NGS TARGET ENRICHMENT

SURESELECT CLINICAL RESEARCH EXOME

Definitive Answers WHERE IT MATTERS

Benefits

Expert-optimized content

- Contains additional targets identified in collaboration with researchers from Emory University and The Children's Hospital of Philadelphia

Most comprehensive design

- Gain deep coverage with only 4 Gb: 80% at 20x, 10% more in disease-associated regions

Fast track to answers

- Shorten your day with 2.5x faster workflow, and break the analysis bottleneck with SureCall software

Overview

In the last few years, genomic research has largely been focused on conducting discovery studies to enable identification of variants that cause both Mendelian and complex disorders. With sensitivity and accuracy provided by next-generation sequencing, rare variants, especially those of low frequencies were successfully identified. As a result these once large-scale studies are now becoming more routine increasing the requirement for coverage of these disease-associated genes for more confident variant calling.

From the leader in target enrichment, SureSelect Clinical Research Exome, developed in collaboration with researchers from Emory University and The Children's Hospital of Philadelphia, enables comprehensive coverage of the exome, 80% of Human All Exon V5 targets at 20x, and even deeper coverage of disease-associated targets as defined by databases such as the Online Mendelian Inheritance in Man (OMIM), Human Genome Mutation Database (HGMD), and NCBI's ClinVar, 10% more of targeted bases covered at 20x with only 4 Gb of sequencing (Figure 1), and even more with increased sequencing.

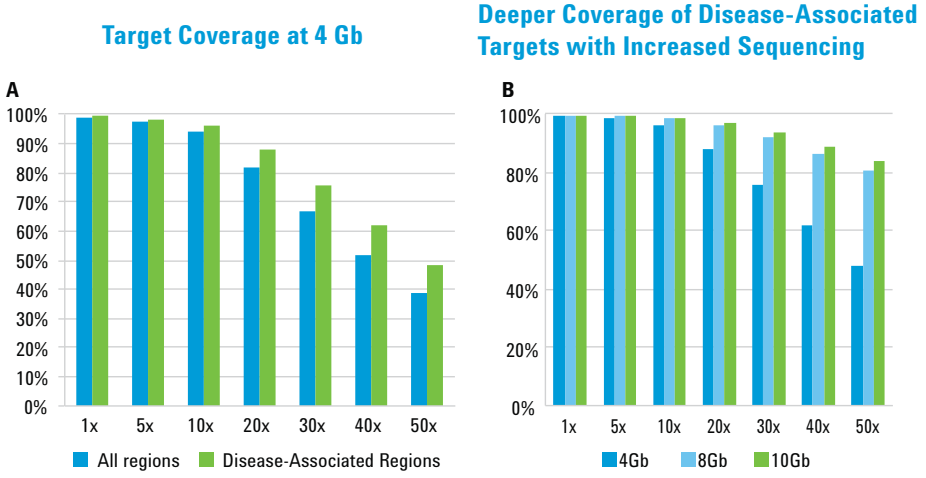


Figure 1. The SureSelect Clinical Research Exome enables disease-associated targets to be covered with more reads, 10% more at 4Gb, compared to other exome targets. With a highly uniform design, increased sequencing provides proportional increase in target coverage.

SURESELECT CLINICAL RESEARCH EXOME

Confidence where it matters

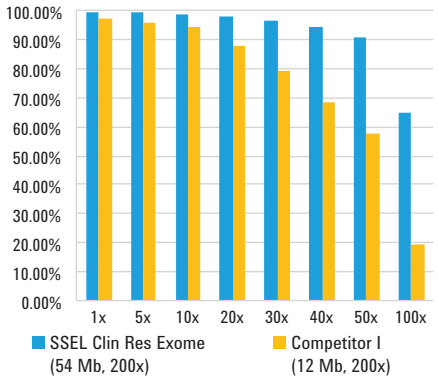
The SureSelect Clinical Research Exome utilizes the high-performing Human All Exon V5 as its core design with boosted coverage in disease-associated regions, enabling deep coverage of more targets compared to competitor's design when sequenced at equivalent average coverage (Figure 2A), facilitating variant calling within these targets while maintaining the balanced and comprehensive coverage of the exome (Figure 2B). This design consists of targets included in databases such as the Online Mendelian Inheritance in Man (OMIM), the Human Genome Mutation Database (HGMD) and NCBI's ClinVar. Ancestry- and identity- informative marker panels that enable better sample tracking and provide increased confidence in data reporting have also been included. In addition, the Clinical Research Exome enables customization through the addition of up to 6 Mb of content using SureDesign, a simple and easy-to-use online tool for custom library design.

Superior performance from a highly efficient workflow

The SureSelect Clinical Research Exome is a highly optimized design that provides comprehensive analysis of protein-coding regions, enabling confident variant calling with least sequencing, only 4 Gb for exomes. When paired with highly stringent SureSelect workflows that enable greatly reduced hybridization times, as little as 90 minutes, this exome provides 2.5x greater throughput (Figure 3) compared to competing products with a similar capture size. Data generated can easily be analyzed using SureCall, a guided analysis software that generates variant calls from raw data in hours enabling greatly reduced time to results.

Better Coverage of Disease-Associated Targets

A



B

	SSEL Clinical Research Exome	Competitor I
Target Size	54 Mb	12 Mb
Databases Covered		
CCDS	98%	31%
Gencode	98%	30%
UCSC	97%	29%
RefSeq	98%	31%
HGMD_cds	99%	74%
OMIM_cds	99%	41%
ClinVar	98%	82%
Customization	Yes	No

Figure 2. The performance-optimized design of the SureSelect Clinical Research Exome enables deeper coverage of disease relevant targets from HGMD, OMIM and ClinVar compared to other disease-focused capture solutions in the market when sequenced with the same average coverage (A) while providing a comprehensive exome design based on the high-performing SureSelect Human All Exon V5 (B).

Deep Coverage of Targets While Enabling Higher Throughput

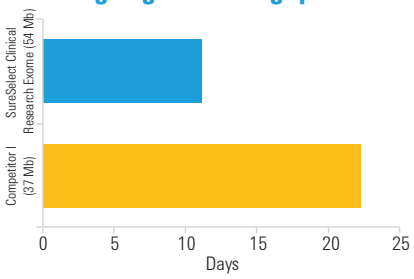


Figure 3. Enrichment using the SureSelect Clinical Research Exome capture library enabled by efficient workflows with greatly reduced hybridization times provides 2.5x greater throughput compared to competitor solutions

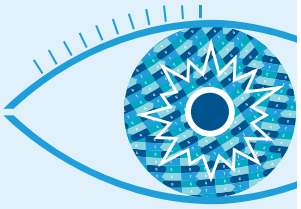
Product Numbers

Part Number	Description
5190-7338	SSEL^{XT} Clinical Research Exome, 16
5190-7339	SSEL^{XT} Clinical Research Exome, 96
5190-7344	SSEL^{XT} Clinical Research Exome, 96 auto
5190-7345	SSEL^{XT2} Clinical Research Exome, 16
5190-7346	SSEL^{XT2} Clinical Research Exome, 96
5190-7347	SSEL^{XT2} Clinical Research Exome, 96 auto

Agilent Technologies | Genomics
Next Generation Sequencing

UNCOVERING INSIGHTS IS IN OUR GENES

The superior coverage and efficient workflow of Agilent's target enrichment portfolio gets you better answers, faster.



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