

# PCRBIO Rapid Extract PCR Kit



- Column-free
- Convenient
- Fast

PCRBIO Rapid Extract PCR Kit combines rapid DNA extraction with fast, highly specific DNA amplification in a convenient, easy-to-use format. Eliminate the need for laborious and time-consuming DNA extraction methods with this simple, integrated extraction and amplification PCR kit powered by the latest advances in hot start polymerase technology.

## Features

- Rapid, convenient, single-tube DNA extraction
- Produces high yield, PCR-ready DNA in 15 minutes
- Minimised contamination risks and sample loss
- Maximised PCR speed, yield and specificity
- Powered by PCRBIO HS Taq Mix Red for direct gel loading
- Ideal for complex templates
- Also available as a lysis-only kit for downstream PCR and qPCR reactions

## Applications

- Genotyping
- Transgene detection
- Knockout analysis
- Sequencing

## Samples

- Mouse tail clip and ear punch
- Animal tissue
- Hair follicle
- Buccal swab
- Mammalian blood
- FFPE tissue

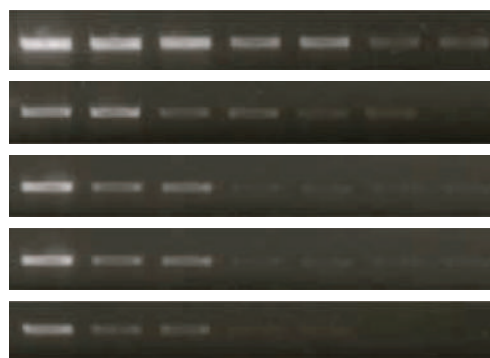
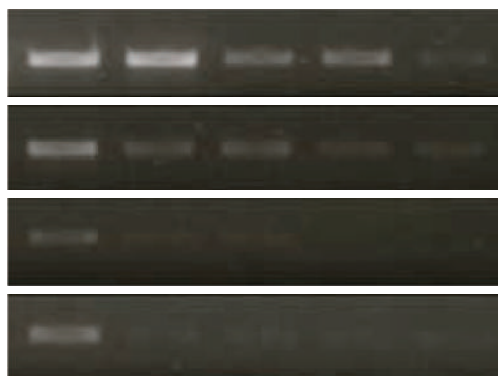
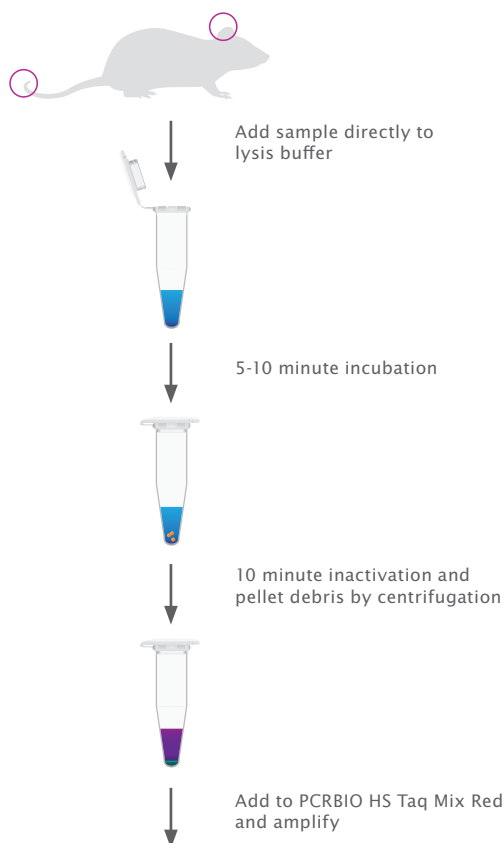


Figure 1. Mouse tail DNA rapid extraction comparison

PCRBIO Rapid Extract PCR Kit was used to extract DNA from 3mg of mouse tail clipping following the standard 15 minute protocol. The extraction was repeated using equivalent extraction kits from alternative manufacturers. A serial three-fold dilution series was made from each supernatant. PCRBIO HS Taq Mix Red was used to amplify a 1kb fragment of mouse GAPDH gene from each dilution. Results were compared by agarose gel electrophoresis. Row 1 shows results from PCR Biosystems, row 2 from Kapa Biosystems, row 3 from Bioline, row 4 from Sigma and row 5 from Fermentas.



**PCRBIO SYSTEMS**  
simplifying research



PCRBIOSYSTEMS Rapid Extract PCR Kit has been developed for fast, efficient amplification of DNA from a variety of tissues and is particularly suited to solid tissue such as mouse tail or mouse ear. Sample processing is simplified and contamination risks minimised as DNA extraction is performed in a single tube, removing the need for multiple washing steps.

Extracted DNA is amplified in a proprietary buffer system using PCRBIOSYSTEMS HS Taq Mix Red. Our antibody-mediated hot start polymerase uses the latest developments in polymerase technology and buffer chemistry to enhance PCR speed, yield and sensitivity. Primer dimer formation and non-specific amplification are prevented giving superior specificity ideal for complex templates such as mammalian genomic DNA. The mix contains a red dye suitable for direct gel loading without the need for additional loading buffer.

PCRBIOSYSTEMS Rapid Extract Lysis Kit contains only the lysis and protease buffer system allowing the generation of PCR-ready DNA for use in downstream PCR or qPCR reactions.

**Figure 2. Mouse ear DNA rapid extraction and 2.5kb amplification using supplied PCR reagent**

PCRBIOSYSTEMS Rapid Extract PCR Kit was used to extract DNA from 3mg of mouse ear clipping following the standard 15 minute protocol. The extraction was repeated using equivalent extraction kits from alternative manufacturers. A serial two fold dilution series was made from each supernatant. The supplied polymerase was used to amplify a 2.5kb fragment of the mouse Calnexin gene from each dilution. Results were compared by agarose gel electrophoresis. Row 1 shows results from PCR Biosystems, row 2 from Kapa Biosystems, row 3 from Bioline and row 4 from Sigma.

| Catalogue Number | Product Name                          | Pack Size     | Presentation                                                                  |
|------------------|---------------------------------------|---------------|-------------------------------------------------------------------------------|
| PB10.24-08       | PCRBIOSYSTEMS Rapid Extract PCR Kit   | 80 Reactions  | PCRBIOSYSTEMS HS Taq Mix Red 2 x 1ml, Buffer A 1 x 1.6ml, Buffer B 1 x 0.8ml  |
| PB10.24-40       | PCRBIOSYSTEMS Rapid Extract PCR Kit   | 400 Reactions | PCRBIOSYSTEMS HS Taq Mix Red 10 x 1ml, Buffer A 5 x 1.6ml, Buffer B 5 x 0.8ml |
| PB15.11-08       | PCRBIOSYSTEMS Rapid Extract Lysis Kit | 80 Reactions  | Buffer A 1 x 1.6ml, Buffer B 1 x 0.8ml                                        |
| PB15.11-24       | PCRBIOSYSTEMS Rapid Extract Lysis Kit | 240 Reactions | Buffer A 3 x 1.6ml, Buffer B 3 x 0.8ml                                        |

# qPCRBIO Genotyping Mix

- Allelic discrimination
- Reproducible
- Tight clustering

## Features

- Accurate genotype calling
- Superior allele clustering
- Novel hot start for improved sensitivity
- Compatible on all real-time PCR platforms
- Standard and fast cycling conditions

## Applications

- Genotyping single nucleotide polymorphisms (SNPs)
- TaqMan® allelic discrimination assays
- High throughput genotyping studies
- TaqMan® pre-designed SNP genotyping assays

qPCRBIO Genotyping Mix is a kit designed for use in TaqMan® and other dual-labelled probe based genotyping assays. PCR Biosystems provide a fast, accurate, reliable 2x mix for reproducible allelic discrimination.

qPCRBIO Genotyping Mix is able to accurately call class I to class IV mutations. The mix is compatible with LNA and PNA probes, which offer more stringent allele calling.

Proprietary small molecular inhibitor technology prevents formation of primer dimer and non-specific products leading to improved reaction sensitivity and specificity. Combining the latest advancements in polymerase technology and advanced buffer chemistry we offer market leading performance with minimal or no optimisation. High throughput screening has resulted in a buffer system that allows efficient amplification from GC rich and AT rich templates, under fast and standard cycling conditions.

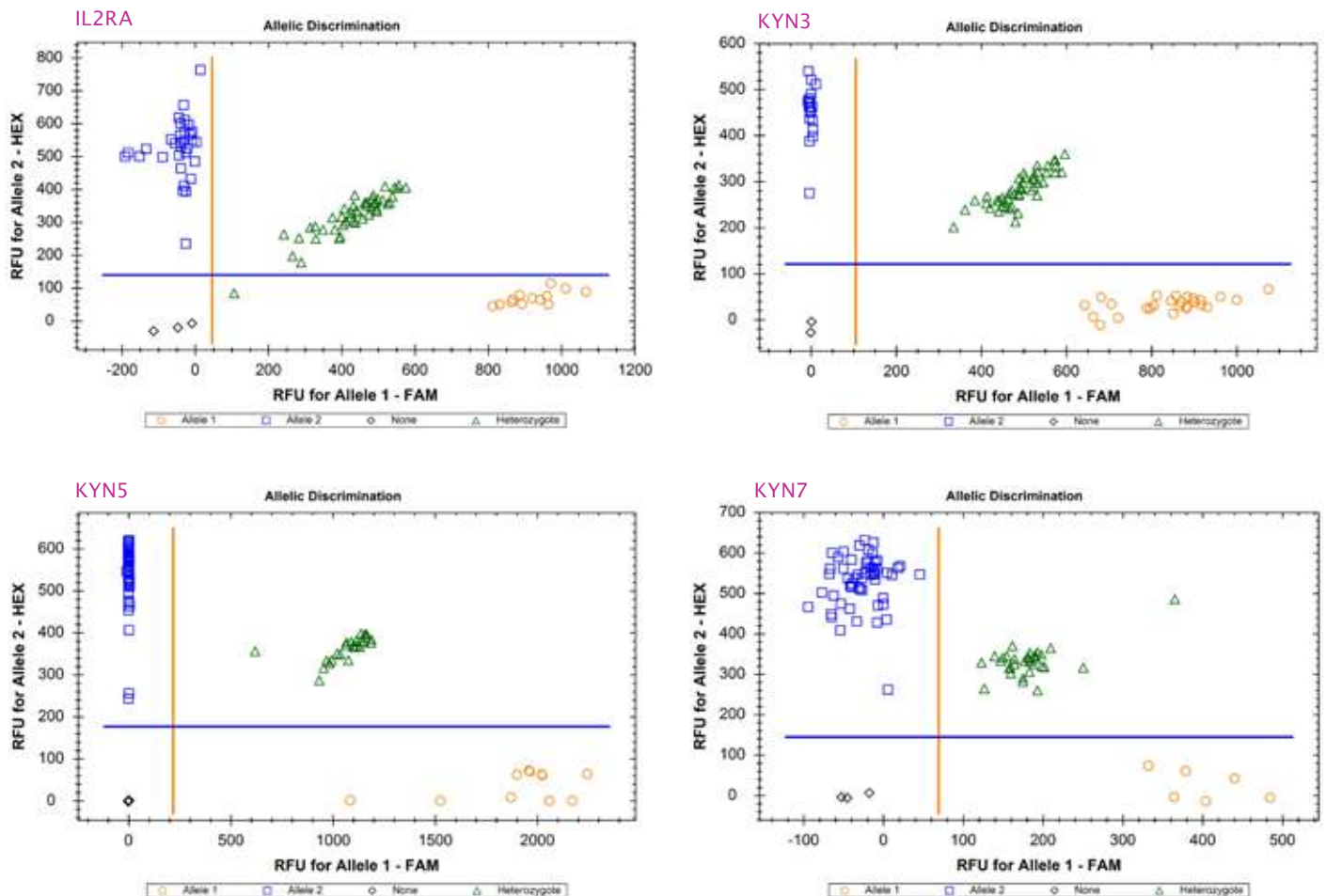


Figure 1.

Extracted genomic DNA from 96 human samples was analysed at 4 loci using TaqMan® probes and qPCR BIO Genotyping Mix. The analysis was performed on a Biorad CFX96 instrument and analysed using the Biorad CFX Manager software version 3.0. Single nucleotide polymorphisms (SNPs) within 4 genes were analysed: IL2RA (A/G), KYN3 (T/G), KYN5 (A/C), KYN7 (A/T). Cycling conditions for this assay were 50 cycles of 95°C for 10 seconds and 56°C for 50 seconds.

For each SNP analysed, high confidence, clear clustering of homozygous w/t, homozygous mutant and heterozygous was demonstrated. PCR Biosystems provide a fast, accurate, reliable 2x mix for reproducible allelic discrimination.

| Catalogue Number | Product Name                   | Pack size        | Presentation |
|------------------|--------------------------------|------------------|--------------|
| PB20.43-01       | qPCR BIO Genotyping Mix No-ROX | 100 x 20µl rxns  | 1 x 1ml      |
| PB20.43-05       |                                | 500 x 20µl rxns  | 5 x 1ml      |
| PB20.43-20       |                                | 2000 x 20µl rxns | 20 x 1ml     |
| PB20.41-01       | qPCR BIO Genotyping Mix Lo-ROX | 100 x 20µl rxns  | 1 x 1ml      |
| PB20.41-05       |                                | 500 x 20µl rxns  | 5 x 1ml      |
| PB20.41-20       |                                | 2000 x 20µl rxns | 20 x 1ml     |
| PB20.42-01       | qPCR BIO Genotyping Mix Hi-ROX | 100 x 20µl rxns  | 1 x 1ml      |
| PB20.42-05       |                                | 500 x 20µl rxns  | 5 x 1ml      |
| PB20.42-20       |                                | 2000 x 20µl rxns | 20 x 1ml     |

# qPCRBIO SyGreen Mix

- Sensitive
- Specific
- Fast

## Features

- Non-PCR inhibiting intercalating dye, better signal
- Rapid extension rate for early Ct values
- Market leading sensitivity - increased limit of detection
- Compatible on all real-time PCR platforms - standard and fast cycling conditions
- Blue mix available for easy sample visualisation during pipetting

## Applications

- Absolute quantification
- Relative gene expression analysis
- High throughput qPCR from genomic, cDNA and viral sequences
- Low copy number target genes

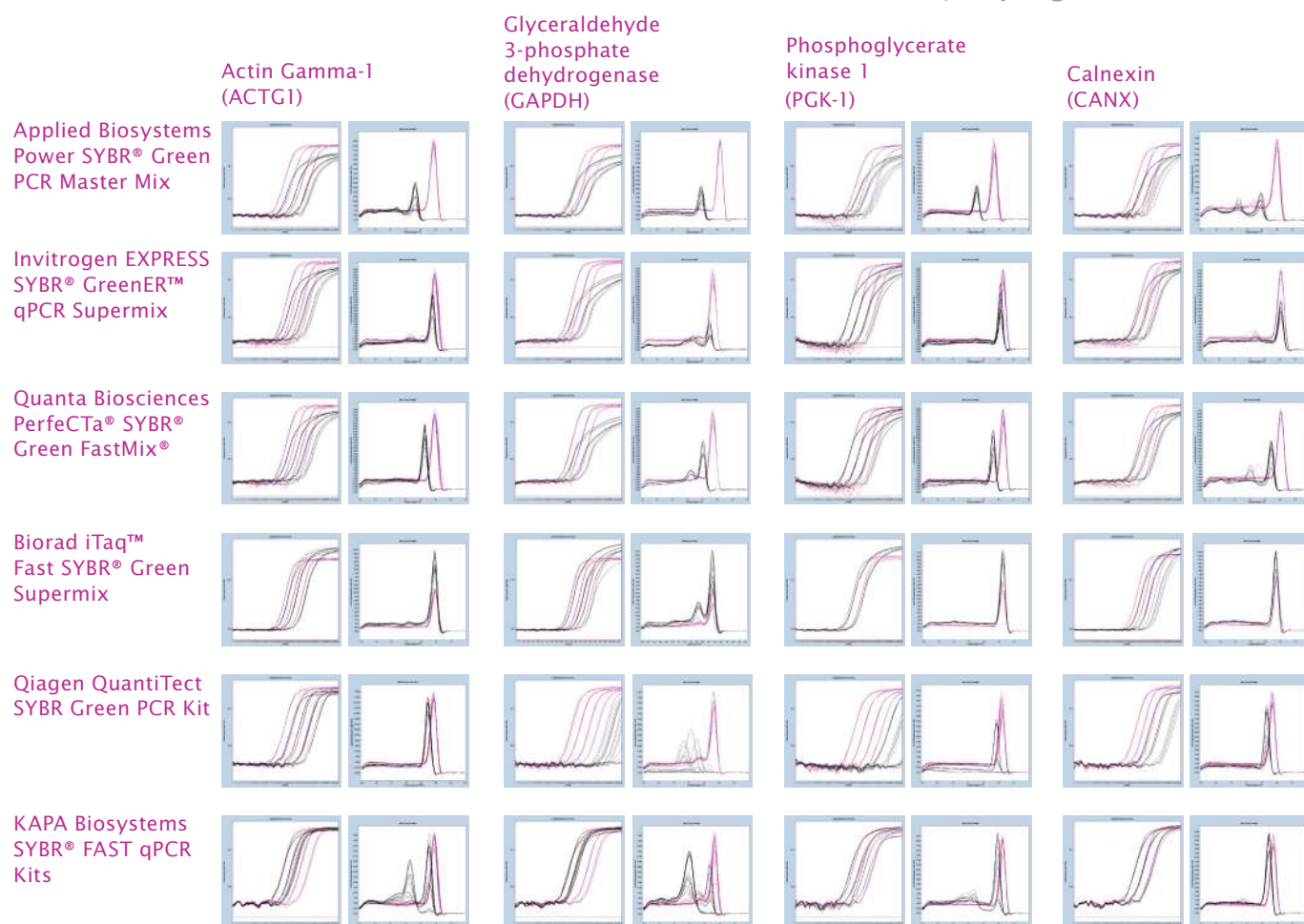
## Further Applications

- Crude sample PCR
- Standard and fast PCR conditions
- Specific amplification from complex templates (eg GC/AT rich)
- Compatible with all real-time PCR instruments

PCR Biosystems use a proprietary intercalating dye that does not inhibit PCR, unlike other popular fluorescent dyes. Combined with advanced enzyme, hot start and reaction buffer technology we offer market-leading sensitivity and reproducibility.

qPCRBIO SyGreen Mix can be used to quantify any DNA template including genomic, cDNA and viral sequences. Extremely low copy number targets can be detected specifically and with high efficiency. Antibody-mediated hot start technology prevents the formation of primer dimers and non-specific products leading to improved reaction sensitivity and specificity. Combining the latest developments in polymerase technology and advanced buffer chemistry we offer market-leading performance with minimal or no optimisation.





Black trace = Competitor Mix  
 Purple trace = qPCR BIO SyGreen Mix

Figure 1.

Shows amplification and melt traces of 4 mouse housekeeping genes from a cDNA dilution series. qPCR BIO SyGreen Mix traces (purple) and 6 competitor mixes (black). Cycling conditions were 95°C 2min, 40 cycles of 95°C 10sec, 60°C 15sec on Roche LC480. For ACTG1 amplicon qPCR BIO mix was 2 to 4 Ct values earlier than 5 of 6 competitor mixes. The Ct was equal to that of Kapa Biosystems. The sensitivity of qPCR BIO mix was equal to 5 of 6 competitor mixes, but superior to Kapa Biosystems, demonstrated by absence of primer dimer at low template concentrations. For GAPDH amplicon qPCR BIO mix was 1 to 3 Ct values earlier for 4 of 6 competitor mixes and equal to 2 mixes. The sensitivity of qPCR BIO mix was superior to 4 of 5 competitor mixes, demonstrated by absence of primer dimer. Applied Biosystems mix showed equal sensitivity for this amplicon. For PGK amplicon, qPCR BIO mix had Ct values equal or lower than 5 of 6 competitor mixes. Sensitivity was equal to 4 mixes and superior to 2 mixes. For CANX amplicon, Ct values were 1 to 6 lower than 5 of 6 competitor mixes and equal to Kapa Biosystems mix. Sensitivity was superior to 3 of 6 mixes and equal to the other 3 mixes.

Overall, qPCR BIO SyGreen Mix outperformed each competitor mix on the 4 amplicons tested.

| Catalogue Number | Product Name                          | Pack Size        | Presentation                     |
|------------------|---------------------------------------|------------------|----------------------------------|
| PB20.11-01       | qPCR BIO SyGreen Mix Lo-ROX           | 100 x 20µl rxns  | 1 x 1ml                          |
| PB20.11-05       |                                       | 500 x 20µl rxns  | 5 x 1ml                          |
| PB20.11-20       |                                       | 2000 x 20µl rxns | 20 x 1ml                         |
| PB20.12-01       | qPCR BIO SyGreen Mix Hi-ROX           | 100 x 20µl rxns  | 1 x 1ml                          |
| PB20.12-05       |                                       | 500 x 20µl rxns  | 5 x 1ml                          |
| PB20.12-20       |                                       | 2000 x 20µl rxns | 20 x 1ml                         |
| PB20.13-01       | qPCR BIO SyGreen Mix with Fluorescein | 100 x 20µl rxns  | 1 x 1ml                          |
| PB20.13-05       |                                       | 500 x 20µl rxns  | 5 x 1ml                          |
| PB20.13-20       |                                       | 2000 x 20µl rxns | 20 x 1ml                         |
| PB20.14-01       | qPCR BIO SyGreen Mix Separate-ROX     | 100 x 20µl rxns  | [1 x 1ml mix] & [1 x 200µl ROX]  |
| PB20.14-05       |                                       | 500 x 20µl rxns  | [5 x 1ml mix] & [1 x 200µl ROX]  |
| PB20.14-20       |                                       | 2000 x 20µl rxns | [20 x 1ml mix] & [4 x 200µl ROX] |

# qPCRBIO Probe Mix

- High efficiency in multiplex reactions
- Rapid extension rate for early Ct values
- Market-leading sensitivity

## Features

- High efficiency in multiplex reactions
- Rapid extension rate for early Ct values
- Market leading sensitivity - increased limit of detection
- Compatible on all real-time PCR platforms - standard and fast cycling conditions
- Efficient amplification from GC rich and AT rich templates
- Antibody-mediated hot start technology
- Blue mix available for easy sample visualisation during pipetting

## Applications

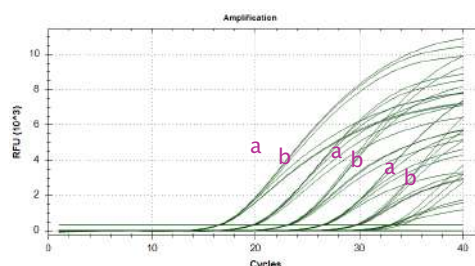
- Absolute quantification
- Relative gene expression analysis
- TaqMan®, Scorpions® and molecular beacon probes
- Low copy number target genes
- Multiplex or singleplex
- Diagnostic real-time PCR

qPCRBIO Probe Mix is a universal probe kit designed for use in all probe-based real-time PCR assays. Whether your application is for a singleplex or multiplex expression study or a diagnostic assay, qPCRBIO Probe Mix is the robust choice for all your probe-based real-time PCR needs.

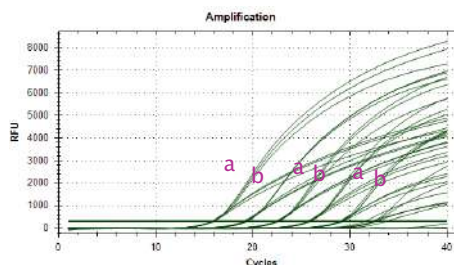
qPCRBIO Probe Mix can be used to quantify any DNA template including genomic, cDNA and viral sequences. Extremely low copy number targets can be detected specifically with high efficiency.

Combining the latest advancements in polymerase technology and advanced buffer chemistry we offer market-leading performance with minimal or no optimisation and high efficiency in multiplexed reactions.

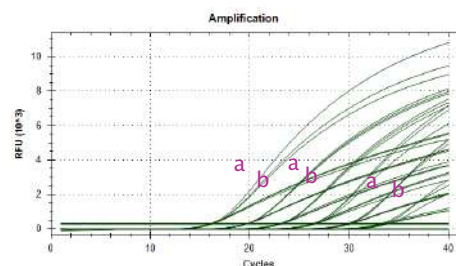
Experiment 1-qPCR BIO Probe Mix  
a=Singleplex b=Quadplex



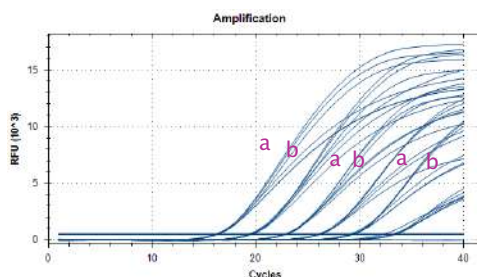
Experiment 2-Invitrogen EXPRESS  
a=Singleplex b=Quadplex



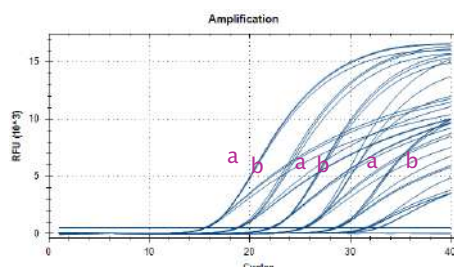
Experiment 3-Biorad Ssofast Probe Mix  
a=Singleplex b=Quadplex



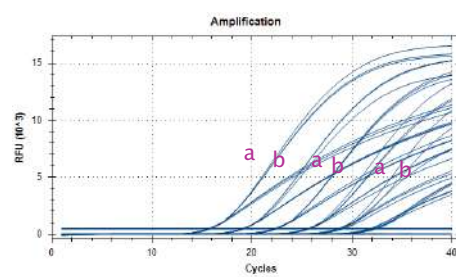
Experiment 4-qPCR BIO Probe Mix  
a=Singleplex b=Quadplex



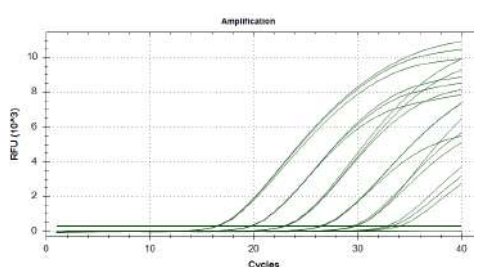
Experiment 5-Invitrogen EXPRESS  
a=Singleplex b=Quadplex



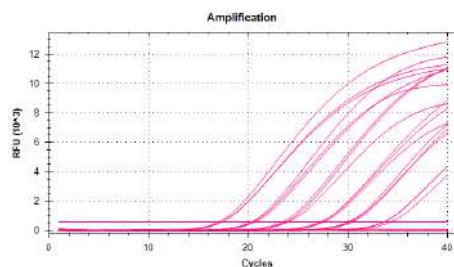
Experiment 6-Biorad Ssofast Probe Mix  
a=Singleplex b=Quadplex



Experiment 7-qPCR BIO Probe Mix  
Singleplex sensitivity test ACVR2B



Experiment 8-qPCR BIO Probe Mix  
Singleplex sensitivity test LIMK1



Experiment 9-qPCR BIO Probe Mix  
Singleplex sensitivity test ACVR1B

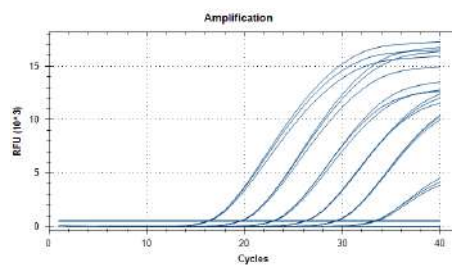


Figure 1.

Experiments 1, 2 and 3 show TaqMan probe amplification traces of human gene ACVR2B in singleplex and in quadplex (ACVR2B, LIMK1, ACVR1B and CDK7) from a cDNA dilution series. a) traces indicate singleplex reactions, b) traces indicate quadplex reactions. qPCR BIO Probe Mix was tested against the latest competitor mixes from Invitrogen (experiment 2) and Biorad (experiment 3). qPCR BIO Probe Mix shows the least PCR inhibition when in multiplex compared to Invitrogen and Biorad mixes. This is evident in more delayed amplification traces in quadplex (b) compared to singleplex (a). Experiments 4, 5 and 6 show TaqMan probe amplification traces of human gene LIMK1 in singleplex and quadplex (ACVR2B, LIMK1, ACVR1B and CDK7). As with experiments 1, 2 and 3 LIMK1 amplification is less inhibited in multiplex in the PCR Biosystems probe mix than the competitor mixes tested. Cycling conditions were 95°C 2min, 40 cycles of 95°C 10sec, 60°C 15sec on Biorad CFX instrument.

Experiments 7, 8 and 9 show TaqMan probe amplification traces from plasmid dilution series of  $1 \times 10^6$  copies to 10 copies of DNA. For each gene qPCR BIO Probe Mix amplified with 100% efficiency and detected 10 copies of DNA.

| Catalogue Number | Product Name                    | Pack Size        | Presentation                     |
|------------------|---------------------------------|------------------|----------------------------------|
| PB20.21-01       | qPCR BIO Probe Mix Lo-ROX       | 100 x 20µl rxns  | 1 x 1ml                          |
| PB20.21-05       |                                 | 500 x 20µl rxns  | 5 x 1ml                          |
| PB20.21-20       |                                 | 2000 x 20µl rxns | 20 x 1ml                         |
| PB20.22-01       | qPCR BIO Probe Mix Hi-ROX       | 100 x 20µl rxns  | 1 x 1ml                          |
| PB20.22-05       |                                 | 500 x 20µl rxns  | 5 x 1ml                          |
| PB20.22-20       |                                 | 2000 x 20µl rxns | 20 x 1ml                         |
| PB20.23-01       | qPCR BIO Probe Mix No-ROX       | 100 x 20µl rxns  | 1 x 1ml                          |
| PB20.23-05       |                                 | 500 x 20µl rxns  | 5 x 1ml                          |
| PB20.23-20       |                                 | 2000 x 20µl rxns | 20 x 1ml                         |
| PB20.24-01       | qPCR BIO Probe Mix Separate-ROX | 100 x 20µl rxns  | [1 x 1ml mix] & [1 x 200µl ROX]  |
| PB20.24-05       |                                 | 500 x 20µl rxns  | [5 x 1ml mix] & [1 x 200µl ROX]  |
| PB20.24-20       |                                 | 2000 x 20µl rxns | [20 x 1ml mix] & [4 x 200µl ROX] |