

Vantage 3D DNA:Fusion:Protein Lung Assay for Lysate

The nCounter® Vantage 3D DNA:Fusion:Protein Lung Assay for Lysate simplifies DNA SNV and RNA gene fusion detection and protein expression analysis with curated content covering 146 actionable SNV and INDELS covering 45 genes, 63 lung-specific RNA gene fusions, and 42 total phospho-proteins. This highly multiplexed assay is capable of simultaneously characterizing DNA SNV, RNA Fusion, and protein with minimal sample input and integrated data analysis.

DNA SNV, RNA Fusion, and protein detection is built on the core nCounter digital barcoding technology to enable simultaneous multi-analyte profiling. The Vantage 3D DNA:Fusion:Protein Lung Assay is designed to detect sequence variants from human genomic DNA that has undergone target enrichment by multiplex PCR. This is enabled by a modified version of the nCounter barcode chemistry. A single nucleotide mismatch between the probe and the target can disrupt probe hybridization, thereby providing single-nucleotide specificity for each probe. The assay is designed to provide data that upon analysis yields positive detection calls for DNA mutations and variant alleles associated with lung tumor biology that are present at an allele frequency of 5% or greater.

The Vantage 3D DNA:Fusion:Protein Lung Assay provides sensitive and specific detection of 35 lung cancer-associated gene fusions and positional gene expression imbalance detection for the genes ALK, RET, and ROS1 from purified total RNA. RNA Fusion detection utilizes Junction Sequence probe design for highly sensitive and quantitative Lung Fusion detection.

Protein detection in the Vantage 3D DNA:Fusion:Protein Lung Assay utilizes antibodies specific to proteins of interest that have been barcoded with unique synthetic DNA oligonucleotides. Each DNA oligonucleotide is then recognized by a unique Reporter probe that contains a fluorescent barcode.

All analytes are imaged and counted simultaneously by the nCounter Analysis System to provide a direct, digital readout of DNA, Fusion, and protein expression.

Learn more about [3D Biology™ Technology](#).

Product Workflow

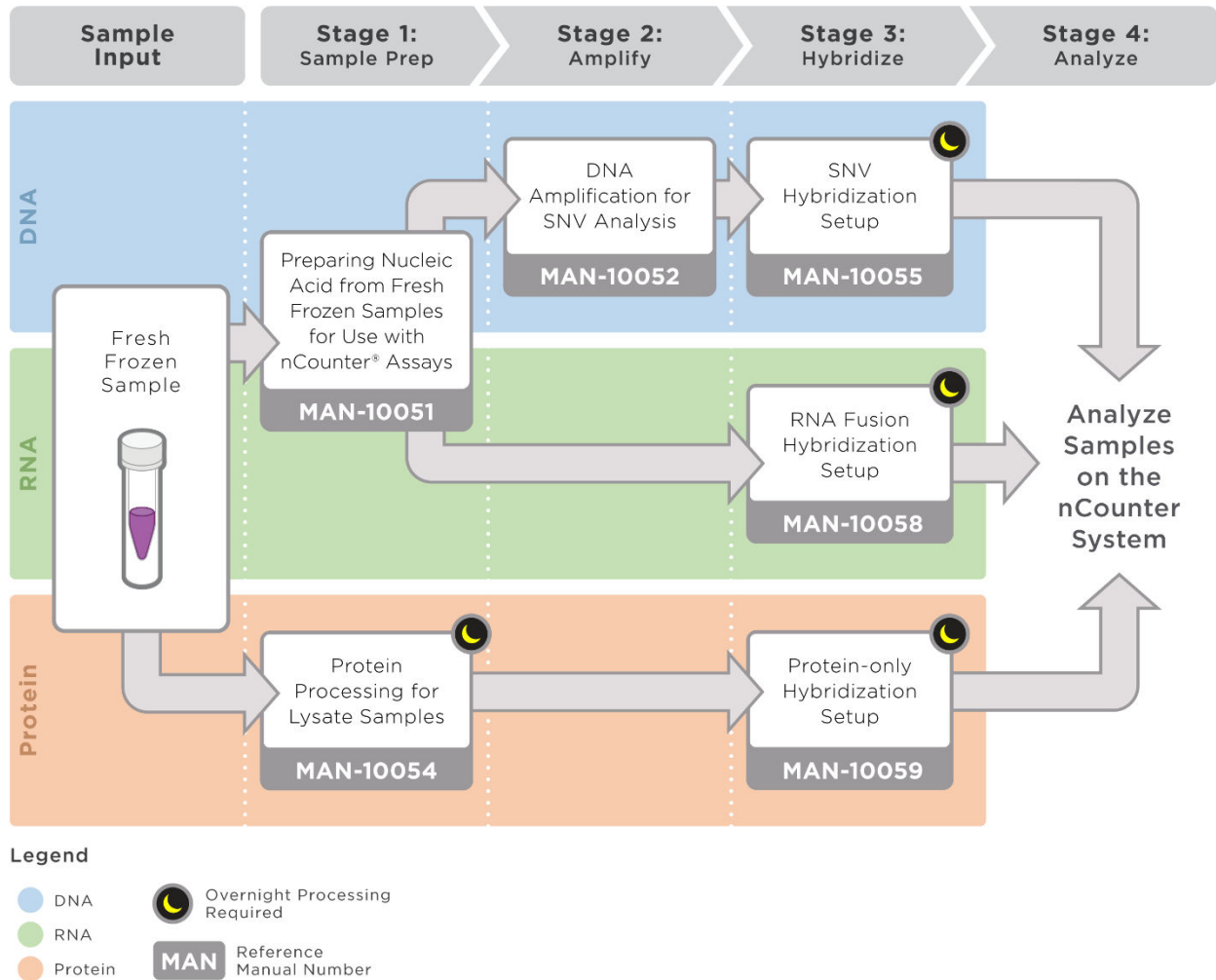


Figure 1. Workflow for Vantage 3D DNA:Fusion:Protein Lung Assay for Lysate

System Qualification

SNV panels can only be successfully run on nCounter systems that have been performance-qualified for this panel type. Please consult the [SNV Qualification Kit Manual \(MAN-10039\)](#) for more details about how to obtain and use the materials needed for this system testing as well as how to communicate the results of the testing to NanoString Support (snvqualify@nanosttring.com). The SNV Qualification Kit process must be completed prior to running the DNA SNV Solid Tumor Panel for the first time. Contact NanoString Support (snvqualify@nanosttring.com) to receive additional assistance with the system qualification.

Materials and Supporting Documents

Table 1. Materials provided in the Vantage 3D DNA:Fusion:Protein Lung Assay for Lysate Kit

Kit	Reagents	Storage
Vantage 3D DNA:Fusion:Protein Lung Assay for Lysate Catalog #: VDFPC-HLSTL-12	DNA	
	SNV Solid Tumor Primer Pool	-20°C
	5x dU Amp Master Mix	-20°C
	SNV TagSet	-80°C
	SNV Solid Tumor Probe M Pool	-80°C
	SNV Solid Tumor Probe S Pool	-80°C
	SNV Solid Tumor Probe T Pool	-80°C
	DNA SNV Reference Sample*	-20°C
	RNA	
	Fusion TagSet	-80°C
	Fusion Probe A Pool	-80°C
	Fusion Probe B Pool	-80°C
	Fusion Probe P Pool	-80°C
	Protein	
	Protein TagSet (R)	-80°C
	Antibody Mix	-80°C
Buffer WS	4°C	

* The DNA SNV Reference Sample is obtained from the US National Institute of Standards & Technology (NIST). It is Reference Material 8398: Human DNA for Whole-Genome Variant Assessment. It is homozygous for reference alleles at every position that is assayed by the DNA SNV Heme Panel and serves as an optional negative control and reference sample.

NOTE: Please reference the manuals listed in Figure 1 and Table 2 for additional required reagents not supplied by NanoString.

Table 2. Supporting Documents

Step	Manual	Protocol
System Qualification	MAN-10039	SNV Qualification Kit Manual
Nucleic Acid Extraction	MAN-10051	Preparing Nucleic Acid from Fresh/Frozen Samples for Use with nCounter Assays
Protein Preparation	MAN-10054	Protein Processing for Lysate Samples
Sample Amplification	MAN-10052	DNA Amplification for SNV Analysis
Hybridization	MAN-10055	SNV Hybridization Setup
	MAN-10058	RNA Fusion Hybridization Setup
	MAN-10059	Protein-only Hybridization Setup

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