

Application Title: mRAPiD – Mobile Responding to Air Pollution in Disasters

Lead contact for RDF Application:

Natalie Johnson
Associate Professor
Environmental & Occupational Health
nmjohnson@tamu.edu
979-436-9325 (Office)

Key Participating Units: School of Public Health (Drs. Natalie Johnson and Thomas McDonald), College of Veterinary Medicine & Biomedical Sciences (Dr. Ivan Rusyn)

Anticipated Request Amount (\$): \$489,090

Executive summary of this application to utilize Research Development Funds:

The overall objective of this application is to strengthen Texas A&M University expertise in disaster research response. In the past 5 years, several large-scale grants, such as the Superfund Research Center, allow Texas A&M to expand research, training and teaching capacity to rapidly respond to natural and human-made disasters and to support State and Federal agencies. Most of these efforts focus on evaluation of exposures through the oral or dermal routes; however, inhalation of dangerous contaminants formed during fires, explosions and releases of volatile chemicals is also of great importance. The impacts of disasters on air quality, the leading environmental threat to public health, are well documented. Still, Texas A&M University research capacity in the area of real-time air quality monitoring is woefully inadequate. A large group of atmospheric chemists, environmental and health scientists and engineers at Texas A&M identified a critical need for a readily deployable proton transfer reaction time-of-flight mass spectrometer (PTR-TOF-MS) for volatile organic compound (VOC) monitoring and real-time trace gas detection. The one-time purchase of this instrument will establish the ***Mobile Responding to Air Pollution in Disasters (mRAPiD) Core***. The mRAPiD Core will substantially improve the shared research infrastructure and ability to rapidly deploy state-of-the-art measurement equipment. Importantly, this equipment will be critical to continued competitiveness of Texas A&M for extramural funding by creating a unique field-deployable and laboratory-useable instrumentation for sensitive and comprehensive real-time detection of hundreds of chemical air pollutants. It will be used by the researchers across ***seven colleges and eight departments*** (Public Health, Geosciences, Veterinary Medicine, Medicine, Architecture & Urban Planning, Engineering, and Agriculture & Life Sciences). The mRAPiD core laboratory will coordinate field and lab-based rapid response to disasters across the state of Texas to support the protection of human and environmental health. The mRAPiD Core will position TAMU investigators to compete for over \$20 million in extramural funding (40x the initial investment) in the next 2-3 years alone.