischer E.R., Ebihara H., Branco L., Garry R.F., Schwan T.G., Feldmann H. (2010). Detection of Lassa virus, Mali. *Emerg Infect Dis* **16**, 1123-6.

Hazari S, Chandra PK, Poat B, Datta S, Garry RF, Foster TP, Kousoulas G, Wakita T, Dash S. (2010). Impaired antiviral activity of interferon alpha against hepatitis C virus 2a in Huh-7 cells with a defective Jak-Stat pathway. *Virol J* **7**, 36.

Chandra P.K., Hazari S., Poat B., Gunduz F., Prabhu R., Liu G., Burioni R., Clementi M., Garry R.F., Dash S. (2010). Intracytoplasmic stable expression of IgG1 antibody targeting NS3 helicase inhibits replication of a highly efficient hepatitis C Virus 2a clone. *Virol J* **7**, 118.

Poat B., Hazari S., Chandra P.K., Gunduz F., Alvarez X., Balart L.A., Garry R.F., Dash S. (2010). Intracellular expression of IRF9 Stat fusion protein overcomes the defective Jak-Stat signaling and inhibits HCV RNA replication. *Virol J.* 7,265.

Branco L.M. Grove J.N., Geske F.J,. Boisen M.L., Muncy I.J., Magliato S.A., Henderson L.A., Schoepp R.J,. Cashman K.A., Hensley L.E., Garry R.F. (2010). Lassa virus-like particles displaying all major immunological determinants as a vaccine candidate for Lassa hemorrhagic fever. *Virol J.* 7,279.

Sabahi A., Marsh K.A., Dahari H., Corcoran P., Lamora J.M., Yu X, Garry R.F, Uprichard S.L. (2010). The rate of hepatitis C virus infection initiation in vitro is directly related to particle density. *Virology* **407**,110-9.

Branco L.M., Grove J.N., Moses L.M., Goba A., Fullah M., Momoh M., Schoepp R.J., Bausch D.G., Garry R.F. (2010). Shedding of soluble glycoprotein 1 detected during acute Lassa virus infection in human subjects. *Virol J.* 2010 7,306.

Bolton M.J., Garry R.F. (2011). Sequence similarity between the erythrocyte binding domain 1 of the Plasmodium vivax Duffy binding protein and the V3 loop of HIV-1 strain MN reveals binding residues for the Duffy Antigen Receptor for Chemokines. Virol J. 8, 45.

Melnik LI, Garry RF and Morris CA. (2011. Peptide inhibition of cytomegalovirus. *Virology J.* 8,76

Gaston A, Garry RF. (2012) Topical vitamin A treatment of recalcitrant common warts. Virol J. 9, 21. PMCID: PMC3274422

Lok SM, Costin JM, Hrobowski YM, Hoffmann AR, Rowe DK, Kukkaro P, Holdaway H, Chipman P, Fontaine KA, Holbrook MR, Garry RF, Kostyuchenko V, Wimley WC, Isern S, Rossmann MG, Michael SF. Release of dengue virus genome induced by a peptide inhibitor. PLoS One. 2012;7(11):e50995. doi: 10.1371/journal.pone.0050995.

Tomchuck SL, Norton EB, Garry RF, Bunnell BA, Morris CA, Freytag LC, Clements JD. Mesenchymal stem cells as a novel vaccine platform. Front Cell Infect Microbiol. 2012 Nov 16;2:140. doi: 10.3389/fcimb.2012.00140. eCollection 2012.

Panigrahi R, Hazari S, Chandra S, Chandra PK, Datta S, Kurt R, Cameron CE, Huang Z, Zhang H, Garry RF, Balart LA, Dash S.Interferon and ribavirin combination treatment synergistically inhibit HCV internal ribosome entry site mediated translation at the level of polyribosome formation. PLoS One. 2013 Aug 23;8(8):e72791. doi: 10.1371/journal.pone.0072791.

Koehler JW, Smith JM, Ripoll DR, Spik KW, Taylor SL, Badger CV, Grant RJ, Ogg MM, Wallqvist A, Guttieri MC, Garry RF, Schmaljohn CS. A fusion-inhibiting peptide against Rift Valley fever virus inhibits multiple, diverse viruses. PLoS Negl Trop Dis. 2013 Sep 12;7(9):e2430. doi: 10.1371/journal.pntd.0002430.

Safronetz D, Sogoba N, Lopez JE, Maiga O, Dahlstrom E, Zivcec M, Feldmann F, Haddock E, Fischer RJ, Anderson JM, Munster VJ, Branco L, Garry R, Porcella SF, Schwan TG, Feldmann H. Geographic distribution and genetic characterization of Lassa virus in sub-Saharan Mali. PLoS Negl Trop Dis. 2013 Dec 5;7(12):e2582. doi: 10.1371/journal.pntd.0002582.

Shaffer JG, Grant DS, Schieffelin JS, Boisen ML, Goba A, Hartnett JN, Levy DC, Yenni RE, Moses LM, Fullah M, Momoh M, Fonnie M, Fonnie R, Kanneh L, Koroma VJ, Kargbo K, Ottomassathien D, Muncy IJ, Jones AB, Illick MM, Kulakosky PC, Haislip AM, Bishop CM, Elliot DH, Brown BL, Zhu H, Hastie KM, Andersen KG, Gire SK, Tabrizi S, Tariyal R, Stremlau M, Matschiner A, Sampey DB, Spence JS, Cross RW, Geisbert JB, Folarin OA, Happi CT, Pitts KR, Geske FJ, Geisbert TW, Saphire EO, Robinson JE, Wilson RB, Sabeti PC, Henderson LA, Khan SH, Bausch DG, Branco LM, Garry RF. Lassa Fever in Post-Conflict Sierra Leone. PLOS NTD. 2014; 8(3):e2748. PMID 24651047.

Spence JS, Melnik LI, Badani H, Wimley WC, Garry RF. Inhibition of arenavirus infection by a glycoprotein-derived peptide with a novel mechanism. J Virol. 2014 Aug;88(15):8556-64. doi: 10.1128/JVI.01133-14. Epub 2014 May 21.

Gire SK, Goba A, Andersen KG, Sealfon RSG, Park DJ, Kanneh L, Jalloh S, Momoh M, Fullah M, Dudas G, Wohl S, Moses LM, Yozwiak NL, Winnicki S, Matranga CB, Malboeuf CM, Qu J, Gladden AD, Schaffner SF, Yang X, Jiang PP, Kekoui M, Colubri A, Coomber MR, Fonnie M, Moigboi A, Gbakie M, Kamara FK, Tucker V, Konuwa E, Saffa S, Sellu J, Jalloh AA, Kovoma A, Koninga J, Mustapha I, Kargbo K, Foday M, Yillah M, Kanneh F, Robert W, Massally JLB, Chapman SB, Bochicchio J, Murphy C, Nusbaum C, Young S, Birren BW, Grant DS, Schieffelin JS, Lander ES, Happi C, Gevao SM, Gnirke A, Rambaut A, Garry RF, Khan SH, Sabeti PC. Genomic surveillance elucidates Ebola virus origin and transmission during the 2014 outbreak. Science. 2014 Aug28.

Matranga CB, Andersen KG, Winnicki S, Busby M, Gladden AD, Tewhey R, Stremlau M, Berlin A, Gire SK, England E, Moses LM, Mikkelsen TS, Odia I, Ehiane PE, Folarin O, Goba A, Kahn S, Grant DS, Honko A, Hensley L, Happi C, Garry RF, Malboeuf CM, Birren BW, Gnirke A, Levin JZ, Sabeti PC. Enhanced methods for unbiased deep sequencing of Lassa and Ebola RNA viruses from clinical and biological samples.Genome Biol. 2014 Nov 18;15(11):519. [Epub ahead of print]

Schieffelin JS, Shaffer JG, Goba A, Gbakie M, Gire SK, Colubri A, Sealfon RS, Kanneh L, Moigboi A, Momoh M, Fullah M, Moses LM, Brown BL, Andersen KG, Winnicki S, Schaffner SF, Park DJ, Yozwiak NL, Jiang PP, Kargbo D, Jalloh S, Fonnie M, Sinnah V, French I, Kovoma A, Kamara FK, Tucker V, Konuwa E, Sellu J, Mustapha

I, Foday M, Yillah M, Kanneh F, Saffa S, Massally JL, Boisen ML, Branco LM, Vandi MA, Grant DS, Happi C, Gevao SM, Fletcher TE, Fowler RA, Bausch DG, Sabeti PC, Khan SH, Garry RF; the KGH Lassa Fever Program, the Viral Hemorrhagic Fever Consortium, and the WHO Clinical Response Team. Clinical Illness and Outcomes in Patients with Ebola in Sierra Leone. N Engl J Med. 2014 Oct 29.

Kuhn JH, Andersen KG, Baize S, Bào Y, Bavari S, Berthet N, Blinkova O, Brister JR, Clawson AN, Fair J, Gabriel M, Garry RF, Gire SK, Goba A, Gonzalez JP, Günther S, Happi CT, Jahrling PB, Kapetshi J, Kobinger G, Kugelman JR, Leroy EM, Maganga GD, Mbala PK, Moses LM, Muyembe-Tamfum JJ, N'Faly M, Nichol ST, Omilabu SA, Palacios G, Park DJ, Paweska JT, Radoshitzky SR, Rossi CA, Sabeti PC, Schieffelin JS, Schoepp RJ, Sealfon R, Swanepoel R, Towner JS, Wada J, Wauquier N, Yozwiak NL, Formenty P. Nomenclature- and database-compatible names for the two Ebola virus variants that emerged in Guinea and the Democratic Republic of the Congo in 2014. Viruses. 2014 Nov 24;6(11):4760-99. doi: 10.3390/v6114760. PubMed PMID: 25421896; PubMed Central PMCID: PMC4246247.

Panigrahi R, Chandra PK, Ferraris P, Kurt R, Song K, Garry RF, Reiss K, Coe I, Furihata T, Balart LA, Wu T, Dash S. Persistent HCV infection impairs ribavirin antiviral activity through clathrin-mediated trafficking of equilibrative nucleoside transporter 1. J Virol. 2015 Jan 1;89(1):626-42. doi: 10.1128/JVI.02492-14. Epub 2014 Oct 22.

Lo Iacono G, Cunningham AA, Fichet-Calvet E, Garry RF, Grant DS, Khan SH, Leach M, Moses LM, Schieffelin JS, Shaffer JG, Webb CT, Wood JL. Using modelling to disentangle the relative contributions of zoonotic and anthroponotic transmission: the case of lassa fever. PLoS Negl Trop Dis. 2015 Jan 8;9(1):e3398. doi: 10.1371/journal.pntd.0003398. eCollection 2015 Jan. PubMed PMID: 25569707;PubMed Central PMCID: PMC4288732.

Gallaher WR, Garry RF. Modeling of the Ebola virus delta peptide reveals a potential lytic sequence motif. Viruses. 2015 Jan 20;7(1):285-305. Doi 10.3390/v7010285. PubMed PMID: 25609303; PubMed Central PMCID: PMC4306839.

Boisen ML, Schieffelin JS, Goba A, Oottamasathien D, Jones AB, Shaffer JG, Hastie KM, Hartnett JN, Momoh M, Fullah M, Gabiki M, Safa S, Zandonatti M, Fusco M, Bornholdt Z, Abelson D, Gire SK, Andersen KG, Tariyal R, Stremlau M, Cross RW, Geisbert JB, Pitts KR, Geisbert TW, Kulakoski P, Wilson RB, Henderson L, Sabeti PC, Grant DS, Garry RF, Saphire EO, Branco LM, Khan SH; Viral Hemorrhagic Fever Consortium. Multiple circulating infections can mimic the early stages of viral hemorrhagic fevers and possible human exposure to filoviruses in Sierra Leone prior to the 2014 outbreak. Viral Immunol. 2015 Feb;28(1):19-31. doi:\ 10.1089/vim.2014.0108. PubMed PMID: 25531344; PubMed Central PMCID: PMC4287116.

Cross RW, Boisen ML, Millett MM, Nelson DS, Oottamasathien D, Hartnett JN, Jones AB, Goba A, Momoh M, Fullah M, Bornholdt ZA, Fusco ML, Abelson DM, Oda S, Brown BL, Pham H, Rowland MM, Agans KN, Geisbert JB, Heinrich ML, Kulakosky PC, Shaffer JG, Schieffelin JS, Kargbo B, Gbetuwa M, Gevao SM, Wilson RB, Saphire EO, Pitts KR, Khan SH, Grant DS, Geisbert TW, Branco LM, Garry RF. Analytical Validation of the ReEBOV Antigen Rapid Test for Point-of-Care Diagnosis of Ebola Virus Infection. J Infect Dis. 2016 Oct 15;214(suppl 3):S210-S217. Epub 2016 Aug 31. PubMed PMID: 27587634; PubMed Central PMCID: PMC5050482.

Kuhn JH, Andersen KG, Bào Y, Bavari S, Becker S, Bennett RS, Bergman NH, Blinkova O, Bradfute S, Brister JR, Bukreyev A, Chandran K, Chepurnov AA, Davey RA, Dietzgen RG, Doggett NA, Dolnik O, Dye JM, Enterlein S, Fenimore PW, Formenty P, Freiberg AN, Garry RF, Garza NL, Gire SK, Gonzalez JP, Griffiths A, Happi CT,

Hensley LE, Herbert AS, Hevey MC, Hoenen T, Honko AN, Ignatyev GM, Jahrling PB, Johnson JC, Johnson KM, Kindrachuk J, Klenk HD, Kobinger G, Kochel TJ, Lackemeyer MG, Lackner DF, Leroy EM, Lever MS, Mühlberger E, Netesov SV, Olinger GG, Omilabu SA, Palacios G, Panchal RG, Park DJ, Patterson JL, Paweska JT, Peters CJ, Pettitt J, Pitt L, Radoshitzky SR, Ryabchikova EI, Saphire EO, Sabeti PC, Sealfon R, Shestopalov AM, Smither SJ, Sullivan NJ, Swanepoel R, Takada A, Towner JS, van der Groen G, Volchkov VE, Volchkova VA, Wahl-Jensen V, Warren TK, Warfield KL, Weidmann M, Nichol ST. Filovirus RefSeq entries: evaluation and selection of filovirus type variants, type sequences, and names. Viruses. 2014 Sep 26;6(9):3663-82. doi: 10.3390/v6093663.

Kuhn JH, Andersen KG, Baize S, Bào Y, Bavari S, Berthet N, Blinkova O, Brister JR, Clawson AN, Fair J, Gabriel M, Garry RF, Gire SK, Goba A, Gonzalez JP, Günther S, Happi CT, Jahrling PB, Kapetshi J, Kobinger G, Kugelman JR, Leroy EM, Maganga GD, Mbala PK, Moses LM, Muyembe-Tamfum JJ, N'Faly M, Nichol ST, Omilabu SA, Palacios G, Park DJ, Paweska JT, Radoshitzky SR, Rossi CA, Sabeti PC, Schieffelin JS, Schoepp RJ, Sealfon R, Swanepoel R, Towner JS, Wada J, Wauquier N, Yozwiak NL, Formenty P. Nomenclature- and Database-Compatible Names for the Two Ebola Virus Variants that Emerged in Guinea and the Democratic Republic of the Congo in 2014. Viruses. 2014 Nov 24;6(11):4760-99. doi: 10.3390/v6114760.

Stremlau MH, Andersen KG, Folarin OA, Grove JN, Odia I, Ehiane PE, Omoniwa O, Omoregie O, Jiang PP, Yozwiak NL, Matranga CB, Yang X, Gire SK, Winnicki S, Tariyal R, Schaffner SF, Okokhere PO, Okogbenin S, Akpede GO, Asogun DA, Agbonlahor DE, Walker PJ, Tesh RB, Levin JZ, Garry RF, Sabeti PC, Happi CT. Discovery of novel rhabdoviruses in the blood of healthy individuals from West Africa. PLoS Negl Trop Dis. 2015 Mar 17;9(3):e0003631. doi: 10.1371/journal.pntd.0003631. eCollection 2015 Mar. PubMed PMID: 25781465; PubMed Central PMCID: PMC4363514.

Park DJ, Dudas G, Wohl S, Goba A, Whitmer SL, Andersen KG, Sealfon RS, Ladner JT, Kugelman JR, Matranga CB, Winnicki SM, Qu J, Gire SK, Gladden-Young A, Jalloh S, Nosamiefan D, Yozwiak NL, Moses LM, Jiang PP, Lin AE, Schaffner SF, Bird B, Towner J, Mamoh M, Gbakie M, Kanneh L, Kargbo D, Massally JL, Kamara FK, Konuwa E, Sellu J, Jalloh AA, Mustapha I, Foday M, Yillah M, Erickson BR, Sealy T, Blau D, Paddock C, Brault A, Amman B, Basile J, Bearden S, Belser J, Bergeron E, Campbell S, Chakrabarti A, Dodd K, Flint M, Gibbons A, Goodman C, Klena J, McMullan L, Morgan L, Russell B, Salzer J, Sanchez A, Wang D, Jungreis I, Tomkins-Tinch C, Kislyuk A, Lin MF, Chapman S, MacInnis B, Matthews A, Bochicchio J, Hensley LE, Kuhn JH, Nusbaum C, Schieffelin JS, Birren BW, Forget M, Nichol ST, Palacios GF, Ndiaye D, Happi C, Gevao SM, Vandi MA, Kargbo B, Holmes EC, Bedford T, Gnirke A, Ströher U, Rambaut A, Garry RF, Sabeti PC. Ebola Virus Epidemiology, Transmission, and Evolution during Seven Months in Sierra Leone. Cell. 2015 Jun 18;161(7):1516-26. doi: 10.1016/j.cell.2015.06.007. PubMed PMID: 26091036; PubMed Central PMCID: PMC4503805.

Boisen ML, Oottamasathien D, Jones AB, Millett MM, Nelson DS, Bornholdt ZA, Fusco ML, Abelson DM, Oda S, Hartnett JN, Rowland MM, Heinrich ML, Akdag M, Goba A, Momoh M, Fullah M, Baimba F, Gbakie M, Safa S, Fonnie R, Kanneh L, Cross RW, Geisbert JB, Geisbert TW, Kulakosky PC, Grant DS, Shaffer JG, Schieffelin JS, Wilson RB, Saphire EO, Branco LM, Garry RF, Khan SH, Pitts KR; Viral Hemorrhagic Fever Consortium. Development of Prototype Filovirus Recombinant Antigen Immunoassays. J Infect Dis. 2015 Oct 1;212 Suppl 2:S359-67. doi: 10.1093/infdis/jiv353. Epub 2015 Jul 30. PubMed PMID: 26232440; PubMed Central PMCID: PMC4564556.

Andersen KG, Shapiro BJ, Matranga CB, Sealfon R, Lin AE, Moses LM, Folarin OA,

Goba A, Odia I, Ehiane PE, Momoh M, England EM, Winnicki S, Branco LM, Gire SK, Phelan E, Tariyal R, Tewhey R, Omoniwa O, Fullah M, Fonnie R, Fonnie M, Kanneh L, Jalloh S, Gbakie M, Saffa S, Karbo K, Gladden AD, Qu J, Stremlau M, Nekoui M, Finucane HK, Tabrizi S, Vitti JJ, Birren B, Fitzgerald M, McCowan C, Ireland A, Berlin AM, Bochicchio J, Tazon-Vega B, Lennon NJ, Ryan EM, Bjornson Z, Milner DA Jr, Lukens AK, Broodie N, Rowland M, Heinrich M, Akdag M, Schieffelin JS, Levy D, Akpan H, Bausch DG, Rubins K, McCormick JB, Lander ES, Günther S, Hensley L, Okogbenin S; Viral Hemorrhagic Fever Consortium, Schaffner SF, Okokhere PO, Khan SH, Grant DS, Akpede GO, Asogun DA, Gnirke A, Levin JZ, Happi CT, Garry RF, Sabeti PC. Clinical Sequencing Uncovers Origins and Evolution of Lassa Virus. Cell. 2015 Aug 13;162(4):738-50. doi: 10.1016/j.cell.2015.07.020. PubMed PMID: 26276630; PubMed Central PMCID: PMC4537774.

Aboulnasr F, Hazari S, Nayak S, Chandra PK, Panigrahi R, Ferraris P, Chava S, Kurt R, Song K, Dash A, Balart LA, Garry RF, Wu T, Dash S. IFN-λ Inhibits MiR-122. Transcription through a Stat3-HNF4α Inflammatory Feedback Loop in an IFN-α Resistant HCV Cell Culture System. PLoS One. 2015 Dec 11;10(12):e0141655. doi: 10.1371/journal.pone.0141655. eCollection 2015. PubMed PMID: 26657215; PubMed Central PMCID: PMC4686105.

Safronetz D, Sacko M, Sogoba N, Rosenke K, Martellaro C, Traoré S, Cissé I, Maiga O, Boisen M, Nelson D, Oottamasathien D, Millett M, Garry RF, Branco LM, Doumbia S, Feldmann H, Traoré MS. Vectorborne Infections, Mali. Emerg Infect Dis. 2016 Feb;22(2):340-2. doi: 10.3201/eid2202.150688. PubMed PMID: 26812625; PubMed Central PMCID: PMC4734548.

Sogoba N, Rosenke K, Adjemian J, Diawara SI, Maiga O, Keita M, Konaté D, Keita AS, Sissoko I, Boisen M, Nelson D, Oottamasathien D, Millett M, Garry RF, Branco LM, Traoré SF, Doumbia S, Feldmann H, Safronetz D. Lassa Virus Seroprevalence in Sibirilia Commune, Bougouni District, Southern Mali. Emerg Infect Dis. 2016 Apr;22(4):657-63. doi: 10.3201/eid2204.151814. PubMed PMID: 26981786; PubMed Central PMCID: PMC4806955.

Hastie KM, Igonet S, Sullivan BM, Legrand P, Zandonatti MA, Robinson JE, Garry RF, Rey FA, Oldstone MB, Saphire EO. Crystal structure of the prefusion surface glycoprotein of the prototypic arenavirus LCMV. Nat Struct Mol Biol. 2016 Jun;23(6):513-521. doi: 10.1038/nsmb.3210. Epub 2016 Apr 25. PubMed PMID: 27111888; PubMed Central PMCID: PMC4945123.

Robinson JE, Hastie KM, Cross RW, Yenni RE, Elliott DH, Rouelle JA, Kannadka CB, Smira AA, Garry CE, Bradley BT, Yu H, Shaffer JG, Boisen ML, Hartnett JN, Zandonatti MA, Rowland MM, Heinrich ML, Martínez-Sobrido L, Cheng B, de la Torre JC, Andersen KG, Goba A, Momoh M, Fullah M, Gbakie M, Kanneh L, Koroma VJ, Fonnie R, Jalloh SC, Kargbo B, Vandi MA, Gbetuwa M, Ikponmwosa O, Asogun DA, Okokhere PO, Follarin OA, Schieffelin JS, Pitts KR, Geisbert JB, Kulakoski PC, Wilson RB, Happi CT, Sabeti PC, Gevao SM, Khan SH, Grant DS, Geisbert TW, Saphire EO, Branco LM, Garry RF. Most neutralizing human monoclonal antibodies target novel epitopes requiring both Lassa virus glycoprotein subunits. Nat Commun. 2016 May 10;7:11544. doi: 10.1038/ncomms11544. PubMed PMID: 27161536; PubMed Central PMCID: PMC4866400.

Folarin OA, Ehichioya D, Schaffner SF, Winnicki SM, Wohl S, Eromon P, West KL, Gladden-Young A, Oyejide NE, Matranga CB, Deme AB, James A, Tomkins-Tinch C, Onyewurunwa K, Ladner JT, Palacios G, Nosamiefan I, Andersen KG, Omilabu S, Park DJ, Yozwiak NL, Nasidi A, Garry RF, Tomori O, Sabeti PC, Happi CT. Ebola Virus Epidemiology and Evolution in Nigeria. J Infect Dis. 2016 Oct 15;214(suppl

3):S102-S109. Epub 2016 Jul 4. PubMed PMID: 27377746; PubMed Central PMCID: PMC5050462.

Goba A, Khan SH, Fonnie M, Fullah M, Moigboi A, Kovoma A, Sinnah V, Yoko N, Rogers H, Safai S, Momoh M, Koroma V, Kamara FK, Konowu E, Yillah M, French I, Mustapha I, Kanneh F, Foday M, McCarthy H, Kallon T, Kallon M, Naiebu J, Sellu J, Jalloh AA, Gbakie M, Kanneh L, Massaly JL, Kargbo D, Kargbo B, Vandi M, Gbetuwa M, Gevao SM, Sandi JD, Jalloh SC, Grant DS, Blyden SO, Crozier I, Schieffelin JS, McLellan SL, Jacob ST, Boisen ML, Hartnett JN, Cross RW, Branco LM, Andersen KG, Yozwiak NL, Gire SK, Tariyal R, Park DJ, Haislip AM, Bishop CM, Melnik LI, Gallaher WR, Wimley WC, He J, Shaffer JG, Sullivan BM, Grillo S, Oman S, Garry CE, Edwards DR, McCormick SJ, Elliott DH, Rouelle JA, Kannadka CB, Reyna AA, Bradley BT, Yu H, Yenni RE, Hastie KM, Geisbert JB, Kulakosky PC, Wilson RB, Oldstone MB, Pitts KR, Henderson LA, Robinson JE, Geisbert TW, Saphire EO, Happi CT, Asogun DA, Sabeti PC, Garry RF; Viral Hemorrhagic Fever Consortium. An Outbreak of Ebola Virus Disease in the Lassa Fever Zone. J Infect Dis. 2016 Oct 15;214(suppl 3):S110-S121. Epub 2016 Jul 11. PubMed PMID: 27402779; PubMed Central PMCID: PMC5050470.

Boisen ML, Cross RW, Hartnett JN, Goba A, Momoh M, Fullah M, Gbakie M, Safa S, Fonnie M, Baimba F, Koroma VJ, Geisbert JB, McCormick S, Nelson DK, Millett MM, Oottamasathien D, Jones AB, Pham H, Brown BL, Shaffer JG, Schieffelin JS, Kargbo B, Gbetuwa M, Gevao SM, Wilson RB, Pitts KR, Geisbert TW, Branco LM, Khan SH, Grant DS, Garry RF. Field Validation of the ReEBOV Antigen Rapid Test for Point-of-Care Diagnosis of Ebola Virus Infection. J Infect Dis. 2016 Oct 15;214(suppl 3):S203-S209. Epub 2016 Aug 11. PubMed PMID: 27521365; PubMed Central PMCID: PMC5050478.

Cross RW, Mire CE, Branco LM, Geisbert JB, Rowland MM, Heinrich ML, Goba A, Momoh M, Grant DS, Fullah M, Khan SH, Robinson JE, Geisbert TW, Garry RF. Treatment of Lassa virus infection in outbred guinea pigs with first-in-class human monoclonal antibodies. Antiviral Res. 2016 Sep;133:218-222. doi: 10.1016/j.antiviral.2016.08.012. Epub 2016 Aug 13. PubMed PMID: 27531367;PubMed Central PMCID: PMC5032844.

Boisen ML, Hartnett JN, Goba A, Vandi MA, Grant DS, Schieffelin JS, Garry RF, Branco LM. Epidemiology and Management of the 2013-16 West African Ebola Outbreak. Annu Rev Virol. 2016 Sep 29;3(1):147-171. Epub 2016 Aug 15. Review. PubMed PMID: 27578439.

Cross RW, Boisen ML, Millett MM, Nelson DS, Oottamasathien D, Hartnett JN, Jones AB, Goba A, Momoh M, Fullah M, Bornholdt ZA, Fusco ML, Abelson DM, Oda S, Brown BL, Pham H, Rowland MM, Agans KN, Geisbert JB, Heinrich ML, Kulakosky PC, Shaffer JG, Schieffelin JS, Kargbo B, Gbetuwa M, Gevao SM, Wilson RB, Saphire EO, Pitts KR, Khan SH, Grant DS, Geisbert TW, Branco LM, Garry RF. Analytical Validation of the ReEBOV Antigen Rapid Test for Point-of-Care Diagnosis of Ebola Virus Infection. J Infect Dis. 2016 Oct 15;214(suppl 3):S210-S217. Epub 2016 Aug 31. PubMed PMID: 27587634; PubMed Central PMCID: PMC5050482.

Lo Iacono G, Cunningham AA, Fichet-Calvet E, Garry RF, Grant DS, Leach M, Moses LM, Nichols G, Schieffelin JS, Shaffer JG, Webb CT, Wood JL. A Unified Framework for the Infection Dynamics of Zoonotic Spillover and Spread. PLoS Negl Trop Dis. 2016 Sep 2;10(9):e0004957. doi: 10.1371/journal.pntd.0004957. eCollection 2016 Sep. PubMed PMID: 27588425; PubMed Central PMCID: PMC5010258.

Safronetz D, Sogoba N, Diawara SI, Bane S, Rosenke K, Maiga O, Boisen M, Garry RF, Branco LM, Lindsay LR, Traoré SF, Feldmann H, Doumbia S. Annual Incidence

of Lassa Virus Infection in Southern Mali. Am J Trop Med Hyg. 2017 Apr;96(4):944-946. doi: 10.4269/ajtmh.16-0821. Epub 2017 Jan 16. PubMed PMID: 28093544; PubMed Central PMCID: PMC5392646.

Dudas G, Carvalho LM, Bedford T, Tatem AJ, Baele G, Faria NR, Park DJ, Ladner JT, Arias A, Asogun D, Bielejec F, Caddy SL, Cotten M, D'Ambrozio J, Dellicour S, Di Caro A, Diclaro JW, Duraffour S, Elmore MJ, Fakoli LS, Faye O, Gilbert ML, Gevao SM, Gire S, Gladden-Young A, Gnirke A, Goba A, Grant DS, Haagmans BL, Hiscox JA, Jah U, Kugelman JR, Liu D, Lu J, Malboeuf CM, Mate S, Matthews DA, Matranga CB, Meredith LW, Qu J, Quick J, Pas SD, Phan MVT, Pollakis G, Reusken CB, Sanchez-Lockhart M, Schaffner SF, Schieffelin JS, Sealfon RS, Simon-Loriere E, Smits SL, Stoecker K, Thorne L, Tobin EA, Vandi MA, Watson SJ, West K, Whitmer S, Wiley MR, Winnicki SM, Wohl S, Wölfel R, Yozwiak NL, Andersen KG, Blyden SO, Bolay F, Carroll MW, Dahn B, Diallo B, Formenty P, Fraser C, Gao GF, Garry RF, Goodfellow I, Günther S, Happi CT, Holmes EC, Kargbo B, Keïta S, Kellam P, Koopmans MPG, Kuhn JH, Loman NJ, Magassouba N, Naidoo D, Nichol ST, Nyenswah T, Palacios G, Pybus OG, Sabeti PC, Sall A, Ströher U, Wurie I, Suchard MA, Lemey P, Rambaut A. Virus genomes reveal factors that spread and sustained the Ebola epidemic. Nature. 2017 Apr 20;544(7650):309-315. doi: 10.1038/nature22040. Epub 2017 Apr 12. PubMed PMID: 28405027; PubMed Central PMCID: PMC5712493.

Grubaugh ND, Ladner JT, Kraemer MUG, Dudas G, Tan AL, Gangavarapu K, Wiley MR, White S, Thézé J, Magnani DM, Prieto K, Reyes D, Bingham AM, Paul LM, Robles-Sikisaka R, Oliveira G, Pronty D, Barcellona CM, Metsky HC, Baniecki ML, Barnes KG, Chak B, Freije CA, Gladden-Young A, Gnirke A, Luo C, MacInnis B, Matranga CB, Park DJ, Qu J, Schaffner SF, Tomkins-Tinch C, West KL, Winnicki SM, Wohl S, Yozwiak NL, Quick J, Fauver JR, Khan K, Brent SE, Reiner RC Jr, Lichtenberger PN, Ricciardi MJ, Bailey VK, Watkins DI, Cone MR, Kopp EW 4th, Hogan KN, Cannons AC, Jean R, Monaghan AJ, Garry RF, Loman NJ, Faria NR, Porcelli MC, Vasquez C, Nagle ER, Cummings DAT, Stanek D, Rambaut A, Sanchez-Lockhart M, Sabeti PC, Gillis LD, Michael SF, Bedford T, Pybus OG, Isern S, Palacios G, Andersen KG. Genomic epidemiology reveals multiple introductions of Zika virus into the United States. Nature. 2017 Jun 15;546(7658):401-405. doi: 10.1038/nature22400. Epub 2017 May 24. PubMed PMID: 28538723; PubMed Central PMCID: PMC5536180.

Hastie KM, Zandonatti MA, Kleinfelter LM, Heinrich ML, Rowland MM, Chandran K, Branco LM, Robinson JE, Garry RF, Saphire EO. Structural basis for antibody-mediated neutralization of Lassa virus. Science. 2017 Jun 2;356(6341):923-928. doi: 10.1126/science.aam7260. PubMed PMID: 28572385.

He J, Melnik LI, Komin A, Wiedman G, Fuselier T, Morris CF, Starr CG, Searson PC, Gallaher WR, Hristova K, Garry RF, Wimley WC. Ebola Virus Delta Peptide is a Viroporin. J Virol. 2017 May 24. pii: JVI.00438-17. doi: 10.1128/JVI.00438-17. [Epub ahead of print] PubMed PMID: 28539454; PubMed Central PMCID: PMC5533898.

Mire CE, Cross RW, Geisbert JB, Borisevich V, Agans KN, Deer DJ, Heinrich ML, Rowland MM, Goba A, Momoh M, Boisen ML, Grant DS, Fullah M, Khan SH, Fenton KA, Robinson JE, Branco LM, Garry RF, Geisbert TW. Human-monoclonal-antibody therapy protects nonhuman primates against advanced Lassa fever. Nat Med. 2017 Oct;23(10):1146-1149. doi: 10.1038/nm.4396. Epub 2017 Sep 4. PubMed PMID: 28869611; PubMed Central PMCID: PMC5719877.

Gale TV, Horton TM, Grant DS, Garry RF. Metabolomics analyses identify platelet activating factors and heme breakdown products as Lassa fever biomarkers. PLoS Negl Trop Dis. 2017 Sep 18;11(9):e0005943. doi: 10.1371/journal.pntd.0005943. eCollection 2017 Sep. PubMed PMID: 28922385; PubMed Central PMCID: PMC5619842.

Shantha JG, Mattia JG, Goba A, Barnes KG, Ebrahim FK, Kraft CS, Hayek BR, Hartnett JN, Shaffer JG, Schieffelin JS, Sandi JD, Momoh M, Jalloh S, Grant DS, Dierberg K, Chang J, Mishra S, Chan AK, Fowler R, O'Dempsey T, Kaluma E, Hendricks T, Reiners R, Reiners M, Gess LA, ONeill K, Kamara S, Wurie A, Mansaray M, Acharya NR, Liu WJ, Bavari S, Palacios G, Teshome M, Crozier I, Farmer PE, Uyeki TM, Bausch DG, Garry RF, Vandy MJ, Yeh S. Ebola Virus Persistence in Ocular Tissues and Fluids (EVICT) Study: Reverse Transcription-Polymerase Chain Reaction and Cataract Surgery Outcomes of Ebola Survivors in Sierra Leone. EBioMedicine. 2018 Apr;30:217-224. doi: 10.1016/j.ebiom.2018.03.020. Epub 2018 Mar 23. PubMed PMID: 29622497.

Boisen ML, Hartnett JN, Shaffer JG, Goba A, Momoh M, Sandi JD, Fullah M, Nelson DKS, Bush DJ, Rowland MM, Heinrich ML, Koval AP, Cross RW, Barnes KG, Lachenauer AE, Lin AE, Nekoui M, Kotliar D, Winnicki SM, Siddle KJ, Gbakie M, Fonnie M, Koroma VJ, Kanneh L, Kulakosky PC, Hastie KM, Wilson RB, Andersen KG, Folarin OO, Happi CT, Sabeti PC, Geisbert TW, Saphire EO, Khan SH, Grant DS, Schieffelin JS, Branco LM, Garry RF. Field validation of recombinant antigen immunoassays for diagnosis of Lassa fever. Nature Sci Rep. 2018 Apr 12;8(1):5939. doi:10.1038/s41598-018-24246-w. PubMed PMID: 29651117; PubMed Central PMCID: PMC5897328.

Sakabe S, Sullivan BM, Hartnett JN, Robles-Sikisaka R, Gangavarapu K, Cubitt B, Ware BC, Kotliar D, Branco LM, Goba A, Momoh M, Sandi JD, Kanneh L, Grant DS, Garry RF, Andersen KG, de la Torre JC, Sabeti PC, Schieffelin JS, Oldstone MBA. Analysis of CD8(+) T cell response during the 2013-2016 Ebola epidemic in West Africa. Proc Natl Acad Sci U S A. 2018 Aug 7;115(32):E7578-E7586. doi: 10.1073/pnas.1806200115. Epub 2018 Jul 23. PubMed PMID: 30038008.

Siddle KJ, Eromon P, Barnes KG, Oguzie JU, Mehta S, Odia I, Rickey Shah R, Brehio P, Winnicki SM, CIruolagbe C, Aiyepada J, Uyigue E, Akhilomen P, Okonofua G, Chak B, Kotliar D, Osiemi B, Muoebonam E, Airende M, Ukpetina R, Nosamiefan I, Oluniyi P, Ogbaini-Emovon E, Nekoui, M, Folarin OA, Schaffner SF, Garry RF, Andersen KG, Park DJ, Yozwiak NL, MacInnis BL, Akpede B, Okogbenin S, M Okokhere P, Sabeti PC, Happi CT Genomic Analysis of Lassa Virus during an Increase in Cases in Nigeria in 2018. New England Journal of Medicine **379**, 1745-1753.

Trevor V. Gale, Timothy M. Horton, Andrew R. Hoffmann, Luis M. Branco and Robert F. Garry. Host proteins identified in extracellular viral particles as targets for broad-spectrum antiviral inhibitors. Submitted: *Journal of Proteome Research* Journal of Proteome Research. 2018. Nov 5. doi: 10.1021/acs.jproteome.8b00204.

Brechot C, Bryant J, Endtz H, Garry RF, Griffin DE, Lewin SR, Mercer N, Osterhaus A, Picot V, Vahlne A, Verjans GMGM, Weaver S. 2018 international meeting of the Global Virus Network. Antiviral Res. 2019 Mar;163:140-148. doi: 10.1016/j.antiviral.2019.01.013. Epub 2019 Jan 25. Review. PubMed PMID: 30690044.

Shaffer JG, Schieffelin JS, Grant DS, Goba A, Momoh M, Kanneh L, Levy DC, Hartnett JN, Boisen ML, Branco LM, Garry RF; Viral Hemorrhagic Fever Consortium. Data set on Lassa fever in post-conflict Sierra Leone. Data Brief. 2019 Jan 16;23:103673. doi: 10.1016/j.dib.2019.01.021. eCollection 2019 Apr. PubMed PMID: 30788396; PubMed Central PMCID: PMC6369334.

Shaffer JG, Schieffelin JS, Gbakie M, Alhasan F, Roberts NB, Goba A, Randazzo J, Momoh M, Moon TD, Kanneh L, Levy DC, Podgorski RM, Hartnett JN, Boisen ML, Branco LM, Samuels R, Grant DS, Garry RF; Viral Hemorrhagic Fever Consortium. A

medical records and data capture and management system for Lassa fever in Sierra Leone: Approach, implementation, and challenges. PLoS One. 2019 Mar 28;14(3):e0214284. doi: 10.1371/journal.pone.0214284. eCollection 2019. PubMed PMID: 30921383; PubMed Central PMCID: PMC6438490.

Colubri A, Hartley MA, Siakor M, Wolfman V, Felix A, Sesay T, Shaffer JG, Garry RF, Grant DS, Levine AC, Sabeti PC. Machine-learning Prognostic Models from the 2014-16 Ebola Outbreak: Data-harmonization Challenges, Validation Strategies, and mHealth Applications. EClinicalMedicine. 2019 Jun 22;11:54-64. doi: 10.1016/j.eclinm.2019.06.003. PMID: 31312805; PMCID: PMC6610774.

Hastie KM, Cross RW, Harkins SS, Zandonatti MA, Koval AP, Heinrich ML, Rowland MM, Robinson JE, Geisbert TW, Garry RF, Branco LM, Saphire EO. Convergent Structures Illuminate Features for Germline Antibody Binding and Pan-Lassa Virus Neutralization. Cell. 2019 Aug 8;178(4):1004-1015.e14. doi: 10.1016/j.cell.2019.07.020. PMID: 31398326; PMCID: PMC6814208.

Garry CE, Garry RF. Proteomics Computational Analyses Suggest that the Antennavirus Glycoprotein Complex Includes a Class I Viral Fusion Protein (α-Penetrene) with an Internal Zinc-Binding Domain and a Stable Signal Peptide. Viruses. 2019 Aug 14;11(8):750. doi: 10.3390/v11080750. PMID: 31416162; PMCID: PMC6722660.

Gunn BM, Roy V, Karim MM, Hartnett JN, Suscovich TJ, Goba A, Momoh M, Sandi JD, Kanneh L, Andersen KG, Shaffer JG, Schieffelin JS, Garry RF, Grant DS, Alter G. Survivors of Ebola Virus Disease Develop Polyfunctional Antibody Responses. J Infect Dis. 2020 Jan 1;221(1):156-161. doi: 10.1093/infdis/jiz364. PMID: 31301137; PMCID: PMC7184900. PMC6438490.

Garry CE, Garry RF. Proteomics Computational Analyses Suggest That the Envelope Glycoproteins of Segmented Jingmen Flavi-Like Viruses are Class II Viral Fusion Proteins (b-Penetrenes) with Mucin-Like Domains. Viruses. 2020 Feb 27;12(3):260. doi: 10.3390/v12030260. PMID: 32120884; PMCID: PMC7150890.

Sullivan BM, Sakabe S, Hartnett JN, Ngo N, Goba A, Momoh M, Demby Sandi J, Kanneh L, Cubitt B, Garcia SD, Ware BC, Kotliar D, Robles-Sikisaka R, Gangavarapu K, Branco L, Eromon P, Odia I, Ogbaini-Emovon E, Folarin O, Okogbenin S, Okokhere PO, Happi C, de la Torre JC, Sabeti PC, Andersen KG, Garry RF, Grant DS, Schieffelin JS, Oldstone MBA. High crossreactivity of human T cell responses between Lassa virus lineages. PLoS Pathog. 2020 Mar 6;16(3):e1008352. doi: 10.1371/journal.ppat.1008352. PMID: 32142546; PMCID: PMC7080273.

Andersen KG, Rambaut A, Lipkin WI, Holmes EC, Garry RF. The proximal origin of SARS-CoV-2. Nat Med. 2020 Apr;26(4):450-452. doi: 10.1038/s41591-020-0820-9. PMID: 32284615; PMCID: PMC7095063.

Boisen ML, Uyigue E, Aiyepada J, Siddle KJ, Oestereich L, Nelson DKS, Bush DJ, Rowland MM, Heinrich ML, Eromon P, Kayode AT, Odia I, Adomeh DI, Muoebonam EB, Akhilomen P, Okonofua G, Osiemi B, Omoregie O, Airende M, Agbukor J, Ehikhametalor S, Aire CO, Duraffour S, Pahlmann M, Böhm W, Barnes KG, Mehta S, Momoh M, Sandi JD, Goba A, Folarin OA, Ogbaini-Emovan E, Asogun DA, Tobin EA, Akpede GO, Okogbenin SA, Okokhere PO, Grant DS, Schieffelin JS, Sabeti PC, Günther S, Happi CT, Branco LM, Garry RF. Field evaluation of a Pan-Lassa rapid diagnostic test during the 2018 Nigerian Lassa fever outbreak. Sci Rep. 2020 May 26;10(1):8724. doi: 10.1038/s41598-020-65736-0. PMID: 32457420; PMCID: PMC7250850.

Sakabe S, Hartnett JN, Ngo N, Goba A, Momoh M, Sandi JD, Kanneh L, Cubitt B, Garcia SD, Ware BC, Kotliar D, Robles-Sikisaka R, Gangavarapu K, Branco LM, Eromon P, Odia I, Ogbaini-Emovon E, Folarin O, Okogbenin S, Okokhere PO, Happi. C, Sabeti PC, Andersen KG, Garry RF, de la Torre JC, Grant DS, Schieffelin JS, Oldstone MBA, Sullivan BM. Identification of Common CD8 T Cell Epitopes from Lassa Fever Survivors in Nigeria and Sierra Leone. J Virol. 2020 Jun 1;94(12):e00153-20. doi: 10.1128/JVI.00153-20. PMID: 32269122; PMCID: PMC7307091.

Barnes KG, Lachenauer AE, Nitido A, Siddiqui S, Gross R, Beitzel B, Siddle KJ, Freije CA, Dighero-Kemp B, Mehta SB, Carter A, Uwanibe J, Ajogbasile F,Olumade T, Odia I, Sandi JD, Momoh M, Metsky HC, Boehm CK, Lin AE, Kemball M, Park DJ, Branco L, Boisen M, Sullivan B, Amare MF, Tiamiyu AB, Parker ZF, Iroezindu M, Grant DS, Modjarrad K, Myhrvold C, Garry RF, Palacios G, Hensley LE, Schaffner SF, Happi CT, Colubri A, Sabeti PC. Deployable CRISPR-Cas13a diagnostic tools to detect and report Ebola and Lassa virus cases in real-time. Nat Commun. 2020 Aug 17;11(1):4131. doi: 10.1038/s41467-020-17994-9. PMID: 32807807; PMCID: PMC7431545.

Heinrich ML, Boisen ML, Nelson DKS, Bush DJ, Cross RW, Koval AP, Hoffmann AR, Beddingfield BJ, Hastie KM, Rowland MM, Aimukanova I, Koval S, Lathigra R, Borisevich V, Momoh M, Sandi JD, Goba A, Odia L, Baimba F, Aiyepada JO, Ebo B, Eromon P, Ugwu C, Folarin O, Olumade T, Onyechi MN, Etafo J, Adeyemi R, Ella EE, Aminu M, Gomerep SS, Eke MA, Ogunsanya O, Akpede GO, Asogun DO, Okogbenin SA, Okokhere PO, Holst J, Shaffer JG, Schieffelin JS, Geisbert TW, Saphire EO, Happi CT, Grant DS, Garry RF, Branco LM. Antibodies from Sierra Leonean and Nigerian Lassa fever survivors cross-react with recombinant proteins representing Lassa viruses of divergent lineages. Sci Rep. 2020 Sep 29;10(1):16030. doi: 10.1038/s41598-020-72539-w. PMID: 32994446; PMCID: PMC7525497.

LaVergne SM, Sakabe S, Kanneh L, Momoh M, Al-Hassan F, Yilah M, Goba A, Sandi JD, Gbakie M, Cubitt B, Boisen M, Mayeux JM, Smira A, Shore K, Bica I, Pollard KM, Carlos de la Torre J, Branco LM, Garry RF, Grant DS, Schieffelin JS, Oldstone MBA, Sullivan BM. Ebola-Specific CD8+ and CD4+ T-Cell Responses in Sierra Leonean Ebola Virus Survivors With or Without Post-Ebola Sequelae. J Infect Dis. 2020 Oct 1;222(9):1488-1497. doi: 10.1093/infdis/jiaa268. PMID: 32436943; PMCID: PMC7529037.

Horton LE, Cross RW, Hartnett JN, Engel EJ, Sakabe S, Goba A, Momoh M, Sandi JD, Geisbert TW, Garry RF, Schieffelin JS, Grant DS, Sullivan BM. Endotheliopathy and Platelet Dysfunction as Hallmarks of Fatal Lassa Fever. Emerg Infect Dis. 2020 Nov;26(11):2625-2637. doi: 10.3201/eid2611.191694. PMID: 33079033; PMCID: PMC7588510.

Hoffmann AR, Guha S, Wu E, Ghimire J, Wang Y, He J, Garry RF, Wimley WC. Broad-Spectrum Antiviral Entry Inhibition by Interfacially Active Peptides. J Virol. 2020 Nov 9;94(23):e01682-20. doi: 10.1128/JVI.01682-20. PMID: 32907984; PMCID: PMC7654261.

Samuels RJ, Moon TD, Starnes JR, Alhasan F, Gbakie M, Goba A, Koroma V, Momoh M, Sandi JD, Garry RF, Engel EJ, Shaffer JG, Schieffelin JS, Grant DS. Lassa Fever among Children in Eastern Province, Sierra Leone: A 7-year Retrospective Analysis (2012-2018). Am J Trop Med Hyg. 2020 Nov 23. doi: 10.4269/ajtmh.20-0773. Epub ahead of print. PMID: 33241780.

Gale TV, Schieffelin JS, Branco LM, Garry RF, Grant DS. Elevated L-threonine is a biomarker for Lassa fever and Ebola. Virol J. 2020 Nov 26;17(1):188. doi: 10.1186/s12985-020-01459-y. PMID: 33243278; PMCID: PMC7690152.

Bond NG, Grant DS, Himmelfarb ST, Engel EJ, Al-Hasan F, Gbakie M, Kamara F, Kanneh L, Mustapha I, Okoli A, Fischer W, Wohl D, Garry RF, Samuels R, Shaffer JG, Schieffelin JS. Post-Ebola syndrome presents with multiple overlapping symptom clusters: evidence from an ongoing cohort study in Eastern Sierra Leone. Clin Infect Dis. 2021 Apr 3:ciab267. doi: 10.1093/cid/ciab267. PMID: 33822010.

Gunn BM, Lu R, Slein MD, Ilinykh PA, Huang K, Atyeo C, Schendel SL, Kim J, Cain C, Roy V, Suscovich TJ, Takada A, Halfmann PJ, Kawaoka Y, Pauthner MG, Momoh M, Goba A, Kanneh L, Andersen KG, Schieffelin JS, Grant D, Garry RF, Saphire EO, Bukreyev A, Alter G. A Fc engineering approach to define functional humoral correlates of immunity against Ebola virus. Immunity. 2021 Apr 13;54(4):815-828.e5. doi: 10.1016/j.immuni.2021.03.009. PMID: 33852832; PMCID: PMC8111768.

Shaffer JG, Schieffelin JS, Momoh M, Goba A, Kanneh L, Alhasan F, Gbakie M, Engel EJ, Bond NG, Hartnett JN, Nelson DKS, Bush DJ, Boisen ML, Heinrich ML, Rowland MM, Branco LM, Samuels RJ, Garry RF, Grant DS, The Viral Hemorrhagic Fever Consortium. Space-Time Trends in Lassa Fever in Sierra Leone by ELISA Serostatus, 2012-2019. Microorganisms. 2021 Mar 12;9(3):586. doi:10.3390/microorganisms9030586. PMID: 33809204; PMCID: PMC8000031.

Berry DE, Bavinger JC, Fernandes A, Mattia JG, Mustapha J, Harrison-Williams L, Teshome M, Vandy MJ, Shantha JG, Yeh S; Ebola Virus Persistence in Ocular Tissues and Fluids (EVICT) Study Investigators. Posterior Segment Ophthalmic Manifestations in Ebola Survivors, Sierra Leone. Ophthalmology. 2021 Sep;128(9):1371-1373. doi: 10.1016/j.ophtha.2021.02.001. Epub 2021 Feb 6. PMID: 33561480; PMCID: PMC8342617.

Drouin AC, Theberge MW, Liu SY, Smither AR, Flaherty SM, Zeller M, Geba GP, Reynaud P, Rothwell WB, Luk AP, Tian D, Boisen ML, Branco LM, Andersen KG, Robinson JE, Garry RF, Fusco DN. Successful Clearance of 300 Day SARS-CoV-2 Infection in a Subject with B-Cell Depletion Associated Prolonged (B-DEAP) COVID by REGEN-COV Anti-Spike Monoclonal Antibody Cocktail. Viruses. 2021 Jun 23;13(7):1202. doi: 10.3390/v13071202. PMID: 34201591; PMCID: PMC8310246.

Shantha JG, Crozier I, Kraft CS, Grant DG, Goba A, Hayek BR, Hartley C, Barnes KG, Uyeki TM, Schieffelin J, Garry RF, Bausch DG, Farmer PE, Mattia JG, Vandy MJ, Yeh S; EVICT Study Investigators. Implementation of the Ebola Virus Persistence in Ocular Tissues and Fluids (EVICT) study: Lessons learned for vision health systems strengthening in Sierra Leone. PLoS One. 2021 Jul 9;16(7):e0252905. doi: 10.1371/journal.pone.0252905. PMID: 34242218; PMCID: PMC8270115.

Koch MR, Kanneh L, Wise PH, Kurina LM, Alhasan F, Garry RF, Schieffelin JS, Shaffer JG, Grant DS. Health seeking behavior after the 2013-16 Ebola epidemic: Lassa fever as a metric of persistent changes in Kenema District, Sierra Leone. PLoS Negl Trop Dis. 2021 Jul 14;15(7):e0009576. doi:10.1371/journal.pntd.0009576. PMID: 34260615; PMCID: PMC8312964.

Borrega R, Nelson DKS, Koval AP, Bond NG, Heinrich ML, Rowland MM, Lathigra R, Bush DJ, Aimukanova I, Phinney WN, Koval SA, Hoffmann AR, Smither AR, Bell-Kareem AR, Melnik LI, Genemaras KJ, Chao K, Snarski P, Melton AB, Harrell JE, Smira AA, Elliott DH, Rouelle JA, Sabino-Santos G Jr, Drouin AC, Momoh M, Sandi

JD, Goba A, Samuels RJ, Kanneh L, Gbakie M, Branco ZL, Shaffer JG, Schieffelin JS, Robinson JE, Fusco DN, Sabeti PC, Andersen KG, Grant DS, Boisen ML, Branco LM, Garry RF. Cross-Reactive Antibodies to SARS-CoV-2 and MERS-CoV in Pre-COVID-19 Blood Samples from Sierra Leoneans. Viruses. 2021 Nov 21;13(11):2325. doi: 10.3390/v13112325. PMID: 34835131; PMCID: PMC8625389.

Zeller M, Gangavarapu K, Anderson C, Smither AR, Vanchiere JA, Rose R, Snyder DJ, Dudas G, Watts A, Matteson NL, Robles-Sikisaka R, Marshall M, Feehan AK, Sabino-Santos G Jr, Bell-Kareem AR, Hughes LD, Alkuzweny M, Snarski P, Garcia-Diaz J, Scott RS, Melnik LI, Klitting R, McGraw M, Belda-Ferre P, DeHoff P, Sathe S, Marotz C, Grubaugh ND, Nolan DJ, Drouin AC, Genemaras KJ, Chao K, Topol S, Spencer E, Nicholson L, Aigner S, Yeo GW, Farnaes L, Hobbs CA, Laurent LC, Knight R, Hodcroft EB, Khan K, Fusco DN, Cooper VS, Lemey P, Gardner L, Lamers SL, Kamil JP, Garry RF, Suchard MA, Andersen KG. Emergence of an early SARS-CoV-2 epidemic in the United States. Cell. 2021 Sep 16;184(19):4939-4952.e15. doi: 10.1016/j.cell.2021.07.030. Epub 2021 Jul 27. PMID: 34508652; PMCID: PMC8313480.

Beddingfield BJ, Hartnett JN, Wilson RB, Kulakosky PC, Andersen KG, Robles-Sikisaka R, Grubaugh ND, Aybar A, Nunez MZ, Fermin CD, Garry RF. Zika Virus Non-Structural Protein 1 Antigen-Capture Immunoassay. Viruses. 2021 Sep 5;13(9):1771. doi: 10.3390/v13091771. PMID: 34578352; PMCID: PMC8473068.

Melnik LI, Guha S, Ghimire J, Smither AR, Beddingfield BJ, Hoffmann AR, Sun L, Ungerleider NA, Baddoo MC, Flemington EK, Gallaher WR, Wimley WC, Garry RF. Ebola virus delta peptide is an enterotoxin. Cell Rep. 2022 Jan 4;38(1):110172. doi: 10.1016/j.celrep.2021.110172. PMID: 34986351.

Enriquez AS, Buck TK, Li H, Norris MJ, Moon-Walker A, Zandonatti MA, Harkins SS Robinson JE, Branco LM, Garry RF, Saphire EO, Hastie KM. Delineating the mechanism of anti-Lassa virus GPC-A neutralizing antibodies. Cell Rep. 2022 May 24;39(8):110841. doi: 10.1016/j.celrep.2022.110841. PMID: 35613585.

Buck TK, Enriquez AS, Schendel SL, Zandonatti MA, Harkins SS, Li H, Moon-Walker A, Robinson JE, Branco LM, Garry RF, Saphire EO, Hastie KM. Neutralizing Antibodies against Lassa Virus Lineage I. mBio. 2022 Jun 22:e0127822. doi:10.1128/mbio.01278-22. Epub ahead of print. PMID: 35730904.

Worobey M, Levy JI, Malpica Serrano L, Crits-Christoph A, Pekar JE, Goldstein SA, Rasmussen AL, Kraemer MUG, Newman C, Koopmans MPG, Suchard MA, Wertheim JO, Lemey P, Robertson DL, Garry RF, Holmes EC, Rambaut A, Andersen KG. The Huanan Seafood Wholesale Market in Wuhan was the early epicenter of the COVID-19 pandemic. Science. 2022 Aug 26;377(6609):951-959. doi: 10.1126/science.abp8715. Epub 2022 Jul 26. PMID: 35881010; PMCID: PMC9348750.

Pekar JE, Magee A, Parker E, Moshiri N, Izhikevich K, Havens JL, Gangavarapu K, Malpica Serrano LM, Crits-Christoph A, Matteson NL, Zeller M, Levy JI, Wang JC, Hughes S, Lee J, Park H, Park MS, Ching Zi Yan K, Lin RTP, Mat Isa MN, Noor YM, Vasylyeva TI, Garry RF, Holmes EC, Rambaut A, Suchard MA, Andersen KG, Worobey M, Wertheim JO. The molecular epidemiology of multiple zoonotic origins of SARS-CoV-2. Science. 2022 Aug 26;377(6609):960-966. doi: 10.1126/science.abp8337. Epub 2022 Jul 26. PMID: 35881005; PMCID: PMC9348752.

Mucker EM, Shamblin JD, Raymond JL, Twenhafel NA, Garry RF, Hensley LE. Effect of Monkeypox Virus Preparation on the Lethality of the Intravenous Cynomolgus Macaque Model. Viruses. 2022 Aug 9;14(8):1741. doi: 10.3390/v14081741. PMID: 36016363; PMCID: PMC9413320.

Mucker EM, Shamblin JD, Goff AJ, Bell TM, Reed C, Twenhafel NA, Chapman J, Mattix M, Alves D, Garry RF, Hensley LE. Evaluation of Virulence in Cynomolgus Macaques Using a Virus Preparation Enriched for the Extracellular Form of Monkeypox Virus. Viruses. 2022 Sep 9;14(9):1993. doi: 10.3390/v14091993. PMID: 36146799; PMCID: PMC9505131.

Klitting R, Kafetzopoulou LE, Thiery W, Dudas G, Gryseels S, Kotamarthi A, Vrancken B, Gangavarapu K, Momoh M, Sandi JD, Goba A, Alhasan F, Grant DS, Okogbenin S, Ogbaini-Emovo E, Garry RF, Smither AR, Zeller M, Pauthner MG, McGraw M, Hughes LD, Duraffour S, Günther S, Suchard MA, Lemey P, Andersen KG, Dellicour S. Predicting the evolution of the Lassa virus endemic area and population at risk over the next decades. Nat Commun. 2022 Sep 27;13(1):5596. doi: 10.1038/s41467-022-33112-3. PMID: 36167835; PMCID: PMC9515147.

Li H, Buck T, Zandonatti M, Yin J, Moon-Walker A, Fang J, Koval A, Heinrich ML, Rowland MM, Diaz Avalos R, Schendel SL, Parekh D, Zyla D, Enriquez A, Harkins S, Sullivan B, Smith V, Chukwudozie O, Watanabe R, Robinson JE, Garry RF, Branco LM, Hastie KM, Saphire EO. A cocktail of protective antibodies subverts the dense glycan shield of Lassa virus. Sci Transl Med. 2022 Oct 26;14(668):eabq0991. doi: 10.1126/scitranslmed.abq0991. Epub 2022 Oct 26. PMID: 36288283; PMCID: PMC10084740.

LaVergne SM, Sakabe S, Momoh M, Kanneh L, Bond N, Garry RF, Grant DS, de la Torre JC, Oldstone MBA, Schieffelin JS, Sullivan BM. Expansion of CD8+ T cell population in Lassa virus survivors with low T cell precursor frequency reveals durable immune response in most survivors. PLoS Negl Trop Dis. 2022 Nov 28;16(11):e0010882. doi: 10.1371/journal.pntd.0010882. PMID: 36441765; PMCID: PMC9731491.

Grant DS, Engel EJ, Roberts Yerkes N, Kanneh L, Koninga J, Gbakie MA, Alhasan F, Kanneh FB, Kanneh IM, Kamara FK, Momoh M, Yillah MS, Foday M, Okoli A, Zeoli A, Weldon C, Bishop CM, Zheng C, Hartnett J, Chao K, Shore K, Melnik LI, Mucci M, Bond NG, Doyle P, Yenni R, Podgorski R, Ficenec SC, Moses L, Shaffer JG, Garry RF, Schieffelin JS. Seroprevalence of anti-Lassa Virus IgG antibodies in three districts of Sierra Leone: A cross-sectional, population-based study. PLoS Negl Trop Dis. 2023 Feb 9;17(2):e0010938. doi: 10.1371/journal.pntd.0010938. PMID: 36758101; PMCID: PMC9946222.

Penfold S, Adegnika AA, Asogun D, Ayodeji O, Azuogu BN, Fischer WA 2nd, Garry RF, Grant DS, Happi C, N'Faly M, Olayinka A, Samuels R, Sibley J, Wohl DA, Accrombessi M, Adetifa I, Annibaldis G, Camacho A, Dan-Nwafor C, Deha ARE, DeMarco J, Duraffour S, Goba A, Grais R, Günther S, Honvou ÉJJP, Ihekweazu C, Jacobsen C, Kanneh L, Momoh M, Ndiaye A, Nsaibirni R, Okogbenin S, Ochu C, Ogbaini E, Logbo ÉPMA, Sandi JD, Schieffelin JS, Verstraeten T, Vielle NJ, Yadouleton A, Yovo EK; Enable Protocol authorship group. A prospective, multi-site, cohort study to estimate incidence of infection and disease due to Lassa fever virus in West African countries (the Enable Lassa research programme)-Study protocol. PLoS One. 2023 Mar 30;18(3):e0283643. doi: 10.1371/journal.pone.0283643. PMID: 36996258; PMCID: PMC10062557.

Book Chapters, Reviews, and Peer-reviewed Commentary:

Garry, R.F., Ulug, E.T., and Bose, H.R., Jr. Membrane-mediated alterations of intracellular Na^+ and K^+ in lytic virus-infected and retrovirus-transformed cells. Bioscience Reports 2:617-623, 1982.

Clements, J.D., Lyons, F., and Garry, R.F. Immunological protection against mucosal pathogens by direct stimulation of antibody-forming cells in the gut-associated lymphoid tissue. In: Immunological Adjuvants and Non-specific Resistance to Microbial Infections. (Ed. J. A. Madje). Alan R. Liss, Inc. p. 139-154, 1987.

Ulug, E.T., Garry, R.F., and Bose, H.R., Jr. Cell killing by enveloped RNA viruses. In: Cell Killing by Viruses. (Ed. L. Carrasco). CRC Press, 91-113, 1987.

Gottlieb, A.A., and Garry, R.F. Development of immunosupportive drugs for patients with AIDS/ARC. Clinical Immunology and Immunopathology 47:241-244, 1988.

Garry, R.F., Gottlieb, A.A., Zuckerman, K.P., Pace, J.R., Frank, T.W., and Bostick, D.A. Cell surface effects of human immunodeficiency virus. Bioscience Reports 8:35-48, 1988.

Garry, R.F. Potential mechanisms for the cytopathic properties of human immunodeficiency virus. AIDS 3:683-694, 1989.

Hart, D.J., and Garry, R.F. Retrovirus infections of the Central Nervous System (book review). ASM News 56:660-661, 1990.

Garry, R.F. Possible involvement of a newly discovered human retrovirus in autoimmunity. Lupus News 11:1-4, 1991.

Garry, R.F. Possible involvement of a newly discovered human retrovirus in autoimmunity. National Sjogren's Syndrome Association Patient Education Series. 1:6, 1991.

Gallaher, W.R., Fermin, C.D., Henderson, L.A., Montelaro, R.C., L.H, Martin, A., Qureshi, M.N., Ball, J.C., Luo-Zhang, H. and Garry, R.F. Membrane interactions of HIV: Attachment, fusion, and cytopathology. Advances in Membrane Fluidity 6:113-142, 1992.

Fermin, C.D., and Garry, R.F. Possible involvement of a newly discovered human retrovirus in idiopathic immune dysfunctions (in German). ONR 5:239-249, 1993.

Garry, R.F. New evidence for involvement of retroviruses in Sjögren's syndrome and other autoimmune diseases. *Arthritis Rheum.* **37**, 465-469, 1994

Garry, R.F., Krieg, A.M., Cheevers, W., Montelaro, R.C., Golding, H., Gallaher, W.R., and Fermin, C.D. Retroviruses and Autoimmunity. In: The Retroviridae (Ed. J.A. Levy) Plenum Press. Volume 4, pp 491-603, 1995.

Domer, J.E., Garry, R.F., Guth, P.S., Walters, M.R., Fisher, J.W. On the crisis in biomedical education: Is there an overproduction of biomedical Ph.D.s? *Academic Medicine*, 71: 876-885, 1996.

Sokol, D.M. and Garry, R.F. Herpesviruses. In: Sexually Transmitted Diseases: A Contemporary Review (K. Bouchert, Ed.) CRC Press (Boca Raton, FL), 218-243, 1997.

Mason, A., Xu, L., Guo, L., and Garry, R.F. Retroviruses and autoimmune liver disease: Genes or environment? Archivum Immunnologiae & Therapiae Experimentalis 47, 289-97, 1999.

Garry, R.F. Human Mammary Tumor Virus. In: Where We Stand with Breast Cancer Research (N.J. Agnantis and D.D. Tsiftsis, Eds.) Synedron Press (Athens, Greece), 154-156, 1999.

Garry, R.F. Human Mammary Tumor Virus: an update. In: Where We Stand with Breast Cancer Research (Ed. N.J. Agnantis) Synedron Press (Athens, Greece), 15-18, 2001.

Garry, R.F. Viruses. In: Genetics. (Robinson, Richard, ed.) Macmillan Reference USA (New York, NY), 2003.

Garry, R.F. Retroviruses. In: Genetics. (Robinson, Richard, ed.) Macmillan Reference USA (New York, NY), 2003.

Jaspan, H.B. and Garry, R.F. (2003). Preventing neonatal HIV: A review. Current HIV Research 1, 321-327.

Garry R.F. Virology on the Internet: the time is right for a new journal. Virol J. 2004 Aug 26;1:1.

Colmegna I., Sainz B. Jr., Garry R.F., Espinoza L.R. The proteasome and its implications in rheumatology. J Rheumatol. 2005 Jul;32(7):1192-8.

Szabo S., Haislip A.M., Garry R.F. Of mice, cats, and men: is human breast cancer a zoonosis? Microsc Res Tech. 2005 Nov;68(3-4):197-208.

Colmegna I., Koehler J.W., Garry R.F., and Espinoza L.R. Musculoskeletal and autoimmune manifestations of HIV, syphilis and tuberculosis. Curr Opin Rheumatol. 2006 Jan;18(1):88-95.

Colmegna I., and Garry R.F. (2006). Role of endogenous retroviruses in autoimmune diseases. Infect Dis Clin North Am. 20:913-29. Review.

Garry R.F. An invitation to recent graduates: publish your dissertation/thesis background section as a review in Virology Journal. Virology Journal 4:46, 2007.

Gire SK, Stremlau M, Andersen KG, Schaffner SF, Bjornson Z, Rubins K, Hensley L, McCormick JB, Lander ES, Garry RF, Happi C, Sabeti PC. Epidemiology. Emerging disease or diagnosis? Science. 2012 Nov 9;338(6108):750-2. doi: 10.1126/science.1225893.

Garry, R. F. 2014. Lassa Fever Virus. eLS. Published Online: 15 APR 2014. DOI: 10.1002/9780470015902.a0001032.pub2 Based in part on the previous version of this eLS article 'Lassa Fever Virus' (2002) by Austin Demby.

Badani H, Garry RF, Wimley WC. (2014). Peptide entry inhibitors of enveloped viruses: The importance of interfacial hydrophobicity. Biochim Biophys Acta. S0005-2736(14)00150-3. doi: 10.1016/j.bbamem.2014.04.015.

Dash S, Chandra P.K., Ramazan K., Garry R.F., and Balart L.A. (2014). Mechanisms of Hepatitis C Virus Clearance by Interferon and Ribavirin Combination: Lessons Learned from In Vitro Cell Culture In Cancer-Causing Viruses and Their Inhibitors, Ed. Gupta, SP. CRC Press Boca Raton pp 85-120.

Sabahi A. Uprichard S.L., Wimley W.C., Dash S. and Garry, R.F. (2014). Unexpected structural features of the hepatitis c virus 2 envelope protein 2 ectodomain. J. Virol.

H3Africa Consortium, Rotimi C, Abayomi A, Abimiku A, Adabayeri VM, Adebamowo C, Adebiyi E, Ademola AD, Adeyemo A, Adu D, Affolabi D, Agongo G, Ajayi S, Akarolo-Anthony S, Akinyemi R, Akpalu A, Alberts M, Alonso Betancourt O, Alzohairy AM, Ameni G, Amodu O, Anabwani G, Andersen K, Arogundade F, Arulogun O, Asogun D, Bakare R, Balde N, Baniecki ML, Beiswanger C, Benkahla A, Bethke L, Boehnke M, Boima V, Brandful J, Brooks AI, Brosius FC, Brown C, Bucheton B, Burke DT, Burnett BG, Carrington-Lawrence S, Carstens N, Chisi J, Christoffels A, Cooper R, Cordell H, Crowther N, Croxton T, de Vries J, Derr L, Donkor P, Doumbia S, Duncanson A, Ekem I, El Sayed A, Engel ME, Enyaru JC, Everett D, Fadlelmola FM, Fakunle E, Fischbeck KH, Fischer A, Folarin O, Gamieldien J, Garry RF, Gaseitsiwe S, Gbadegesin R, Ghansah A, Giovanni M, Goesbeck P, Gomez-Olive FX, Grant DS, Grewal R, Guyer M, Hanchard NA, Happi CT, Hazelhurst S, Hennig BJ, Hertz- C, Fowler, Hide W, Hilderbrandt F, Hugo-Hamman C, Ibrahim ME, James R, Jaufeerally-Fakim Y, Jenkins C, Jentsch U, Jiang PP, Joloba M, Jongeneel V, Joubert F, Kader M, Kahn K, Kaleebu P, Kapiga SH, Kassim SK, Kasvosve I, Kayondo J, Keavney B, Kekitiinwa A, Khan SH, Kimmel P, King MC, Kleta R, Koffi M, Kopp J, Kretzler M, Kumuthini J, Kyobe S, Kyobutungi C, Lackland DT, Lacourciere KA, Landouré G, Lawlor R, Lehner T, Lesosky M, Levitt N, Littler K, Lombard Z, Loring JF, Lyantagaye S, Macleod A, Madden EB, Mahomva CR, Makani J, Mamven M, Marape M, Mardon G, Marshall P, Martin DP, Masiga D, Mason R, Mate-Kole M, Matovu E, Mayige M, Mayosi BM, Mbanya JC, McCurdy SA, McCarthy MI, McIlleron H, Mc'Ligeyo SO, Merle C, Mocumbi AO, Mondo C, Moran JV, Motala A, Moxey-Mims M, Mpoloka WS, Msefula CL, Mthiyane T, Mulder N, Mulugeta Gh, Mumba D, Musuku J, Nagdee M, Nash O, Ndiaye D, Nguyen AQ, Nicol M, Nkomazana O, Norris S, Nsangi B, Nyarko A, Nyirenda M, Obe E, Obiakor R, Oduro A, Ofori-Acquah SF, Ogah O, Ogendo S, Ohene-Frempong K, Ojo A, Olanrewaju T, Oli J, Osafo C, Ouwe Missi Oukem-Boyer O, Ovbiagele B, Owen A, Owolabi MO, Owolabi L, Owusu-Dabo E, Pare G, Parekh R, Patterton HG, Penno MB, Peterson J, Pieper R, Plange-Rhule J, Pollak M, Puzak J, Ramesar RS, Ramsay M, Rasooly R, Reddy S, Sabeti PC, Sagoe K, Salako T, Samassékou O, Sandhu MS, Sankoh O, Sarfo FS, Sarr M, Shaboodien G, Sidibe I, Simo G, Simuunza M, Smeeth L, Sobngwi E, Soodyall H, Sorgho H, Sow Bah O, Srinivasan S, Stein DJ, Susser ES, Swanepoel C, Tangwa G, Tareila A, Tastan Bishop O, TayoB, Tiffin N, Tinto H, Tobin E, Tollman SM, Traoré M, Treadwell MJ, Troyer J, Tsimako-Johnstone M, Tukei V, Ulasi I, Ulenga N, van Rooyen B, Wachinou AP, Waddy SP, Wade A, Wayengera M, Whitworth J, Wideroff L, Winkler CA, Winnicki S, Wonkam A, Yewondwos M, sen T, Yozwiak N, Zar H. Research capacity. Enabling the genomic revolution in Africa. Science. 2014 Jun 20;344(6190):1346-8. doi: 10.1126/science.1251546. PubMed PMID: 24948725; PubMed Central PMCID: PMC4138491.

Bausch DG, Bangura J, Garry RF, Goba A, Grant DS, Jacquerioz FA, McLellan SL, Jalloh S, Moses LM, Schieffelin JS. A tribute to Sheik Humarr Khan and all the healthcare workers in West Africa who have sacrificed in the fight against Ebola virus disease: Mae we hush. Antiviral Res. 2014 Nov;111:33-5. doi: 10.1016/j.antiviral.2014.09.001. Epub 2014 Sep 6. PubMed PMID: 25196533.

Dhillon RS, Srikrishna D, Garry RF, Chowell G. Ebola control: rapid diagnostic testing. Lancet Infect Dis. 2015 Feb;15(2):147-8. doi:10.1016/S1473-3099(14)71035-7. Epub 2014 Nov 19. PubMed PMID: 25467648.

Dash S, Chava S, Aydin Y, Chandra PK, Ferraris P, Chen W, Balart LA, Wu T, Garry RF. Hepatitis C Virus Infection Induces Autophagy as a Prosurvival Mechanism to Alleviate Hepatic ER-Stress Response. Viruses. 2016 May 23;8(5). pii: E150. doi: 10.3390/v8050150. Review. PubMed PMID: 27223299; PubMed Central PMCID: PMC4885105.

Yozwiak NL, Happi CT, Grant DS, Schieffelin JS, Garry RF, Sabeti PC, Andersen KG. Roots, Not Parachutes: Research Collaborations Combat Outbreaks. Cell. 2016 Jun 30;166(1):5-8. doi: 10.1016/j.cell.2016.06.029. PubMed PMID: 27368093; PubMed,Central PMCID: PMC5210219.

Dhillon RS, Kelly JD, Srikrishna D, Garry RF. Overlooking the importance of immunoassays. Lancet Infect Dis. 2016 Oct;16(10):1109-1110. doi: 10.1016/S1473-3099(16)30338-3. Epub 2016 Sep 19. PubMed PMID: 27676344.

Saphire EO, Dye JM, Kobinger GP, Zeitlin L, Chandran K, Garry RF. How to turn competitors into collaborators. Nature. 2017 Jan 18;541(7637):283-285. doi: 10.1038/541283a. PubMed PMID: 28102273.

Dhillon RS, Srikrishna D, Garry RF. Early detection of Lassa fever: the need for point-of-care diagnostics. Lancet Infect Dis. 2018. 2018 Jun;18(6):601-602. doi: 10.1016/S1473-3099(18)30277-9.

Garry RF. Ebola mysteries and conundrums. J Infect Dis. 2018 Aug 4. doi: 10.1093/infdis/jiy476. [Epub ahead of print] PubMed PMID: 30085161.

Cross RW, Hastie KM, Mire CE, Robinson JE, Geisbert TW, Branco LM, Ollmann Saphire E, Garry RF. Antibody therapy for Lassa fever. Curr Opin Virol. 2019 Aug;37:97-104. doi: 10.1016/j.coviro.2019.07.003. Epub 2019 Aug 8. PMID: 31401518.

Garry RF. 50 Years of Lassa Fever Research. Curr Top Microbiol Immunol. 2020 May 27. doi: 10.1007/82_2020_214. Epub ahead of print. PMID: 32458151.

Klionsky DJ, et al., Guidelines for the use and interpretation of assays for monitoring autophagy (4th edition. Autophagy. 2021 Jan;17(1):1-382. doi: 10.1080/15548627.2020.1797280. Epub 2021 Feb 8. PMID: 33634751; PMCID: PMC7996087.

Telenti A, Arvin A, Corey L, Corti D, Diamond MS, García-Sastre A, Garry RF, Holmes EC, Pang PS, Virgin HW. After the pandemic: perspectives on the future trajectory of COVID-19. Nature. 2021 Aug;596(7873):495-504. doi: 10.1038/s41586-021-03792-w. Epub 2021 Jul 8. PMID: 34237771.

Holmes EC, Goldstein SA, Rasmussen AL, Robertson DL, Crits-Christoph A, Wertheim JO, Anthony SJ, Barclay WS, Boni MF, Doherty PC, Farrar J, Geoghegan JL, Jiang X, Leibowitz JL, Neil SJD, Skern T, Weiss SR, Worobey M, Andersen KG, Garry RF, Rambaut A. The origins of SARS-CoV-2: A critical review. Cell. 2021 Sep 16;184(19):4848-4856. doi: 10.1016/j.cell.2021.08.017. Epub 2021 Aug 19. PMID: 34480864; PMCID: PMC8373617.

Garry RF. Ebola virus can lie low and reactivate after years in human survivors. Nature. 2021 Sep;597(7877):478-480. doi: 10.1038/d41586-021-02378-w. PMID: 34526683.

Melnik LI, Garry RF. Enterotoxigenic *Escherichia coli* Heat-Stable Toxin and Ebola Virus Delta Peptide: Similarities and Differences. Pathogens. 2022 Jan 27;11(2):170. doi: 10.3390/pathogens11020170. PMID: 35215114; PMCID: PMC8878840.

Kolls JK, Garry RF. Role of the T cell vitamin D receptor in severe COVID-19. Nat Immunol. 2022 Jan;23(1):5-6. doi: 10.1038/s41590-021-01098-7. PMID: 34931078.

Garry RF. The evidence remains clear: SARS-CoV-2 emerged via the wildlife trade. Proc Natl Acad Sci U S A. 2022 Nov 22;119(47):e2214427119. doi: 10.1073/pnas.2214427119. Epub 2022 Nov 10. PMID: 36355862; PMCID: PMC9704731.

Garry RF. SARS-CoV-2 furin cleavage site was not engineered. Proc Natl Acad Sci U S A. 2022 Oct 4;119(40):e2211107119. doi: 10.1073/pnas.2211107119. Epub 2022 Sep 29. PMID: 36173950; PMCID: PMC9546612.

Garry RF. Lassa fever - the road ahead. Nat Rev Microbiol. 2023 Feb;21(2):87-96. doi: 10.1038/s41579-022-00789-8. Epub 2022 Sep 12. PMID: 36097163; PMCID: PMC9466315.

Grant DS, Samuels RJ, Garry RF, Schieffelin JS. Lassa Fever Natural History and Clinical Management. Curr Top Microbiol Immunol. 2023 Apr 28. doi: 10.1007/82_2023_263. Epub ahead of print. PMID: 37106159.

Garry RF. Lassa Virus Structural Biology and Replication. Curr Top Microbiol Immunol. 2023 Apr 27. doi: 10.1007/82_2023_262. Epub ahead of print. PMID: 37100973.

Hastie KM, Melnik LI, Robert W. Cross RW, Raphaëlle Klitting R, Andersen KG, Saphire EO, Garry RF. The *Arenaviridae* family: knowledge gaps, animal models, countermeasures, and prototype pathogens. Journal of Infectious Diseases, accepted.

Patents

Arenavirus monoclonal antibodies and use
Patent number: 11,198,723
Date of Patent: December 14, 2021
Assignees: The Administrators of the Tulane Educational Fund, Zalgen Labs, LLC
Inventors: Luis M. Branco, Robert F. Garry, James E. Robinson, Erica Ollmann Saphire, Kathryn M. Hastie, Thomas W., Geisbert

Compositions and methods for measles virus inhibition
Patent number: 9725487
Date of Patent: August 8, 2017
Assignees: The Administrators of the Tulane Educational Fund, Autoimmune Technologies, LLC
Inventors: Robert F. Garry, Russell B. Wilson

Antiviral rift valley fever virus peptides and methods of use
Patent number: 9556237
Date of Patent: January 31, 2017

Assignee: The United States of America, as represented by the Secretary of the Army, on behalf of the U.S. Army Medical Research Institute of Infectious Diseases
Inventors: Connie Schmaljohn, Robert F. Garry, Jeffrey W. Koehler, Mary Guttieri

Peptide compositions and methods for inhibiting herpesvirus infection
Patent number: 9434769
Date of Patent: September 6, 2016
Assignee: The Administrators of the Tulane Educational Fund
Inventors: Lilia I. Melnik, Robert F. Garry, Cindy A. Morris

Influenza inhibiting compositions and methods
Patent number: 9353157
Date of Patent: May 31, 2016
Assignees: The Administrators of the Tulane Educational Fund, Autoimmune Technologies, LLC
Inventors: Robert F. Garry, Russell B. Wilson

Compositions and methods for coronavirus inhibition
Patent number: 9056900
Date of Patent: June 16, 2015
Assignees: The Administrators of the Tulane Educational Fund, Autoimmune Technologies, LLC.
Inventors: Robert F. Garry, Russell B. Wilson

Arenavirus inhibiting peptides and uses therefor
Patent number: 8999925
Date of Patent: April 7, 2015
Assignee: The Administrators of the Tulane Educational Fund
Inventors: Jennifer S. Spence, Robert F. Garry

Peptide compositions and methods for inhibiting herpesvirus infection
Patent number: 8802106
Date of Patent: August 12, 2014
Assignee: The Administrators of the Tulane Educational Fund
Inventors: Lilia I. Melnik, Robert F. Garry, Cindy A. Morris

Optimized dengue virus entry inhibitory peptide (DN81)
Patent number: 8541377
Date of Patent: September 24, 2013
Assignee: Florida Gulf Coast University.
Inventors: Scott F. Michael, Sharon Isern, Robert F. Garry, Ram Samudrala, Joshua Costin, Ekachai Jenwitheesuk.

Influenza inhibiting compositions and methods
Patent number: 8604165
Date of Patent: December 10, 2013
Assignees: The Administrators of the Tulane Educational Fund, Autoimmune Technologies, LLC
Inventors: Robert F. Garry, Russell B. Wilson

Treatment of influenza virus infection
Patent number: 8598116
Date of Patent: December 3, 2013
Assignees: The Administrators of the Tulane, Educational Fund and Autoimmune Technologies, LLC

Inventors: Robert F. Garry, Russell B. Wilson

Influenza inhibiting compositions and methods
Patent number: 8222204
Date of Patent: July 17, 2012
Assignee: The Administrators of the Tulane Educational Fund and Autoimmune Technologies, LLC
Inventors: Robert F. Garry, Russell B. Wilson

Flavivirus fusion inhibitors
Patent number: 8153360
Date of Patent: April 10, 2012
Assignees: The Administrators of the Tulane Educational Fund, The Rockefeller University
Inventors: Robert F. Garry, Srikanta Dash, David H. Coy, Jane A. McKeating

Flavivirus fusion inhibitors
Patent number: 7854937
Date of Patent: December 21, 2010
Assignees: The Administrators of the Tulane Educational Fund, The Rockefeller University
Inventors: Robert F. Garry, Srikanta Dash, David H. Coy, Jane A. McKeating

Influenza virus inhibiting peptides
Patent number: 7491793
Date of Patent: February 17, 2009
Assignee: The Administrators of the Tulane Educational Fund
Inventors: Robert F. Garry, Russell Wilson

Flavivirus fusion inhibitors
Patent number: 7416733
Date of Patent: August 26, 2008
Assignees: The Administrators of the Tulane Educational Fund, The Rockefeller University
Inventors: Robert F. Garry, Srikanta Dash, David H. Coy, Jane A McKeating

Human endogenous retrovirus in breast cancer
Patent number: 6670466
Date of Patent: December 30, 2003
Assignee: The Administrators of the Tulane Educational Fund
Inventor: Robert F. Garry

Method for detecting anti-squalene antibodies
Patent number: 6214566
Date of Patent: April 10, 2001
Assignee: The Administrators of the Tulane Educational Fund
Inventors: Pamela B. Asa, Robert F. Garry

Method for detecting antipolymer antibodies and diagnosing silicone related disease (SRD) fibromyalgia and chronic fatigue syndrome (CFS)
Date of Patent: November 10, 1998
Assignee: The Administrators of the Tulane Educational Fund
Inventors: Robert F. Garry, Scott A. Tenenbaum, Douglas R. Plymale

Method to aid in the diagnosis of silicone related disease

Patent number: 5620859
Date of Patent: April 15, 1997
Assignee: Administrators of the Tulane Educational Fund
Inventors: Robert F. Garry, Scott A. Tenenbaum, Douglas R. Plymale

Association between a novel human intracisternal A-type retroviral particle-type II (HIAP-II) and idiopathic CD4+ T-lymphocytopenia (ICL)
Patent number: 5580772
Date of Patent: December 3, 1996
Assignee: The Administrators of the Tulane Educational Fund
Inventor: Robert F. Garry, Jr.

The cellular receptor for the CS3 peptide of human immunodeficiency virus
Patent number: 5567805
Date of Patent: October 22, 1996
Assignee: Administrators of the Tulane Educational Fund
Inventors: Lee A. Henderson, David H. Coy, Robert F. Garry, Jr.

Methods of supporting a diagnosis of systemic lupus erythematosus
Patent number: 5364757
Date of Patent: November 15, 1994
Assignee: Administrators of the Tulane Educational Fund
Inventors: Robert F. Garry, Jr., Cesar D. Fermin, Steve S. Alexander, Jr.

Human intracisternal A-type retroviral particles associated with sjogren's syndrome
Patent number: 5344774
Date of Patent: September 6, 1994
Assignee: The Administrators of the Tulane Educational Fund
Inventors: Robert F. Garry, Jr., Cesar D. Fermin, Steve S. Alexander, Jr.

Methods and compositions for identifying and characterizing individuals having autoimmune rheumatic diseases
Patent number: 5320940
Date of Patent: June 14, 1994
Assignee: Board of Regents, The University of Texas System
Inventors: Norman Talal, Robert F. Garry

Truth in Testimony Disclosure Form
Dr. Robert F. Garry, PhD

Attachment C

Federal Grants or Contracts Related to Hearing's Subject Matter

Garry, Robert F
RFGARRY

Title: **West African Emerging Infectious Disease Research Center**

Major Goals: To develop the infrastructure, diagnostic assays, reagents, and computational tools to formulate effective strategies for discovering, mitigating, and preventing the emergence of human infectious diseases.

Project Number: 5U01AI151812-03

Name of PD/PI: (MPI) Andersen, K.G. (contact); Garry, R.F.; Sabeti, P.C.

Source of Support: Subaward from The Scripps Research Institute; prime source: NIAID

Primary Place of Performance: Scripps Research Institute

Project/Proposal Start and End Date: 05/01/2020-04/30/2025

Total Award Amount: 2021: $1,757,660; 2022: $1,848,854; 2023: $1,741,300

Title: **Immune Response to SARS-CoV-2 in Special Populations**

Major Goals: This study will allow real time comparison of clinical course, virus sequence, and sero-response, collectively referred to as ClinSeqSer response, in a cohort of subjects, for the year following recruitment. The ClinSeqSer data gathered in this study will help us identify whether variants in host or virus have contributed to high mortality seen in Louisiana and will be useful for broader predictions of covid-19 response moving forward.

Project Number: 75D30120C08472

Name of PD/PI: Fusco, D.

Source of Support: CDC

Primary Place of Performance: Tulane University

Project/Proposal Start and End Date: 07/01/2020-06/30/2021

Total Award Amount: $700,000

Person Months per budget period

Title: **LA-CEAL: Louisiana Community-Engagement Research Alliance Against COVID-19 in Disproportionately Affected Communities**

Major Goals: The goal is to utilize existing trusted partnerships with multiple stakeholders to leverage extant community resources and capabilities to develop and execute a rapid community-engaged action plan that will focus on the vulnerable populations in Louisiana, hardest hit by the COVID-19 pandemic.

Project Number: 1OT2HL158260

Name of PD/PI: (MPI) Krousel-Wood, M.A.(contact); Sarpong, D.F.

Source of Support: NHLBI

Primary Place of Performance: Tulane University

Project/Proposal Start and End Date: 09/01/2020-03/31/2022

Total Award Amount: $2,400,000

Title: **Tulane University COVID Antibody and Immunity Network (TUCAIN)**

Major Goals: The goal is to mechanistically define the immune response to COVID-19 to determine how it protects individuals from infection and how long the protection lasts.

Project Number: 1U54CA260581

Name of PD/PI: Robinson, J.E.

Source of Support: NIH/NCI

Primary Place of Performance: Tulane University

Project/Proposal Start and End Date: 09/30/2020-09/29/2022

Total Award Amount: $7,873,887

Title: **Genomic Characterization and Surveillance of Microbial Threats in West Africa**

Major Goals: Goal is to characterize and survey microbial threats across West Africa, such as Ebola, Lassa fever, and malaria, by building on a long-term collaborative effort among established academic, research and clinical centers in Nigeria, Senegal, Sierra Leone and partners in the US.

Project Number: 2U54HG007480-07

Name of PD/PI: Happi, C.

Source of Support: subaward from Redeemer's University (Nigeria); Prime source: NHGRI

Primary Place of Performance: Redeemer's University

Project/Proposal Start and End Date: 07/01/2017-06/30/2022

Total Award Amount: $405,512