

# PACE™ SNP GENOTYPING ASSAYS

Cost-effective genotyping assays for low- to high-throughput screening



**Expedite experiments** with rapidly delivered high quality oligos



**Screen larger sample libraries** more cost effectively



**Reduce non-specific amplification**



**Vary reaction volumes** without losing performance or changing master mix



**Access the free-of-charge assay design service**

## SIMPLIFIED GENOTYPING—A UNIVERSAL MASTER MIX AND COMMON REVERSE PRIMER

PACE (PCR Allele Competitive Extension) genotyping is a fluorescent, competitive allele-specific PCR genotyping technology. It is ideal for bi-allelic discrimination of single nucleotide polymorphisms (SNPs) and insertions and deletions (indels) at specific loci. This system, developed by 3CR Bioscience (3CR), uses a universal PCR master mix (PACE Genotyping Master Mix) containing a fluorescent reporting reagent, with allele-specific forward primers and a common reverse primer. This master mix is optimized to reduce non-specific amplification compared to other competitive allele-specific PCR master mixes. Unlike KASP™ Master Mix (LGC Biosearch), only one PACE master mix formulation is required for all reaction volumes, regardless of platform used, and without any compromise in performance. KASP, on the other hand, requires one mix version for normal reaction volumes, another for low volumes (1536 mix variant), and a third for the Array Tape™ Platform (Douglas Scientific).

Learn more about the versatile PACE Genotyping Master Mix <https://3crbio.com/page/3cr-pace-genotyping-mastermix>.

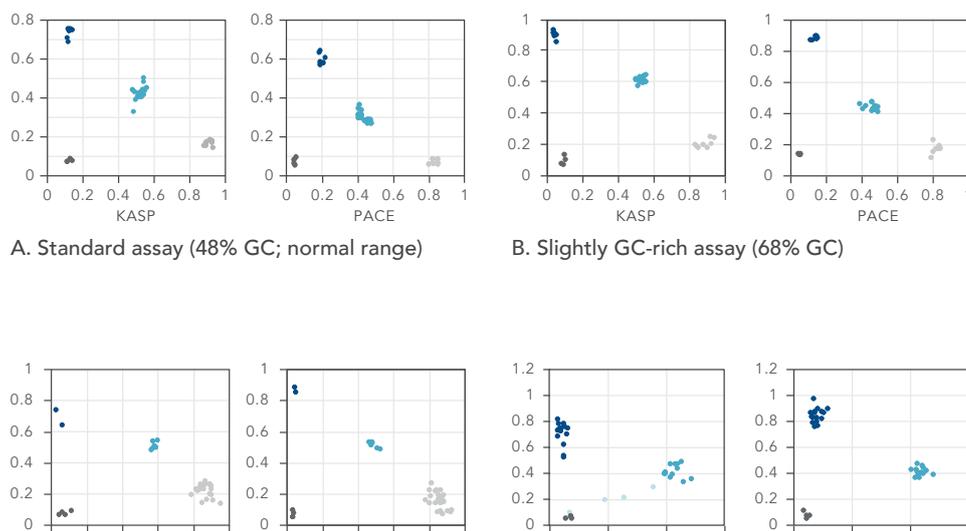
3CR also provides a special master mix (PACE-IR) formulation for samples containing PCR inhibitors.

See <https://3crbio.com/pace-ir>.

## COMPETITIVE WITH INDUSTRY LEADER—BOTH ON DATA AND COST

The PACE genotyping method and industry-leading KASP system are both easy to use, and the 2 methods produce very similar quality data (Figure 1). However, the PACE Master Mix is a better use of research funds, especially when using larger pack sizes.

> [WWW.IDTDNA.COM](http://WWW.IDTDNA.COM)



**Figure 1. The PACE system provides improved, cost-effective genotyping compared to the leading industry method, KASP.** Genotyping was carried out on purified corn DNA samples. Four distinct genotyping assays were selected to assess sequence variability that can affect genotyping outcome: (A) Normal GC/AT content (48% GC), (B) Slightly GC-rich content (68%), (C) AT-rich content (28% GC), and (D) Slightly AT-rich content (40% GC). Master mixes for the PACE and KASP methods were used for genotyping each of the 4 assays (identical primers and samples), in 4  $\mu$ L reactions, following each manufacturer's protocol. Assay results were analyzed as cluster plots. Genotyping clusters from the PACE reactions were as well or better defined than the KASP reactions. In addition, the clusters of the PACE reactions were optimal at a fixed number of PCR cycles, whereas with KASP reactions, different cycle numbers were needed.

## PARTNERSHIP PROVIDES FASTER, MORE COST-EFFECTIVE GENOTYPING

The PACE genotyping system was developed by 3CR to widen access to quality custom solutions for genotyping screening. The partnership between IDT's industry-leading oligo synthesis and high quality primers, and 3CR's PACE Genotyping Master Mix and expertise in designing assays, enables researchers to quickly and economically conduct genotyping experiments. This collaboration speeds up and reduces cost for high-volume genotyping, particularly useful for those working in the agricultural biotech sector.

The new PACE SNP assays join IDT's innovative rhAmp™ SNP assays and rhAmpSeq™ amplicon sequencing system to providing a complete selection of genotyping solutions for any requirement. IDT's rhAmp PCR technology is popular for its accuracy and sensitivity, which is great for identifying, validating, and performing small screens on genetic markers. Now, PACE technology provides a cost-effective, high performance solution for scaling projects from low- to high-throughput screens, ideal for PCR-based SNP or indel genotyping.

For each PACE SNP assay, a technical service team of experts from both IDT and 3CR work together to design the sequences for industry-leading, individually synthesized IDT oligos. This collaboration ensures the best possible assay design and manufacture for customization of your experiments. In addition to improving reliability, this service lowers the cost-per-sample compared to existing market alternatives.

## ORDERING INFORMATION

### Assays (Allele-specific forward and common reverse primers)

1. Have us design your primers: Contact IDT at [PACEdesigns@idtdna.com](mailto:PACEdesigns@idtdna.com) and provide your sequences with identified SNPs. IDT works directly with 3CR, the originators of the PACE assay, to design the primers.
2. Send us your primer designs for synthesis: Order the allele-specific forward and common reverse primers by sending your order details to [PACEordering@idtdna.com](mailto:PACEordering@idtdna.com). Primers are available as primer mixes, where the 2 allele-specific and common reverse primers are combined in one well or tube or available as individual primers in tubes or plates.

### Genotyping Master Mix

Order the PACE Genotyping Master Mix from 3CR by going to <https://3crbio.com/products/information>.

> FOR MORE INFORMATION, VISIT [WWW.IDTDNA.COM/PACE](http://WWW.IDTDNA.COM/PACE)

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