Vantage 3D DNA:RNA:Protein Solid Tumor Assay for FFPE

The nCounter® Vantage 3D DNA:RNA:Protein Solid Tumor Assay for FFPE simplifies DNA SNV detection and RNA and protein expression analysis with curated content covering 97 actionable SNV and INDELS covering 24 genes, 192 RNA targets (including 12 reference controls), and 26 total and phospho-proteins. This highly multiplexed assay is capable of simultaneously characterizing DNA SNV, RNA, and protein with minimal FFPE sample input and integrated data analysis.

DNA SNV and protein detection is built on the core nCounter digital barcoding technology to enable simultaneous multi-analyte profiling. The Vantage 3D DNA:RNA:Protein Solid Tumor 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 solid tumor biology that are present at an allele frequency of 5% or greater.

Protein detection in the Vantage 3D DNA:RNA:Protein Solid Tumor Assay utilizes antibodies specific to proteins of interest that have been barcoded with unique synthetic DNA oligonucleotides with a photocleavable linker. Each DNA oligonucleotide is then UV cleaved and 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, RNA, and protein expression.

Learn more about 3D Biology™ Technology.

Product Workflow
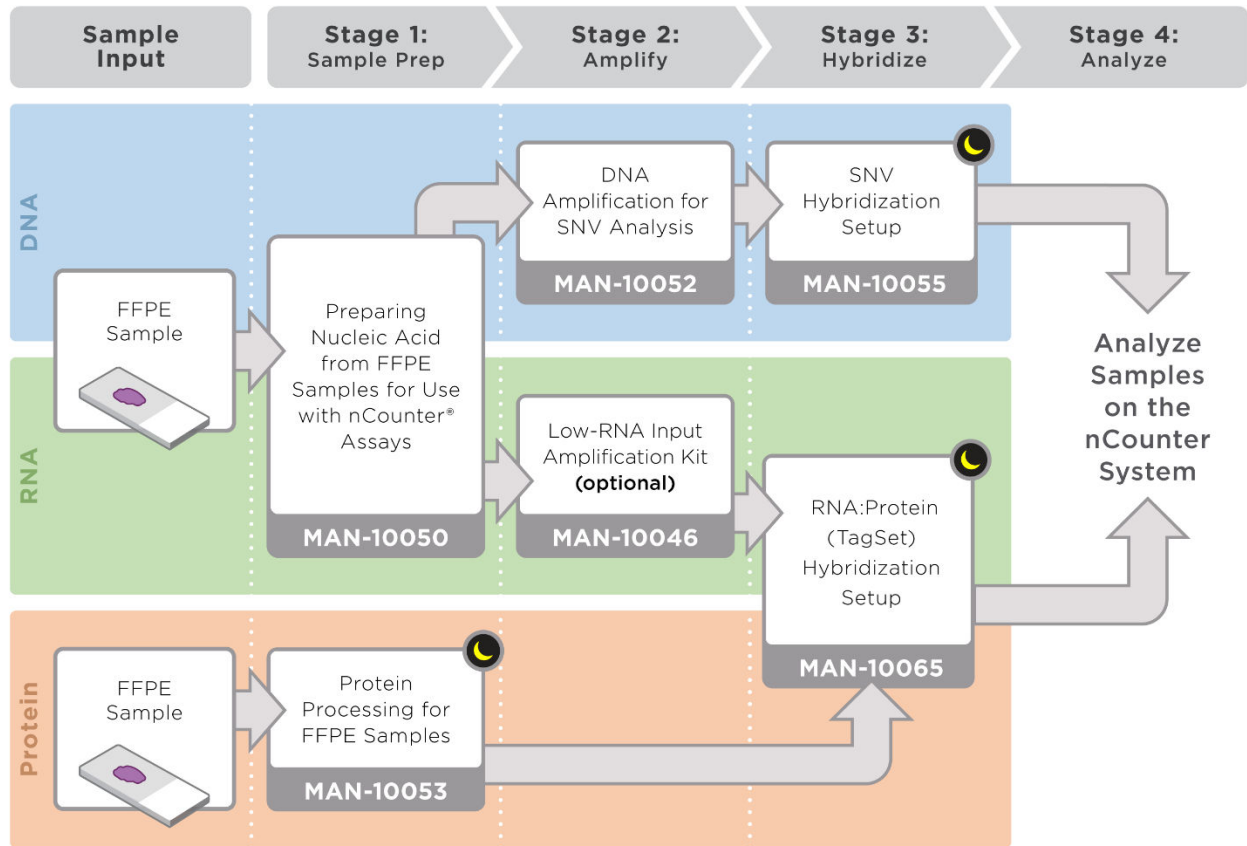
Figure 1. Workflow for the Vantage 3D DNA:RNA:Protein Solid Tumor Assay for FFPE

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.

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Materials and Supporting Documents

Table 1. Workflow for the Vantage 3D DNA:RNA:Protein Solid Tumor Assay for FFPE Kit

Kit	Reagents	Storage
Vantage 3D DNA:RNA:Protein Solid Tumor Assay for FFPE Catalog #: VDRPC-SPKP-HSTF-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	
	RNA Probe A	-80°C
	RNA Probe B	-80°C
	RNA TagSet	-80°C
	Protein	
	Protein TagSet (R)	-80°C
	Antibody Mix	-80°C
	Buffer W	4°C
	Buffer T	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 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
Protein Preparation	MAN-10053	Protein Processing for FFPE Samples
Sample Amplification	MAN-10052	DNA SNV Sample Amplification
	MAN-10046	Low-RNA Input Amplification Kit
Hybridization	MAN-10055	SNV Hybridization
	MAN-10065	RNA:Protein (TagSet) Hybridization Setup

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