

# Ampligen and Alferon

"Immunology for a better future"

#### **Forward-Looking Statements**

Some of the statements included in this presentation may be forward-looking statements that involve a number of risks and uncertainties. Among other things, for those statements, we claim the protection of safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995. Any forward-looking statements set forth in this presentation speak only as of the date of this presentation. We do not undertake to update any of these forward-looking statements to reflect events or circumstances that occur after the date hereof. For example, significant additional testing and trials will be required to determine whether Ampligen will be effective in the treatment of COVID-19 in humans and no assurance can be given that it will be the case. Results obtained in animal models do not necessarily predict results in humans. Human clinical trials will be necessary to prove whether or not Ampligen will be efficacious in humans. No assurance can be given as to whether current or planned immuno-oncology clinical trials will be successful or yield favorable data and the trials are subject to many factors including lack of regulatory approval(s), lack of study drug, or a change in priorities at the institutions sponsoring other trials. In addition, initiation of planned clinical trials may not occur secondary to many factors including lack of regulatory approval(s) or lack of study drug. Even if these clinical trials are initiated, the Company cannot assure that the clinical studies will be successful or yield any useful data or require additional funding. Some of the world's largest pharmaceutical companies and medical institutions are racing to find a treatment for COVID-19. Even if Ampligen proves effective in combating the virus, no assurance can be given that our actions toward proving this will be given first priority or that another treatment that eventually proves capable will not make our efforts ultimately unproductive. We recognize that all cancer centers, like all medical facilities, must make the pandemic their priority. Therefore, there is the potential for delays in clinical trial enrollment and reporting in ongoing studies in cancer patients because of the COVID-19 medical emergency. No assurance can be given that future studies will not result in findings that are different from those reported in the studies referenced in the presentation. Operating in foreign countries carries with it a number of risks, including potential difficulties in enforcing intellectual property rights. We cannot assure that our potential foreign operations will not be adversely affected by these risks.

Please review the "Risk Factors" section in our latest annual report on Form 10-K and subsequent quarterly reports on Form 10-Q. Company filings are available at www.aimimmuno.com. The information found on our website is not incorporated by reference into this presentation and is included for reference purposes only.



#### AIM ImmunoTech Inc.

We are an immuno-pharma company focused on the research and development of therapeutics to treat multiple types of viral diseases, cancers, and immune-deficiency disorders.

AIM's flagship products are Ampligen (rintatolimod) and Alferon N Injection.

Ampligen is being evaluated as a potential treatment for COVID-19, myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS), and multiple types of cancers. Alferon is a natural interferon that is approved in the U.S. for the treatment of refractory or recurrent external genital warts in patients ages 18 or older.

### Robust Pipeline for Ampligen in Oncology, COVID-19 and ME/CFS

	Approach	Institution	Pre-Clinical	Phase 1	Phase 2	Phase 3	Approval
ME/CFS	Single Agent Ampligen					Approved in	Argentina
P1/2 Ovarian Cancer Advanced, Recurrent	Chemokine Modulatory Regimen	UPMC LIFE CHANGING MEDICINE			$\longrightarrow$		
P2a Colorectal Cancer Metastatic	Chemokine Modulatory Regimen	ROSWELL			$\longrightarrow$		
P2 Breast Cancer Metastatic Triple-Negative	Chemokine Modulatory Regimen /Pembrolizumab	ROSWELL PARK			$\rightarrow$		
P2 Ovarian Cancer Advanced, Recurrent	In combination w/Pembrolizumab	UPMC LIFE CHANGING MEDICINE					
P2 Prostate Cancer Early-Stage	In combination w/Intron A	ROSWELL			<b></b>		
P1 Breast Cancer Early-Stage Triple-Negative	Chemokine Modulatory plus neoadjuvant chemo	ROSWELL		<b></b>			
Breast Cancer Brain Metastatic		ROSWELL MOFFITT	Not yet recruiting				
Colorectal Carcinoma Refractory Metastatic	In combination w/ Pembrolizumab	ROSWELL	Not yet recruiting				
Refractory Melanoma	In combination with Intron A	ROSWELL	Not yet recruiting				
Urothelial, Melanoma & Renal Cell Carcinoma		ROSWELL	Not yet recruiting				
Cancer with COVID-19	In combination with Intron A	ROSWELL	Not yet recruiting				
Potential Vaccine Adjuvant for COVID-19	in combination with promising vaccine candidates	SHIONOGI WILLIAM	Not yet recruiting Pre-Clinical				



#### **Ampligen and COVID-19**



...a potential **Prophylaxis** for first responders and other medical professionals to essentially armor themselves against the virus before treating new and potential patients



...a potential **Early-onset Therapeutic** for people who have been exposed to the coronavirus so that they can stop the disease before serious symptoms develop, causing long-term damage and death

- Ampligen is a broad-spectrum antiviral that has demonstrated both antiviral activity and a survival benefit in animal models of a wide spectrum of viruses.
- In animal studies, Ampligen demonstrated complete protection (100% survival) against SARS-CoV-1, Ebola virus, Western Equine Encephalitis virus and Herpes Simplex virus.
- The SARS-CoV-2 virus the cause of the ongoing COVID-19 pandemic shares important and compelling genomic and pathogenic similarities with SARS-CoV-1.
- Ampligen's established record of antiviral activity against more distantly related coronaviruses leads us to believe there is a reasonable probability that its antiviral effects against SARS-CoV-1 will extend to SARS-CoV-2.
- This creates a compelling case for clinical trials to evaluate Ampligen as a potential prophylactic and early-onset treatment for COVID-19.



#### **AIM's COVID-19 Efforts**

AIM has a signed clinical trial agreement with Roswell Park Comprehensive Cancer Center supporting Phase 1/2 clinical trial of Ampligen combined with Interferon Alfa-2b (clinicaltrials.gov/NCT04379518) to test the safety and effectiveness of the combination regimen to clear the SARS-CoV-2 virus from the upper airway in patients with cancer and mild-to-moderate COVID-19.

• The initial Phase 1 portion of the study is planned to evaluate 12-24 patients receiving both Ampligen and interferon alfa-2b at escalating doses. Once the Phase 1 portion is complete, the Phase 2a portion of this study will be initiated with patients randomized into two arms: one receiving the two-drug combination and, the other, a control group.

On August 27, 2020, AIM announced that it had identified an effective in vitro model at The Institute for Antiviral Research at Utah State University for testing Ampligen, a dsRNA TLR3 agonist, with the results showing that Ampligen was able to decrease SARS-CoV-2 infectious viral yields by 90% at clinically achievable intranasal Ampligen dosage levels.

Signed a material transfer and research agreement with Japan's National Institute of Infectious Diseases (NIID) and Shionogi, a leading global pharmaceutical company, to test Ampligen as potential vaccine adjuvant for COVID-19. The pre-clinical testing and research is being conducted by laboratories at the NIID.

**Established an agreement with Shenzhen Smoore Technology Limited, based in Shenzhen, China** and the world's largest vaping device manufacturer, to research delivery of Ampligen through an innovative inhalation device and as a potential, easy-to-use treatment approach for COVID-19.

**AIM is working with Amarex Clinical Research as its Contract Research Organization** on a planned Phase 1/2 study of Ampligen as a COVID-19 prophylaxis/preventive therapy. A pre-IND application relating to this potential Phase 1/2 study has been submitted to FDA for comments.













#### Ampligen in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS)

- ME/CFS was originally considered a psychiatric based illness. Current medical opinion considers ME/CFS to be a physically based illness of unknow etiology.
- Peer-reviewed medical journal articles now support the proposition that ME/CFS is in fact a medical disorder rooted in the immune system.
- Based upon Phase 2 and 3 clinical trial data, AIM received commercial approval for Ampligen in the treatment of severe ME/CFS in Argentina in 2016.
- These clinical trial data served as the basis for an FDA complete response letter in 2013 requesting an additional Phase 3 confirmatory trial.
- An analysis of the clinical data indicated a 39% Ampligen response rate versus a 23% response rate for placebo (based on a minimum 25% improvement in exercise tolerance test).



#### Heightened levels of public and medical awareness:

- "A Town for People With Chronic Fatigue Syndrome" The New Yorker
- Cytokine signature associated with ME/CFS medical disorder Montoya, et al. (2017)
- Leveraging prior knowledge of endocrine immune regulation in ME/CFS medical disorder – Morris, et al. (2019)
- Blood-based diagnostic for ME/CFS medical disorder Esfandyarpour, et al. (2019)



#### Ampligen and COVID-Induced CFS: 'COVID Survivor Syndrome'

"It is anticipated that COVID-19 will trigger a large number of CFS cases, providing an opportunity for the medical community to learn more about the onset and pathogenesis of CFS. The investigational immune-modulating antiviral drug Ampligen might have a role to play in this scenario"

Dr. Charles Lapp of Hunter-Hopkins Center, a global expert in ME/CFS

The high number of younger people being hospitalized for COVID-19 suggests considerable numbers of people in the prime of their lives may have a COVID-induced ME/CFS-like illness in their future<sup>1</sup>.

Individuals with CFS lost an estimated \$20,000 in 2002, implying a total societal loss of \$9.1 billion. Twenty-five percent (\$2.3 billion) resulted from lost household productivity, and the remaining 75% (\$6.8 billion) from lost labor force productivity<sup>2</sup>.

In anticipation of this grave and potentially increasing medical need, AIM has filed a provisional utility patent application for Ampligen as a potential therapy for COVID-19-induced CFS.

<sup>2</sup> https://www.ncbi.nlm.nih.gov/pmc/articles/PMC449736/#:~:text=The%20microsimulation%20estimated%20that%20individuals,from%20lost%20labor%20force%20productivity.



<sup>1</sup> https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/415378

#### **Ampligen and Cancer: Animal Experiments**

#### **Ampligen + Checkpoint Blockade Synergistically Increased Survival/Anti-tumor Response**

<u>Synergistic/anti-tumor responses</u> at three different university centers using 3 different animal models in 3 different solid tumors have led to new collaborations:

- An AIM grant-supported experiment at the University of Nebraska, in a pancreatic cancer transgenic mouse model, combining Ampligen with an anti-PD-L1 drug shows a significant synergistic increase in median survival over control (p=0.029) (unpublished data Hollingsworth, et al.)
- At the University of Pittsburgh, in a mouse model of colorectal carcinoma, the combination of Ampligen plus anti-PD-1 showed a median survival increase of greater than 250% compared to anti-PD-1 alone (unpublished data Kalinski, et al.)
- In an AIM-funded experiment at Augusta University Georgia Cancer Center, Ampligen synergistically induced a 300% increase in anti-tumor activity, when compared with anti-PD-L1 alone in a mouse **melanoma** model (unpublished data AIM ImmunoTech)



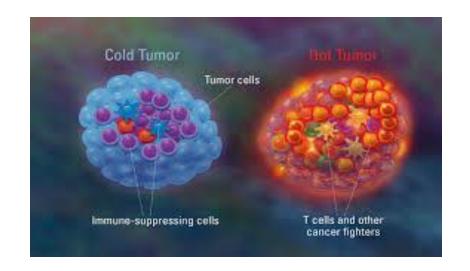


Synergy was seen across a spectrum of solid tumors using anti-PD-1 and anti-PD-L1 therapies.



## Ongoing Clinical Trial Objective: Prove Ampligen Converts 'Cold' Tumors Into 'Hot' Tumors that will be Responsive to Checkpoint Inhibitors

- Increase Intratumoral Effector T (Teff) cells
- Decrease Intratumoral Regulatory T (Treg) cells
- Goal is to unleash the cellular immune response to attack and destroy cancer cells and increase survival (Muthuswamy, et al. 2012)



- Ampligen is the only TLR3 agonist (immune adjuvant that potently induces innate immune response) to promote selective attraction of CTLs (Teff) with concomitant increase in Teff/Treg ratio in the tumor microenvironment (Theodoraki, et al. 2018)
- Generally well-tolerated safety profile



#### **Ampligen and Cancer: Immuno-Oncology Thought Leaders**



**Pawel Kalinski, MD, PhD,** Vice Chair for Translational Research at Roswell Park Comprehensive Cancer Center, Buffalo, N.Y.

"Ampligen is a selective activator of the TLR3 pathway, which selectively increases the production of factors which attract cytotoxic (killer) T cells while reducing suppressive regulator T cells in the tumor microenvironment. Such modulation of the tumor microenvironment is known to be important for antitumor effectiveness of checkpoint inhibitors, such as PD-1 blockers, and other immune therapies of solid tumors."

Michael A. (Tony) Hollingsworth, PhD, head of pancreatic cancer research at UNMC's Buffett Cancer Center

"We are working hard to discover better treatments for pancreatic cancer. We believe Ampligen is an agent that holds tremendous promise - not only for pancreatic cancer, but also for a variety of other cancers."



**Robert P. Edwards, MD**, chair of gynecologic services at Magee-Women's Hospital of the University of Pittsburgh School of Medicine

"Ampligen has the potential to be clinically significant because a robust killer T-cell population in the tumor microenvironment without attracting Treg cells is important to help optimize checkpoint blockade induced tumor shrinkage."



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#### Ampligen and Cancer: Immuno-Oncology Clinical Trials Initiated / Ongoing in the U.S.

Advanced Recurrent Ovarian Cancer - This Phase 1/2 study of Ampligen as an intraperitoneal therapy in advanced recurrent ovarian cancer has completed 12 subjects in Phase 1; the Phase 1 portion established intraperitoneal safety sufficient to proceed with a larger Phase 2 study (See below). (<a href="https://aimimmuno.irpass.com/Hemispherx-Reports-Positive-Safety-and-Survival-Data-in-Phase-1-Stage-4-Ovarian-Cancer-Clinical-Stud">https://aimimmuno.irpass.com/Hemispherx-Reports-Positive-Safety-and-Survival-Data-in-Phase-1-Stage-4-Ovarian-Cancer-Clinical-Stud</a>) We are awaiting publication of results.
 <a href="https://clinicaltrials.gov/ct2/show/NCT02432378">https://clinicaltrials.gov/ct2/show/NCT02432378</a>



Advanced Recurrent Ovarian Cancer - Based upon the above, a 45-subject follow-up Phase 2 study of advanced recurrent ovarian cancer is underway principally funded via a Merck grant and using cisplatin, pembrolizumab and Ampligen. Enrollment commenced in January 2019 and numerous patients are now well into treatment. <a href="https://clinicaltrials.gov/ct2/show/NCT03734692">https://clinicaltrials.gov/ct2/show/NCT03734692</a>
(<a href="https://aimimmuno.irpass.com/Hemispherx-Biopharma-Announces-Commencement-of-a-New-45-Subject-Clinical-Trial-Combining-Ampligen-an">https://clinicaltrials.gov/ct2/show/NCT03734692</a>



ROSWELL PARK.

COMPREHENSIVE CANCER CENTER

 Stage 4 Metastatic Triple Negative Breast Cancer - Phase 2 study of metastatic triple-negative breast cancer using chemokine modulation therapy, including Ampligen and pembrolizumab. All patients have been treated or are near completion of treatment. https://www.clinicaltrials.gov/ct2/show/NCT03599453



#### Ampligen and Cancer: Immuno-oncology Clinical Trials Initiated / Ongoing in the U.S.

• Stage 4 Colorectal Cancer Metastatic to the Liver - Phase 2a study of Ampligen as a component of chemokine modulatory regimen on colorectal cancer metastatic to liver; the majority of the 12 planned patients enrolled and treated. <a href="https://clinicaltrials.gov/ct2/show/NCT03403634">https://clinicaltrials.gov/ct2/show/NCT03403634</a>



Early-Stage Prostate Cancer - Phase 2 study investigating the effectiveness and safety of aspirin
and Ampligen with or without interferon-alpha 2b (Intron A) compared to no drug treatments in
a randomized three-arm study of patients with prostate cancer before undergoing radical
prostatectomy. Patient enrollment has been initiated in this study designed for up to 45 patients.
<a href="https://clinicaltrials.gov/ct2/show/NCT03899987">https://clinicaltrials.gov/ct2/show/NCT03899987</a>



• Early-Stage Triple Negative Breast Cancer - Phase 1 study of chemokine modulation plus neoadjuvant chemotherapy in patients with early-stage triple negative breast cancer has received FDA authorization; the objective of this study is to evaluate the safety and tolerability of a combination of Ampligen, celecoxib with or without Intron A, when given along with chemotherapy; the goal of this approach is to increase survival. This study is recruiting and is designed for up to 24 patients. https://clinicaltrials.gov/ct2/show/NCT04081389





#### **Ampligen and Cancer: Major Grant Awards**

- National Cancer Institute awarded \$14.5 million to Roswell Park to study Ampligen as part of five Roswell Park-led chemokine modulation clinical trials in melanoma, colorectal and ovarian cancers
- U.S. Department of Defense-funded Clinical Trial in Brain-Metastatic
   Breast Cancer studies to be initiated in 2020
  - Roswell Park Comprehensive Cancer Center and Moffitt Cancer Center have received "Breakthrough Awards" from the U.S.
     Department of Defense totaling approximately \$15 million
  - Phase 2 clinical trials to study Ampligen as a potential synergistic agent in combination with several other immunotherapies, including pembrolizumab and Intron A in the treatment of brain metastatic breast cancer







## **Expanded Access Program (EAP) with Ampligen as a Standalone Treatment in Late-stage Pancreatic Cancer**

**Site:** Erasmus University, The Netherlands, conducted by Professor Casper van Eijck

**Eligibility:** Adults with metastatic or locally advanced pancreatic carcinoma following FOLFIRINOX and adults post-Whipple procedure

Status: All patients have completed treatment and we expect a comprehensive report from the Erasmus team on the immunological response in relation to survival. AIM hopes to work with Erasmus M.C. to initiate a combination therapy program to extend the results seen thus far in the Netherlands by combining Ampligen with checkpoint blockade therapy.





#### Alferon N Injection (interferon alfa-n3)

- Approved in the U.S. for the treatment of refractory or recurrent external genital warts in patients ages 18 or older. Approved in Argentina for the treatment of patients refractory to or intolerant to recombinant interferon alpha. Global market is open, as there is no natural interferon competitor worldwide
  - Reimbursement approved by major insurers for all refractory patients
  - Incidence of neutralizing antibodies induced against Alferon is very low (<0.2%) compared to recombinant interferons (12-40%) (p<0.001) (Strayer, et al. 2012)

Funding is now available to commence modernization of our manufacturing process to potentially obtain FDA manufacturing approval of a low-cost, higher-volume process. The first steps are underway.



#### **Alferon N Injection Development Pipeline**

Disease / Indication	Pre- clinical	1	П	III	Approved
Genital HPV (condylomata acuminata)	✓	✓	✓	✓	US and Argentina
Refractory to Recombinant IFN	$\checkmark$	$\checkmark$	$\checkmark$	✓	Argentina
Intolerant to Recombinant IFN	✓	$\checkmark$	✓	✓	Argentina
MERS*	$\checkmark$				
Influenza A (H7N9) Virus	✓				

<sup>\*</sup> Orphan Drug Indication in EU



#### **IP Protection and Growing Patent Estate**

- 48 patents worldwide with 11 additional pending patent applications underway
- FDA granted Ampligen "orphan drug status" for CFS, HIV/AIDS, renal cell carcinoma and malignant melanoma
  - Grants protection against potential subsequent approval of other versions of the drug for these uses for a period of 7 years following FDA approval of Ampligen® for each of these designated uses
- The first NDA approval for Ampligen® as a new chemical entity will qualify for 4-5 years
  of non-patent exclusivity, during which time abbreviated new drug applications seeking
  approval to market generic versions of the drug cannot be submitted to the FDA
- Additional patent applications underway related to manufacturing processes





#### **AIM's Executive Management Team**

- Thomas K. Equels, M.S., J.D. / Chief Executive Officer Equels was named Chief Executive Officer in February 2016 and has served as President since August 2015. Equels' successful legal career included extensive experience in the pharma sector. He has over the years served as a court-appointed receiver turning around businesses in a number of different fields. Equels received his J.D. with high honors from Florida State University. He is also a summa cum laude graduate (Bachelor of Science) of Troy University and obtained his Master of Science Degree from Troy. Equels is also a highly decorated combat aviator, twice awarded the Distinguished Flying Cross, awarded the Purple Heart, the Bronze Star and 15 Air Medals, including three for extraordinary valor. In 2012 he was knighted by Pope Benedict as a knight of the Papal States.
- Peter W. Rodino III, J.D. / Chief Operating Officer, Executive Director for Governmental Relations, General Counsel, Secretary

   Rodino was named Executive Director for Governmental Relations and General Counsel in October 2016 and Secretary of the Company in November 2016.
- Ellen Lintal / Chief Financial Officer Lintal joined AIM ImmunoTech in September 2018 as SVP of Finance and Control after a long and successful accounting career, including tier-one public companies and nearly a decade with a major non-profit, where she rose to the position of CFO on September 16, 2019.
- David R. Strayer, M.D. / Chief Scientific & Medical Officer Dr. Strayer was appointed Chief Scientific Officer in February 2016 and has served as our Medical Director since 1986. Dr. Strayer, based upon this experience, is the foremost medical expert on Ampligen in the world.



#### **Investment Highlights**

- ✓ Advancing clinical trials of Ampligen as a potential protective prophylaxis and an early-onset treatment for COVID-19
- ✓ Japan evaluating Ampligen as a potential COVID-19 vaccine adjuvant
- Ampligen believed to be the world's only approved therapeutic for ME/CFS (first approval in Argentina)
  - Potential surge in COVID-induced CFS-like cases worldwide
  - Filed provisional patent application for the use of Ampligen as a potential therapy for COVID-19 induced chronic fatigue
- ✓ Ampligen demonstrated the potential for standalone efficacy in the clinical setting in a number of solid tumors
  - Safety and efficacy of Ampligen is being studied in six immuno-oncology clinical trials at highly respected NCI-Designated Cancer Centers; two of which are in combination with the checkpoint blockade drug pembrolizumab
    - Company's principal obligation is to supply Ampligen, while the <u>substantial costs in all of the clinical trials funded by third-party grants</u>
       <u>from government or pharma industry</u>
    - The National Cancer Institute's award of \$14.5 million to Roswell Park to fund five immuno-oncology clinical trials
    - Two Dept. of Defense "Breakthrough Awards" totaling approximately \$15 million to Roswell Park Comprehensive Cancer Center and Moffitt Cancer Center for Ampligen studies expected to commence in 2020-21 in brain-metastatic breast cancer
- ✓ **Solid balance sheet with \$40.3M cash, cash equivalents and marketable securities** as of June 30, 2020 provides substantial runway to support ongoing activities in multiple ongoing immuno-oncology clinical trials
- ✓ Funds will allow acceleration of clinical programs because AIM's progress is no longer dependent upon third-party grants.



NYSE American: AIM

#### **Key Statistics**

• Ticker: AIM

Exchange: NYSE American

• Share Price (8/27/20) \$2.43

Shares Outstanding (8/13/20)
 39.7 M

• Market Cap (8/27/20)\* \$96.5 M

Cash, Cash Equivalents & Marketable Securities (06/30/20): \$40.3 M

\* Market Cap calculated using shares outstanding from 8/13/20 and Share Price from 8/27/20



### **Supplemental Data:**

Activity	Reference(s)*
Only TLR3 agonist to promote selective attraction of CTLs (Teff) with concomitant increase in Teff/Treg ratio in the TME	Theodoraki, et al. (2018)
Ampligen induces desirable chemokines in the TME, while other TLR3 agonists, such as poly IC, by activating helicases, induce tumor-promoting signals	Theodoraki, et al. (2017)
Phase I/II colorectal cancer trial of Ampligen plus rIFN $\alpha$ -2b and celecoxib showed increase ratio of CXCL10 (CTL-attractant) to CCL22 (Treg-attractant) and increase ratio of CTL/Treg markers	Kalinski, et al. (2016)
Induces epitope spreading and cross-reactive IgA antibody formation in humans	Overton, et al. (2014)
dsRNA/Ampligen increased activity (synergistically) of anti-PD1/PD-L1 drugs	Nagato, et al. (2014); Celis Unpub Data
↑ Teff-attracting chemokine (CXCL10) in the tumor microenvironment (TME)	Muthuswamy, et al. (2012); Kalinski Unpub. Data
(https://journals.sagepub.com/doi/abs/10.1177/095632020601700505) found that Ampligen reduced SARS-CoV-1 virus lung levels to below detectable limits	Barnard, et al. 2006

<sup>\*</sup> Full reference citations available upon request



### **Supplemental Data:**

Activity	Reference(s)*
Induces dendritic cell maturation: Enhances bioactivity of cancer immunotherapy	Nicodemus, et al. (2010)
Promotes optimal dendritic cell maturation and Th1-type responses of healthy donors and cancer patients in vivo	Navabi, et al. (2009)
Induces epitope spreading and cross-protective immunity in mice	Ichinohe, et al. (2007)
Increases Delayed Type Hypersensitivity (DTH) response in HIV disease	Thompson, et al. (1996)
Increases LAK cytotoxicity	Hubbell, et al. (1992b)
Increases antitumor immune mechanisms and survival in animal models of renal cell carcinoma and melanoma	Hubbell, et al. (1992a); Hubbell, et al. (1990)
Induction of macrophage tumoricidal activity	Pinto, et al. (1988)
Increases Natural Killer (NK) cell activity	Zarling, et al. (1980)
(https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2787736/) found that, instead of 100% mortality, there was 100% protective survival using Ampligen against SARS-CoV-1	Day, et al. 2009

 $<sup>^{*}</sup>$  Full reference citations available upon request



### **Supplemental Data:**

Activity	References
Ampligen increases exercise performance in ME/CFS in Phase III, placebo-controlled trial	Strayer, et al. (2012)
Review of Ampligen clinical activity in ME/CFS	Mitchell (2016)
Low NK cell activity in ME/CFS increased by Ampligen (in vitro)	Strayer, et al. (2015)
Antiviral activity of Ampligen in MERS/SARS	Strayer, et al. (2014)
Protection against Venezuelan and Western Equine Encephalitis Virus (in vivo, mouse)	Pinto, et al. (1988); Julander, et al. (2009)
Increased survival in Ebola virus disease (in vivo, mouse)	Strayer, et al. (2015)
Cytokine signature associated with ME/CFS medical disorder	Montoya, et al. (2017)
Leveraging prior knowledge of endocrine immune regulation in ME/CFS medical disorder	Morris, et al. (2019)
Blood-based diagnostic for ME/CFS medical disorder	Esfandyarpour, et al. (2019)
Recombinant and Natural Human Interferons: Analysis of the Incidence and Clinical Impact of Neutralizing Antibodies	Strayer, et al. (2012)

