For patient-like precision.

revvity

Mimix™ cell line-derived reference standards

For research use only. Not for use in diagnostic procedures.

The importance of reference standards.

Reference standards can provide confidence in results and help identify and mitigate problems within your workflow by:

- Checking that your assay is performing optimally
- Determining limits of detection and minimal residual disease (MRD) status
- Enhancing quality during assay development and manufacturing
- Verifying end-to-end workflows with confidence
- Benefiting from robust routine monitoring and ease of troubleshooting

Confidence in workflow = Confidence in results

Did you know...

Reference standards are a material with known and fixed parameters that are used to provide a stable result to verify a successful experiment and to test for identity, concentration and quality of a particular substance.

Mimix reference standards

Revvity's Mimix™ reference standards are **cell line-derived** to closely mimic patient samples.

Unlike synthetic reference material, cell line-derived standards **maintain genomic complexity** while mimicking patient material. They are commutable, providing performance similar to a patient genome sample during sequencing and analysis.

Mimix controls offer a **reliable and renewable source of material**, whereas patient material is often limited in quantity. While FFPE patient material can vary in quality and genetic profile between sections, Mimix supports batch-to-batch consistency.

Mimix reference standards are **manufactured to ISO standards**: ISO 9001:2015 and ISO 13485:2016. Customers can choose from a **wide range of off-the-shelf products**, including multiple formats and allelic frequencies for end-to-end process control. Options include single-plex, multiplex, cancer-specific panels, and **custom solutions** available from our in-house cell line engineering experts.

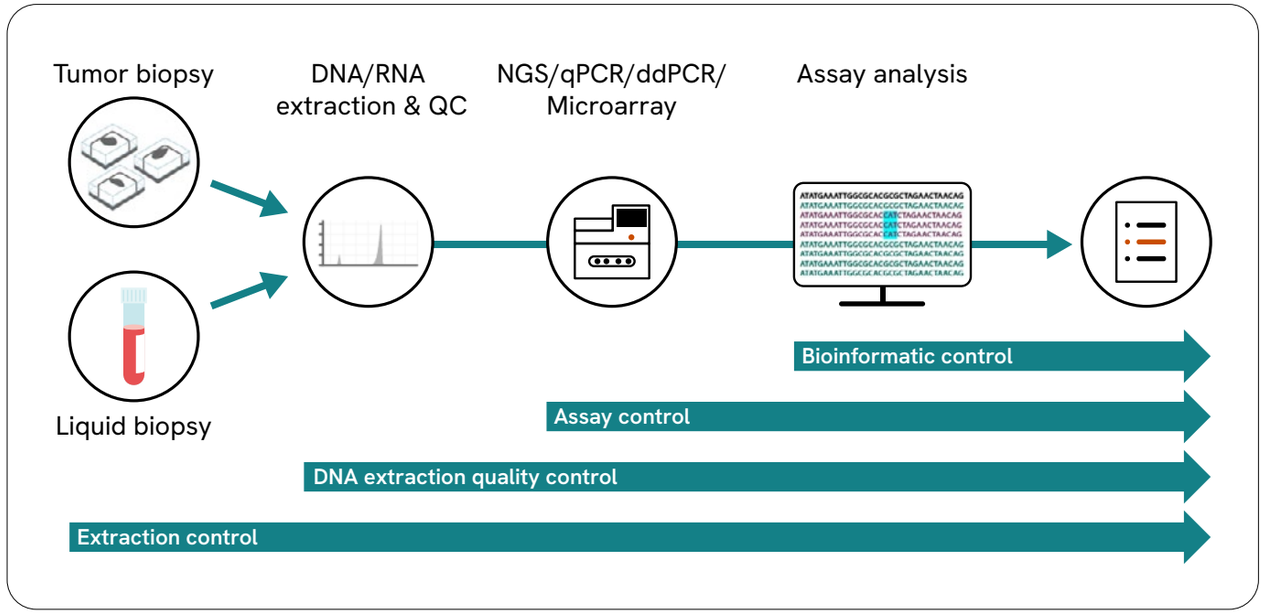
Genomic complexities of patient samples

- Broad range of allelic frequencies to challenge lab assays' LoD instead of just hetero/homozygous variants
- Copy number variants (CNVs)
- Insertions and deletions (INDELs)
- Fusions
- Single nucleotide variants (SNVs)

Controls for end-to-end workflows

Our dedicated team of scientists maintain and quality control cell lines before and after blending to create high integrity, reliable and customizable reference material in gDNA, cfDNA, or FFPE format.

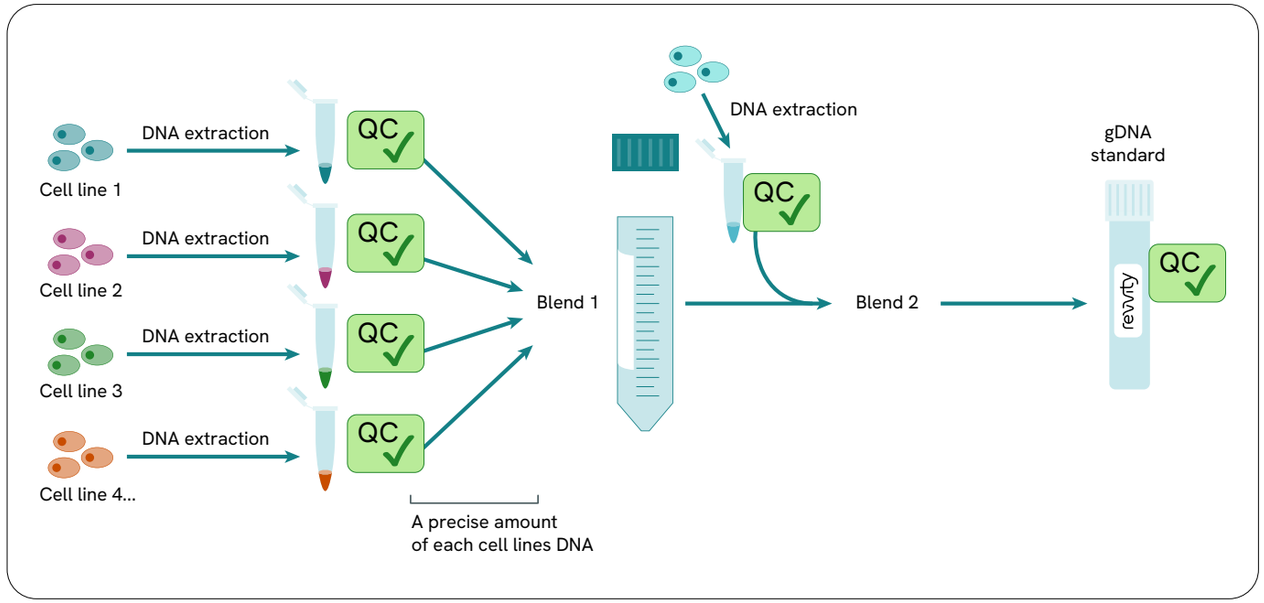
Reference standards can be used at different stages of your workflow, giving you greater confidence in your assay and results.



Different reference standard formats can act as a control for distinct stages of a workflow.

Cell line-derived reference standards

Revvity's Mimix reference standards use a single cell line or a blend of cell lines to create products with mutations at different allelic frequencies which can also be customized.



Characterized cell lines containing specific variants are blended to create standards with a few or multiple variants of known allelic frequencies. The blended cell mixture is then subjected to quality control analysis and processed to be available in a variety of formats.

Off-the-shelf and ready-to-go!

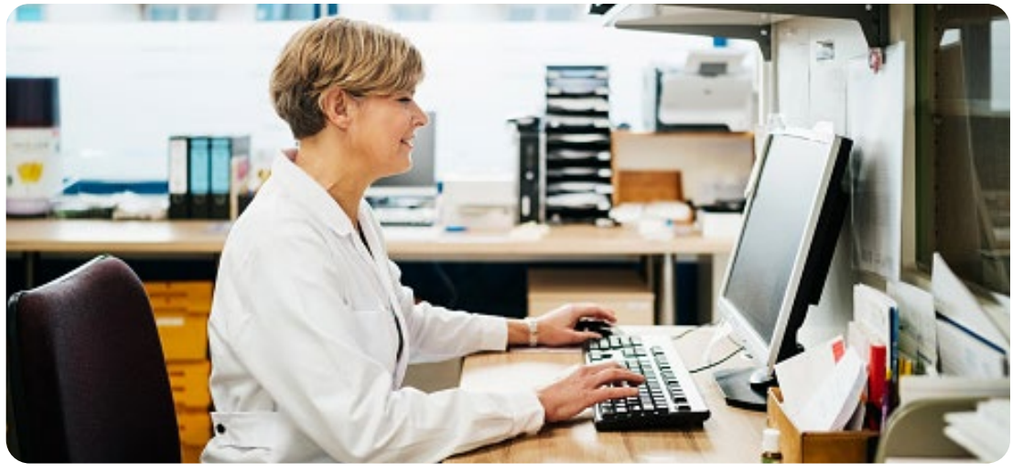
Mimix is easy to order directly online - with instant quotes available. Plus, to help ensure your workflow is kept on track, orders can be shipped in as little as 48 hours.

Our products offer precise genetic variations and mutation allele frequencies, verified by ddPCR and NGS.

The Mimix range has thousands of biologically relevant variants, available in a variety of formats to fit seamlessly into your workflow. These formats include FFPE, gDNA, cfDNA/ctDNA, and formalin compromised options.

Browse our online catalog using specified formats to quickly find the Mimix reference standard that meets your requirements.

Order online



Select your reference standard:

Liquid biopsy

Pan-cancer

Cancer-specific

NIPT

FFPE

gDNA

Close window

Liquid biopsy reference standards

Liquid biopsy is a growing area of research that is key for the early detection and continual monitoring of circulating tumor DNA (ctDNA).

Since early 2015, Revvity has been producing reference standards in the format of ctDNA for the surveillance of minimal residual disease (MRD) tracked via liquid biopsy.

With our cell line-derived reference standards, we provide:

- ctDNA reference standards to support the verification of liquid biopsy-based MRD assays
- Matched negative controls for further dilution of allelic frequency to suit your assay's needs
- Material that mimics the biological complexity of a patient sample

Browse all our liquid biopsy reference standards

Revvity offers a wide range of Mimix ctDNA cell line-derived reference standards, including:

Non-Small Cell Lung Cancer Panel ctDNA

- Covers 22 mutations in EGFR, KRAS, BRAF and rare mutations in genes including MET, ERBB, PIK3CA, NRAS
- Allelic frequencies as low as 0.3%

Prostate Cancer Panel cfDNA reference standard

- Multiplex multigene containing 17 variants across 9 genes biologically relevant to prostate cancer
- Allelic frequencies of 0.3 - 10%

Colorectal Cancer Panel ctDNA reference standard

- Detection of key actionable mutations in genes, including AKT1, APC, BRAF, KRAS, PIK3CA and TP53
- Allelic frequency as low as 1.25% and a negative control available for further dilution

OncoSpan™ cfDNA

- Pan-cancer panel containing over 380 variants across 152 genes

Close window

Pan-cancer reference standards

Choose from a broad range of pan-cancer reference standards, including:

OncoSpan Reference Control Panel:

- One of the world's largest oncology reference standard with companion batch-specific in silico data set
- Contains 152 key genes for cancer screening
- Genes contain 380+ variants with a wide range of allelic frequencies (1-92.5%)
- Available in formats cfDNA, FFPE and gDNA

Structural Multiplex Reference Standard:

- 9 mutations of interest including RET and ROS1 fusion variants, MYC-N and MET focal amplifications, and a BRCA2 variant
- Available in gDNA and FFPE

Pan-Cancer 6-Fusion:

- Expression of *TPM3-NTRK1*, *QKI-NTRK2*, *ETV6-NTRK3*, *EML4-ALK*, *CCDC6-RET* and *SLC34A2-ROS1* RNA transcripts confirmed by fusion specific RT-ddPCR using the QX200 ddPCR System (Bio-Rad)

Browse all our pan-cancer reference standards

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Cancer-specific reference standards

Our Mimix reference standard range includes cancer-specific products with disease-relevant variants in key oncogenes.
We are constantly expanding our offering of cancer-specific panels available off the shelf. Highlights include:

Non-Small Cell Lung Cancer Panel ctDNA:

- Supports DNA mutations in Non-Small Cell Lung Cancer (NSCLC) which accounts for ~85% of all lung cancer cases
- Covers 22 key and rare mutations

Myeloid Cancer Panel cfDNA Reference Standard:

- 15 biologically-relevant variants across 14 genes
- Available negative control to dilute down allelic frequencies

Lymphoid Cancer Panel:

- 10 cancer biomarkers key to tracking lymphoma
- Available in FFPE and gDNA

BRCA Somatic Multiplex (FFPE):

- Highly characterized biologically-relevant material with somatic mutations
- Relevant to breast and other cancers.
- BRCA1 and BRCA2 variants covered among 5 genes containing a total of 16 mutations at 7.5%-100% allelic frequency

Prostate Cancer Panel cfDNA Reference Standard:

- Multiplex multigene panel containing 17 variants across 9 genes biologically relevant to prostate cancer
- Allelic frequencies of 0.3 - 10%

Colorectal Cancer Panel ctDNA :

- For the second leading cancer in morality worldwide, this standard is designed to mimic the traces of mutations detectable in liquid biopsies for CRC

Browse all our cancer-specific reference standards

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FFPE reference standards

Revvity's Mimix range offers FFPE reference standards for testing workflows from DNA/RNA extraction all the way to analysis for end-to-end control of potential variability in pre-analytical steps. They're formalin fixed samples in a paraffin block, and are available as whole blocks, half blocks or sectioned into curls of 10 and 15uM.

PTEN Loss:

- The first of its kind off-the-shelf in the market
- PTEN deletion is a prominent prognostic biomarker in prostate cancers as well as being reported in other pathologies like lung, ovary, endometrium, breast, and colon cancers.
- Contains a cell-line with homozygous deletion (copy number loss) of PTEN to mimic the loss of PTEN observed in several cancers.

Structural Multiplex Reference Standard:

- Covering a wide range of mutations in a defined genomic context
- 9 biologically relevant variants across 8 genes.
- Whole exome sequencing data with gDNA version available.
- Available in a range of formats, including gDNA, cfDNA and FFPE.

Pan-Cancer 6-Fusion Panel:

- Defined FFPE control material containing 6 clinically-relevant, cell-based kinase fusion RNA biomarkers
- Contains prevalent NTRK gene fusions as well as ALK, RET and ROS, also suitable for NGS workflows.
- Complimentary Pan-Cancer 6-Fusion Panel matched negative control available.

Quantitative Multiplex Moderate FFPE:

- Consistent control material with patient-like performance containing 11 highly onco-relevant mutations
- Moderately compromised FFPE, providing a version more comparable to the degradation seen in real world samples
- Covers multiple endogenous SNPs and deletions, in multiple formats, including FFPE, gDNA and Formalin-Compromised DNA

Browse all our FFPE reference standards

Close window

gDNA reference standards

Revvity offers a range of gDNA reference standards:

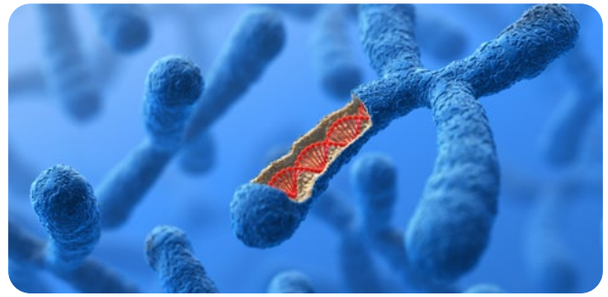
- Extracted DNA in Tris-EDTA buffer or synthetic plasma
- Perfect for establishing LoD of assays
- Mimics patient's solid tumor samples in sample processing
- Structural multiplex reference standard
  - Covers a wide range of mutations in defined genomic context, including RET and ROS1 fusion variants, MYC-N and MET focal amplifications, and a BRCA2 variant
  - Includes 9 ddPCR-verified mutations, with most centered at 5% allelic frequency
- Available in a range of formats, including FFPE to support you in verifying pre-analytical and analytical portions on workflow.

Browse all our gDNA reference standards

Formalin-compromised DNA

- Understand sample quality and degradation with our staged formalin compromised standard material
  - 3 stages of formalin compromised standards (severe, moderate and mild) for comparable results against degraded patient samples

Browse all of our fcDNA reference standards



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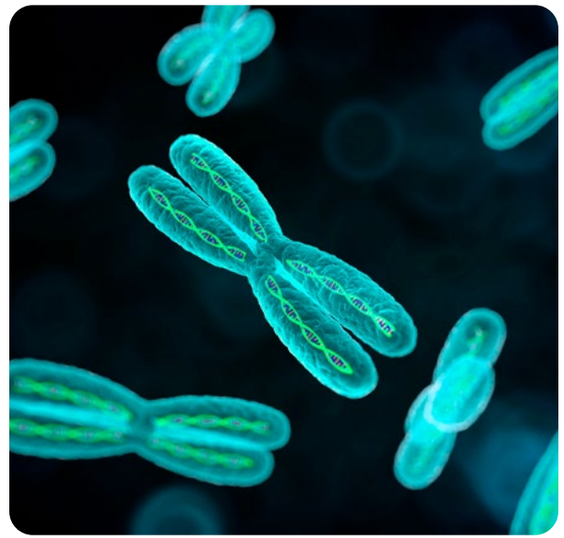
NIPT reference standards

Non-invasive prenatal testing (NIPT) is a method in which the cfDNA is analyzed in maternal blood to detect for chromosomal abnormalities.

Our Mimix NIPT reference standards are:

- Cell line-derived, matched maternal-fetal cfDNA in synthetic plasma
- Cover all three of the most common trisomies: 21, 18, and 13.
- Rigorously tested using ddPCR and Revvity's Vanadis™ NIPT platforms
  - Reproducible at 40 ng/ml concentration, 170 bp size distribution and 10% fetal fraction
  - Euploid control: negative for trisomy 13, 18, 21 available as baseline comparative
- qPCR, ddPCR and Vanadis compatible

These controls enable you to confidently test and monitor workflows designed to detect chromosomal abnormalities in maternal blood samples.



Browse all our NIPT reference standards

Custom reference standards

Need something more specific? Revvity's **in-house cell line engineering** team allows you to select almost any genetic variants of interest and create standards bespoke to your needs. This enables you to **design your own reference standard** tailored to your oncology NGS diagnostics pipeline, available in buffer or plasma

With millions of pre-engineered variants to choose from and the capability to engineer custom variants in-house, you have full flexibility. Our products are **100% cell line-derived** and adhere to **ISO 13485:2016 and ISO 9001:2015** standards to create high integrity and reliable reference material.

Additionally, we can custom blend to create a bespoke reference standard with different genes and mutation allelic frequencies to **meet the specific requirements** of your research and diagnostic applications.

Create your own reference standard

Custom reference standards questions? Email us.

Close window

Create your own reference standard

Use our online tool to build your custom reference in 5 easy steps - and get a quote instantly.

Step 1: Format:

- FFPE
- gDNA
- cfDNA in buffer or Synthetic Matrix/plasma

Step 2: Variants:

- Singleplex/Multiplex
- Up to 4 variants incorporated yourself on the MTO builder. If you'd like more you can contact us.
- Search using gene name and change

Step 3: Allelic frequency:

- Allelic frequency as low as 0.1% possible

Step 4: Average fragment length

Step 5: Amount of product:

- From as little as 15ug or 1/2 block FFPE (300 sections at 15uM)

Try our online tool now

- The importance of reference standards
- Mimix reference standards
- Ready-to-order formats
  - Liquid biopsy
  - Pan-cancer
  - Cancer-specific
  - FFPE
  - gDNA
  - NIPT
- Custom standards
- Related products and services
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Omics sample processing services

Cell line engineering services

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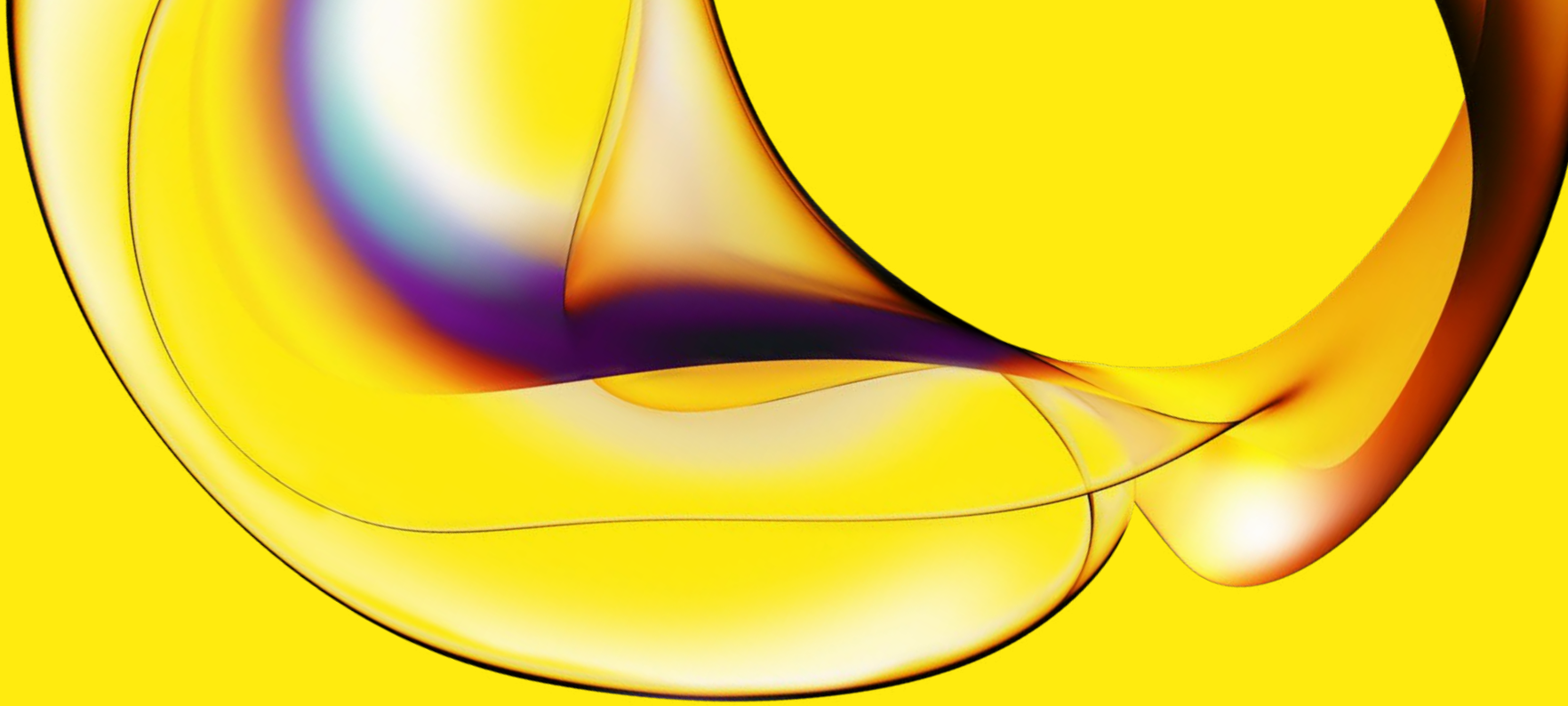
chemagic™ 360 instrument

Bead mill & automated homogenizers



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Learn More

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Questions about custom reference standards?
Email us at uk-cam-customdx@horizondiscovery.com

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