

Infinium™ Methyl EX iSelect™ Custom BeadChip

High-throughput custom
methylation arrays designed
for large-scale applications



Create Custom BeadChip designs quickly and easily through the DesignStudio Assay Design Tool



Choose between 24- and 48-sample BeadChip formats



Maximize sample processing efficiency with the Infinium EX Methylation Assay

Targeted DNA methylation analysis

Infinium Methylation BeadChips are a versatile option for accurate and scalable epigenetic studies and have facilitated groundbreaking discoveries on the role of epigenetic mechanisms in human health and disease.¹ Illumina offers multiple preconfigured Infinium Methylation BeadChips for research topics, such as aging, disease development, and cancer progression. In recent years, the role of DNA methylation in regulating gene expression and its potential as a biomarker for various health conditions has gained attention.^{2,3} As the field of epigenetic research continues to expand, there is an increasing need for more targeted, adaptable array tools that can accelerate the discovery of new biomarkers.

The Infinium Methyl EX iSelect Custom BeadChip is a versatile addition to the established Illumina Methylation array portfolio, offering researchers the ability to select from existing marker sets or design customized assays to focus on sites specific to their application. The Infinium Methyl EX iSelect Custom BeadChip allows users to customize content on 24- or 48-sample arrays for enhanced efficiency, scalability, and cost effectiveness. (Figure 1, Table 1).

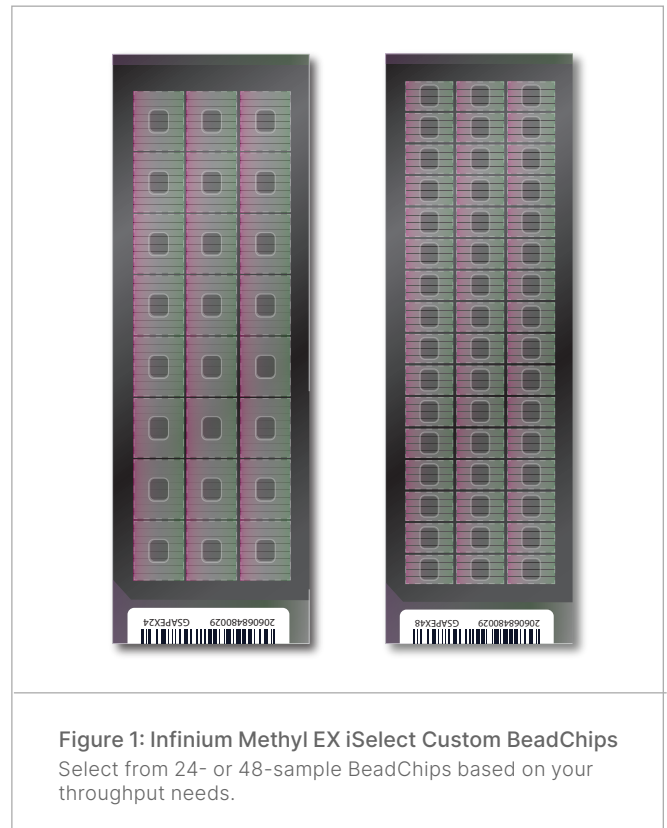


Figure 1: Infinium Methyl EX iSelect Custom BeadChips
Select from 24- or 48-sample BeadChips based on your throughput needs.

Table 1: Infinium Methyl EX iSelect Custom BeadChip specifications

Feature	Description
Species	Human and select nonhuman
No. of samples per BeadChip	24 or 48
Minimum order size	5000 samples
Marker capacity per BeadChip	500–100,000 CpGs
Recommended DNA Input	250 ng
Minimum DNA input	50 ng
Assay chemistry	Infinium EX Methylation
Instrument support	iScan™ System
Liquid Handling Automation	Infinium Automated Pipetting System with ILASS
ILASS, Illumina Lab Automation Software Solution.	

High-throughput applications

The Infinium Methyl EX iSelect Custom BeadChip was developed for customers who need to perform large-scale research screening of human and select nonhuman samples with user-defined content. Applications such as population screening, personalized health screening, agrigenomics, and biobank projects benefit from this technology, which easily scales from hundreds of thousands of samples to over one million samples per year.*

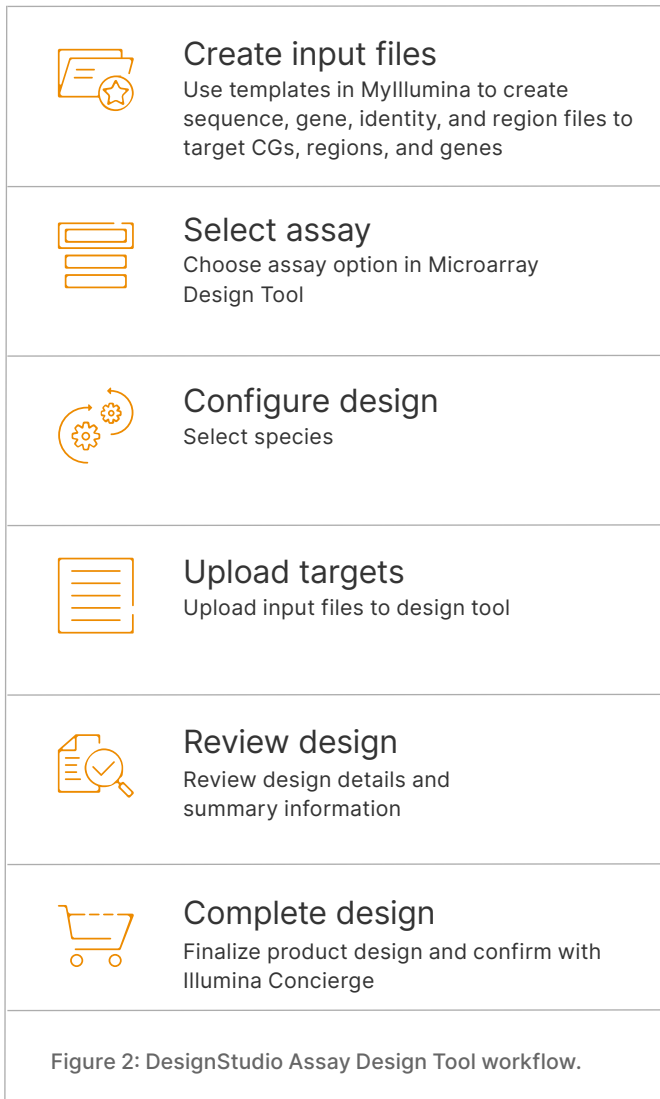
* Based on a maximum 600K samples per year throughput using a single iScan System with higher throughput requiring additional iScan Systems.

DesignStudio Assay Design Tool

DesignStudio Assay Design Tool simplifies the process of designing content for the Infinium Methyl EX iSelect Custom BeadChip (Figure 2). Assay design is integrated into the Myllumina ordering system, enabling researchers to upload assay designs directly and receive the best design for virtually any marker quickly. The DesignStudio Assay Design Tool is compatible with human and select nonhuman species.

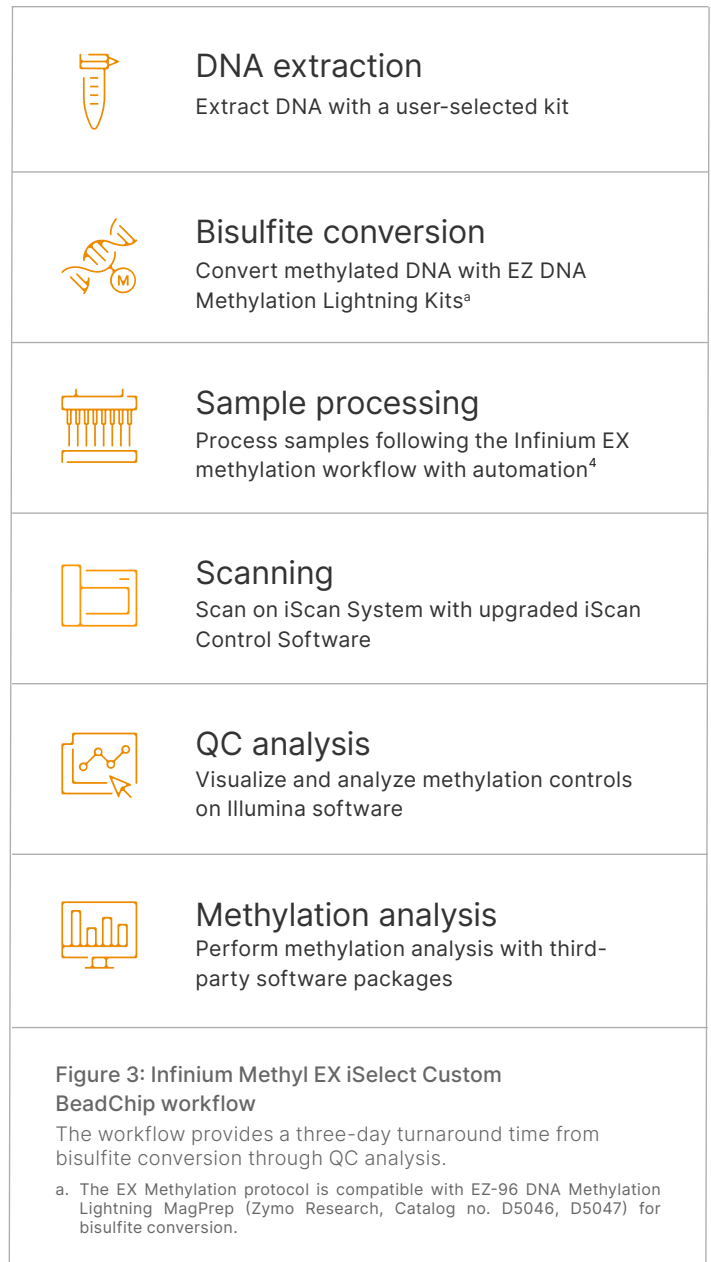
Concierge services

Illumina experts are available to support complex assay design and marker selection for nonhuman species not available in DesignStudio.



Infinium EX methylation workflow

The Infinium EX methylation workflow uses liquid handling to streamline sample handling for reduced per-sample processing costs and exceptional scalability. The three-day workflow features rapid bisulfite conversion, automated BeadChip processing steps, high-throughput scanning, and DRAGEN™ Array Methyl QC analysis (Figure 3),⁴ making the Infinium Methyl EX Custom BeadChip ideal for high-volume studies and applications.



Assay QC and data analysis

Illumina provides software tools for quality control analysis of Infinium Methylation BeadChips. Custom BeadChips are provided with manifest files that are compatible with analysis using DRAGEN Array Methyl QC and the GenomeStudio Methylation Controls Dashboard.

DRAGEN Array Methylation QC software features automated analysis of control probes included in Infinium Methylation BeadChip content. These control probes are used to compute 21 metrics that help users assess individual aspects of BeadChip processing and sample performance. The software produces dependable pass/fail detection of probes on Infinium Methylation BeadChips due to improved background normalization, dye bias correction, and detection p-value calculation.⁵

Illumina recommends user-friendly Bioconductor packages for downstream methylation data analysis. For example, [SeSAME](#) offers signal preprocessing, detection calling, quality control, differential methylation modeling, visualization, inference, functional enrichment analysis, low-input data analysis, and population-specific analysis.

Summary

With support for 24- and 48-sample formats, the Infinium Methyl EX iSelect Custom BeadChip provides a highly scalable, customizable solution for advanced epigenetic research. The BeadChip uses the EX methylation workflow with automated liquid handling, fast BeadChip processing, and efficient data analysis to enable high-throughput methylation screening.

Learn more →

[DesignStudio Assay Design Tool](#)

[DRAGEN Array Methylation QC software](#)

Ordering Information

Product	Catalog no.
24-sample BeadChips^a	
Infinium Methyl EX iSelect Custom BeadChip-24 Kit (24 samples)	20139103
Infinium Methyl EX iSelect Custom BeadChip-24 Kit (48 samples)	20139005
Infinium Methyl EX iSelect Custom BeadChip-24 Kit (96 samples)	20139006
48-sample BeadChips^a	
Infinium Methyl EX iSelect Custom BeadChip-48 Kit (48 samples)	20139002
Infinium Methyl EX iSelect Custom BeadChip-48 Kit (96 samples)	20139003
Infinium Methyl EX iSelect Custom BeadChip-48 Kit (1152 samples)	20139004
Related products	
iScan System, 110 V/220 V	11291093
Infinium Automated Pipetting System with ILASS	20051293
Infinium XT Starter Kit (24 BeadChip) 110V	20031915
Infinium XT Starter Kit (48 BeadChip) 110V	20031916
a. The minimum order size is 5000 samples.	

References

1. Wei S, Tao J, Xu J, et al. [Ten Years of EWAS](#). *Adv Sci* (Weinh). 2021;8(20):e2100727. doi:10.1002/advs.202100727
2. Heikkinen A, Bollepalli S, Ollikainen M. [The potential of DNA methylation as a biomarker for obesity and smoking](#). *J Intern Med*. 2022;292(3):390-408. doi:10.1111/joim.13496
3. Leygo C, Williams M, Jin HC, et al. [DNA Methylation as a Noninvasive Epigenetic Biomarker for the Detection of Cancer](#). *Dis Markers*. 2017;2017:3726595. doi:10.1155/2017/3726595
4. Illumina. Infinium EX Methylation Assay. illumina.com/products/by-type/informatics-products/microarray-software/dragen-array.html. Accessed July 22, 2025.
5. Illumina. High-throughput Infinium methylation array QC using DRAGEN Array Methylation QC software. illumina.com/content/dam/illumina/gcs/assembled-assets/marketing-literature/infinium-methylation-screening-array-data-sheet-m-gl-01893/infinium-methylation-screening-array-data-sheet-m-gl-01893.pdf. Published 2024. Accessed June 11, 2025.



1.800.809.4566 toll-free (US) | +1.858.202.4566 tel
techsupport@illumina.com | www.illumina.com

© 2025 Illumina, Inc. All rights reserved. All trademarks are the property of Illumina, Inc. or their respective owners. For specific trademark information, see www.illumina.com/company/legal.html.
M-GL-03644 v1.0