nCounter®
Analysis System
For Translational Research

nanostring.com
FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.
Molecules That Count®
HIGHLY MULTIPLEXED SINGLE MOLECULE COUNTING
NanoString’s patented molecular barcodes provide a true digital detection technology capable of highly multiplexed analysis*.

**Faster than qPCR.**
**Simpler than NGS.**

The nCounter® platform provides a simple and cost-effective solution for multiplex analysis of up to 800 RNA, DNA, or protein targets from your precious samples.

**Save Time**
- Expertly curated pre-formatted panels for human, mouse and non-human primate
- 15-minutes total hands-on time with no amplification, cDNA conversion or library prep required
- Sample to Publication ready figures in ~24 hours

**Save Sample**
- Combine RNA, DNA, and protein panels for a comprehensive 3D Biology™ view of each sample
- Optimized performance on difficult sample types including FFPE, tissue, lysates and biofluid samples

**Save Resources**
- Advanced analysis tools included with system reduce the need for Bioinformatics support
- Digital gene expression eliminates need for technical replicates

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**1 HYBRIDIZE**
Two probes hybridize directly to a target molecule in solution. The Reporter Probe carries the fluorescent barcode and the Capture Probe contains a biotin moiety that immobilizes the hybridized complex for data collection.

**2 PURIFY + IMMOBILIZE**
After hybridization, samples are transferred to an nCounter instrument which removes excess probes. Purified target-probe complexes are bound, immobilized and aligned on the imaging surface of the nCounter cartridge.

**3 COUNT**
Sample cartridges are scanned by an automated fluorescence microscope. Barcodes are counted for each target molecule and the data are exported as a simple CSV file.

*The DNA SNV assay and samples run with the Low RNA Input Kit (enables analysis from 1 ng of RNA, 10 ng from FFPE) require amplification prior to sample processing and data collection.
Faster than qPCR, simpler than NGS

Fully automated and easy-to-use, the nCounter Analysis System provides everything you need to cost-effectively complete your projects in record time.

**Strong analytical performance**—sensitive, precise and quantitative digital data

**Flexible samples**—optimized performance with most sample types including FFPE, PBMCs and FACS

**Single tube multiplexing**—up to 800 targets

**Quality assurance**—One platform for both basic research and clinical diagnostics; GMP compliant/ISO 13485 certified

**Easy-to-use**—fully automated, intuitive user interface

**Data analysis**—generate publication quality figures quickly and easily with nSolver™ Analysis Software

**Amplification Free Analysis**

Most nCounter assays do not require amplification of target sequence for detection and can be performed with 25-100 ng of input material which is ideal for investigators working with precious samples.

This amount is equivalent to a single curl of FFPE tissue and data are comparable to that generated with matched fresh-frozen material.

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### nCounter Systems

<table>
<thead>
<tr>
<th>System</th>
<th>Integrated Benchtop System for Research Labs</th>
<th>for Core Labs and High Sample Throughput</th>
<th>for Translational Labs and Clinical Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>nCounter SPRINT</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td>nCounter MAX</td>
<td><img src="image4.png" alt="Image" /></td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td>nCounter FLEX</td>
<td><img src="image7.png" alt="Image" /></td>
<td><img src="image8.png" alt="Image" /></td>
<td><img src="image9.png" alt="Image" /></td>
</tr>
</tbody>
</table>

### Exceptional Reproducibility and Performance

- Amplification Free Analysis*: The DNA SNV assay and samples run with the Low RNA Input Kit (enables analysis from 1 ng of RNA, 70 ng from FFPE) require amplification prior to sample processing and data collection.

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### Tens of Thousands of Data Points Every Day

<table>
<thead>
<tr>
<th>System</th>
<th># of Genes per Run</th>
<th>Samples per Day</th>
<th>Data Points per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>nCounter SPRINT</td>
<td>800 genes</td>
<td>24 samples</td>
<td>19,200</td>
</tr>
<tr>
<td>nCounter FLEX</td>
<td>800 genes</td>
<td>48 samples</td>
<td>38,400</td>
</tr>
<tr>
<td>nCounter MAX</td>
<td>800 genes</td>
<td>96 samples</td>
<td>76,800</td>
</tr>
</tbody>
</table>

### Increase Sample Throughput with nCounter PLEXSET™ Chemistry

<table>
<thead>
<tr>
<th>System</th>
<th># of Genes per Run</th>
<th>Samples per Day</th>
<th>Data Points per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>nCounter SPRINT</td>
<td>24 genes</td>
<td>192 samples</td>
<td>4,608</td>
</tr>
<tr>
<td>nCounter MAX</td>
<td>24 genes</td>
<td>768 samples</td>
<td>18,432</td>
</tr>
</tbody>
</table>
NanoString’s molecular barcoding technology uses color-coded molecular barcodes that can hybridize directly to many different types of target molecules. It is ideal for a range of applications requiring efficient, high-precision quantitation of hundreds of target molecules across a sample set. All nCounter assays generate high-quality results from challenging sample types, including FFPE and crude cell lysates.

**Gene Expression Analysis**
- Rapidly analyze up to 800 genes simultaneously
- No RT, no enzyme and no amplification*
- Lysa and Go protocols for cells, blood and FFPE

**miRNA Expression Analysis**
- Multiplexed target profiling of miRNA transcriptomes in a single reaction
- Targeted miRNA discovery and validation on one platform
- Excellent specificity; accurately distinguish between highly similar miRNAs

**miRGE™ Expression Analysis**
- Simultaneously profile miRNA and mRNA expression in a single reaction
- No RT, no amplification and fewer pipetting steps

**Fusion Gene Analysis**
- Identify fusion events without knowledge of partner genes
- Characterize specific fusions by probing the junction sequence
- Study fusions and gene expression targets in the same assay

**IncRNA Expression Analysis**
- High precision, digital quantification of IncRNAs
- Analyze up to 800 IncRNAs in a single reaction with no amplification

**Single Cell Analysis**
- Obtain single cell sensitivity with reverse transcription and limited amplification

**Small Sample. Big Insight.**

**3D BIOLOGY™ TECHNOLOGY**
- Profile combinations of DNA, RNA fusion, protein and phospho-protein targets up to 800-plex from a single sample

**Single Nucleotide Variation (SNV) Analysis**
- Tumor-specific panels
- Internal controls for amplification cycle and false discovery rates (FDRs)
- Detects SNVs, dinucleotide variants and small InDels

**Copy Number Variation (CNV) Analysis**
- Custom and cancer-specific panels
- Internal controls including invariant genomic regions and spike-in process controls
- Analyzes 0–4 bi-allelic and multi-allelic CNVs

**Protein and Phospho-protein Expression Analysis**
- Multi-plex content focused on key areas in oncology research
- Profile 30 proteins simultaneously
- Customizable panels with our protein barcoding service
- Compatible with primary cells, fresh/frozen tissue, and FFPE

*Low RNA input protocol available, requires amplification.
### nCOUNTER® VANTAGE 3D™ ASSAYS - MIX AND MATCH

<table>
<thead>
<tr>
<th>RNA PANELS</th>
<th>NO. OF GENES</th>
<th>PROTEIN PANELS</th>
<th>NO. OF PROTEINS</th>
</tr>
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<tbody>
<tr>
<td>Adaptive Immunity</td>
<td>192</td>
<td>Immune Cell Profiling for cell suspensions</td>
<td>30</td>
</tr>
<tr>
<td>Innate Immunity</td>
<td>192</td>
<td>Immune Cell Signaling for cell suspensions</td>
<td>26</td>
</tr>
<tr>
<td>Cancer Metabolism</td>
<td>192</td>
<td>Solid Tumor for lysate</td>
<td>28</td>
</tr>
<tr>
<td>Intracellular Signaling</td>
<td>192</td>
<td>Solid Tumor for FFPE</td>
<td>26</td>
</tr>
<tr>
<td>Cellular Profiling</td>
<td>192</td>
<td>Home for lysate</td>
<td>**</td>
</tr>
<tr>
<td>Wnt Pathways</td>
<td>192</td>
<td>Home for FFPE</td>
<td>**</td>
</tr>
<tr>
<td>DNA Damage and Repair</td>
<td>192</td>
<td>DNA SNV Heme</td>
<td>Inquire**</td>
</tr>
<tr>
<td>MAPK-PI3K Pathways</td>
<td>192</td>
<td>DNA SNV Solid Tumor</td>
<td>104</td>
</tr>
<tr>
<td>Home</td>
<td>192</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lung Fusion</td>
<td>63</td>
<td></td>
<td></td>
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<tr>
<td>Leukemia Fusion</td>
<td>42</td>
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### nCOUNTER® VANTAGE 3D™ ASSAYS - PRE-MATCHED

<table>
<thead>
<tr>
<th>COMBINATION PANELS</th>
<th>DESCRIPTION</th>
<th>RNA:Protein Immune Cell Profiling for cell suspensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>RNA:Protein Immune Cell Signaling for cell suspensions</td>
<td>RNA:Protein Solid Tumor for FFPE</td>
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<tr>
<td>RNA:Protein Solid Tumor for lysate</td>
<td>DNA:RNA:Protein Solid Tumor for lysate</td>
<td></td>
</tr>
<tr>
<td>DNA:RNA:Protein Solid Tumor for FFPE</td>
<td>DNA:Fusion:Protein Lung for lysate</td>
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<tr>
<td>DNA:Fusion:Protein Lung for FFPE</td>
<td>DNA:RNA:Protein Heme for lysate**</td>
<td></td>
</tr>
<tr>
<td>DNA:RNA:Protein Heme for FFPE**</td>
<td>** Available late 2017. Ask your account representative about availability.</td>
<td></td>
</tr>
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</table>

### miRNA TARGETED DISCOVERY PANELS

<table>
<thead>
<tr>
<th>miRNA TARGETED DISCOVERY PANELS</th>
<th>DESCRIPTION</th>
<th>NO. OF MiRNAs</th>
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</thead>
<tbody>
<tr>
<td>Human v3</td>
<td>Human v3</td>
<td>800</td>
</tr>
<tr>
<td>Mouse v1.5</td>
<td>Mouse v1.5</td>
<td>600</td>
</tr>
<tr>
<td>Rat v1.5</td>
<td>Rat v1.5</td>
<td>423</td>
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### HUMAN KARYOTYPE PANEL

<table>
<thead>
<tr>
<th>HUMAN KARYOTYPE PANEL</th>
<th>DESCRIPTION</th>
<th>REGIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Karyotype monitors gross chromosomal abnormalities; includes 218 individual loci to quickly monitor cells as they passage</td>
<td>8 probes per arm</td>
<td></td>
</tr>
</tbody>
</table>

### CANCER CN PANEL V2

<table>
<thead>
<tr>
<th>CANCER CN PANEL V2</th>
<th>DESCRIPTION</th>
<th>NO. OF GENES</th>
</tr>
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<tbody>
<tr>
<td>CNVs (~3 probes per region) commonly amplified or deleted in cancer</td>
<td>87</td>
<td></td>
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### DNA SNV PANELS

<table>
<thead>
<tr>
<th>DNA SNV PANELS</th>
<th>NO. OF MUTATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNA SNV Solid Tumor</td>
<td>104</td>
</tr>
<tr>
<td>DNA SNV Heme</td>
<td>Inquire**</td>
</tr>
</tbody>
</table>

Say Hello to nDesign™ Gateway

For a complete list of genes in each panel, visit STORE.NANOSTRING.COM.
Low expressing genes to be completed quickly and efficiently. The streamlined, user friendly workflow and analysis of sample. The kit is optimized for use with RNA from Formalin-fixed, paraffin-embedded (FFPE) extracts with no loss in precision. Even severely degraded RNA can be a viable sample input.

**Crude Cell Lysates**

Three cell lysates (2,500, 5,000, and 10,000 cells) were compared to 100 ng of purified total RNA. Results using cell lysates were highly correlated with purified RNA (R² > 0.97 for all three) and demonstrated that comparable data can be achieved with either protocol.

**Whole Blood Lysates**

Two PAXgene-lysed whole blood replicates compared to 100 ng of purified total RNA. Results using blood lysates were highly correlated with purified RNA (R² > 0.97 for all three) and demonstrated that high quality data can be obtained using PAXgene-lysed whole blood. (PAXgene is a trademark of QIAGEN®.)

**Formalin-Fixed paraffin-embedded tissue**

FFPE-derived and purified total RNA compared to matched purified total RNA from fresh tissue. Results using FFPE-derived tissue were highly correlated with purified RNA (R² > 0.97) and demonstrated that high quality data can be achieved from FFPE.

**Expanded Options with nCounter Low RNA Input Kit (1-10 ng)**

The nCounter Low RNA Input Kit enables high quality gene expression profiling of up to 800 gene targets from as little as 1 ng of sample. The kit is optimized for use with RNA from Formalin-fixed Paraffin Embedded (FFPE) tissue as well as crude cell lysates. Additionally, the kit can be utilized in the study of low expressing genes. The streamlined, user friendly workflow and reliable results enable gene expression studies of small samples or low expressing genes to be completed quickly and efficiently.

**Data Analysis**

VISUALIZE RESULTS WITH nSOLVER™ ANALYSIS SOFTWARE

nSolver Analysis Software is an integrated analysis platform for storage, custom QC, and custom normalization of nCounter data. Generate highly-customized exports, basic statistical outputs, and publication-quality figures quickly and easily with the no incremental cost.

- Recommended quality control on samples/lanes
- Tunable normalization and fold-change measurements
- Statistical significance testing
- Compatible with standard analysis programs including: Ingenuity Pathway Analysis, Partek Genomics Suite, BioDiscovery Nexus Copy Number, Advaita iPathwayGuide

SIMPLE, ADVANCED DATA ANALYSIS

nCounter Advanced Analysis is a free, wizard-based add-on to nSolver™ Analysis Software for deeper data insights based on robust R statistics. Examine experimental trends, identify pathway-specific responses, and profile immune cell populations in shareable HTML reports.

- Support for all mRNA and protein CodeSets, including custom reagents and panels
- Quick Analysis option for one-click data QC, normalization, and differential expression testing
- Automatic incorporation of biological annotations and logical defaults for each panel

Data analysis services for large projects are available.
For more information please contact: DAS@nanostring.com
CLINICAL DIAGNOSTICS CAPABILITIES
Our experience developing, testing and marketing Prosigna® demonstrates our commitment to establishing nCounter as a truly multi-purpose platform for research and clinical use.

DESIGN A CUSTOM CODESET SPECIFIC TO YOUR RESEARCH
• Standard chemistry enables processing of up to 96 samples/day x 800 (depending on system)
• PlexSet™ chemistry enables sample multiplexing of up to 8 samples per lane, increasing sample throughput

CUSTOMIZE A PANEL
Add up to 55 additional genes or a collection of specific controls to make your panel unique to that experiment.

Select Genes
Submit your RefSeq IDs for up to 800 target genes to NanoString. LEAD TIME: Customer-defined

Probe Design
NanoString designs probes then creates and sends a Design Report. LEAD TIME: Custom GE: 3-5 days Custom CNV: 10-15 days

Customer Review
Customer reviews and approves Design Report. LEAD TIME: Customer-defined

Manufacture and Ship
NanoString manufactures and ships CodeSet to customer. LEAD TIME: 3-5 weeks (dependent on gene number and scale)

Say Hello to nDesign™ Gateway
For a complete list of genes in each panel, visit STORE.NANOSTRING.COM

One Instrument from Lab to Clinic

VALIDATE YOUR OWN IVD ASSAYS
nCounter Elements™ are a set of reagents and consumables that are registered with the FDA and are intended for use with nCounter technology to enable the end-user to validate diagnostic assays.

The nCounter FLEX is manufactured under GMP guidelines and ISO 13485 to ensure quality and compliance with international standards.

In Life Sciences mode, nCounter FLEX can perform all nCounter Life Science and nCounter Elements assays for research use. Diagnostics mode provides a secondary interface for running diagnostic assays such as the Prosigna Breast Cancer Prognostic Gene Signature Assay.

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Your Trusted Advisor

A team of highly dedicated support and service personnel are available to ensure your success with all nCounter products.

- **Field Applications Scientists** and **Technical Services Scientists** are highly trained experts who are available to assist you before, during and after your project.
- **Field Service Engineers** will ensure your system is operating at peak performance and will qualify your instrument as needed through a variety of service offerings.

**LET US HELP YOU MAXIMIZE THE BIOLOGICAL INFORMATION CONTAINED WITHIN YOUR SAMPLES THROUGH THESE PRODUCTS AND SERVICES:**

<table>
<thead>
<tr>
<th>CONSULTATION</th>
<th>TRAINING</th>
<th>CUSTOM SEMINARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Design Strategies</td>
<td>New System Training</td>
<td>Technology Overviews</td>
</tr>
<tr>
<td>Application Design</td>
<td>New Application Training</td>
<td>New Technologies</td>
</tr>
<tr>
<td>Product Selection Strategies</td>
<td>Data Analysis/Advanced Analysis Training</td>
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<table>
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<tr>
<th>TROUBLESHOOTING</th>
<th>SERVICE</th>
<th>DATA ANALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assay Optimization</td>
<td>Tiered Service Contracts</td>
<td>nSolver and Basic Analysis Support</td>
</tr>
<tr>
<td>Log File Interpretation</td>
<td>IQ/OQ/PQs</td>
<td>Data Analysis Project Services (for fee)</td>
</tr>
</tbody>
</table>

Many thanks for taking care of us and your support. Again, I have to say that the NanoString Support is superb, and other companies should use it as a role model.
—NanoString customer

Contact Support  
1.888.358.6266 support@nanostring.com