

# Immunomic Therapeutics, Inc.

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### ITI Management Team

CEO: **Bill Hearl, PhD\***

VP Reg. Affairs: **Bruce Mackler, PhD\***

VP R&D: **Teri Jones-Heiland, PhD**

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CFO: **Bernard C. Rudnick\*\***

Counsel: **Winston Lowe**

\*Board of Directors member

\*\*Board of Directors (observer)



### Additional Directors & Advisors

**James Wishart,**

Board of Directors

**Ronald Thiboutot, PhD**

Board of Directors

**Charles Grudzinskas, PhD**

Board of Directors (observer)

**Kal Vepuri**

Board of Directors (observer)

**Lawrence Weiner, MD,**

Scientific Advisor, Allergy

**Tama Copeman, PhD**

IP Management

**Lisa Salley**

Operations

**Roscoe Moore, Jr., PhD,**

Infectious Diseases

**Robert Rager**

Grant Development

**Colin Magowan**

Business Development



### Internet

Website: [www.immunomix.com](http://www.immunomix.com)

Twitter: [twitter.com/immunomix](https://twitter.com/immunomix)

Immunomic Therapeutics, Inc. (ITI) is developing next generation vaccines based on proprietary LAMP technology, a novel approach to nucleic acid vaccines invented at Johns Hopkins University; ITI owns the exclusive worldwide license to LAMP Technology. LAMP-vax™ vaccines activate the immune system through direct access of the MHC-II pathway in antigen presenting cells. LAMP vaccines have been shown to induce both T-helper and cytokine activation resulting in a strong antibody response and immunological memory while enhancing cytotoxic T-cell activity. LAMP Technology, which holds the promise of bridging the performance gap for DNA vaccines, along with ITI was recognized by **Frost & Sullivan with its 2010 Technology Innovation of the Year Award in DNA Vaccines.**

ITI has identified allergy immunotherapy as a unique opportunity in the vaccine field and in particular for the development of LAMP-vax products. The Company is in the process of advancing its first formulation into Phase I clinical studies, targeting Japanese red cedar, the number one allergen in Japan. ITI expects to follow this initial product with additional vaccines broadly targeting pollens and food allergens.

LAMP – based vaccines have been validated in a wide variety of applications including infectious disease (e.g., yellow fever, dengue fever & West Nile virus), HIV, cancer (telomerase in human Phase II clinical trial) and recently allergy (dust mite). These studies have shown that an antigen/LAMP-vax vaccine initiates a Th1 response, B-cell and cytotoxic T-cell activation, and immunological memory, thus providing a rationale for applying LAMP-vax to the treatment of allergic diseases.

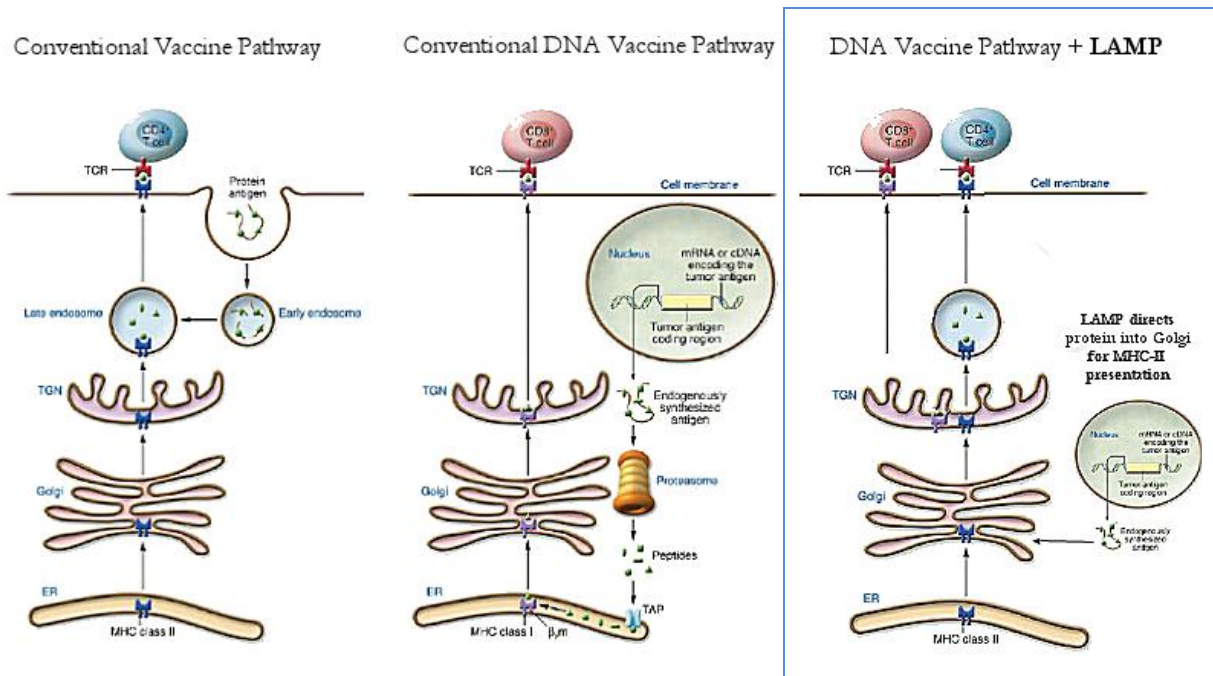
Recent research applying LAMP-vax technology in a cancer application in two human clinical studies has been sponsored by our sub-licensee, the Geron Corporation (Nasdaq: GERN). A Phase I study for prostate cancer was conducted at Duke University and a second study for acute myeloid leukemia (AML) based at Emory University (Atlanta). In both, the patients received Geron's GRNVAC1 as dendritic cell therapy. Results not only showed that LAMP was safe, but also that these vaccines are able to interact and educate the host immune system to mobilize a response against the target. For more information, contact the Company at [bhearl@immunomix.com](mailto:bhearl@immunomix.com).

*Next Generation Vaccines  
Improving Human Health™*

## About LAMP Technology

**LAMP Technology distinguishes itself from other vaccine approaches by specifically delivering antigen directly to the MHC-II compartment in professional antigen presenting cells. This is in contrast to non-LAMP DNA vaccines that process antigen in somatic cells (e.g. muscle cells) and presenting through the generic MHC-I pathway. In this manner, ITI's LAMP vaccines directly access the immune system via helper T-cells while maintaining its ability to stimulate cellular immunity. This process has been shown in both animal model and human clinical subjects.**

Lysosomal Associated Membrane Protein or "LAMP" is a protein that localizes in antigen presenting cells (APC) to the same compartment as the Major Histocompatibility Complex Type II (MHC-II). Work in the laboratory of Dr. J. Thomas August at Johns Hopkins University showed that when the protein sequence that would otherwise be expressed in the cytoplasm of the cell was linked to the protein sequence of LAMP, the chimeric protein will migrate to the MHC-II lysosome in APC's. This observation has important implications to the processing of antigens when used in DNA or RNA vaccinations. Shown in the left panel below is the process an APC follows when it encounters a foreign protein as it is delivered in a traditional vaccine. The protein is brought into the cell and processed in the endosome and then delivered to the MHC-II containing lysosome where the peptides bind the MHC-II molecule and are escorted to the surface of the cell for presentation to the immune system. This process activates the CD4+ Helper T-cell pathway leading to cytokine & antibody production as well as immunological memory.



In the center panel, the pathway of a DNA vaccine is shown. Once the DNA enters the cell, the protein is expressed in the cytoplasm and is directed to the proteasome where it is digested into peptides. These peptides find their way into the ER & Golgi where they bind the MHC-I protein for presentation on the surface of the cell. This process activates CD8+ cells and the cytotoxic T-cell pathway. The CD4+ cells are not directly activated through this pathway. When **LAMP** is included in the DNA vaccine construct, the resulting chimeric protein moves to the Golgi upon synthesis and the intracellular targeting sequence directs the antigenic protein to the MHC-II compartment in the cell. This results in a DNA vaccine directly activating the CD4+ pathway while maintaining the CD8+ cytotoxic T-cell response. LAMP nucleic acid vaccines induce both humoral and cellular immune responses; this response has been observed in mice, rats, monkeys and **humans**.