

Promega in the UK

Issue19 October 2005

Real Time PCR – Are you still using last century's technology? Move up to Plexor™

Plexor™ Real Time PCR System uses a unique new base pairing chemistry to give highly specific, quantifiable amplification.

Need Multiplexing?

Multiplexing allows greater throughput and the inclusion of internal controls for greater confidence in your results. Plexors' innovative chemistry makes multiplexing easy.

Need Sensitivity?

Plexor™ has a dynamic range covering 10^1 to 10^{10} copies of a target sequence in a background of human genomic DNA with consistent Ct 's and R^2 values greater than 0.995 even in multiplex reactions.

Need Easy Assay Design?

Plexor™ Real Time PCR System uses primers designed just as you would for a standard PCR, no extra probes or complex design requirements and free on-line software to assist in assay set up.

Need SNP Genotyping?

Plexor™ can be applied to SNP genotyping with a simple reaction set up and melt curve analysis

Unique, novel base pairing chemistry

Plexor™ takes advantage of the highly specific interaction between two modified nucleotides for qPCR analysis. These two novel bases, isoguanine (iso-dG) and 5'-methylisocytosine (iso-dC), form a unique base pair when incorporated in double stranded DNA and pair only with each other.

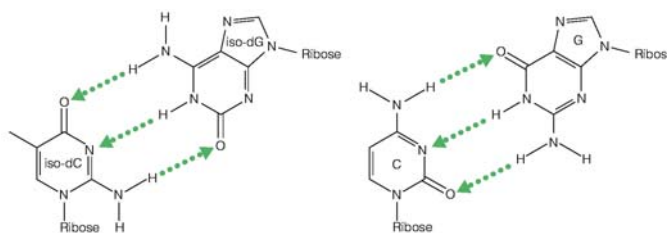


Figure 1. Comparison of base pairing.

Panel A: Isoguanine (iso-dG) paired with 5'-methylisocytosine (iso-dC).

Panel B: Deoxyguanosine paired with deoxycytidine.



See inside for more details...

Time is Money... so save both with this small, fast, low cost, walk away DNA purification instrument – Introducing the Maxwell™ 16

NEW Benchtop genomic DNA purification has never been more versatile.

The new Maxwell™ 16 benchtop genomic DNA purification instrument can purify genomic DNA from up to 16 samples in less than 45 minutes from almost any sample type, takes up less space than the average PC and costs less than you might think.

- Fast
- Flexible
- Affordable

Applications

The Maxwell™ 16 instrument can process a wide variety of samples, including blood, mouse tails, tissue culture cells and bacteria. In addition the Maxwell™ 16 has been extensively tested with various solid tissue samples, plant tissue and buccal swabs.

Throughput to meet your needs

The Maxwell™ 16 benchtop genomic DNA purification instrument can easily cope with a weekly throughput of 400 samples or more in a busy lab yet its quick set up and processing times mean that when you need to run a sample immediately, Maxwell™ is ready and waiting.

Your complete solution

Maxwell™ 16 uses a simple, pre-filled cartridge containing Promega's proven Magnesil DNA purification chemistry and an integrated homogenising system to give excellent yields in a format that takes seconds to set up and frees your time to get on with your research.



Figure 2. Maxwell™ 16 unit.

See inside for more details...

Plexor™ continued...

In Plexor™ reactions, one PCR primer is synthesised with an iso-dC-residue and a fluorescent label at the 5' end. The second primer is unlabelled. Iso-dGTP nucleotides, modified to include dabcyI as a quencher, are included in the reaction mix.

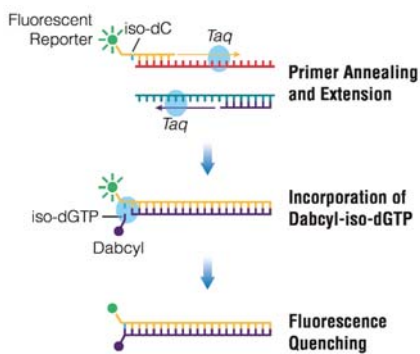


Figure 3. Quenching of the fluorescent signal by dabcyI during product accumulation.

During the reaction only dabcyI-iso-dGTP can be incorporated at the position complementary to the Iso-dC residue. This incorporation quenches the fluorescent signal during amplification, which is detected by a standard real time instrument.

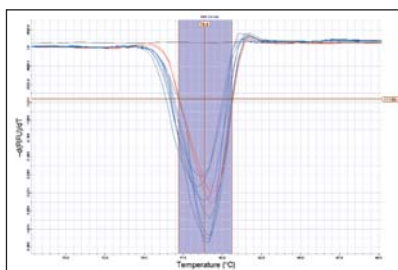


Figure 4. Thermal melt curve. Data analysis.

Melt curve analysis

The unique base pairing chemistry used in Plexor™ allows for melt curve analysis, giving a profile reflecting product length and sequence.

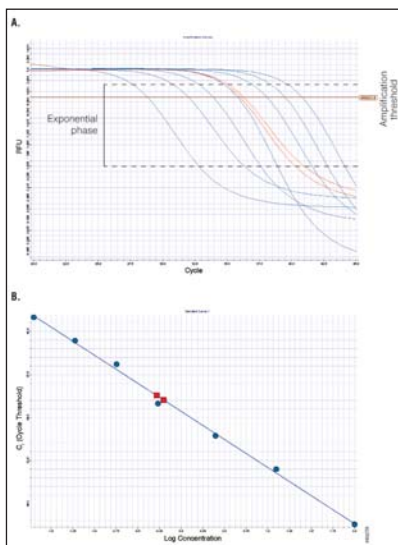


Figure 5. Amplification and standard curves.

Variations in these features cause changes in the melt profile, providing a valuable check of the quality and specificity of your reaction.

Applications

The broad dynamic range and sensitivity of Plexor™ Real Time PCR System as well as the ability to perform multiplex reactions without loss of sensitivity make it ideal for a variety of real time applications:

- Coupled and uncoupled Reverse Transcription based Real Time-PCR for gene expression analysis
- Quantification of specific sequences in genomic DNA, mitochondrial DNA, cDNA and Viral DNA samples
- Genotyping by single nucleotide polymorphism (SNP) detection

Plexor™ comes with a free software package to assist in the interpretation of Plexor™ data from most instruments. This allows data analysis on your own PC without being tied to the Real Time instrument.

i For more information on the Plexor™ system simply fill out the information request form on the back and fax it to us, or call us on 0800 378 994.

Maxwell™ 16 continued...

Make pre-processing a thing of the past.

The Maxwell™ 16 cartridge system includes an ingenious homogenising probe that works with the specially formulated lysis buffer to release DNA from tissue and mouse tail samples without the need for overnight proteinase k digestion.

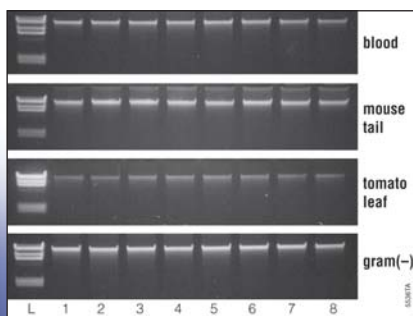


Figure 6. Genomic DNA purification from four different sample types using the Maxwell™ 16 system with no sample pre-processing.

Flexible

The Maxwell™ 16 benchtop genomic purification system can process a wide range of samples from mammalian, plant and prokaryotic origin. Please refer to the table below for details.

The Maxwell™ 16 has been extensively tested with brain, heart, liver, pancreas, spleen samples and buccal swabs and in all cases resulted in high yields of genomic DNA within 35-45 minutes.

Table 1: Yield and processing time for various sample types.

| Sample | Maximum Sample size | Yield | Processing time |
|-----------------|-------------------------|-------------|-----------------|
| Blood | 400 µl | > 9 µg | 35 Min. |
| Mouse Tails | up to 1cm | Up to 20 µg | 45 Min.* |
| Cell Culture | 5x10 ⁶ Cells | 10 µg | 35 Min. |
| Bacteria | | | |
| Gram Negative | 2x10 ⁹ Cells | 10 µg | 30 Min. |
| Gram Positive | 2x10 ⁹ Cells | 1 µg | 30 Min. |

*Overnight Proteinase K digestion is not necessary.

i For more information about the Maxwell™ 16 or to request a demonstration, simply fill out the information request form on the back and fax it to us, or call us on 0800 378 994.



P-glycoprotein (Pgp) Assays

Simple
and Sensitive

Pgp-Glo™ is ideal for testing the effect of drugs and new chemical entities on Pgp ATPase activity.

The Pgp-Glo™ Assay Systems provide the necessary reagents for performing luminescent P-glycoprotein (Pgp) ATPase assays. The Pgp-Glo™ Assay uses unmetabolized ATP from a Pgp reaction in a light generating luciferase/luciferin reaction. The luminescent signal produced reflects Pgp activity.

Features

- **Simple:** 'Add, mix, measure' format.
- **Scalable to 384-well format.**
- **Complete System:** The protocol and reagents have been tested for optimal performance.
- **Stable Activities:** Glow-type signal allows for the processing of multiple samples without concern of variability over time.
- **Low False-Positive Rate:** Use of a proprietary stabilized firefly luciferase and a proprietary luciferase assay formulation minimizes the incidence of false positives due to inhibition of luciferase by analytes when screening for compounds that affect Pgp activity.

| Ordering Information | Size | Cat # |
|---|-------|-------|
| Pgp-Glo™ Assay System | 10 ml | V3591 |
| Pgp-Glo™ Assay System with P-glycoprotein | 10 ml | V3601 |

i For more information on the Pgp-Glo™ Assay Systems simply fill out the information request form on the back and fax it to us, or call us on 0800 378 994.



pGL4 Luciferase Reporter Vectors – The Next Generation

Providing maximum reliability, sensitivity and biological relevance the pGL4 Luciferase Reporter Vectors are state-of-the-art.

Features

- **Reduced Risk of Anomalous Expression:** Improve reliability with our redesigned vector backbone and synthetic genes
- **Better Signal-to-Background Ratios:** Obtain greater sensitivity with codon optimized reporter genes
- **Easy transfer from one vector to another:** Common multiple cloning site and a unique Sfi I transfer scheme
- **Improved temporal response:** Rapid Response™ technology available using destabilized luciferase genes

Combine a pGL4 Vector with any of Promega's Luciferase Assay Systems such as Enduren™, Viviren™, Dual-Glo™, Bright-Glo™ or Steady-Glo™ to create an ultrasensitive cell-based assay.

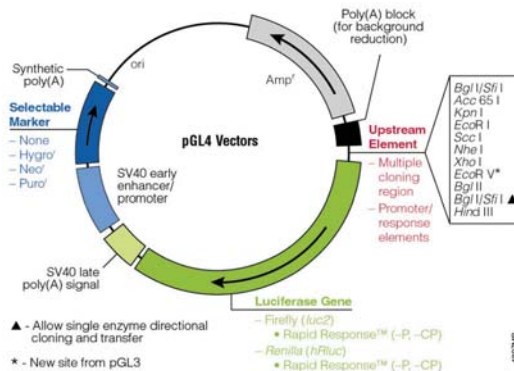


Figure 7. The pGL4 Luciferase Reporter Vector Family offers a common configuration with multiple options to match your needs. The pGL4 vectors multiple cloning region (MCR) is based on the MCR in our pGL3 Vectors. The two Sfi I restriction sites enable easy transfer of DNA between the pGL4 Vectors.

i For more information on the pGL4 Luciferase Reporter Vectors simply fill out the information request form on the back and fax it to us, or call us on 0800 378 994.

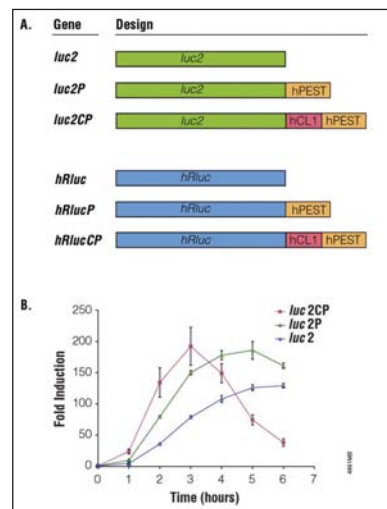


Figure 8.

A. pGL4 Rapid Response™ Vectors incorporate fusions of protein degradation signals hPEST and hCL1 to the C-terminus of luciferase.

B. Destabilized luciferases increase the response and reduce the time to maximum induction.

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During October and November we will be visiting many Universities and Institutes in the UK to introduce ourselves to new PhD students.

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Of course, second and third year PhD students, Post-doc's, Technicians and any one involved in Research are also very welcome to the Academic Roadshow!


At Promega, we aim to assist research and researchers at all levels throughout their career.

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