



## GeneWEAVE VivoDx

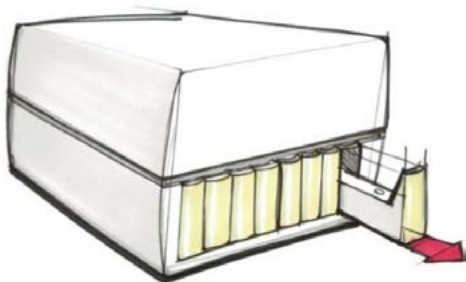
Automated Rapid  
Diagnostic Platform

### **Dramatically reducing time to treatment with rapid diagnosis for patients with MRSA**

*Cornell startup GeneWEAVE sought a turn-key development partner who could design and develop a diagnostic instrument for their novel technology.*

#### **The Problem**

Methicillin-Resistant Staphylococcus Aureus (MRSA) infections arise from a number of different settings - from hospitals to high school wrestling mats. Deemed a 'super bug,' MRSA has become resistant to many of the antibiotics typically used to treat staph infections. Testing for MRSA is a hands-on process and can take up to 4-6 days to produce a prognosis - enough time for the rapidly-progressing infection to spread to internal organs and potentially worsen to the point of surgical intervention.



#### **Background**

GeneWEAVE was founded at Cornell University by three graduate students who identified a phage-based technology, dubbed Smarticles™, and realized its potential for use in rapid diagnostics. By using Smarticles™ technology, GeneWEAVE discovered that they could reproduce fluorescence through natural biological reactions, rather than relying on traditional chemistry. By decreasing time to prognosis, GeneWEAVE could combat MRSA and prevent the infection from worsening. While they understood their core science, GeneWEAVE needed a qualified engineering and development partner to assist in bringing their consumable and instrument ideas to fruition.



## Innovation Opportunity

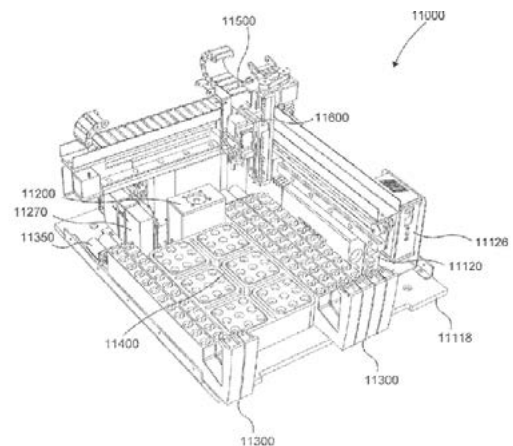
GeneWEAVE envisioned the VivoDx system to be a fully automated, rapid diagnostic platform. VivoDx would be able to rapidly identify MRSA from a clinical sample with minimal reagents. Due to the simplicity of this protocol, the clinician can simply load the sample swab into the consumable, close the cap, and export it into the system. These innovations dramatically decreased throughput time for physicians, while simultaneously creating a less complicated and hands-off diagnostic test.

## Ximedica's Involvement

Ximedica designed and developed the VivoDx system, including the patented end-effector robotic arm which facilitates much of the system's automation. Under one roof, Ximedica tackled every engineering discipline involved with developing a complex diagnostic instrument. Ximedica engineered VivoDx for scalable manufacturing while facilitating a transfer to the chosen contract manufacturing partner.

## Ximedica Skills Used

- Human-Centric Design
- Consumable Design
- Blister Pack Design and Reagent Storage
- Robotics
- Sample Handling
- Optics
- Thermal Controls
- Software Development
- Manufacturing Process and Transfer
- System Architecture and Total System Engineering





## Value Delivered

Ximedica took a novel idea, and turned it into a fully functional, random-access diagnostic platform capable of identifying MRSA in under 4 hours. Simplifying this process helps decrease cost and shorten patients' stay in the hospital while combatting the overall spread of MRSA worldwide.

Silicon Valley-based GeneWEAVE was purchased by Roche in 2015 for \$190 Million upfront, and an additional \$235 Million based on contingent milestones. GeneWEAVE was acquired in phase 2 of development, prior to beginning clinical trials.

Design process and photos depicting GeneWEAVE Biosciences, Inc.® VivoDx® system.  
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