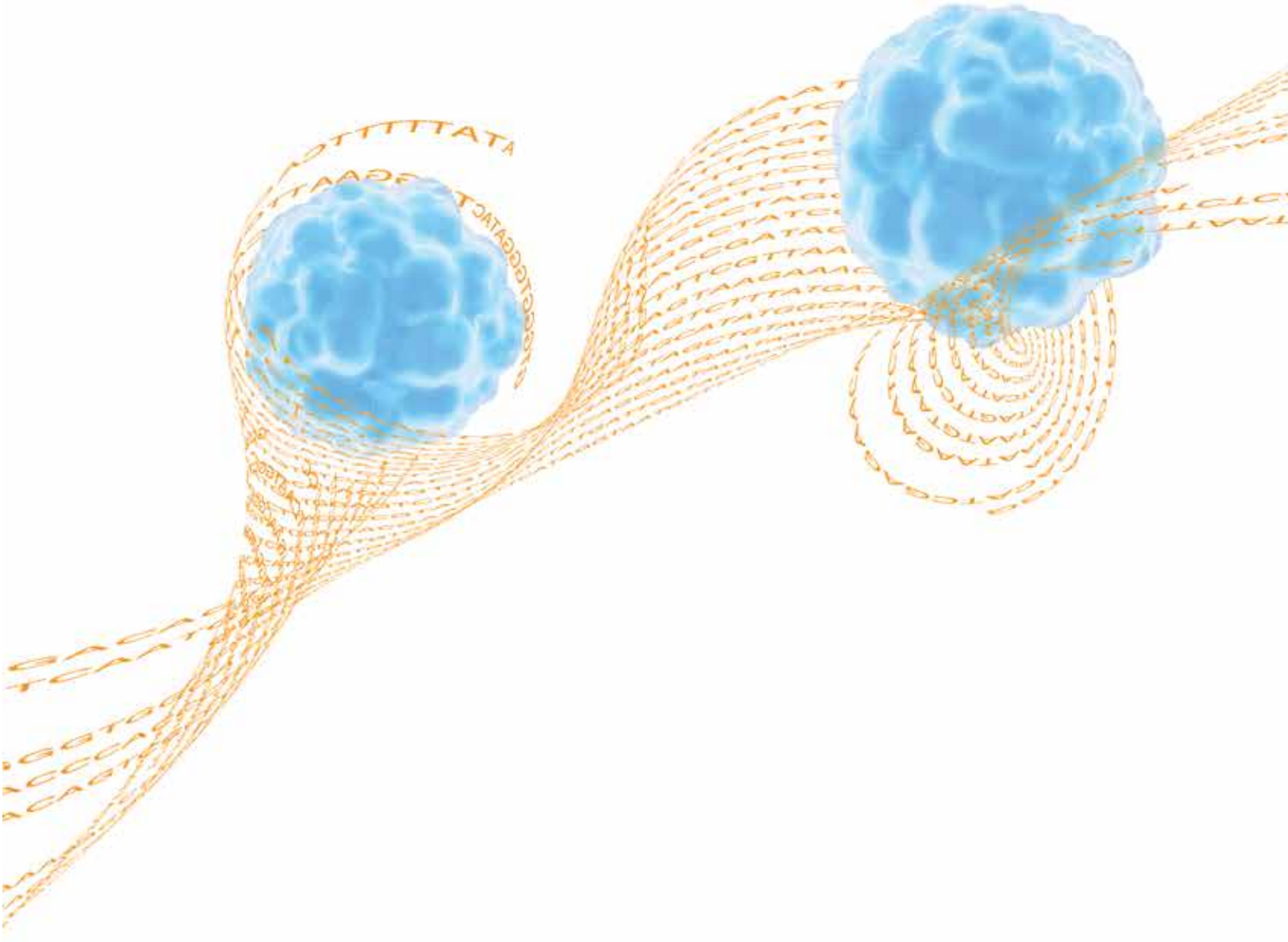
Cancer Genomics

Transforming our understanding of cancer



illumina®

Accelerating translational medicine.

Technology enhances understanding. Drives discovery.





Samples — Discovery — Validation — Dx Services — Dx Products

Illumina's cancer discovery initiative.

Our belief in the power of Illumina technology is so strong that we work side by side with researchers to obtain samples for our cancer discovery work. Using whole-genome sequencing, we are exploring how biomarker discovery can lead to early detection, resistance to therapy, and prognosis in ovarian, gastric, and colorectal cancer. Discovering how analyzing subtle changes in genes and chromosomes will change diagnostics forever. Ultimately leading to novel diagnostic services and products as shown in the continuum above.

Illumina's clinical services lab.

The first choice for doctor-ordered Individual Genome Sequencing services. The first to generate a complete human sequence in a clinical laboratory. Fully CLIA-certified and CAP-accredited for high-complexity molecular testing.

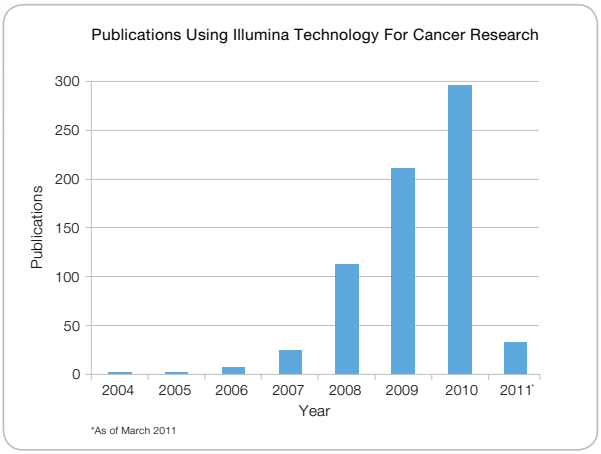
When taking a genome-wide approach to cancer, researchers can use a Circos plot[1] to visualize the extensive rearrangements and variations that are common to cancer. This plot shows variations found in a melanoma cell line, marking each chromosome on the outside ring, then showing validated indels, density of substitutions, coding substitutions, copy number variants, loss of heterozygosity, to reveal the intrachromosomal and interchromosomal structural variants in the middle of the plot

Empowering cancer research.

Sequencing. Microarrays. Real-time PCR. Technology is fueling a new era of cancer discovery and validation.

The growing Illumina community is a part of this revolution. Taking advantage of simplified workflows and streamlined platforms. Advancing research. Increasing our understanding. Publishing results.

The Illumina community is discovering more. Publishing more.



2008

- First publication describing whole-genome sequencing on human cancer[2]
- Accurate human whole-genome sequencing using reversible terminator chemistry[3]

2009

- Demonstrates the power of second-generation transcriptome sequencing for identifying rearrangements in coding genes[4]
- The largest collection of samples (24) for a single cancer type to be whole-genome sequenced, documenting large sample-to-sample variability[5]

2010

- Next-generation sequencing technology provides new insights into the mechanisms of cancer progression and a greater understanding of diagnosis and treatment options[6-9]

2011

- Discovery of causative gene mutations for a rare skin cancer condition[10]

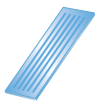
Transforming diagnostics.

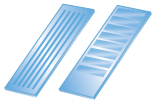
New technologies. New discoveries. New hope. With innovation, insight, and commitment, the Illumina community is leading the way toward a brighter future in cancer diagnostics, therapy, and personalized treatment.

- New developments provide hope for earlier detection and better prognoses
- Novel biomarkers may lead to future treatments tailored to an individual's genetic disposition
- Individual Genome Sequencing services provide genetic information that will facilitate clinical decision making in cancer and medicine

Learn more about Illumina at www.illumina.com/cancer

Comprehensive cancer research portfolio.





	Next-Gen Sequencing	Next-Gen Genotyping	Sequencing + Arrays	Multiplexed Analysis	Real-Time PCR
Find Structural Variation					
CNV Screening	■	✦	✦		•
CNV Discovery	■	✦	✦		
Detect Chromosomal Rearrangements					
Breakpoint Mapping	■		■		
Insertions, Deletions, and Translocations	■	✦	✦	✦	•
Characterize Epigenetic Changes					
DNA Methylation Biomarker Panels		•	•	✦	•
DNA Methylation Discovery	■		■		
ChIP-Sequencing (DNA-Protein Binding)	•		•		
Changes in Transcription Factor and Histone Binding	•		•		
Identify Variants in Gene Regions					
Whole-Genome Genotyping	■	✦	✦		
Custom/Focused Genotyping	✦	✦	✦	✦	•
SNP Discovery	■		■		
Whole-Genome Resequencing	■		■		
Exome Resequencing	■		■		
Custom Targeted Resequencing	■		■		
Custom Amplicon Resequencing	■		■		
Profile Gene Expression					
Whole-Genome Expression	✦	✦	✦		
Focused Gene Expression					•
MicroRNA and Small RNA Profiling	✦		✦		•
MicroRNA and Small RNA Discovery	✦		✦		

• Illumina-supported intact samples
✦ Illumina-supported intact and degraded (FFPE) samples
■ Customer-demonstrated intact and degraded (FFPE) samples

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The BeadXpress System is FDA cleared for use as an in vitro diagnostic only with FDA cleared VeraCode tests.
The Illumina Eco Real-Time PCR System, Infinium HD BeadChips, HiSeq Systems, and HiScan Systems are **FOR RESEARCH USE ONLY.**

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