

DIAGNOSTICS

Sample Preparation Unit and Reagent Pack

Single use consumable for Bio-Seeq Portable Veterinary Laboratory



- Sample preparation unit is standard for all veterinary diagnostic assays
- Plug in reagent pack contains all PCR reagents for the selected assay
- Accepts a wide range of solid and liquid sample types
- Identifies DNA and RNA targets
- Sophisticated multiplexed and strain differentiating assays using LATE PCR
- Unit is fully sealed, and can be decontaminated, preventing cross contamination
- Can be stored and transported at room temperature

Sample Preparation Unit (SPU)

The SPU is a fully automated purpose-designed sample preparation system, for field use by the non expert. It is a single use consumable which is capable of purifying DNA or RNA from a wide range of sample types, including: blood, milk, vesicular tissue, faeces, swabs. The SPU is used in conjunction with a reagent pack. The SPU contains all the mechanical and chemical parts needed to purify either DNA or RNA from a sample. The plug in reagent pack contains all the reagents necessary to carry out PCR. All steps in the process are handled by the SPU, avoiding the need for manual intervention and therefore reducing the risk of cross contamination of the sample.

The system is designed for ease-of-use. Samples are placed into the device and the cap screwed in place. The SPU is placed on the Bio-Seeq Portable Veterinary Laboratory to process the sample and run PCR, or reverse transcription and PCR if it is an RNA sample. All reagents used in the SPU are temperature stable, avoiding the need for refrigeration. The reagents include a positive control to allow the system to determine if the assay has worked even if no target signal is seen. Throughout the process and during subsequent disposal, the SPU is a closed system which reduces the likelihood of escape of biohazardous material.



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Reagent Pack

The reagent pack, contains the assay specific reagents and is plugged into a SPU unit just prior to use. The SPU and reagent pack can be bought separately, as required.

The reagent pack uses barcodes, allowing the assay to be automatically set up by the instrument and reducing the chance of operating error. Expiry dates can be checked to ensure the assays will work reliably. The small reagent kit pack is provided separately, enabling the full range of assays to be carried at all times and ensuring the veterinarian always has the right assay without having to carry the equivalent number of SPUs.

Assays available or in development as reagent packs include:

- Foot-and-Mouth Disease Virus identifying all 7 Serotypes of FMDV in a single test.

- Combined Avian Influenza and Newcastle Disease Identifying High and Low Path H5N1 and H7 and the Newcastle Disease Virus in a single test.
- Classical Swine Fever identifies currently circulating strains in a single test.
- African Swine Fever identifies currently circulating strains in a single test.
- Bluetongue identifies currently circulating strains in a single test.

LATE-PCR

The Bio-Seeq Portable Veterinary Laboratory instrument and SPU use an advanced PCR chemistry called Linear After The Exponential PCR or LATE-PCR, developed at Brandeis University. LATE-PCR enables users to carry out assays with much greater discriminatory power than has typically been available to date.

LATE-PCR can be highly multiplexed to allow the detection and identification of a wide range of targets in a single assay. It can accurately determine the strain of an individual infection, critical in Avian Influenza where it is vital to discriminate between the pathogenic strain of H5N1 and more common forms of the disease. As an asymmetric PCR chemistry, the products are available for direct sequencing without the common clean-up procedures needed to remove primers. This reduces the sample handling time and allows a shorter time to sequencing result.

Smiths Detection holds an exclusive license to LATE-PCR.

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Technical data

Sample Preparation Unit

Size (cm)	H 14.4 x W 9.0 x D 6.6
Weight	141g