Advanced Molecular Detection

National investment to advance genomic sequencing capacity

Southeast Region

Tennessee

Total Investment[1]: $8,682,041

State and Local Investment: $4,932,262

Research Awards: $3,749,779

CDC's Advanced Molecular Detection (AMD) program builds and integrates laboratory, bioinformatics, and epidemiology technologies across CDC and nationwide. Since 2014, AMD has received support from Congress through a $30 million per year appropriation to implement these technologies in public health programs. Through investments in AMD technologies, CDC is improving both public health outcomes and preparedness in dozens of areas including foodborne disease, influenza, antibiotic resistance, hepatitis, pneumonia, and meningitis.

With funding from the American Rescue Plan Act of 2021, the AMD program has developed a multi-year plan to expand its support to state, local, and territorial public health laboratories with more staff and resources to collect specimens for COVID-19 testing, sequence them to identify and track SARS-CoV-2 variants, and share data, now and future years.

Workforce Development

Tennessee is part of the Southeast region. In 2018, the AMD program established workforce development regions across the country. Each region has an AMD training lead and a bioinformatics lead. This provides a network of customized AMD support which helps develop skills and provides training assistance to public health labs across the country.

Through the Southeast region's training resources, Tennessee receives lab support on data analysis and how to interface with IT departments. They also receive both pathogen-specific training and cross-cutting instruction to help staff develop the critical skills necessary to extract, analyze, and interpret sequencing data.

1 Funding to public health departments includes support from the American Rescue Plan of 2021 and AMD annual appropriations. Awards to university and research partners in 2020 and early 2021 were funded through appropriations supporting the COVID-19 response.

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University and Research Partners in Tennessee

These awards are intended to fill knowledge gaps and promote innovation in the U.S. response to the COVID-19 pandemic. Funding awards are determined through a competitive selection process based on scientific needs and available funds.

Vanderbilt University Medical Center ($3,749,779)

Host-pathogen discovery at an institutional scale: The pathogenomic determinants of SARS-CoV-2 disease manifestations

This project will fill unmet scientific and public health needs to understand the SARS-CoV-2 viral, host genetic, ecological factors and co-morbidity/co-infections risk factors for 1) symptomatic and asymptomatic infection; 2) prolonged shedding; and 3) acute and chronic sequelae of COVID 19. Further by high-throughput genomic sequencing of SARS-CoV-2 the proposal plans to investigate the evolution, emergence and spread of infections in communities and populations and identify viral signatures of virulence.