

## Company Description

GeoVax Labs, Inc. (“GeoVax” or “the Company”) is a clinical-stage biotechnology company developing preventative and therapeutic human vaccines against infectious diseases and cancer. The Company’s patented Modified Vaccinia Ankara Virus-Like Particle (MVA-VLP) technology is the foundation for producing non-infectious virus-like particles (VLPs) from the cells of the individual receiving the vaccine. Producing VLPs in a vaccinated individual mimics a natural infection, stimulating both the humoral and cellular arms of the immune system to recognize, prevent, and control the target infection should it appear, while maintaining the safety characteristics of a replication-defective vector. GeoVax is focused on developing vaccines against hemorrhagic fever (HF) viruses (Ebola, Sudan, Marburg, and Lassa), Zika virus (ZIKV), malaria, and human immunodeficiency virus (HIV). The Company also has programs to develop a vaccine to treat chronic Hepatitis B virus (HBV) infection and to apply its MVA-VLP technology to cancer immunotherapy (immuno-oncology). Furthermore, GeoVax is collaborating with Emory University to develop a therapeutic vaccine for human papillomavirus (HPV) infection, with a specific focus on head and neck cancer (HNC). GeoVax believes its expertise is complementary to a range of other human diseases for which there is an unmet medical need, and thus, has plans to expand its pipeline. GeoVax was the winner of the 2018 “Best Biotech” Vaccine Industry Excellence Awards, a finalist for the 2018 “Best Prophylactic Vaccine” Award for its Zika vaccine at the World Vaccine Congress, and a finalist for Pipelines of Promise at Buzz of BIO 2018.

## Key Points

- On November 8, 2018, GeoVax issued an overview of its R&D programs as well as reported its financial results for the quarter ended September 30, 2018.
- During the quarter, GeoVax announced that the U.S. Department of Defense (DoD) had awarded the Company a \$2.4 million cooperative agreement in support of its novel Lassa Fever (LF) vaccine development program. This followed a Fast-Track Phase I/II SBIR grant award in April 2018 from the National Institutes of Health (NIH) with an expected budget of up to \$1.9 million.
- In November 2018, the Company announced the start of a collaboration to develop a therapeutic vaccine for human papillomavirus (HPV) infection. The collaboration is to include preclinical animal testing of GeoVax’s MVA-vectored HPV vaccine candidates in combination with Swiss-based Virometix’ synthetic HPV vaccine candidate.
- The Company further began a collaboration with Vaxeal Holding SA, expanding its cancer vaccine program to include the design, construction, characterization, and animal testing of vaccine candidates using GeoVax’s MVA-VLP vaccine platform with Vaxeal’s proprietary designed genetic sequences. This project is complementary to the ongoing collaboration with ViaMune for co-developing cancer immunotherapies. In parallel, GeoVax is collaborating with the University of Pittsburgh and their Distinguished Professor, Dr. Olja Finn, using combined technologies for abnormal MUC1-expressing tumors.
- The Company’s collaboration with American Gene Technologies International, Inc. (AGT) for use of GeoVax’s vaccine in combination with AGT’s gene therapy to develop a functional cure for HIV is on track to enter a Phase 1 trial sponsored by AGT. AGT expects the trial to begin during the first quarter of 2019. In October 2018, positive results from the HVTN 114 (the Phase 1 trial of GeoVax’s preventive HIV vaccine) were presented at the HIVR4P conference in Madrid, Spain.
- The Company will be represented at the following upcoming conferences: Fourth International Conference on Vaccines Research and Development, Baltimore, Nov. 12-14 and World Vaccine & Immunotherapy Congress, San Diego, Nov. 28-30.
- At September 30, 2018, GeoVax reported cash balances of \$511,242 versus \$312,727 at December 31, 2017.



**GeoVax Labs, Inc.**  
1900 Lake Park Drive, Suite 380  
Smyrna, GA 30080  
Phone (678) 384-7220  
Fax (678) 384-7281  
[www.geovax.com](http://www.geovax.com)

**GOVX (OTC.BB) One-Year Chart**



| Ticker (Exchange)         | GOVX (OTC.BB)     |
|---------------------------|-------------------|
| Recent Price (11/13/18)   | \$0.02            |
| 52-week Range             | \$0.0175 - 0.1049 |
| Shares Outstanding        | ~206.9 million    |
| Market Capitalization     | ~\$4.1 million    |
| Avg. 10-day Volume        | 984,860           |
| EPS (Qtr. ended 09/30/18) | (\$0.00)          |
| Employees                 | 9                 |

## RECENT DEVELOPMENTS

Key milestones achieved by GeoVax to date in 2018 include:

- **Lassa Fever Vaccine.** In September 2018, the U.S. Department of Defense awarded GeoVax a \$2.4 million grant to support its Lassa Fever vaccine program. This followed a Fast-Track Phase I/II SBIR grant award in April 2018 from the National Institutes of Health (NIH) with an anticipated total project budget of up to \$1.9 million. This grant is to enable preclinical testing of the Company's vaccine candidates in preparation for human clinical trials. Both awards fund separate but complementary Lassa vaccine development approaches.
- **Zika Vaccine.** In May 2018, the Company received \$300,000 for the second year of the NIH SBIR grant award to advance preclinical testing of its Zika vaccine (GEO-ZM02) in non-human primates to prepare for human clinical trials.
- **HIV Program.** The Company's collaboration with American Gene Technologies International, Inc. (AGT) for use of GeoVax's vaccine in combination with AGT's gene therapy to develop a functional cure for HIV is on track to enter a Phase 1 trial sponsored by AGT. AGT expects the trial to begin during the first quarter of 2019. In October 2018, positive results from the HVTN 114, the Phase 1 trial of GeoVax's preventive HIV vaccine, were presented at the HIVR4P conference in Madrid. The clinical trial program for GeoVax's preventive HIV vaccine continues to be supported by the NIH and the HIV Vaccine Trials Network (HVTN) with the next study expected to commence by mid-2019. In August 2018, a trial number (HVTN 132) was assigned, with the final protocol currently going through the approval process.
- **Oncology Program.** GeoVax commenced a collaboration with Vaxeal Holding SA, expanding its cancer vaccine program to include the design, construction, characterization, and animal testing of vaccine candidates using GeoVax's MVA-VLP vaccine platform with Vaxeal's proprietary designed genetic sequences. This project is complementary to GeoVax's ongoing collaboration with ViaMune, Inc. for co-developing cancer immunotherapies. As well, the Company is collaborating with the University of Pittsburgh and their Distinguished Professor, Dr. Olja Finn, using combined technologies for abnormal MUC1-expressing tumors.
- **Hepatitis B (HBV) Program.** In early 2018, GeoVax began a collaboration with CaroGen Corporation to develop a combination immunotherapy treatment for chronic hepatitis B virus (HBV) infection. This project includes testing GeoVax's MVA-VLP-HBV vaccine candidate in combination with CaroGen's HBV Virus-like Vesicles (VLVs) vaccine candidate in prophylactic and therapeutic animal models of HBV infection. Data is also being compiled for GeoVax's own HBV vaccine design, which is being tested in animal models at Georgia State University.
- **Human Papillomavirus (HPV) Program.** In August 2018, GeoVax began a collaboration with Dr. Rafi Ahmed at the Emory University Vaccine Center to develop a therapeutic vaccine for HPV infection, with a specific focus on HPV-positive head and neck cancers (HNC). In November 2018, the Company expanded its efforts in this area through a collaboration with Swiss-based Virometix AG, investigating GeoVax's MVA-vectored HPV vaccine candidates in combination with Swiss-based Virometix' synthetic HPV vaccine candidate.
- **Ebola Vaccine.** The Company published excellent results from a rigorous preclinical study of its Ebola vaccine in the peer-reviewed open access Nature journal's Scientific Reports. In this study, GeoVax demonstrated (for the first time) that a single-dose of an MVA-Ebola vaccine provided full protection to rhesus macaques challenged with a lethal dose of live Ebola virus. The article can be viewed at [www.nature.com/articles/s41598-017-19041-y](http://www.nature.com/articles/s41598-017-19041-y).
- **Malaria Vaccine.** GeoVax continued to work on its malaria vaccine program in collaboration with the Burnet Institute in Australia. To date, there has been encouraging preclinical proof of concept immunogenicity data.
- **Presentations at Scientific Conferences and Awards.** The Company continued to attend and present at various domestic and international scientific conferences. These venues are important as they provide valuable networking opportunities to bring GeoVax's technologies to the attention of the broader scientific community as well as to potential collaborators and industrial partners.

- During the 2018 World Vaccine Congress, GeoVax was proud to have its work recognized by its peers through winning the “Best Biotech” Vaccine Industry Excellence (VIE) Award. As well, the Company was a finalist for the “Best Prophylactic Vaccine” VIE Award for its Zika vaccine. Furthermore, during the BIO International Convention, GeoVax was a finalist for the Pipelines of Promise award.

## RECENT FINANCIAL RESULTS

GeoVax announced its third quarter financial results on November 8, 2018. The Company reported a net loss of \$666,893 (less than \$0.01 per share) for the three months ended September 30, 2018 versus \$588,757 (\$0.01 per share) for the same period in 2017. For the nine months ended September 30, 2018, the Company reported a net loss of \$1,925,749 (\$0.01 per share) versus \$1,653,979 (\$0.03 per share) in 2017.

The Company reported grant and collaboration revenues of \$349,344 and \$663,908 for the three-month and nine-month periods of 2018, respectively, versus \$247,997 and \$895,866 for the comparable periods of 2017. As of September 30, 2018, there is \$2,873,542 in approved grant funds remaining and available for use.

Research and development (R&D) expenses were \$557,696 and \$1,416,892 for the three-month and nine-month periods of 2018, respectively, versus \$498,200 and \$1,568,093 for the comparable periods of 2017. R&D expenses include reimbursable costs funded by government grants; thus, much of the variance between the periods is due to timing of external expenditures associated with the grants.

General and administrative (G&A) expenses were \$458,974 and \$1,175,399 for the three-month and nine-month periods of 2018, respectively, versus \$340,143 and \$985,001 for the comparable periods of 2017. The increase in G&A expense from 2017 to 2018 is largely attributable to stock-based compensation expense associated with common stock issued for investment banking advisory fees.

GeoVax reported cash balances of \$511,242 at September 30, 2018, as compared to \$312,727 at December 31, 2017.

## TIMELINE OF EVENTS

- **November 13, 2018.** GeoVax announced the start of a collaboration to develop a therapeutic vaccine for human papillomavirus (HPV) infection. The collaboration is to include preclinical animal testing of GeoVax’s MVA-vectored HPV vaccine candidates in combination with Virometix’ synthetic HPV vaccine candidate. This new collaboration complements the Company’s ongoing collaboration with Emory University for HPV-related head and neck cancers in patients who express oncogene products of HPV16, E6, and E7 proteins. Like the strategy GeoVax is utilizing in its clinical trials for HIV and preclinical testing of its cancer vaccines (e.g. vector and protein combination), GeoVax believes the combination of its MVA-vectored HPV vaccines and Virometix’ SVLP-based HPV vaccine will likely bring a synergy that significantly increases the therapeutic potential of each platform.
- **November 7, 2018.** GeoVax Announced that it will be represented during presentations at the following upcoming scientific conferences: Fourth International Conference on Vaccines Research and Development, Baltimore, November 12-14 and World Vaccine & Immunotherapy Congress, San Diego, November 28-30.
  - Fourth International Conference on Vaccines Research and Development, Baltimore, November 12-14. Farshad Guirakhoo, PhD, GeoVax Chief Scientific Officer, will deliver an oral presentation entitled, Development of Vaccines for Infectious Diseases and Cancer Using a Novel MVA-VLP “Plug & Play” Vector Platform; Preclinical Efficacy for Ebola, Lassa Fever and Zika as examples for single dose vaccines. In this talk, the most relevant single-dose vaccine efficacy data, including characterization of humoral and T cell responses, for three different pathogens (Ebola, Lassa, and Zika) will be presented as examples for a broad utility of the platform for other indications, such as malaria, HPV, HBV, and cancer immunotherapy. Dr. Guirakhoo will also serve as Chair for the conference breakout session on Emerging and Re-emerging Diseases on November 14.

- World Vaccine & Immunotherapy Congress, San Diego, November 28-30. During this conference, Dr. Guirakhoo will deliver an oral presentation entitled, A Novel Approach for Developing Single Dose and Safe Vaccines for Emerging Infectious Diseases. In this talk, data for Ebola, Lassa, and Zika vaccines, pathogens selected from three different families of viruses, will demonstrate GeoVax's capability of developing safe and effective single-dose vaccines for many known emerging and re-emerging diseases, as well as for pathogens currently unknown to cause human disease ("Disease X") with potential for a serious international epidemic. Many of these are included in the "Blueprint List of Priority Diseases" published by the World Health Organization (WHO); with explicit and urgent calls by WHO for accelerated research and development for vaccines and therapeutics.
- **November 5, 2018.** GeoVax commented on a research article on Zika virus appearing in *Scientific Reports*. The new article, published by researchers from The University of Texas Medical Branch at Galveston and the Faculty of Medicine of Sao Jose do Rio in Brazil, describes the detection of Zika virus in dead monkeys found in several areas in Brazil. Zika virus is spread among humans predominately through mosquitos. The discovery of Zika in dead primates creates concerns that the disease may have a "wild cycle" similar to yellow fever, whereby wild animals could become a "natural reservoir" from which the virus can re-infect the human population more frequently. This would make combatting Zika much more difficult than previously assumed, making complete eradication of the virus in the Americas very unlikely. Thus, the study highlights the importance of a vaccine solution for Zika. GeoVax's vaccine candidate, GEO-ZM02, has demonstrated 100% single-dose protection in mice against a lethal dose of Zika virus, and is progressing to studies in non-human primates with funding from the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health (NIH). The Company has additionally initiated discussions with potential collaborators in Brazil to prepare for human clinical trials.

GEO-ZM02 not only has the potential of a single-dose vaccine but also does not bear the risk of enhancing other flavivirus infections, such as Dengue, in vaccinated subjects. This phenomenon, called Antibody Dependent Enhancement (ADE) of infection, is a potential safety concern for other Zika vaccines under development that utilize the structural Envelope protein of Zika for their vaccine construct. GEO-ZM02 is based on the NS1 protein of Zika, which is not involved in ADE.

- **October 24, 2018.** GeoVax announced the presentation of positive results from HVTN 114, a Phase 1 trial testing a late protein boost of participants from a Phase 2a trial of GeoVax's GOVX-B11 preventive HIV vaccine candidate. The presentation was made by the Protocol Chair, Paul A. Goepfert, M.D., University of Alabama, during the HIV Research for Prevention (HIVR4P) conference in Madrid. HVTN 114 was conducted by the HIV Vaccine Trials Network (HVTN) through the support of the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health (NIH).
- **October 22, 2018.** GeoVax announced the publication of a manuscript entitled "HIV/AIDS Vaccines: 2018," authored by Harriet L. Robinson, PhD, GeoVax's Director of HIV Vaccines and Chief Scientific Officer Emeritus. The paper is published in the peer-reviewed journal *Clinical Pharmacology & Therapeutics*, a journal of the American Society for Clinical Pharmacology & Therapeutics (ASCPT), and can be viewed at <https://ascpt.onlinelibrary.wiley.com/doi/10.1002/cpt.1208>. In the article, Dr. Robinson provides a comprehensive review of progress toward developing an HIV/AIDS vaccine, including key challenges and lessons learned from completed efficacy trials. GeoVax's vaccine, GOVX-B11, is currently progressing in human clinical trials with the sponsorship of the NIAID, part of the NIH.
- **October 18, 2018.** GeoVax Labs announced that they would be represented during presentations at three upcoming scientific conferences.
  - HIV Research for Prevention (HIVR4P) conference, Madrid, Spain, October 21-25. Paul Goepfert, M.D., University of Alabama, presented results from HVTN 114, a Phase 1 trial of GeoVax's GOVX-B11 preventive vaccine conducted by the HIV Vaccine Trials Network (HVTN). HVTN 114 was conducted with the support of the NIAID, part of the NIH.

- International Society for Vaccines (ISV), Atlanta, Georgia, October 28-30. Arban Domi, PhD, GeoVax Director of Vector Development, delivered an oral presentation entitled “Development of Vaccines for Infectious Diseases and Cancer Using a Novel MVA-VLP Vector.” In this talk, Dr. Domi presented preclinical single-dose efficacy data for vaccines against Ebola, Lassa fever, and Zika virus, and discussed GeoVax’s pipeline of other MVA-VLP vaccines in progress, including combination therapy for treatment of Hepatitis B chronic infections and cancers.
- World Vaccine Congress - Europe, Lisbon, Portugal, October 29-31. Farshad Guirakhoo, PhD, delivered an oral presentation entitled, “MVA-VLP as a Plug and Play platform for development of safe and effective single dose vaccines for Emerging Infectious Diseases, Preclinical data for Zika, Ebola, and Lassa as examples”. In this talk, data was presented that demonstrates the efficacy of GeoVax’s MVA platform-derived vaccines to generate robust, immediate, and protective immune responses against a variety of infectious diseases.
- **October 15, 2018.** GeoVax announced that it was observing National Latinx AIDS Awareness Day, a time to focus on the continuing and disproportionate impact of human immunodeficiency virus (HIV) infection and acquired immunodeficiency syndrome (AIDS) on Hispanics/Latinos in the United States. According to the U.S. Centers for Disease Control and Prevention (CDC), the prevalence of diagnosed HIV infection among Hispanics/Latinos is approximately twice that among non-Hispanic whites, accounting for 26% of all HIV diagnoses in the U.S. during 2016. Furthermore, the percentage of individuals with diagnosed infection who are virally suppressed is lower among Hispanics/Latinos than among non-Hispanic whites. Stigma, language barriers, and limited access to healthcare are among the factors contributing to the higher rates of HIV infection in this community. GeoVax’s HIV vaccine candidate (GOVX-B11) is currently progressing through human clinical trials conducted by the HVTN with support from the NIAID, part of the NIH.
- **September 27, 2018.** GeoVax announced that it was observing National Gay Men’s HIV/AIDS Awareness Day, a time to focus on how HIV disproportionately affects gay and bisexual men and what they can do to stay healthy. GeoVax is commemorating the day by celebrating the progress made toward developing a vaccine against HIV, recognizing the work yet to be done, and bringing attention to the continued HIV epidemic in the U.S. Despite representing only ~2% of the U.S. population, MSM (men who have sex with men) accounted for 67% of new diagnoses of HIV infection in 2016. According to a recent report from the U.S. CDC, during 2008–2016, the number of annual new diagnoses decreased 4% per year among MSM aged 30–49 years and was stable among those aged 50 years and older, where the number increased 3% per year among MSM aged 13–29 years. Despite the availability of effective HIV medications over the past three decades, and the best efforts of community education and prevention efforts, the tide of new HIV infections has not been reversed, but rather continues to increase in the younger age groups. Historically, most infectious diseases that have been successfully tackled have been associated with a vaccine (e.g. smallpox, polio, yellow fever, diphtheria, measles, mumps, whooping cough), making GeoVax’s HIV vaccine development a critical mission.
- **September 26, 2018.** GeoVax announced that the U.S. Department of Defense (DoD) has awarded the Company a \$2,442,307 cooperative agreement in support of its novel Lassa Fever (LF) vaccine development program. The grant was awarded by the U.S. Army Medical Research Acquisition Activity pursuant to the Peer Reviewed Medical Research Program (PRMRP), part of the Congressionally Directed Medical Research Programs (CDMRP). In addition, DoD will also fund testing of the GeoVax vaccine by U.S. Army scientists under a separate subaward. The project award, entitled “Advanced Preclinical Development and Production of Master Seed Virus of GEO-LM01, a Novel MVA-VLP Vaccine Against Lassa Fever”, will support generation of immunogenicity and efficacy data for GeoVax’s LF vaccine candidate in both rodent and nonhuman primate models, as well as manufacturing process development and cGMP production of vaccine seed stock to prepare for human clinical trials. The work will be performed in collaboration with the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), the Geneva Foundation, and Advanced Bioscience Laboratories (ABL). The work funded by this award is expected to significantly advance the development of GeoVax’s vaccine candidate, GEO-LM01, which has already demonstrated impressive preclinical results. These studies will be complementary to those being funded by a separate SBIR grant from NIAID/NIH, which is supporting development of a potentially “universal” LF vaccine by eliciting broadly neutralizing antibodies to the Lassa virus (LASV) glycoprotein designed by Scripps Research.



- **September 24, 2018.** The Company commented on recent age-associated HIV infection trends observed in the U.S. The trends are reported in the research article entitled, “Age-Associated Trends in Diagnosis and Prevalence of Infection with HIV Among Men Who Have Sex with Men – United States, 2008-2016” included in the September 21 issue of the *Morbidity and Mortality Weekly Report (MMWR)* published by the CDC. In the article, the authors observe that, in 2016, two thirds (67%) of diagnosed HIV infections in the U.S. were attributed to male-to-male sexual contact, noting that the risk for sexual acquisition and transmission of HIV changes through an individual’s lifespan. Trends observed during 2008–2016 include the number of HIV diagnoses increasing by 3% annually among men who have sex with men (MSM) aged 13–29 years, with the number of HIV diagnoses in this age group being four times that of MSM aged 50 years or older. The article also notes that racial/ethnic inequities in HIV have persisted.
  
- **September 19, 2018.** GeoVax commented on a research article describing a study funded by the Gates Foundation. In the article, “Developing new health technologies for neglected diseases: a pipeline portfolio review and cost model”, published at Gates Open Research, the authors discussed their review of product development pipelines for 35 neglected diseases and over 500 product candidates, concluding there to be a worldwide funding gap over the next 5 years of between \$1.5 and \$2.8 billion, potentially impacting the development timelines of efficacious vaccines against HIV, Malaria, and Tuberculosis. This study highlights the dire need for increased government and global health organization support for vaccine research and development against various pathogens afflicting humanity. GeoVax’s most advanced vaccines under development are designed to protect against the clade B subtype of the HIV virus that is prevalent in the Americas, Australia, Japan, and Western Europe. Its preventive clade B HIV vaccine has successfully completed Phase 2a human clinical testing and has entered a follow-on clinical trial. This vaccine has shown outstanding safety and excellent, highly reproducible immunogenicity. The Company has also extended its preventive HIV vaccine effort to the most common virus subtype affecting the developing world, clade C, and are investigating our HIV vaccines for their potential to contribute to combination therapies leading to a cure for HIV infections.
  
- **September 12, 2018.** The Company announced that its Dr. Guirakhoo was to deliver a talk during the 12th Vaccine Congress, organized by *Elsevier and Vaccine* journal, being held September 16-19, 2018 in Budapest, Hungary. Dr. Guirakhoo’s presentation is entitled “Development of Novel, Safe and Efficacious Single-Dose Vaccines; Zika, Ebola and Lassa Fever as Examples” and was delivered on September 18. During his talk, Dr. Guirakhoo presented proof-of-concept studies for three independent vaccines against three different viral families. The Company has demonstrated full protection after a single dose using various preclinical lethal challenge models.
  
- **August 29, 2018.** GeoVax announced the strengthening of its scientific team through the addition of two PhD-level scientists.
  - Mary Hauser, PhD, recently joined GeoVax as Scientist II and will contribute to the analysis of immune responses across all the Company’s infectious disease vaccine programs, as well as helping with the development of its oncology program. Dr. Hauser earned a PhD in Microbiology and Immunology from Wake Forest University School of Medicine, and most recently served as a Research Associate in the Biomedical Engineering department at the Virginia Tech Carilion Research Institute.
  
  - Mugdha Vasireddi, PhD, recently joined GeoVax as Immunologist beginning in early September and is expected to play an integral role in developing the Company’s various vaccine and oncology development programs. Dr. Vasireddi earned a PhD in Viral Immunology from Georgia State University, where she most recently served as a Research Scientist in the Department of Biology and as a Licensed Clinical Laboratory Director of the National B Virus Resource Center.

- **August 23, 2018.** GeoVax commented on a paper published by Lampietro et al, from the Department of Pathology, University of Texas Medical Branch at Galveston, Texas, in *The Journal of Infectious Diseases*, concerning new findings on how the Ebola virus (EBOV) disables the host immune system and spreads infection. In the article, “Ebola Virus Shed Glycoprotein Triggers Differentiation, Infection, and Death of Monocytes Through Toll-Like Receptor 4 Activation”, the authors conclude that the very high levels of EBOV glycoprotein (GP) shed by EBOV and live Ebola vaccines may play a role in pathogenesis and associated vaccine-related adverse effects (e.g. oligoarthritis, maculopapular dermatitis, vesicular dermatitis, and dermal vasculitis). Dr. Guirakhoo believes that this could be an important safety issue that requires post-marketing surveillance when certain vaccines under development are potentially administered in millions of doses, especially in countries across sub-Saharan Africa where widespread HIV infection can compromise the immune systems of people being vaccinated. In contrast to live vaccines, all of GeoVax’s vaccine candidates (e.g. Ebola, Lassa, Marburg, Sudan, Zika, etc.) are not considered chimeric (not swapping the GP genes), are replication-deficient in mammalian hosts, and therefore are not capable of undergoing multiple rounds of replication necessary to produce high amounts of shed GP in the circulation of vaccinees. However, based on the findings of this study, GeoVax is planning to test its vaccines to assure that the GP production does not induce death of monocytes.
- **August 21, 2018.** The Company announced that it is collaborating with PharmaJet, Inc., on the evaluation of PharmaJet’s needle-free injection system for administration of GeoVax’s Zika vaccine. The studies to be conducted pursuant to the collaboration will measure the efficacy of the GeoVax vaccine (designated GEO-ZM02) delivered by either syringe and needle or by the PharmaJet needle-free device. The studies will be conducted at the Division of Vector-Borne Diseases, U.S. Centers for Disease Control and Prevention (CDC) in Fort Collins, Colorado with technical assistance from the CDC. Further analysis will be conducted in the laboratories at GeoVax. PharmaJet is supplying its needle-free device and providing technical expertise. In a previously published study, GeoVax demonstrated that GEO-ZM02 provided 100% protection in normal outbred mice challenged with a lethal dose of Zika virus (ZIKV) delivered directly into the brain. To the Company’s knowledge, this is the only Zika vaccine in development based solely on the ZIKV NS1 protein, which provided full protection with a single-dose against a lethal ZIKV challenge using an immunocompetent mouse model.

## **POTENTIAL MILESTONES**

### ***Zika***

- Determine immunogenicity and efficacy in non-human primates (funded by NIAID SBIR grant)
- Determine correlation of protection by passive protection studies in mice
- Produce GMP vaccine
- File IND with the FDA
- Initiate Phase 1 clinical trial

### ***HIV***

- Initiate Phase 1 HIV clinical trial by AGT (gene therapy cure trial), (Q1 2019)
- Complete evaluation of patient inoculations for HVTN 114 Phase 1 trial testing the ability of “late boosts” to increase the antibody responses elicited by GOVX-B11 (Q4 2018)
- Initiate Phase 1 HIV protein boost clinical trial by HVTN (pathway to efficacy trial), (mid-2019)

### ***Cancer Immunotherapy***

- Continue its collaboration with ViaMune, Inc. to co-develop the companies’ respective cancer immunotherapy programs. Encouraging preliminary data were presented in August 2017; follow-on studies are being planned. Goal is to eventually get this into Phase I human clinical trials

### ***Malaria***

- Preclinical data on efficacy of malaria vaccine via relationship with Burnet Institute

### ***HPV***

- Begin testing therapeutic vaccine for human papillomavirus (HPV) infection, with a specific focus on head and neck cancer (HNC) via new collaboration with Emory University to test GeoVax’s MVA-VLP-HPV vaccine candidates in therapeutic animal models of HPV

### ***Hepatitis B***

- Continue to compile data on its Hepatitis B vaccine, with some data expected to be report in the near term

### ***Corporate***

- Move one or two of its programs into Phase 1 human trials, and subsequently pursue a licensure
- Establish strategic collaboration resulting in capital investment and acceleration of specific development program(s)



---

## VALIDATION OF MVA-VLP VACCINE PLATFORM

GeoVax's product pipeline is based on its Modified Vaccine Ankara (MVA) Virus-Like Particle (VLP) vaccine platform, which supports in vivo production of non-infectious VLPs from the cells of the actual person receiving the vaccine. This technology mimics a natural infection and stimulates both the humoral and cellular arms of the immune system to recognize, prevent, and control target infections.

The Company's original application of its technology was to develop preventive HIV vaccines. Recently, it has expanded to preventive vaccines for Zika Virus, hemorrhagic fever viruses (Ebola, Sudan, Marburg, and Lassa), and malaria, as well as therapeutic vaccines for HIV, chronic Hepatitis B infections, and cancers. GeoVax continues to add to an encouraging data set for its MVA-VLP platform, with preclinical proof-of-concept in four disease indications (HIV, Zika, Lassa, and Ebola). As well, the data has demonstrated excellent safety and immunogenicity in clinical trials of its HIV vaccine in 500 individuals, providing the basis for expecting clinical efficacy for the current vaccine development programs.

In addition, this data shows promise as it relates to future pipeline expansion for further disease indications. The platform has the following manufacturing advantages: (1) no purification issues such as associated with synthetic VLPs produced in vitro; (2) no adjuvant needed; and (3) no vector immunity (no smallpox vaccine in routine use).

### ***HIV Preventive Vaccines***

The Company's most advanced program is a prophylactic vaccine (GOVX-B11) for the clade B subtype of HIV, the most common form of HIV in North America, Western Europe, Australia, and Japan. This program has completed Phase 1 and Phase 2a human clinical trials, which were conducted by the HIV Vaccine Trials Network (HVTN) with funding from the NIAID. In January 2017, the HVTN initiated a Phase 1 human clinical trial of GOVX-B11 to evaluate the durability of immune responses elicited by the vaccine and the effects of late boosts (additional vaccinations) on the antibody responses elicited by the GOVX-B11.

The next planned clinical trial of GOVX-B11 is expected to be an additional Phase 1 trial, evaluating the safety and immunogenicity of a prime-boost regimen of GOVX-B11 with and without two additional protein boosts. This trial is expected to be conducted by HVTN with funding from NIAID, with an anticipated start date of Q1 2019. Both this trial as well as HVTN 114 are intended to contribute critical data to determine the regimen for use in a future Phase 2b efficacy trial.

The Company is also continuing preclinical work funded by grants from the NIAID for its vaccine for the clade C HIV subtype, which is prevalent in Africa. In October 2017, GeoVax reported the elicitation of a key precursor for a broadly neutralizing antibody for the HIV CD4 binding site—a material advantage in advancing HIV vaccine development. The findings were published in the peer-reviewed open access journal PLOS ONE (<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0177863>).

### ***HIV Therapeutic Vaccine ("Functional Cure" Program)***

GeoVax began a collaboration with American Gene Technologies International, Inc. (AGT) in March 2017 with the goal of developing a functional cure for HIV infection through AGT's gene therapy technology combined with GeoVax's HIV vaccine. The Company expects AGT to initiate human clinical trials of the companies' combined technologies in Q1 2019.

### ***Zika Vaccine***

GeoVax presented data at multiple conferences showing that a single dose of its Zika vaccine (GEO-ZM02) gave 100% protection in mice challenged with a lethal dose of Zika virus (ZIKV) delivered directly into the brain. These conferences included the American Society for Microbiology (ASM) conference (ASM MICROBE 2017) in New Orleans, LA in June 2017 and later in August at the 5<sup>th</sup> Annual Meeting of Cambridge Healthtech Institute, Immunology-Oncology Summit, in Boston, MA, as well as in October 2017, at the 18<sup>th</sup> World Vaccine Congress Europe in Barcelona, Spain. This is the first report of (1) a Zika vaccine based on the ZIKV non-structural (NS1) protein, and (2)

single-dose protection against ZIKV using an immunocompetent lethal mouse challenge model. The vaccine was tested at the Centers for Disease Control and Prevention (CDC) in Ft. Collins, CO with funding from the CDC. GeoVax's approach to a Zika vaccine uniquely uses the non-structural protein NS1 instead of the commonly used structural proteins for immunogens, avoiding potential Antibody Dependent Enhancement (ADE) of infection—a safety concern for Zika vaccines based on structural proteins.

Preclinical efficacy of GEO-ZM02 was published in the peer-reviewed open access journal *Scientific Reports* by Nature Research under the title of “*A Zika Vaccine Targeting NS1 Protein Protects Immunocompetent Adult Mice in a Lethal Challenge Model*” (<http://rdcu.be/yasq>). As well, in June 2017, the National Institutes of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health (NIH), awarded GeoVax a Small Business Innovative Research (SBIR) grant of \$600,000 to support advanced preclinical testing, including non-human primate studies, for its Zika vaccine development program to prepare for a Phase 1 human clinical study.

In May 2018, it was announced that the NIAID had awarded the Company a grant award of \$300,000 to fund the second year of a two-year project period with a total budget of \$600,000. The grant, entitled “Advanced Preclinical Testing of a Novel Recombinant Vaccine Against Zika Virus”, supports advanced preclinical testing of GeoVax's vaccine candidate.

### **Lassa Fever Vaccine**

GeoVax made significant strides, as announced in July 2017, in developing a vaccine candidate to protect against Lassa hemorrhagic fever virus (LASV). Efficacy testing in a murine challenge model (using a chimeric LASV reassortant) showed a single intramuscular dose of GEO-LM01 provided 100% protection to mice infected with a lethal dose of the challenge virus directly delivered into the brain. The study was conducted, and successfully repeated, at the Institute of Human Virology at the University of Maryland School of Medicine. The Company further expanded its LASV vaccine development efforts through a collaboration with The Scripps Research Institute located in San Diego, CA. In October 2017, at the International Society for Vaccines, at the Institute Pasteur in Paris, France, GeoVax presented updates on efficacy data of its single dose vaccine for Lassa fever virus. In December 2017, GeoVax announced that it is collaborating with the U.S. Naval Research Laboratory (USNRL) to develop high-quality antibodies useful for detection of LASV and potentially as a treatment for Lassa Fever (LF). Because there is no vaccine currently available, LASV continues to kill more than 5,000 people each year in West African countries where the virus is endemic.

In April 2018, GeoVax announced that it was awarded a Fast-Track Phase I/II SBIR grant by the NIAID to advance its Lassa Fever vaccine (GEO-LM01). The \$300,000 initial grant is for Phase I of the project, with an expected total project budget of up to \$1.9 million. This grant is to enable preclinical testing of the Company's vaccine candidates in preparation for human clinical trials. The work is being performed in collaboration with the Institute of Human Virology at the University of Maryland, The Scripps Research Institute, and the University of Texas Medical Branch.

In September 2018, GeoVax announced that the U.S. Department of Defense (DoD) awarded the Company a \$2.4 million cooperative agreement in support of its Lassa Fever vaccine development program. The grant was awarded by the U.S. Army Medical Research Acquisition Activity pursuant to the Peer Reviewed Medical Research Program (PRMRP), part of the Congressionally Directed Medical Research Programs (CDMRP). In addition, DoD will also fund testing of the GeoVax vaccine by U.S. Army scientists under a separate subaward. The project award, entitled “Advanced Preclinical Development and Production of Master Seed Virus of GEO-LM01, a Novel MVA-VLP Vaccine Against Lassa Fever”, will support generation of immunogenicity and efficacy data for GeoVax's LF vaccine candidate in both rodent and nonhuman primate models, as well as manufacturing process development and cGMP production of vaccine seed stock to prepare for human clinical trials. The work will be performed in collaboration with the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), the Geneva Foundation, and Advanced Bioscience Laboratories (ABL). The work funded by this award is expected to significantly advance the development of GeoVax's vaccine candidate, GEO-LM01, which has already demonstrated impressive preclinical results. These studies will be complementary to those being funded by the separate SBIR grant from NIAID/NIH, which is supporting development of a potentially “universal” LF vaccine by eliciting broadly neutralizing antibodies to the Lassa virus (LASV) glycoprotein designed by Scripps Research.

A single dose of GeoVax's Ebola (EBOV) vaccine has been shown to protect 100% of rhesus monkeys against death. The Company is also developing vaccines against Sudan virus (SUDV) and Marburg virus (MARV), two other lethal hemorrhagic fever viruses for which no effective vaccine currently exists. In addition to developing the four individual hemorrhagic fever vaccines (EBOV, LASV, SUDV, MARV), GeoVax seeks to combine the vaccines into a single tetravalent vaccine to provide broad protection for individuals at-risk for these viruses.

### ***Immuno-oncology Program***

In August 2017, at the 5<sup>th</sup> Annual Meeting of Cambridge Healthnet Institute, Immuno-Oncology Summit, in Boston, MA, and in October 2017, at the 18<sup>th</sup> World Vaccine Congress Europe in Barcelona, Spain, GeoVax presented preliminary results from studies of its cancer vaccine in collaboration with ViaMune, Inc. The studies were performed by the laboratory of Dr. Pinku Mukherjee, PhD, at the University of North Carolina at Charlotte. GeoVax and ViaMune are each developing products that target an abnormal form of the cell surface-associated protein, Mucin 1 (MUC1), which is overexpressed in metastatic cancers (e.g. breast, pancreatic, lung, and ovarian cancers) and circulating tumor cells and which is often used as a diagnostic marker for cancer progression. In a human MUC1 colon adenocarcinoma mouse tumor model, groups of hMUC1 transgenic mice with established tumors were treated with MTI (ViaMune's synthetic vaccine), MVA-VLP-MUC1 (GeoVax's viral-vectored vaccine), or a combination of both. All treatment groups received an immune checkpoint inhibitor in the form of an anti-PD-1 antibody. Results from two studies indicate that a combined vaccine approach increases the therapeutic potential of anti-PD-1 therapy, affording scientific justification to pursue additional investigation of this cancer vaccine candidate.

In January 2018, GeoVax announced that it is collaborating with Vaxeal Holding SA on the expansion of GeoVax's cancer immunotherapy program. The collaboration between GeoVax and Vaxeal will include the design, construction, characterization, and animal testing of vaccine candidates using Vaxeal's antigens in GeoVax's MVA-VLP vaccine platform. This project is complementary to GeoVax's ongoing collaboration with ViaMune, Inc. for co-developing cancer immunotherapies. GeoVax is also collaborating with the University of Pittsburgh and their Professor, Dr. Olja Finn, to use combined technologies for abnormal MUC1 secreting tumors.

### ***Malaria Vaccine***

In January 2017, GeoVax initiated a program to develop a malaria vaccine with its MVA-VLP viral vector platform via a collaboration with The Burnet Institute in Australia. The Company has completed construction of four vaccine candidates, which have been shipped to The Burnet Institute and are being evaluated in preclinical proof-of-concept studies.

### ***Chronic Hepatitis B (HBV) Immunotherapy***

During the first quarter 2017, GeoVax added Georgia State University and Peking University as collaborators to develop a therapeutic vaccine for chronic hepatitis B infection. Preclinical proof-of-concept studies are ongoing. In February 2018, the Company announced that it is collaborating with CaroGen Corporation to develop a combination immunotherapy treatment for chronic hepatitis B virus (HBV) infection. The project will include testing GeoVax's MVA-VLP-HBV vaccine candidate in combination with CaroGen's HBV virus-like vesicles (VLVs) vaccine candidate in prophylactic and therapeutic animal models of HBV.

### ***Human Papillomavirus (HPV) Infection***

GeoVax announced at the end of July 2018 that it was collaborating with Emory University on the development of a therapeutic vaccine for human papillomavirus (HPV) infection, with a specific focus on head and neck cancer (HNC). The GeoVax/Emory collaboration is to include testing GeoVax's MVA-VLP-HPV vaccine candidates in therapeutic animal models of HPV in the laboratory of Dr. Rafi Ahmed, Director of the Emory Vaccine Center. Dr. Ahmed, a member of the National Academy of Sciences, is a world-renowned immunologist whose work during the past decade has been highly influential in shaping understanding of memory T cell differentiation and T and B cell-mediated antiviral immunity. This is important research area as there are currently no medical treatments for chronic HPV infections, which can lead to the formation of cancerous tumors.

In November 2018, GeoVax announced the expansion of its collaborative efforts in this area through a collaboration with Virometix AG. The collaboration is to include preclinical animal testing of GeoVax's MVA-vectored HPV vaccine candidates in combination with Virometix' synthetic HPV vaccine candidate. This collaboration complements the Company's ongoing collaboration with Emory University for HPV-related head and neck cancers in patients who express oncogene products of HPV16, E6, and E7 proteins. Like the strategy GeoVax is utilizing in its clinical trials for HIV and preclinical testing of its cancer vaccines (e.g. vector and protein combination), GeoVax believes the combination of its MVA-vectored HPV vaccines and Virometix' SVLP-based HPV vaccine will likely bring a synergy that significantly increases the therapeutic potential of each platform.

## Company Background

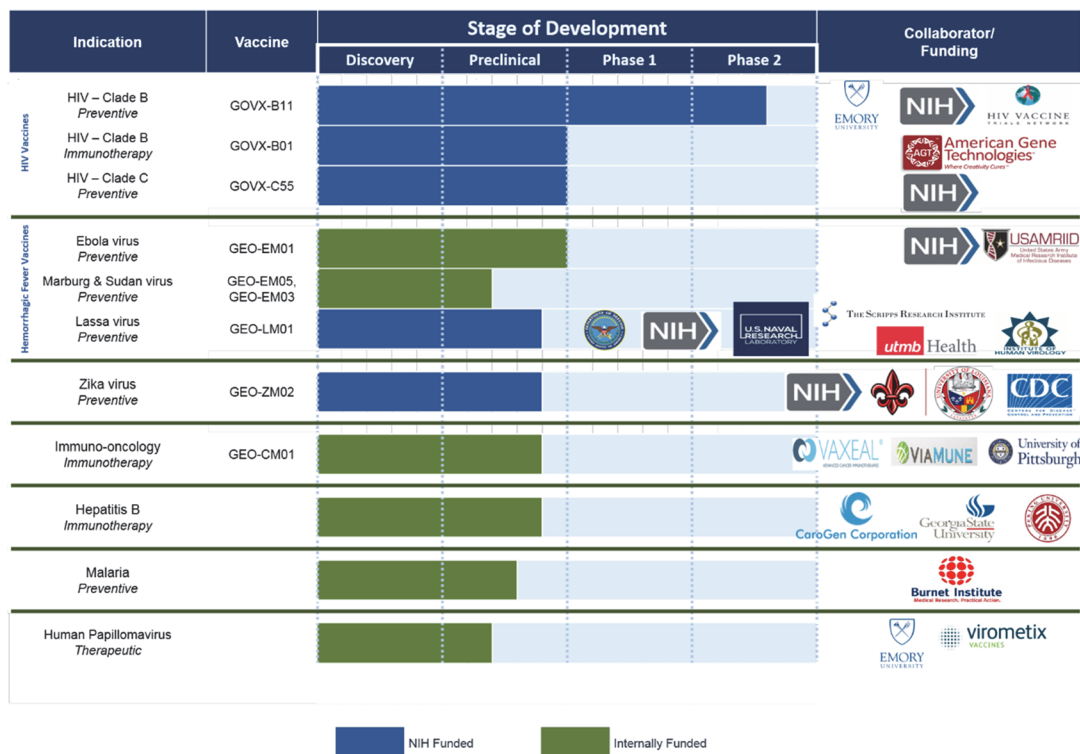
GeoVax Labs, Inc. is a clinical-stage biotechnology company focused on developing human vaccines—both preventative and therapeutic—against infectious diseases as well as cancer using a novel patented Modified Vaccinia Ankara-Virus Like Particle (MVA-VLP) vector vaccine platform. The Company’s proprietary MVA platform, a large virus capable of carrying several vaccine antigens, expresses highly effective virus like particle (VLP) immunogens in the vaccinated individual, prompting durable immune responses while providing the safety features of a replication defective vector.

The Company’s development efforts are focused on preventive vaccines within the following important areas: human immunodeficiency virus (HIV), Zika virus (ZIKV), hemorrhagic fever (HF) viruses (Ebola, Sudan, Marburg, and Lassa), and malaria. GeoVax is also developing therapeutic vaccines for chronic HBV infections and immuno-oncology and is collaborating on a combination approach to developing a functional cure for HIV infection. The Company’s vaccine development activities have been and continue to be financially supported by the U.S. Government in the form of research grants awarded directly to the Company, in-kind support in terms of animal experiments, as well as indirect support for conducting human clinical trials. In particular, GeoVax’s HIV program receives substantial federal support (with over \$50 million received to date from the NIH). Importantly, large pharmaceutical or biotechnology companies typically do not have a significant interest in sponsoring early-stage activity in HIV until the development at least reaches an efficacy trial. All of GeoVax’s preventative vaccine trials have been sponsored by the NIH, with the NIH (through the HIV Vaccine Trials Network [HVTN]), in fact, running the Company’s trials—something that is unusual within the biotechnology space.

### MVA-VLP Technology Platform

GeoVax’s MVA-VLP vector vaccine technology platform combines the safety of a replication-defective live vector (MVA) with the immunogenicity of VLPs and the durability of immune responses elicited by vaccinia vectors. An overview of the Company’s current MVA-VLP-based technology pipeline is provided in Figure 1, followed by brief descriptions of each program. Greater details are provided within the Core Story of our base report, <https://www.crystalra.com/research-library/geovax-0-0> (pages 21-52).

Figure 1  
MVA-VLP TECHNOLOGY PIPELINE & COLLABORATORS



Source: GeoVax Labs, Inc.

Vaccines are most often made of agents (antigens) that resemble disease-causing microorganisms and are traditionally created from weakened or killed forms of the virus or from its surface proteins. Newer vaccines largely use recombinant deoxyribonucleic acid (DNA) technology to produce vaccine antigens in bacteria or cultured cells from specific portions of the DNA sequence of the target pathogen, where the generated antigens are then purified and formulated for use in a vaccine. The most successful of these purified antigens have been non-infectious VLPs, such as the hepatitis B vaccines (Merck's Recombivax<sup>®</sup> and GlaxoSmithKline's [GSK's] Engerix<sup>®</sup>) and human papillomavirus vaccine (GSKs Cervarix<sup>®</sup> and Merck's Gardasil<sup>®</sup>).

VLPs train the body's immune system to identify and kill the authentic virus should it appear. Furthermore, VLPs train the immune system to recognize and kill infected cells to control infection and decrease the length and severity of disease. Among the most challenging aspects of VLP-based vaccines is to design the vaccines in such a way that the VLPs are recognized by the immune system in the same way as would be the authentic virus. GeoVax employs the use of recombinant DNA or recombinant viruses to produce VLPs in the person being vaccinated.

When VLPs for enveloped viruses such as HIV, Ebola, Sudan, Marburg, or Lassa fever are produced *in vivo*, they include not only the protein antigens, but also an envelope consisting of membranes from the vaccinated individual's cells, where they are then highly similar to the virus generated in a person's body during a natural infection. In contrast, VLPs produced externally have no envelope or envelopes from the cultured cells used to produce them. Based on its efforts to date, GeoVax believes its technology provides unique advantages by producing VLPs that more closely resemble the authentic virus, thus enabling the body's immune system to more readily recognize the authentic virus. By producing VLPs *in vivo*, GeoVax's vaccines avoid potential purification issues related to *in vitro* VLP production.

Noteworthy is that MVA was initially developed as a safer smallpox vaccine for use in immune-compromised individuals, where it was developed by attenuating the standard smallpox vaccine by making over 500 passages of the virus in chicken embryos or chicken embryo fibroblasts. This led to a virus with limited ability to replicate in human cells though did not compromise the ability of MVA to grow on avian cells (used for manufacturing the virus). The deletions also lead to the loss of immune evasion genes, which help the spread of wild-type smallpox infections (even in the presence of human immune responses).

#### *Advantages*

GeoVax's MVA-VLP platform has unique advantages, summarized below and further described within the report in context.

- *Safety.* GeoVax's HIV vaccines have demonstrated a remarkable safety profile in human clinical trials. Historically, safety for MVA has been shown in more than 120,000 subjects in Europe, including immunocompromised individuals during the initial development of MVA. As well, this safety profile has been shown lately in developing MVA as a safer vaccine against smallpox.
- *Durability.* The Company's technology promotes highly durable vaccine responses that are long lasting. GeoVax theorizes that elicitation of durable vaccine responses is conferred on responding B cells by the vaccinia parent of MVA, raising highly durable responses for smallpox.
- *Limited pre-existing immunity to vector.* Following the eradication of smallpox in 1980, smallpox vaccinations ended, which left everyone except for those individuals born before 1980 and selected populations (such as vaccinated laboratory workers, first responders, etc.) unvaccinated and without pre-existing immunity.
- *No need for adjuvants.* MVA stimulates strong innate immune responses without the use of adjuvants.
- *Thermal stability.* MVA is stable in both liquid and lyophilized formats (> 6 years of storage).
- *Genetic stability and manufacturability.* MVA is genetically stable when properly engineered and can be reliably manufactured in either the established chick embryo fibroblast (CEF) cell substrate or in continuous cell lines that support scalability along with consistency and efficiency.



## Collaborations and Government Support

GeoVax’s HIV vaccine technology was developed in collaboration with researchers at Emory University, the NIH, and the CDC. The technology is exclusively licensed to GeoVax from Emory University. The Company also has nonexclusive licenses to certain patents owned by the NIH used in developing its other vaccines. Its immunoncology program is being developed pursuant to a collaboration with ViaMune, Inc. Its ZIKV vaccine program is in collaboration with the CDC. Its HBV therapeutic program is in collaboration with Georgia State University. As well, the Company’s malaria vaccine is being developed in collaboration with the Burnet Institute in Australia. Recently, GeoVax announced the start of a collaboration to develop a therapeutic vaccine for human papillomavirus (HPV) infection, including preclinical animal testing of GeoVax’s MVA-vectored HPV vaccine candidates in combination with Virometix’ synthetic HPV vaccine candidate. Furthermore, during the quarter, the Company announced that it is collaborating with PharmaJet, Inc., on the evaluation of PharmaJet’s needle-free injection system for administration of GeoVax’s Zika vaccine. The Company further began a collaboration with Vaxeal Holding SA, expanding its cancer vaccine program to include the design, construction, characterization, and animal testing of vaccine candidates using GeoVax’s MVA-VLP vaccine platform with Vaxeal’s proprietary designed genetic sequences. A summary of the Company’s current vaccine research collaborations is provided in Figure 2.

Figure 2  
NATIONAL & INTERNATIONAL RESEARCH COLLABORATORS



Source: GeoVax Labs, Inc.

GeoVax seeks to advance and protect its vaccine platform, while using its core competences to design and develop a broad range of products. The Company seeks to move its products through to human clinical testing and pursue partnership(s) and/or licensing arrangement(s) at the pre-commercialization stage. Furthermore, for preclinical and clinical testing, GeoVax leverages third party resources via collaborations and partnerships.

## Corporate Background, Properties, and Employees

GeoVax leases roughly 8,400 sq. ft. of office and laboratory space at 1900 Lake Park Drive, Suite 380, Smyrna, Georgia under a lease agreement that expires on December 31, 2019. GeoVax currently employs nine individuals. The Company’s primary business is conducted by its wholly-owned subsidiary, GeoVax, Inc., which was incorporated under the laws of Georgia in June 2001. The predecessor to its parent company, GeoVax Labs, Inc. was originally incorporated in June 1988 under the laws of Illinois as Dauphin Technology, Inc. In September 2006, Dauphin completed a merger with GeoVax, Inc. As a result of the merger, GeoVax, Inc. became a wholly-owned subsidiary of Dauphin, and Dauphin changed its name to GeoVax Labs, Inc. In June 2008, the Company was reincorporated under the laws of Delaware.

## Risks and Disclosures

This Quarterly Update has been prepared by GeoVax, Inc. (“GeoVax” or “the Company”) with the assistance of Crystal Research Associates, LLC (“CRA”) based upon information provided by the Company. CRA has not independently verified such information. Some of the information in this EIO relates to future events or future business and financial performance. Such statements constitute forward-looking information within the meaning of the Private Securities Litigation Act of 1995. Such statements can only be predictions and the actual events or results may differ from those discussed due to the risks described in GeoVax’s statements on Forms 10-K, 10-Q, and 8-K as well as other forms filed from time to time.

The content of this report with respect to GeoVax has been compiled primarily from information available to the public released by the Company through news releases, Annual Reports, and U.S. Securities and Exchange Commission (SEC) filings. GeoVax is solely responsible for the accuracy of this information. Information as to other companies has been prepared from publicly available information and has not been independently verified by GeoVax or CRA. Certain summaries of activities and outcomes have been condensed to aid the reader in gaining a general understanding. CRA assumes no responsibility to update the information contained in this report. In addition, CRA has been compensated by the Company in cash of forty-eight thousand dollars for its services in creating the base report and for quarterly updates.

Investors should carefully consider the risks and information about GeoVax’s business, as described in the base report, available at <https://www.crystalra.com/research-library/geovax-0-0>. Investors should not interpret the order in which considerations are presented in this or other filings as an indication of their relative importance. In addition, the risks and uncertainties overviewed in GeoVax’s SEC filings are not the only risks that the Company faces. Additional risks and uncertainties not presently known to GeoVax or that it currently believes to be immaterial may also adversely affect the Company’s business. If any of such risks and uncertainties develops into an actual event, GeoVax’s business, financial condition, and results of operations could be materially and adversely affected, and the trading price of the Company’s shares could decline.

This report is published solely for information purposes and is not to be construed as an offer to sell or the solicitation of an offer to buy any security in any state. Past performance does not guarantee future performance. For more complete information about the risks involved in an investment in the Company as well as for copies of this report, please contact GeoVax by calling (678) 384-7220.



**About Our Firm:** For the past decade, Crystal Research Associates, LLC ([www.crystalra.com](http://www.crystalra.com)) has successfully articulated the exceptional stories of small- and mid-cap companies to the Wall Street investor community. Our methods are well-established and diverse, from compiling and disseminating objective, factual information for both institutional and retail investor audiences to capitalizing on our expansive line of targeted distribution channels, which include industry-leading financial data and information providers. Our distribution efforts are accompanied using prominent social media channels and by strategic and targeted appearances on national news programs and print media.

Crystal Research Associates is led by Wall Street veterans, Jeffrey Kraws and Karen Goldfarb. Together, Kraws and Goldfarb have built a unique business model, capitalizing on decades of experience as an award-winning sell-side analyst team to produce institutional-quality industry and market research in a manner that is easily understood by investors and consumers. Our firm's approach has been proven successful over the years as our products are published and available on Bloomberg, Thomson Reuters/First Call, Capital IQ, FactSet, Yahoo! Finance, and scores of other popular forums.