

Illumina Proof-of-Concept Service

Try next-generation sequencing (NGS) or BeadChip technology with customer-provided samples using a fully customized, DNA-to-data Illumina service.

Highlights

- Perform a Trial Run Prior to Investing**
 Explore and gain confidence in NGS or BeadChip technology before an instrument purchase
- Test an Illumina Solution With Customer-Provided Samples**
 Evaluate NGS or BeadChip workflows, compare results to current or alternative methods, and streamline operations
- Access Personal Consultations and Predefined Workflows**
 Accelerate startup time with optimized NGS or BeadChip workflows and data analysis solutions
- Easily Generate Support Data for Grants**
 Work with experienced staff from Illumina to rapidly generate data for grant submission and advance research goals

To address these questions and provide confidence, Illumina offers a wide range of proof-of-concept solutions from fully supported NGS library preparation and BeadChip workflows to custom workflows on a wide range of Illumina instruments (Figure 1).

Streamlined Proof-of-Concept Workflows

All Illumina proof-of-concept workflows begin with a consultation between the customer and a dedicated Illumina Field Applications Scientist (FAS) to determine the most appropriate DNA-to-data solution for their specific testing needs. The FAS works collaboratively with the customer to design and customize the experimental parameters, including coverage requirements, number of samples, required controls, library preparation protocol, and data analysis options. Samples provided by the customer are accessioned and processed in the state-of-the-art Illumina Applications Lab.

Introduction

When considering the move to NGS or BeadChip (microarray) technology, scientists frequently navigate through many decisions regarding choice of instrumentation, applications, throughput requirements, and turnaround time. Additionally, scientists frequently inquire whether preconfigured workflows are available for specific applications and how data from a new system will compare to methods currently used in the laboratory.

NGS Proof-of-Concept-Workflow

For NGS experiments (Figure 2), submitted samples undergo a quality control assessment, followed by library preparation, cluster generation, and sequencing on the Illumina platform selected by the customer. Experienced Illumina Applications Lab personnel prepare and/or sequence the customer samples along with in-house controls. Customers can choose from a broad range of data analysis tools in BaseSpace® Sequence Hub, the Illumina cloud-based genomics computing environment, or work with a dedicated Illumina bioinformatician to create a custom analysis app. Custom App design



Figure 1: Illumina Proof-of-Concept Services Overview—The customized DNA-to-data Proof-of-Concept Service gives customers the flexibility to submit samples for a trial run on the HiSeq Series, NovaSeq Series, or the iScan, MiniSeq, MiSeq, MiSeq FGx, or NextSeq 550 Systems.

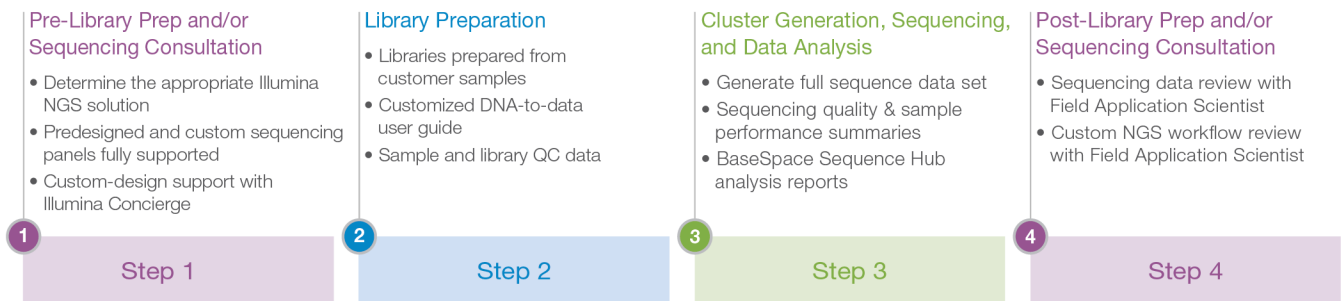


Figure 2: NGS Proof-of-Concept Service Workflow— Illumina NGS Proof-of-Concept Service provides rapid delivery of data for any Illumina system or application.

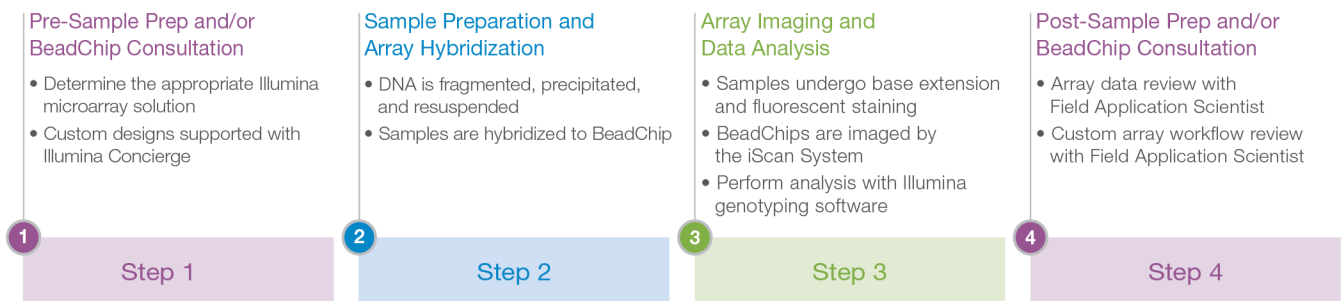


Figure 3: BeadChip Proof-of-Concept Service Workflow— The Illumina BeadChip Proof-of-Concept Service provides a streamlined workflow for rapid delivery of data.

provides an advantage for customers who are working with species currently not supported through BaseSpace Sequence Hub. Available data analysis pipelines include variant detection, *de novo* assembly, gene fusion detection, differential RNA expression analysis, tumor normal analysis, metagenomics, and more.¹ Through Illumina Concierge Services, custom designs can also be created for Nextera® Rapid Capture Custom Enrichment, TruSeq® Custom Amplicon, and TruSeq Targeted RNA Expression libraries for human and nonhuman panels. During the post-experiment consultation, the FAS and the customer review and discuss the entire workflow, from initial QC results to final data analysis. All deliverables, including sequencing data and analysis reports, are provided through BaseSpace Sequence Hub or shipped back to the customer on a hard drive, according to customer preference.

BeadChip Proof-of-Concept Workflow

For BeadChip experiments (Figure 3), samples also go through a quality control assessment, followed by amplification, fragmentation, precipitation/resuspension, hybridization, extension and staining, imaging, and lastly analysis and genotyping. Microarray data is analyzed and visualized with powerful GenomeStudio® Software, which includes analysis modules for genotyping, gene expression, and methylation array data. During the post-experiment consultation,

¹Subject to available analysis pipelines.

the FAS and the customer review quality control data, experimental workflow steps, and experimental data.

Perform a Trial Run With Customer Samples

The Illumina Applications Lab will analyze customer-provided samples rather than relying on sample data sets. This allows researchers to determine how their own samples will likely perform on an Illumina platform using Illumina library preparation protocols. Furthermore, the customer can compare the NGS or BeadChip workflow and data to their current methods. Performing a trial run with Illumina Proof-of-Concept Service provides valuable experience with NGS or BeadChip workflows and can build the foundational knowledge and confidence needed to move forward.

Accelerate the NGS and Microarray Learning Curve

By establishing custom protocols and analyzing data from their own samples, researchers gain an advantage during the implementation and startup phase of implementing new NGS or BeadChip technology. The combination of personal consultations, customized protocols, and optimized workflows provides valuable knowledge and experience that can accelerate the journey towards successful genomics research.

Table 1: Illumina Proof-of-Concept Service Details and Specifications

Service ^{a,b}	Example Library Prep Options	Supported Sample Types ^{c,d}	Run Specifications ^e
BeadChip Kit Proof-of-Concept Service	<ul style="list-style-type: none"> MaizeSNP50 DNA Analysis Kit Infinium Omni2.5Exome-8 v1.3 BeadChip Kit 	DNA or FFPE	Maximum sample number corresponds to one BeadChip
MiniSeq System Proof-of-Concept Service	<ul style="list-style-type: none"> TruSight Tumor 15 Kit Nextera XT DNA Library Prep Kit 	DNA, RNA, FFPE	10 samples
MiSeq System Proof-of-Concept Service	<ul style="list-style-type: none"> Nextera XT DNA Library Prep Kit 	DNA, RNA, FFPE	10 samples
MiSeq FGx System Proof-of-Concept Service	<ul style="list-style-type: none"> ForenSeq™ Signature DNA Library Prep Kit 	DNA	10 samples
NextSeq 550 System Proof-of-Concept Service	<ul style="list-style-type: none"> TruSeq Exome Library Prep Kit 	DNA, RNA, FFPE	10 samples
HiSeq Series Proof-of-Concept Service	<ul style="list-style-type: none"> TruSeq DNA PCR-Free DNA Library Prep Kit TruSeq Exome Library Prep Kit 	DNA, RNA, FFPE	10 samples
NovaSeq Series Proof-of-Concept Service	<ul style="list-style-type: none"> TruSeq DNA PCR-Free DNA Library Prep Kit 	DNA	10 samples

- a. Billable service purchase order is required to move forward with Proof-of-Concept Service; however, instrument/kit discount will be provided to offset the service fee if Illumina instruments/kits are purchased
- b. Service turnaround time is approximately 6 weeks from receipt of all project components
- c. Research samples only
- d. Sample type must be supported by the selected library preparation methods
- e. Please contact Illumina Customer Solutions to consult on a project involving more samples

Summary

With personalized consulting, custom protocols, and delivery of a complete data set, the Illumina Proof-of-Concept Service provides a valuable opportunity to perform a trial run before committing to a new system. With an in-depth preview of Illumina NGS and BeadChip workflows and sequencing platforms, the Proof-of-Concept Service provides the experience and confidence customers need before making critical decisions for their laboratory.

Learn More

To receive additional information, place an order, or inquire about the Illumina Proof-of-Concept Service, contact your local Illumina account manager or contact Illumina Customer Solutions within United States at 1.800.809.4566 ext.1 or outside the United States at 1.858.202.4566.

Ordering Information

Service	Catalog No.
BeadChip Kit Proof-of-Concept Service	20013962
MiniSeq System Proof-of-Concept Service	20003924
MiSeq System Proof-of-Concept Service	SP-801-1002
MiSeq FGx System Proof-of-Concept Service	SP-801-1002
NextSeq 550 System Proof-of-Concept Service	SP-801-1003
HiSeq Series Proof-of-Concept Service^a	SP-801-1001
NovaSeq Series Proof-of-Concept Service^b	20016091

- a. Includes the HiSeq 2500, 3000, 4000, or X Systems
- b. Includes the NovaSeq 5000 or 6000 Systems.