Next Generation Sequencing

xGen® Target Capture

xGen® Acute Myeloid Leukemia Cancer Panel

The xGen Acute Myeloid Leukemia Cancer Panel is an enrichment probe set for next generation sequencing consisting of 11,743 xGen Lockdown® Probes and targeting variants in 260 genes. These gene variants have been empirically derived through whole genome and exome sequencing of samples taken from 200 patients diagnosed with acute myeloid leukemia (AML) [1]. The research was performed by the Genome Institute at Washington University in collaboration with The Cancer Genome Atlas (TCGA) initiative. The panel is built using xGen Lockdown Probes, with performance enhanced by xGen Blocking Oligos (Figure 1).

- High uniformity with >0.2x mean coverage for 98% of genomic targets (Figure 2)
- Detect variations reliably with high reproducibility and increased depth of coverage (Figures 3 and 4)
- Faster time to result using a functionally validated 4-hour hybridization protocol
- Highly relevant for AML-related applications due to empirically derived targets (Table 1)
- Fast turnaround via easy online ordering and next-day shipping

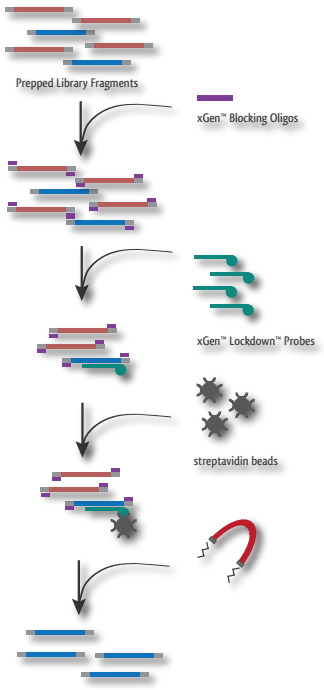

Figure 1. Target Enrichment Using xGen Capture Products. For target capture (also known as in-solution hybrid capture), xGen Lockdown Probes are used to bind to target regions of interest. These regions are then pulled out of solution using streptavidin beads. xGen Blocking Oligos enhance the performance of enrichment by binding to platform-specific adapters, helping to prevent cross reactivity between library fragments.

High Coverage Uniformity

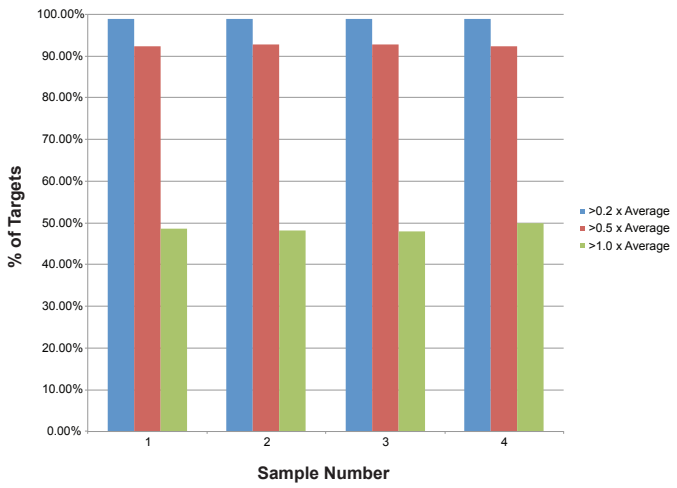

Figure 2. High Coverage Uniformity with the xGen Acute Myeloid Leukemia Cancer Panel. Greater than 0.2x of the mean coverage is observed for >98% of targets. Libraries were prepared using the Illumina TruSeq® LT chemistry and sequenced on a MiSeq® platform using 250 x 250 paired-end reads. A cumulative of 31.8M reads was generated for all four samples.

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Consistent Performance

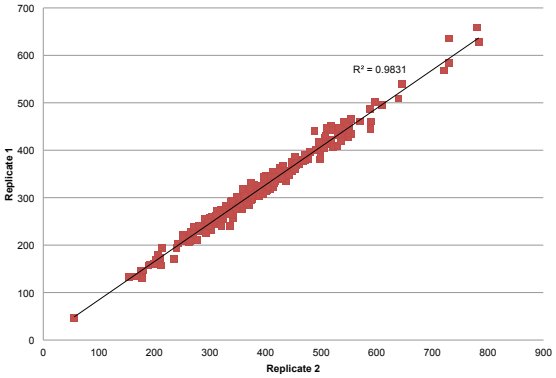

Figure 3. Consistent Performance with High Reproducibility Between Samples. Multiplexed samples prepared as Illumina TruSeq® libraries were sequenced on the MiSeq® sequencing platform using 250 x 250 paired-end reads. A comparison of probe-by-probe target cover¬age between two samples showed excellent reproducibility, with an R2 value of 0.9831.

Higher Throughput and Greater Sensitivity

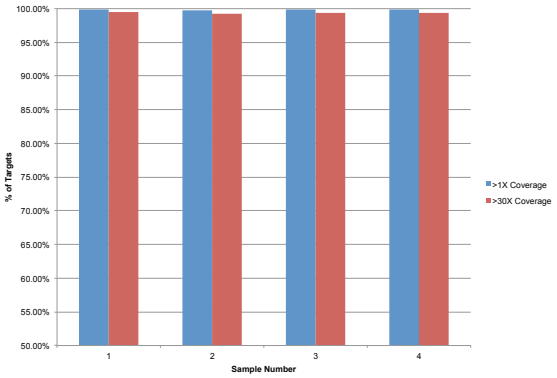

Figure 4. Higher Throughput and Greater Sensitivity. Four TruSeq® genomic DNA libraries were enriched using the xGen Acute Myeloid Leukemia Cancer Panel and sequenced on a MiSeq® platform using 250 x 250 paired-end reads. A total of 31.8M reads were generated. In all samples, there was >1X coverage for 99.8% of targets and >30X coverage for 99.2–99.4% of targets.

Gene Targets

Table 1. Some Popular Gene Targets in the xGen Acute Myeloid Leukemia Cancer Panel. A sample of the 260 genes in the AML Cancer Panel is shown. The panel does not target every exon in each gene, but targets all regions found to be mutated in the TCGA study. For a complete list of genes and a design summary, visit www.idtdna.com/xgen or email xgen@idtdna.com.

ASXL1	FAM154B	IDH2	KDR	NPM1	PRAMEF2
C17orf97	FAM47A	JAK1	KIT	NRAS	PTPN11
CBL	FAM5C	JAK2	KRAS	NTRK3	RUNX1
CEBPA	FLRT2	JAK3	LRRC4	OR13H1	TET2
DNMT3A	FLT3	KCNA4	MLL3	OR8B12	TP53
EGFR	GJB3	KCNK13	MYC	P2RY2	TUBA3C
EZH2	IDH1	KDM6A	NF1	PCDHB1	WT1

References

1. Cancer Genome Atlas Research Network (2013) Genomic and epigenomic landscapes of adult de novo acute myeloid leukemia. N Engl J Med, 368(22):2059–2074.

How to Order

Visit www.idtdna.com/xgen and select xGen Lockdown Panels to find the xGen Acute Myeloid Leukemia Cancer Panel. The product is available at 2 scales, 16 and 96 reactions, and will be shipped in 1–2 business days after an order is received.

Email xgen@idtdna.com with questions regarding product specifications or performance.

INTEGRATED DNA TECHNOLOGIES