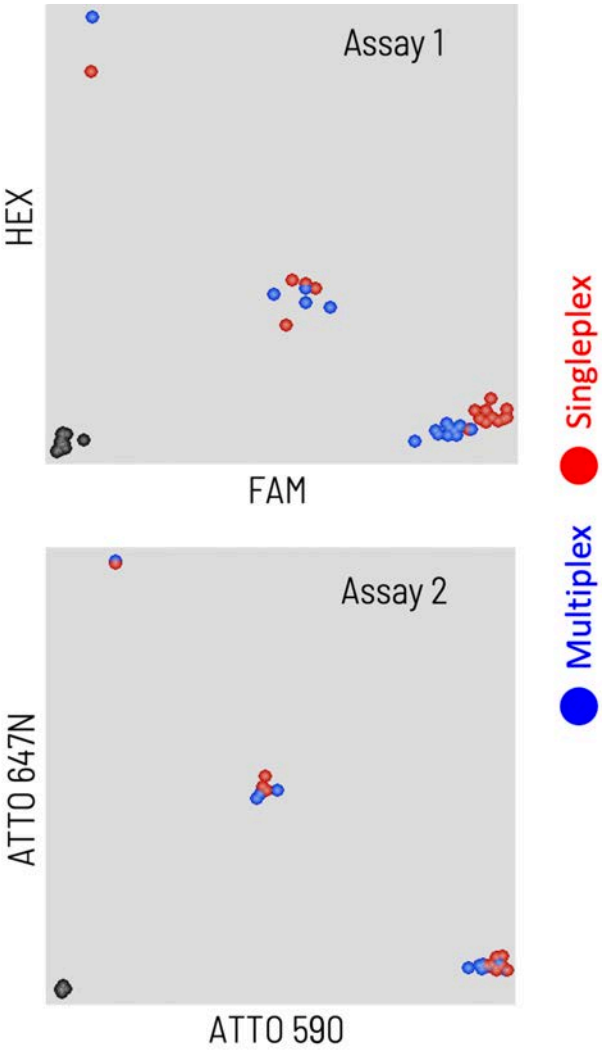
ARTICLE

Transforming Genotyping Workflows with PACE® Multiplex Master Mix

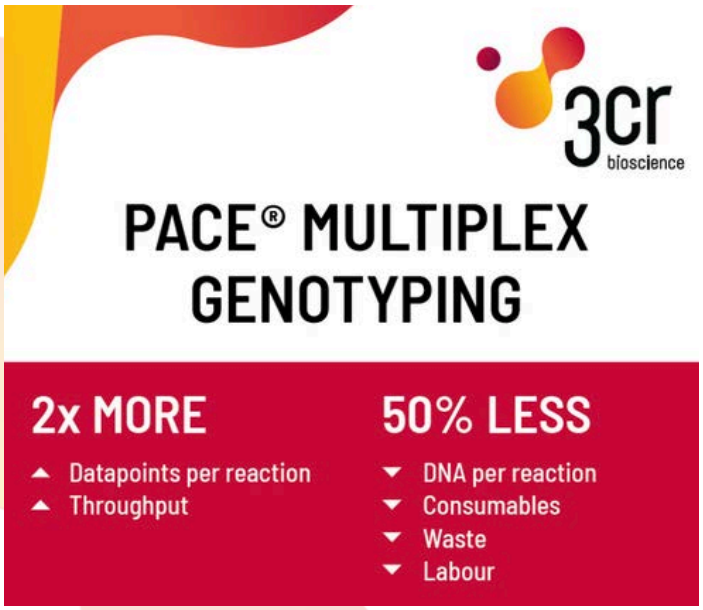
PACE® Multiplex Master Mix from 3CR Bioscience is a breakthrough in PCR genotyping technology, enabling researchers to detect up to **four genetic targets in a single reaction well**. This innovative expansion of PACE® 2.0 Genotyping Master Mix delivers unparalleled performance, cost savings, and sustainability.



What Is PACE Multiplex Master Mix?

PACE Multiplex Master Mix was developed to simplify and accelerate genotyping workflows, combining the power of PCR amplification with allele-specific PCR extension and four-color fluorescent labeling. It allows researchers to simultaneously detect four targets, such as:

- Two biallelic SNPs,
- Tri- or Quad-allelic SNPs, or
- One reference gene and three genes of interest.



With **no assay optimisation required**, PACE Multiplex Master Mix integrates seamlessly into your lab, delivering twice the data output per reaction while using half the DNA, consumables, and labor compared to conventional master mixes.

Key Features and Benefits

1. **Simultaneous Detection of Four Targets**
   Equipped with FAM, HEX, ATTO 590, and ATTO 647N fluorescent reporters, the mix allows for multiplexing without compromising accuracy or reliability.
2. **Efficiency and Sustainability**
   - 2x more data per reaction.
   - 50% reduction in DNA usage, consumables, and plastic waste.
   - Significant time and cost savings.
3. **Compatibility with Most Equipment**
   The master mix is compatible with nearly all qPCR machines capable of detecting the specified fluorophores, also allowing real-time monitoring. Its inclusion of ATTO 680 as a reference dye ensures robust signal normalization for consistent results.
4. **Customizable Assay Design**
   Users can leverage 3CR Bioscience's free PACE assay design service and choose full or partial assay validation for tailored, high-quality solutions.

Applications Across Research Fields

The versatility of PACE Multiplex Master Mix makes it invaluable in areas such as:

- Marker-assisted selection in plant breeding.
- Transgenic plant development.
- Seed purity and quality testing.
- Disease research and pathogen detection.

For instance, researchers can identify SNP variations in disease genes, detect adventitious presence sequences in seeds, or analyze pathogens in crops—all within a single reaction.

Flexible Storage Options

The master mix can be stored at 4°C for up to two weeks or at -20°C for long-term use. For convenience, it's supplied at 2x concentration and is available with or without ATTO 680 at varying levels to accommodate different equipment setups.

FLUOROPHORE	EXCITATION (nM)	EMISSION (nM)
FAM	485	520
HEX	520	560
ATTO 590	590	620
ATTO 647N	649	662
ATTO 680 Reference Dye	681	698

Table 1. Excitation and Emission values for the fluorophores used in the PACE Multiplex chemistry.

Why Choose PACE Multiplex Master Mix?

PACE Multiplex Master Mix sets a new standard for efficiency in SNP genotyping. It empowers researchers to generate twice the throughput while halving resource use, making it not only cost-effective but also environmentally sustainable.

Additionally, by eliminating the need for assay optimization and ensuring compatibility with most lab equipment, it saves time and simplifies workflows. Researchers can rely on its robust performance across applications.

Transform Your Genotyping Workflow Today

Whether you're a plant breeder optimizing marker-assisted selection or a researcher exploring complex genomic landscapes, PACE Multiplex Master Mix provides the precision, efficiency, and flexibility you need. By reducing costs and environmental impact while increasing data output, it represents a true leap forward in genotyping technology.

Explore the possibilities of PACE Multiplex Master Mix and improve your laboratory workflow today. For more information, visit the product page or consult the user guide.

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