

Title: Agent Detection Workshop**Principal Investigator:** Amy Kircher, University of Minnesota-Twin Cities**Center of Excellence:** Food Protection and Defense Institute (FPDI) (Emeritus)**COE Lead/Co-Lead Institution:** University of Minnesota**Project Start Date:** 12/2014**Project Completion Date:** 06/2016**Project Status:** Complete**Research Theme:** Information Sharing**Participating State(s):** Minnesota**Amount Awarded to Date:** \$200,000**Award Number:** 2010-ST-061-FD0001

Abstract: The National Center for Food Protection and Defense (NCFPD) organized and conducted a workshop series on detection of biological and chemical agents of concern for food defense. The workshop Steering Committee considered and determined the key questions to address such as: 1. What are the main pathogens of concern with respect to food defense and at what stage in the production process is the identification of each of these targets critical? 2. Where/When are food defense detection technologies needed? What stages of an outbreak? What production stages? 3. What are the most critical functions of food defense detection technologies (prevention, mitigation, etc)? 4. What are the key performance parameters (e.g. cost, limits of detection, time to detection, etc.) for detection technologies in laboratories vs production settings? 5. What unique challenges will be faced in a production setting versus a laboratory setting with respect to infrastructure, personnel training, operations, maintenance needs, etc? 6. What processes and technical requirements are needed to validate new technical methods and assays? Are there standards which must be met to validate new technologies? Should there be standards developed? 7. What is the target product profile for food defense detection technologies? What detection technologies are currently in use? Do they meet the Target Product Profile? 8. What technologies and research results represent the current state-of-the-art? Can they be used to fill any unmet needs? 9. What are the key policies and regulations that are either in place or will need to be instituted in order to implement identified present or future technologies? 10. What are the key R&D phases needed and specific milestones that must be demonstrated to get the results of this research into practice-from proof-of-concept to operational use?

Project Type: Seminar/Symposium/Workshop**End User Engagement:**

- Academic Community
- DHS Science and Technology Directorate
- Food and Agriculture Industries
- Food and Drug Administration
- U.S. Department of Agriculture

Executive Summary (2015): In fall of 2014, the Food Protection and Defense Institute (known then as the National Center for Food Protection and Defense) was commissioned by the Department of Homeland Security Science and Technology Directorate (DHS S&T) to assist DHS in planning and prioritizing its efforts to safeguard the nation from terrorist chemical or biological attack. The Food Defense Detection Technologies Workshop Series supported the DHS goal to “Detect, locate, and prevent the hostile use of chemical, biological, radiological, and nuclear materials and weapons” of Mission 1 to “Prevent Terrorism and Enhance Security.” In addition, DHS is directed by both

Homeland Security Presidential Directive 9 and Presidential Policy Directive 21 to coordinate efforts to protect the nation's agriculture and food systems"including from food's weaponization through chemical and biological agent adulteration. Series purpose: To determine detection capabilities and remaining needs and gaps for chemical and biological contamination in food. Goals • Identify previous and existing research, transitional, and operational efforts toward development of methodologies for detection of chemical and biological agents in food. • Discuss relevant research, transitional and operational needs and gaps in food defense (chemical and biological target detection). • Identify required effort to fill needs and close gaps. Outcomes The Food Protection and Defense Institute (FPDI) completed these objectives by conducting two meetings, the Food Defense Agent Detection Workshop (February 24-25, 2015) and the Agent Detection Method Assessment Meeting (September 21-22, 2015), along with additional supporting projects. Key products included: • Recommendations for Chemical and Biological Agent Detection Research • Agent Detection Research Database • Agent Detection Method Assessment Tool • Recommendations for Using the Agent Detection Method Assessment Tool

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