Viral Sample Handling and Inactivation

Various domestic and international public health organizations have published guidelines on sample handling for viral detection, particularly with respect to SARS-CoV-2. These guidelines generally agree that non-inactivated viral samples can be handled in a common BSL-2 laboratory and that sample collection tubes should be uncapped inside a biosafety cabinet prior to processing. Below is a list of links to various guidance documents that are currently available:

World Health Organization (WHO): Laboratory Biosafety Manual – Third Edition

Centers for Disease Control and Prevention (CDC): Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with Coronavirus Disease 2019 (COVID-19)

European Centre for Disease Prevention and Control (ECDC): Laboratory Support for COVID-19 in the EU/EEA

Public Health England: Guidance, COVID-19: safe handling and processing for samples in laboratories

With respect to the Applied Biosystems™ MagMAX™ Viral/Pathogen Nucleic Acid Isolation Kit, the binding solution it uses contains sufficient concentrations of Guanidinium thiocyanate to effectively inactivate RNA viruses, based on current literature. Below is a list of links to the relevant literature:

- Guanidine and previous MagMAX buffers
  - https://journals.sagepub.com/doi/pdf/10.1177/1535676017703383
  - https://pubmed.ncbi.nlm.nih.gov/15323569/

While these papers do not report specific testing with SARS-CoV-2, they do reference other RNA viruses with similar structures.

Please note that if the Applied Biosystems™ MagMAX™ Viral/Pathogen Nucleic Acid Isolation Kit binding solution is used to lyse the viral sample but it is then processed with another vendor's extraction kit, we **cannot** guarantee the effectiveness of the extraction process as our buffers are designed to work optimally with our reagents only.

Although the Applied Biosystems™ MagMAX™ Viral/Pathogen Nucleic Acid Isolation Kit binding solution contains a chaotropic guanidine salt, which has been documented as an inactivation agent for many potential pathogens, we are not able to guarantee inactivation of any pathogen under any possible condition. It is the responsibility of the end user to validate pathogen inactivation in their specific laboratory setting and to provide training and guidance to laboratory personnel in handling and processing specimens which may contain potentially active viral pathogens.

For further guidance, please contact your local governing body or regulatory agency.

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