



PRESS RELEASE

Emergex Advances Vaccine Candidate for Tularemia, Highlighting the Potential of T cell Priming Vaccines in National Preparedness Initiatives

- Emergex's CD8+ T cell Adaptive Vaccine platform will now be used to generate a tularemia vaccine candidate that provides a cytotoxic (killing of infected cells) CD8+ T cell response and offers a means for rapid development suitable for deployment as a medical countermeasure.
- Emergex's ongoing Phase I clinical trials on vaccine candidates for Dengue Fever and COVID-19 are evaluating safety and immunogenicity of the technology platform, using selected viral peptides and a self-adjuvating passivated gold nano particle carrier system, with final data expected this summer for the Dengue candidate.
- *Francisella tularensis*, the causative agent of tularemia, is a highly virulent intracellular bacterial pathogen that is currently considered a potential national security biothreat by the US government.
- Emergex [previously reported](#) the successful characterization of the MHC Class I CD8+ epitope 'ligandome library' for *F. tularensis* epitopes. Emergex has a growing pipeline of vaccine candidates for diverse viral and intracellular bacterial pathogens that require CD8+ T cells for protection. Typical infectious diseases caused by intracellular bacteria include brucellosis, listeriosis, tuberculosis and gonorrhoea.

Abingdon, Oxon, UK, 14 April 2022 – Emergex Vaccines Holding Limited ('Emergex', or 'the Company'), a company addressing major global infectious disease threats through the development of fully synthetic CD8+ T cell Adaptive Vaccines, today announces that it is progressing preclinical development of its intracellular bacterial vaccine candidate for *Francisella tularensis* following the completion of successful ligandome generation ([as previously reported](#)). Emergex now plans to combine that technology with its CD8+ T cell Adaptive Vaccine platform.

Emergex intends to use its previously determined repertoire of Class I peptides to generate a CD8+ T cell Adaptive Vaccine as a medical countermeasure for better preparedness against naturally occurring, accidental, or deliberate exposures to the bacterium that causes tularemia. Protection against *Francisella tularensis* is thought to be conferred and essential by CD8+ T cell-mediated immunity,¹ in contrast to humoral factors such as antibodies.

Professor Thomas Rademacher, CEO and co-founder of Emergex, commented: "*Emergex recognizes the importance of effective medical countermeasure development for a diversity of viral and intracellular bacterial threats. We believe that the field of T cell priming vaccines can play an important role in national preparedness initiatives. Next generation vaccines, such as our T cell Adaptive*

¹ Place DE, Williamson DR, Yuzefpolskiy Y, Katkere B, Sarkar S, Kalia V, Kirimanjeswara GS. Development of a novel *Francisella tularensis* Live Vaccine Strain expressing ovalbumin provides insight into antigen-specific CD8+ T cell responses. PLoS One. 2017 Dec 28;12(12):e0190384. doi: 10.1371/journal.pone.0190384. PMID: 29284034; PMCID: PMC5746256.

Vaccines, will enable the induction of targeted T cell immunity via priming of naïve T cells that recognize and remove infected cells and thereby cut short the infection cycle, sparing that person.”

Tularemia is a zoonotic infectious disease, categorized by symptoms including fever, skin ulcers, and occasionally pneumonia, and is found throughout the Northern Hemisphere. The intracellular bacterium is spread from animals (rodents, hares and rabbits) to humans most commonly through arthropod vectors (tick and deer fly bites), by drinking contaminated water, or through direct contact with infected animals.² There are currently no approved vaccines for tularemia prevention, and subsequent infection is managed with antibiotic therapy.

Bioagents are categorized according to assessment of their risk to national security and are continuously monitored by governments as biodefense response strategy evolves. Tularemia is classified as a category A biothreat along with anthrax, smallpox, plague, viral hemorrhagic fevers (such as Ebola), and is considered a potential national security biothreat by the US government.

Category A biothreats, whether through natural, deliberate, or accidental exposure, are pathogens that pose the highest risk because they can: [i] easily be disseminated or transmitted, [ii] bear a high mortality rate and public health impact, [iii] require special public health preparedness actions, and [iv] have the potential to cause public panic and social disruption.^{3,4}

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About Emergex

Emergex, a clinical-stage, privately-held biotechnology company headquartered in Abingdon, UK, with an operating subsidiary in Doylestown, Pennsylvania, USA, is pioneering the development of 100% synthetic T cell Adaptive Vaccines that harness the body's natural T cell immune response to destroy pathogen-infected cells for protection against some of the world's most pressing health threats, including viral infectious diseases such as Dengue Fever, COVID-19, pandemic Influenza, as well as serious intra-cellular bacterial infections.

Emergex has a growing pipeline of innovative CD8+ T cell Adaptive Vaccine and booster vaccine candidates that have the potential to deliver rapid, broad (mutation-agnostic) and long-lasting immunity to reduce serious illness associated with infectious disease. Emergex has a number of Phase I clinical trials underway, of which the most advanced programmes in development are Dengue Fever (which may also be disease-modifying for other members of the *Flaviviridae* virus family, such as Zika and

² <https://www.cdc.gov/tularemia/index.html>

³ <https://emergency.cdc.gov/agent/agentlist-category.asp>

⁴ <https://www.niaid.nih.gov/research/emerging-infectious-diseases-pathogens>

Yellow Fever), as well as COVID-19. Other programmes in development include vaccine candidates for universal (pandemic) Influenza, Chikungunya, and a booster vaccine for Yellow Fever.

Emergex's T cell Adaptive Vaccines candidates combine two proprietary technologies, [i] an empirically determined library of pathogen-derived protein fragments expressed on the surface of pathogen-infected cells (forming the MHC Class I expression "ligandome" library), and [ii] a passivated gold nanoparticle carrier system designed to deliver the synthetic peptides to the skin-resident immune system (in combination with nociception) via micro-needles to elicit a robust adaptive CD8 T cell response. With potential stability at ambient temperatures, the vaccine candidates as intended reduce the burden and logistics of vaccine administration.

Find out more online at www.emergexvaccines.com.

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