BioSpace

NuGEN Announces Issuance Of U.S. Patent For Its Single Primer Target Enrichment Technology (SPET) For Next Generation Sequencing Applications

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SAN CARLOS, Calif.--(BUSINESS WIRE)--NuGEN Technologies today announced that the United States Patent and Trademark Office has issued US Patent No. US 9,650,628 describing the Single Primer Target Enrichment Technology (SPET) which enables targeted nucleic acid analysis by next generation sequencing (NGS). NuGEN offers commercial solutions using SPET to create target and strand-specific libraries ready for NGS.

This technology is ideal for a number of NGS applications including targeted genotyping by sequencing, variant detection, copy number determination and fusion analysis. This simple method provides a low cost, high throughput and scalable system for NGS library preparation targeting hundreds of thousands of regions of interest. The versatility of the technology makes it applicable in numerous areas of research including agrigenomics, cancer biomarker studies, disease variant studies, population genetics and quality control assays in blood banks, biobanks, and biopharmaceutical manufacturing.

SPET is particularly well-suited to address large scale genotyping in agrigenomics, where NGS is fast becoming a widely adopted strategy to quickly generate massive amounts of information. Dr. Davide Scaglione and colleagues at the IGA Technology Services in Udine, Italy, have employed a custom SPET panel to study 110,000 pre-selected SNPs in 540 black poplar genotypes. They were able to validate known SNPs and also discover thousands of novel SNPs not included in the original panel. “SPET is a unique tool for large-scale genotyping, allowing for scoring known and unknown polymorphisms. With high on target coverage, SPET delivers unprecedented opportunities in fine mapping and association studies, in particular when dealing with very complex plant genomes,” said Dr. Scaglione.

The use of SPET in gene fusion detection and cancer biomarker studies using NuGEN’s Ovation® Fusion Target Enrichment System has already been well validated. Compared to traditional FISH-based methods or whole transcriptome RNA-Seq, the SPET approach allows for higher throughput and the ability to identify fusion breakpoints. Dr. Kasey Couts and colleagues at the University of Colorado Anschutz Medical Campus utilized this kit to study gene fusions implicated in non-sun-exposed melanomas. In a study comparing 65 melanoma patient-derived xenograft (PDX) models representing different conditions (sun-exposed and non-sun-exposed), they identified several novel fusions to genes involved in genomic stability. Said Dr. Couts, “The SPET-based assay is easy to use, has low RNA input requirements and can be used with low quality RNA, which is important for clinically relevant samples. In addition, the assay is fully customizable to target any gene or set of genes in any genome.”

“We are pleased to announce the issuance of the patent covering SPET. The grant of this patent provides further acknowledgement of NuGEN’s innovative efforts and adds to NuGEN’s extensive patent portfolio. This novel approach is unrivaled in the simplicity of its design, workflow and analysis, allowing the fundamental technology to be broadly applicable to several different sample types and applications. In combination with US 9,546,399, Compositions and Methods for Identification of Duplicate Sequencing Reads, we’ve created a comprehensive system that offers sensitive detection and accurate quantitation capability,” said Dr. Doug Amorese, Chief Scientific Officer at NuGEN Technologies.

Products that SPET is currently incorporated in NuGEN’s Target Enrichment products, including Ovation® Custom Target Enrichment System, Ovation® Custom Gene Fusion Target Enrichment System and Allegro Targeted Genotyping by Sequencing (TGBS). More information can be obtained on www.nugen.com.

About NuGEN Technologies, Inc.

Based in San Carlos, California, NuGEN Technologies, Inc. provides innovative NGS and genomic sample prep products for a broad range of sample types including RNA and DNA from whole tissues, FFPE samples, single cells and liquid biopsies. NuGEN’s products offer rapid and simple workflows designed to reduce time and cost per sample. NuGEN products are used by 1000s of customers in basic research, applied markets and molecular diagnostics. NuGEN products are manufactured under stringent quality controls (ISO 13485). To learn more about NuGEN, visit www.nugen.com.

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