

FROM SENSING TO MAKING SENSE

Portable Sequencing Plus

Lauren Brinkac Noblis Daniel Negrón Noblis Shane Mitchell Noblis Katharine Jennings Noblis

Rapid, accurate biological identification is critical for making informed decisions, especially in force protection and public health situations. Significant gaps exist to widespread implementation of next-generation sequencing in austere conditions, especially for national security and military applications. Noblis' portable deoxyribonucleic acid sequencing system is a field-ready solution with an integrated classification pipeline that can operate in remote, resource-limited environments. It minimizes the need for sample transportation and increases early warning by generating actionable intelligence in the field. Our portable system contains all the equipment and power sources necessary for long-read sequencing technology using the Oxford Nanopore Technologies MinION. The laptop is pre-loaded with a custom database for species or strain classification based on output from Noblis BioVelocity® and GenBank for immediate sample classification of soil, water, swab, and bacterial culture samples. Analysis typically completes in fewer than 3.5 hours. The MinION "Read Until" feature enables immediate queries to the database as sequences are read, which greatly increases polymerase lifetime and operating capacity. Users can view sequencing results in real time to monitor quality and progress in a user-friendly table to easily identify samples. The sequence analysis pipeline has capabilities that have been applied to multiple problem sets, including PCR assay development and genotyping.

(c)2022 Noblis Inc. Proprietary to Noblis