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RAPID, REAGENTLESS VIRAL DIAGNOSTIC USING ISOLATED LEUKOCYTES

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Technology Summary
RNA viruses represent a significant portion of the high priority pathogens of concern to both human and animal health. The National Institute of Allergy and Infection Diseases' (NIAID) prioritized listing of human pathogens includes the RNA Viruses: Hanta viruses, Dengue, Ebola, Marburg, Lassa, Hepatitis A and C, West Nile, and a large number of encephalitis viruses. The USDA prioritized list of infectious animal diseases include four RNA viruses within their top six ranked pathogens; Foot and Mouth Disease Virus, Rift Valley Fever Virus, common swine fever virus, and Japanese encephalitis. Viral outbreaks of these pathogens have significant direct impact on human health or dramatic indirect impact by their disruption of food supplies and related economic considerations. Rapid diagnostics are critical elements of an effective response to viral outbreaks, but are limited by both available technology and implementation. The invention provides a method and apparatus for rapidly diagnosing active, acute viral infection from small volumes of blood or other infected tissues using a highly fieldable, and near reagentless protocol whereby signal is dependent on active viral replication within isolated cells and tissue.

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