



EXECUTIVE SUMMARY



Cultural Quotient



CULTURAL QUOTIENT
Advanced Air Filtration
Technology for Protective Masks

Cultural Quotient (CQ) is a Service Disabled Veteran Owned Small Business (SDVOSB), dedicated to advancing technology by building business relationships and creating an innovation ecosystem around research and development funded by the US Government. CQ has licensed Dr. Brandi White's air filtration material that captures contaminants with the potential for degrading them to harmless products, from the U.S. Naval Research Laboratory.

PROBLEM

Emergency response and military personnel operate under extreme ranges of humidity and temperatures with varying environmental air contaminants with aerosolized chemical and biological hazards, presenting a significant risk to the health of exposed personnel.

Available carbon-based filter materials fail to provide protection against the full range of hazardous compounds. Contaminated sorbent materials demonstrate reduced performance, as they typically degrade at temperatures above 95F and are currently sold with a storage life of 5 years.

SOLUTION



CQ's solution is a collaboration of nano technology and chemistry. Dr. Brandy White's self-decontaminating material will be bonded to a nanofiber substrate provided by Hitachi High Tech America. The Advanced Air Filtration Technology will provide the most innovative nanofiber respiration option for first responders that enhances protection capturing contaminants at the nano versus micro level, providing a hydrophobic option that self-decontaminates and is less likely to be degraded by typical storage heats.

BUSINESS ANALYSIS

Dr. Brandi White's NRL chemistry needed to be scaled up to production levels from the current use in a microtube. Further testing is required to identify any engineering issues for large scale manufacturing when grafting the chemistry to the nanofiber substrate. CQ required additional capital and partnerships to operate the CRADA with NRL for the scale up and transition out of the laboratory and into TRL 7 testing and eventually to the market.



TECHNOLOGY TRANSITION

During D2R, CQ worked with TEEX PDC to fine tune their business model and secure further details with their nanofiber contract manufacturer, contract engineering firm and Dr. Brandy White to further transition the technology to scale up for manufacturing.



CQ presented their technology to Aggie Angel Network, Maroon Fund and Responder Ventures to aide in the need for seed funding to push the technology further down the development path towards first responders. Additionally, contractual agreements and facility improvements were required to assist CQ with their mission to produce the most Advanced Air Filtration Technology.

AGGIE
ANGEL NETWORK

D2R was able to identify the specific work necessary and agreed upon by Dr. Brandi White at NRL to scale up chemistry to manufacturing production levels. In the late spring, early summer of 2017, Domestic Preparedness Support Initiative (DPSI) stepped in to ensure this much needed air filtration technology continue on the path to first responders by funded Dr. White's scale up work with \$50,000.

CONTACT

To Learn more about the Defense to Response Program visit

[TEEXPDC.com/D2R](https://teexpdc.com/d2r)

For more information about Cultural Quotient visit

<https://culturalquotient.xyz/>