



Navy pilots, such as this one awaiting flight on the F/A-18C Hornet, are susceptible to Hypoxia should a lack of oxygen occur. Lynntech's system provides hypoxia training to Navy pilots with a safe, pressure-on-demand reduced oxygen delivery method.

IMAGE COURTESY | U.S. NAVY

LYNNTECH

A loss of oxygen during a routine flight is a scary and all-too-common situation that Navy pilots must anticipate. Hypoxia is a condition brought on by a lack of oxygen which can cause confusion and blurred vision, and eventually lead to unconsciousness. In 2015, over 100 Navy and Marine pilots reported oxygen loss, air contamination or cockpit depressurization while flying. When an episode such as this happens, landing the plane becomes a critical race against the clock.

PHASE III SUCCESS

Current Phase III contracts with the U.S. Navy and Air Force related to the company's three most recent SBIR-funded technologies are worth \$20 million.

AGENCIES

DOD, DOE, HHS, NASA, DHS

SNAPSHOT

Texas-based Lynntech has been supplying electro-chemical power solutions to the Department of Defense and other government agencies since 1987. The company's most recent success centers on safer hypoxia training for Navy pilots.

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In response to this need, Lynntech, a small business located in College Station, Texas, introduced its Electrochemical Breathing Device for Hypoxia Training – a system designed for the Navy that provides a safer alternative to current training methods. The mobile, low maintenance, and lightweight hypoxia training system supports pressure-on-demand reduced oxygen delivery. This method eliminates the oxygen starvation risk and enhances overall safety due to a pure oxygen delivery feature that can aid recovery in the event of oxygen starvation.

Having a long standing history with the Small Business Innovation Research (SBIR) program actually led the team at Lynntech to this particular development, and the technology, although novel in its application, came from decades of refinement to its fuel cell technology.

"The core technology for this particular device we've worked on since 1987," says John Stocker, Senior Vice-President of Federal Solutions at Lynntech. "It's an electro chemical power system that processes air through a membrane exchange assembly; the same component of our fuel cell systems. So all of the work with fuel cells we have done for DOD and NASA through the SBIR program led to the utilization of this device."

Lynntech was awarded an Enhanced Phase II contract with the Navy for its hypoxia training machine, with all contracts worth nearly \$3 million. Lynntech's business model centers around providing high-demand solutions, spinning off successful businesses, and continuing to innovate. The company has enjoyed tremendous success in the fuel cell industry; from providing the Navy's Unmanned Underwater Vehicles (UUVs) with increased endurance thanks to fuel cell technology, to providing the Air Force Research Lab with the latest in fuel



Lynntech's real-time sensing and data analysis capabilities are providing the Department of Homeland Security with the ability to identify low thermal signatures from a target.

cell testing equipment for its fleet. Lynntech's fuel cell testing capabilities became so successful, the team spun off Fideris, a company dedicated exclusively to handling the high demand across both the government and commercial sectors. Several other companies have also been spun off, including one that used exothermic and endothermic reactions to powerlessly sterilize medical equipment.

This kind of focus creates an environment where Lynntech has a specialized game plan going into each SBIR project.

"We want to know from Day 1 what the transition path looks like," adds Stocker.

"We work to ensure the program office is going to be attached to this project in the long run. We're also pretty selective of which topics we choose to respond to.

There are 110 employees at Lynntech, and people are constantly parading around new ideas. But we're finding a lot of recent success in responding to the military's need for diagnostic systems and contracts that support this activity."

Stocker, who is a huge proponent of the SBIR program and speaks often of the benefits, cited the recent Navy study conducted that illustrates the impact

of the program in terms of overall economic development. For instance, over half of all Navy Phase II contracts resulted in commercialization, totaling about \$14 billion in sales, \$8 billion of which were in military product sales. Ninety-one of these SBIR companies were acquired by larger corporations, while 49 new spinoff companies were formed.

"SBIR gives small businesses the ability to test new ideas out in response to government requirements in covering technology gaps," says Stocker. "It's a tight investment climate, and we don't have liquidity in the private equity market, so SBIR provides a way to try out new ideas for solutions."

Currently, Lynntech is working on a sensor fusion system for the Department of Homeland Security (DHS) to improve the performance of infrared cameras and to identify low thermal signatures from a target. The company was awarded an \$11 million Phase III contract and the project is currently in the final stages of development.

With a transition rate of nearly 70 percent in Phase I to Phase II efforts, and plenty of projects in the works, you can expect to see many more SBIR-derived technologies hit the market that were originated in this local Texas small business.

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JOHN STOCKER
SENIOR VICE-PRESIDENT OF
FEDERAL SOLUTIONS

