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# Illumina introduces genomics solutions to advance clinical research

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Illumina has announced the launch of new TruSeq library preparation kits and Infinium arrays that enable researchers to explore genetic variation on a more comprehensive scale. The new additions to the application-driven portfolio address a broad range of genetic studies from whole exome to population and disease specific genotyping, leveraging the Illumina industry-leading portfolio of genomic analysis systems. Illumina will highlight these new genomic solutions at the 2015 American Society of Human Genetics (ASHG) meeting on October 6 - 10.

"These solutions are designed to meet the needs of researchers exploring diverse populations and diseases, enabling them to cost-effectively navigate a wide continuum of study types ranging from broad discovery to routine analysis," said Mr Francis deSouza, president of Illumina.

The following new products are intended for use with Illumina next-generation sequencing (NGS) systems and are complemented by new data analysis applications available on Illumina's BaseSpace cloud computing platform.

TruSeq Enrichment Portfolio (TruSeq Exome and TruSeq Rapid Exome Library Prep Kits) One of the most widely used targeted sequencing methods is exome sequencing, allowing efficient identification of coding variants across a broad range of studies in cancer research, Mendelian disease and population genetics. The TruSeq Exome kit is based on a shearing protocol, and the TruSeq Rapid Exome kit is based on an enzyme-mediated (transposase) protocol. The kits are compatible with a variety of sample types, including formalin-fixed, paraffin-embedded (FFPE) samples, and offer automation compatible, seamless workflows from sample to variant calling.

TruSeq Custom Amplicon Low Input Designed and optimized for use with FFPE samples, this new product consistently delivers robust performance at 10ng of DNA input. Additional features include a simplified, scalable workflow protocol and 16-sample starter kit. Concurrently, Illumina is releasing an updated version of DesignStudio, its online custom assay design tool. Expert design assistance and full assay optimization support is also available through Illumina Concierge. The following

new products are intended for use with Illumina's iScan and HiScan microarray platform. As with TruSeq Custom Amplicon, these products can also be customized utilizing DesignStudio or Illumina Concierge.

Infinium DrugDev Consortium Array Effective drug development depends on thorough target validation and the comprehensive understanding of drug safety and efficacy as early as possible in the development process. Developed in collaboration with leaders in translational genomics and computational biology, the DrugDev Consortium Array enables researchers to perform genetic studies leveraging the principle of Mendelian randomization to reproduce key elements of a randomized trial. Key applications include drug target discovery and validation, drug repurposing and drug specificity studies.

Infinium MethylationEPIC BeadChip is the next-generation of the HumanMethylation450 BeadChip kit and leverages new genetic content generated as a result of the National Institutes of Health (NIH) sponsored ENCODE (Encyclopedia of DNA Elements) research program. The new microarray provides unparalleled coverage of CpG islands, GENCODE genes, ENCODE open chromatin, ENCODE transcription factor binding sites and FANTOM5 enhancers. Infinium HD technology enables content selection independent of bias often associated with alternative methylated DNA capture methods. The new microarray is also compatible with FFPE samples, offers a streamlined workflow and achieves 98 percent reproducibility for technical replicates.

Infinium ImmunoArray-24 v2.0 BeadChip is a new addition to Illumina's genotyping array portfolio and is designed to detect genetic variation in the human immune system. Applications include the research and analysis of novel and causal variants associated with major autoimmune and inflammatory disorders.

Infinium Multi Ethnic Array Family provides a cost-effective, high throughput approach for large scale population research across diverse human populations. These new arrays leverage expertly developed content from groups such as the Consortium on Asthma among African-ancestry Populations in Americas (CAAPPA), Population Architecture using Genomics and Epidemiology (PAGE), and T2D-Genes, as well as large scale studies such as the 1,000 Genomes Project and clinical reference databases such as Online Mendelian Inheritance in Man, and ClinVar. Delivering excellent genomic coverage and high value content at an affordable price, the Multi-Ethnic Array Family provides customers with the power and pricing to effectively carry out studies across the world's populations.

Also at ASHG, Illumina will announce an Illumina Accelerator Sequencing Grant competition available to applicants for the incoming Illumina Accelerator genomic startup class.