



SmartCAR

Biological agent self-test kit

What is SmartCAR?

SmartCAR, short for Smart Colorimetric Assay Reader, is a hand-held biological agent self-test kit. It uses a colorimetric assay, very much like a home pregnancy test strip, to identify the presence of a pathogen of concern such as ricin, anthrax or plague. It works in several steps:

- A Warfighter or a field medic takes a saliva or stool sample and places it in a small vial containing a reagent that will bind the pathogen of concern, then places a drop of the solution on the colorimetric assay strip.
- The strip is placed inside the SmartCAR which then reads whether there is one line on the strip, meaning no exposure, or two lines on the strip, indicating an exposure.
- SmartCAR then transmits the results over Nett Warrior, a fielded integrated dismantled situational awareness system that displays tactical data on a smartphone. Information passes through Nett Warrior and up the chain of command.
- If the test is positive, the warfighter and field medic know to immediately begin treatment, and the information is automatically entered into the warfighter's medical record.
- The commander immediately knows about this individual warfighter, if more expositors are detected, knows how many and where they are.

What problem does SmartCAR address?

When infantry units approach areas recently held by insurgents the possibility of its having been used to produce or store biological agent is always a danger. When evidence of biological agents is found, the warfighters in the unit need to know if they have been exposed, and fast. In addition, advance chemical biological agent detection teams can use SmartCAR for environmental sampling so that commanders know if the area is hot and should be avoided. By adding a device known as an impinger, an instrument for collecting samples of suspended particles by forcing them into a liquid stream, the team can also analyze air samples.

SmartCAR has important civilian applications, too. It can be brought to austere and forbidding environments to test drinking wells for water quality. A test strip that identifies the presence of Ebola could be used by medical personnel sent to control an outbreak. Its data management and distribution capabilities make it ideal for humanitarian relief mission personnel to establish restricted areas and determine resource needs.

Why is SmartCAR unique?

The range of biological agents SmartCAR can detect is only limited by the colorimetric strip assays available, and ECBC is actively expanding that range through further research and development. ECBC researchers plan to ultimately combine the biological sensor capabilities of SmartCAR with another advanced ECBC technology, the VOCKit – a handheld, field-ready chemical agent detector which also uses colorimetric assay technology. A combined chemical biological detection device that small, that automated, and that wide-ranging could put an incredible amount of chemical and biological data literally in the palm of the Warfighter's hand.

Interested in more?
Contact ECBC

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