RELEVANCE TO MILITARY HEALTH STATEMENT

The emergence of new strains of influenza viruses with the potential to cause pandemics is a global threat with significant implications for the health and safety of military personnel. The proposed BioNORAD platform is designed to predict and identify the emergence of new strains of influenza viruses, providing vital information for the Department of Defense (DoD) to take proactive measures to protect its personnel and assets. In this statement, we highlight the relevance of this grant to military health and why it is of interest to the DoD.

1) **Protecting Military Personnel and Assets:** Military personnel are often deployed in diverse geographical locations and close proximity to animal reservoirs, increasing their risk of exposure to novel influenza strains. The ability to preemptively identify and mitigate these threats is essential to safeguard the health of the deployed personnel and ensure the readiness and effectiveness of the military. The BioNORAD platform will enable the DoD to take proactive measures to protect its personnel and assets from emerging pandemic threats.

2) **Enhancing Military Medical Response Capabilities:** The development of the BioNORAD platform will provide the military with an advanced tool to better anticipate and respond to pandemic threats. Early identification of potential strains enables the development of targeted vaccines, antiviral treatments, and other medical countermeasures. This will significantly enhance the military's medical response capabilities, ensuring the health and well-being of its personnel.

3) **Strengthening Global Health Security:** The ability to predict and mitigate the spread of pandemic threats is a vital aspect of global health security. By developing the BioNORAD platform, the DoD will contribute to global efforts to prevent and respond to emerging infectious diseases. This will not only protect military personnel but also support civilian populations worldwide, strengthening international partnerships and cooperation.

4) **Reducing Economic and Operational Impacts:** Pandemics can have severe economic and operational consequences for the military. By enabling early detection and mitigation, the BioNORAD platform will help reduce the financial and operational burdens associated with major outbreaks. This will ensure that the DoD can continue to carry out its mission effectively during times of crisis.

5) **Promoting Interdisciplinary Collaboration and Innovation:** The development of the BioNORAD platform will bring together experts from various fields, including machine learning, information theory, evolutionary theory, epidemiology, and proteomics. This interdisciplinary collaboration will foster innovation and advance our understanding of the complex interactions between pathogens and their hosts. The knowledge and technologies generated by this project will have broad applications beyond influenza, with potential benefits for military health and biodefense efforts.

In summary, the development of the BioNORAD platform is highly relevant to military health and of significant interest to the Department of Defense. By enabling early identification and mitigation of emerging pandemic threats, the platform will protect military personnel and assets, enhance military medical response capabilities, strengthen global health security, reduce economic and operational impacts, and promote interdisciplinary collaboration and innovation. This project aligns with the FY23 PRMRP Portfolio Category: Infectious Diseases, FY23 PRMRP Topic: proteomics, and FY23 PRMRP Strategic Goal: Epidemiology: Identify strategies for surveillance or develop modeling tools and/or biomarkers to predict outbreaks or epidemics. The investment in the BioNORAD platform is a strategic step towards ensuring the health and safety of military personnel and the success of the DoD's mission in a world where pandemic threats are a growing concern.