qBiomarker Copy Number PCR Assays and Arrays

For profiling copy number variation and alterations

qBiomarker Copy Number PCR Assays and Arrays are highly reliable tools for measuring copy number changes – genome alterations that result in amplifications or deletions of DNA segments. qBiomarker Copy Number PCR Arrays include SYBR® Green primer assays for a thoroughly researched panel of pathway- or disease-focused loci with documented amplifications or deletions. Custom qBiomarker Copy Number PCR Arrays provide a panel of loci tailored to your specific research interests.

qBiomarker Copy Number PCR Arrays are available as a 96-well plate, 384-well plate, or 100-well disc. Our high-quality primer design and master mix formulation enable amplification of 23 or 95 different locus-specific products simultaneously under uniform cycling conditions. The qBiomarker Multi-Copy Reference Copy Number PCR Assay (MRef) delivers superior normalization compared to single locus reference assays such as RNase P or TERT (Figure 3). This system provides the specificity and high amplification efficiencies required for accurate copy number determination. The simplicity of qBiomarker Copy Number PCR Arrays makes them accessible for routine use in every research laboratory.

qBiomarker Copy Number PCR Arrays provide:

- Focused copy number profiling for any real-time instrument
- Outstanding resolution with over 11.6 million laboratory-verified assays
- Complimentary, easy-to-use data analysis tool

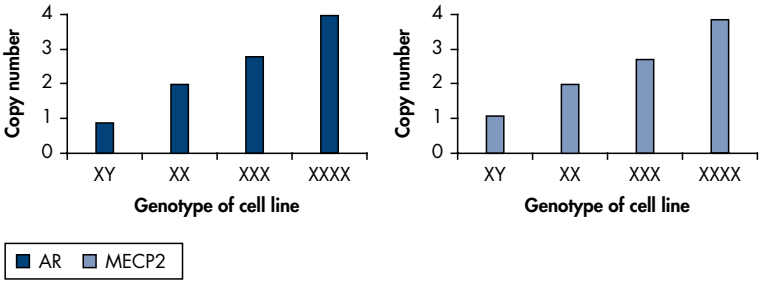

Figure 1. qBiomarker Copy Number Assays accurately identify aneuploidy. qBiomarker Copy Number Assays designed to target AR and MECP2, which are on the X-chromosome, were tested against 4 cell line DNAs containing 1 copy (XY, Coriell NA13619), 2 copies (XX, Coriell NA01921), 3 copies (XXX, Coriell NA03623) and 4 copies (XXXX, Coriell NA11226) of X-chromosome. Chromosomal aberrations had been previously identified by cytogenetic methods. A control assay, targeting a stable, multi-copy region in the human genome, was used to normalize the amount of DNA input. $\Delta\Delta C_T$ method was used to calculate the gene copy number, using XX (Coriell NA01921) as a 2-copy reference. Each assay was tested against each sample in quadruple replicate reactions, and a t-test was performed.

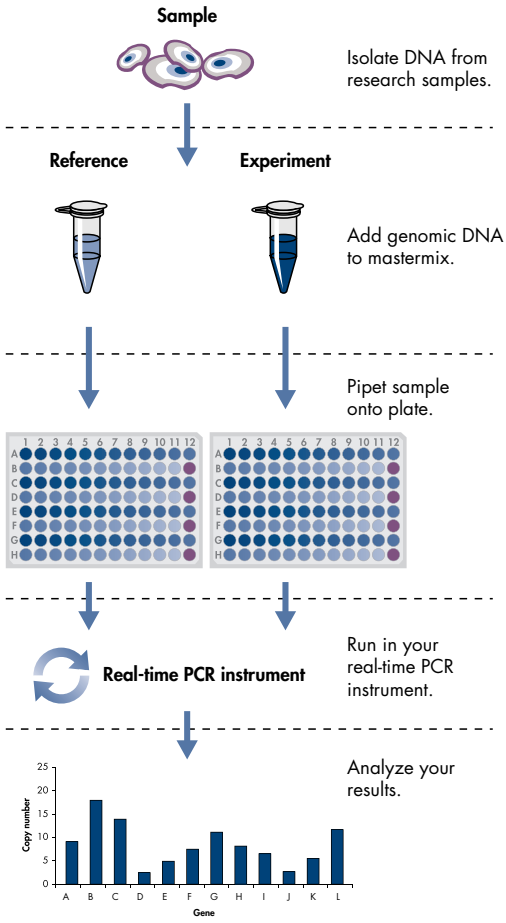

Figure 2. Workflow for the qBiomarker Copy Number PCR Arrays. Isolate DNA from research samples, including cell, tissue, blood, and formalin-fixed paraffin-embedded (FFPE) samples. Add DNA to qBiomarker SYBR Mastermix and pipet 1 sample into 1 array. Each array plate contains 23 or 95 locus-specific assays and a qBiomarker Multi-Copy Reference Copy Number PCR Assay in quadruple replicates. Run the plate in your real-time PCR instrument, and analyze data using the complimentary, Web-based data analysis tool.

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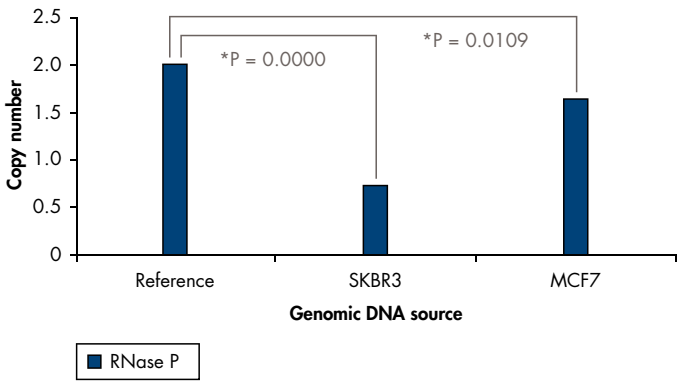

Figure 3. RNase P and other single copy genes are not suitable normalizers for sample input. Genomic DNA samples with many amplifications and/or deletions, such as tumor DNA, require users to verify their single-copy reference genes to ensure that the reference genes themselves have not undergone a change in copy number. The advantage of a multi-copy reference assay is demonstrated in the measurement of the relative copy number of RNase P in 2 common cancer cell lines. The absolute average copy numbers of RNase P per normal genome copy amount of DNA were determined in 2 breast cancer cell line (SKBR3 and MCF7) genomic DNAs with the $\Delta\Delta C_T$ method, using qBiomarker Multi-Copy Reference Copy Number PCR Assay as the normalization control of DNA input. The absolute copy number of RNase P per normal genome in Reference genomic DNA is assumed to be 2. The copy number of RNase P in both SKBR3 and MCF7 is significantly altered, demonstrating that this reference gene would be an unreliable normalizer for these samples.

Examples of available qBiomarker Copy Number PCR Arrays

Birth Defects	Glioma	Intellectual Disability	Pancreatic Cancer	**Custom Arrays**
Breast Cancer	Kinases & Phosphatases	Oncogenes & Tumor Suppressors 384HC	Prostate Cancer	
Gastric Cancer	Lung Cancer	Ovarian Cancer	WNT signaling	

Ordering Information

Product	Contents	Cat. no.
qBiomarker Copy Number PCR Arrays	Disease, pathway or custom panels of copy number assays	337802
qBiomarker Copy Number PCR Assays	Laboratory-validated qPCR assays for measuring changes in copy number	337812
qBiomarker SYBR Mastermixes	Reagents for real-time PCR reactions (available with appropriate loading dyes)	Varies
QIAamp® DNA Mini Kit (50)	For 50 DNA preps: 50 QIAamp Mini Spin Columns, QIAGEN Proteinase K, Reagents, Buffers, Collection Tubes (2 ml)	51304

Compatible with real-time PCR instruments from the following manufacturers:
QIAGEN®, Agilent®/Stratagene®, Applied Biosystems®, Bio-Rad®, Eppendorf®, Roche®, TaKaRa®

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

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