Vantage 3D DNA:Fusion Lung Assay

The nCounter® Vantage 3D DNA:Fusion Lung Assay simplifies DNA SNV and RNA gene fusion detection with curated content covering 97 actionable SNV and INDELS covering 24 genes and 63 lung-specific RNA gene fusions. This highly multiplexed assay is capable of simultaneously characterizing DNA SNV and RNA fusion with minimal sample input and integrated data analysis.

DNA SNV and RNA Fusion detection is built on the core nCounter digital barcoding technology to enable simultaneous multi-analyte profiling. The Vantage 3D DNA:Fusion 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 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 RNA extracted from FFPE samples. RNA Fusion detection utilizes Junction Sequence probe design for highly sensitive and quantitative Lung Fusion detection.

Both analytes are imaged and counted simultaneously by the nCounter Analysis System to provide a direct, digital readout of DNA SNV and Fusion detection.

Learn more about 3D Biology™ Technology.

Product Workflow

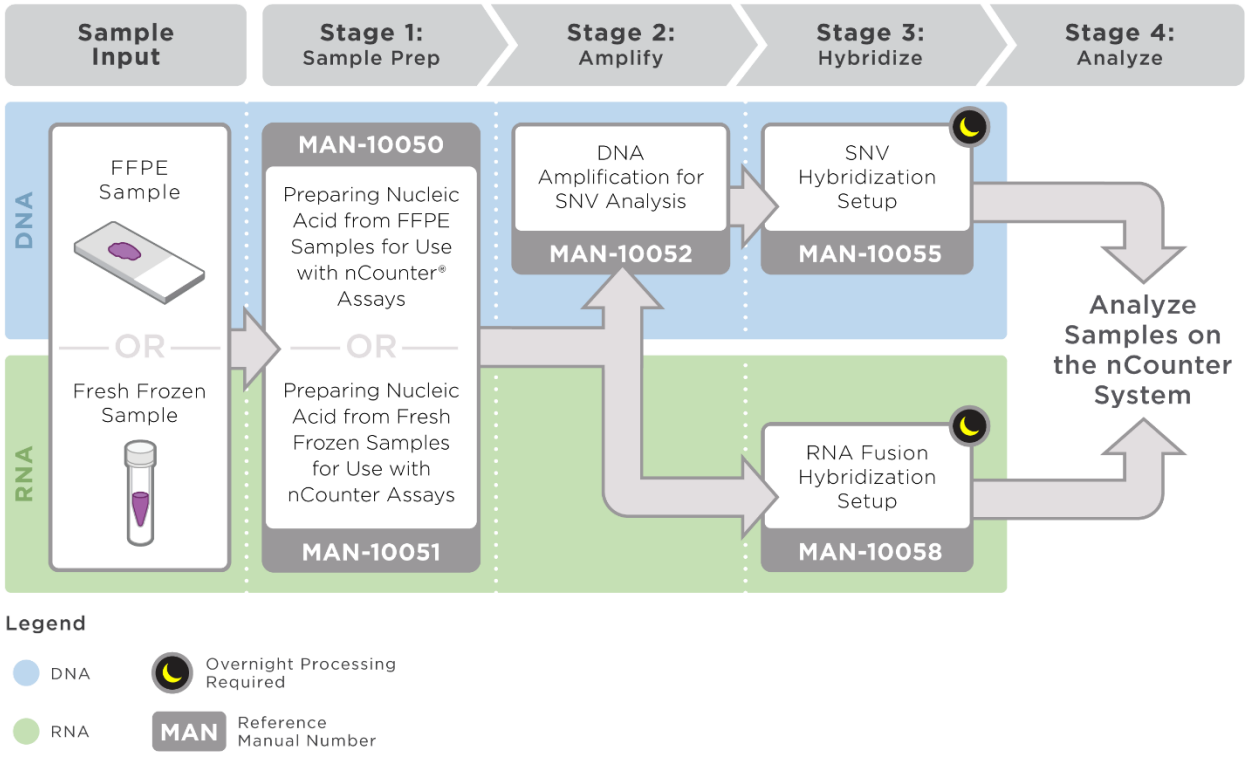

Figure 1. Workflow for the Vantage 3D Lung SNV Fusion Assay

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@nanostring.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@nanostring.com) to receive additional assistance with the system qualification.

Materials and Supporting Documents

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

Kit	Reagents	Storage
Vantage 3D DNA:Fusion Lung Assay Catalog #: VRXC-LGF-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	
	Probe A Pool (Fusion)	-80°C
	Probe B Pool (Fusion)	-80°C
	Probe P Pool (Fusion)	-80°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 Solid Tumor 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-10050	Preparing Nucleic Acid from FFPE Samples for Use with nCounter Assays
	MAN-10051	Preparing Nucleic Acid from Fresh Frozen Samples for Use with nCounter Assays
Sample Amplification	MAN-10052	DNA SNV Sample Amplification
Hybridization	MAN-10055	SNV Hybridization
	MAN-10058	RNA Fusion Hybridization

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