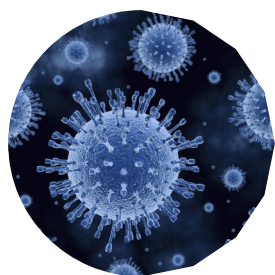


Molecular Diagnostics Made Simple

OptiGene



OptiGene Limited

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www.optigene.co.uk info@optigene.co.uk

About OptiGene Ltd.

OptiGene Limited was formed in 2008 to develop and deliver advanced molecular diagnostics solutions for applications across a range of market sectors. The company is privately owned and is based in Horsham in the South of England, close to Gatwick Airport and within an hour of Heathrow Airport and the centre of London. OptiGene was established with the primary goal of providing the highest quality instrumentation and performance-leading reagents to support isothermal amplification of DNA and RNA. The market pull for this venture came from the growing demands around the world for field testing, rapid results and point-of-care diagnostics.

OptiGene has developed innovative products that support sensitive and specific detection of bacteria and viruses for use in the fields of plant health, food safety, veterinary medicine, environmental monitoring and healthcare. Bio-defence and forensics are also key markets that OptiGene addresses, either directly or through its growing network of international distributors. The company has exploited its expertise in both instrument design and enzymology to develop a sophisticated open platform that will support all isothermal amplification methods. Ultra-sensitive molecular detection that has been constrained to laboratory use by highly-qualified personnel and taking hours to complete can now be deployed to point of application and run with very little training, producing results in single minutes.

The Genie[®] II instrument is the flagship product of OptiGene and has been in full production since the spring of 2011. Genie[®] II is now found in a variety of diagnostic settings around the world. It is supported by specially-designed plastic strips that have lockable caps and that are easy to handle. Enzymes are available in the form of several master mixes that feature combinations of high-speed operation, inherent RT activity and thermostability. A continuous programme of development is maintained at OptiGene in order to satisfy the evolving demands of its customers and the wider market. New instruments are planned that will include a smaller device that will suit on-site use and more sophisticated optical arrangements that can support multiplexed assays. Improvements in the company's enzymes are on-going with faster and more stable master mixes planned for release. OptiGene can also offer to develop variants of its products on behalf of OEM customers and these can adopt the customer's corporate branding and include special features.

How to contact us

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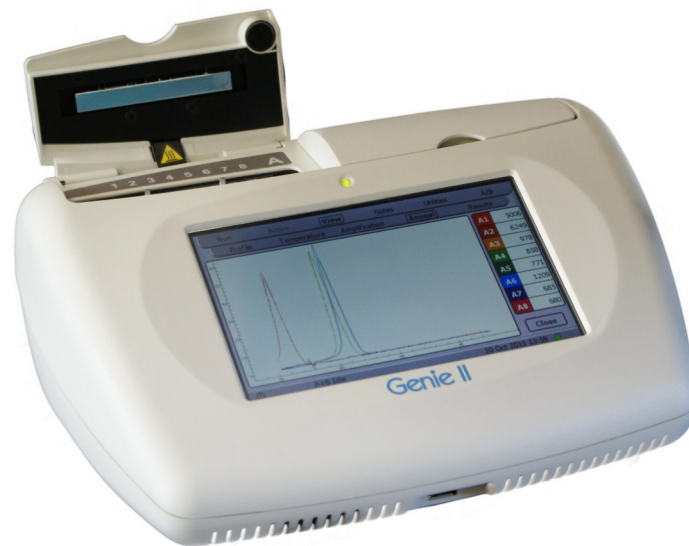
Email: info@optigene.co.uk

Instrumentation

Genie[®] II

Genie[®] II is an extremely powerful, open platform isothermal DNA / RNA amplification platform developed utilising state-of-the-art technologies. The instrument is a highly-flexible tool that can be applied to many chemistries requiring temperature control up to 100°C along with highly sensitive fluorescence or luminescence optical detection.

The instrument is supported by specially-designed tubes and highly efficient reagents to promote ease-of-use and ultra rapid detection capability, offering a complete solution to many nucleic acid detection requirements.



- The Genie[®] II system includes two independent heating blocks, each taking an 8-microtube strip optimised for efficient thermal transfer. The instrument allows a temperature gradient to be established along each block for optimisation of the reaction temperature.
- Genie[®] II contains an internal rechargeable battery, allowing operation for a full day without the requirement for mains electricity.
- The closed tube system used in Genie[®] II avoids any post-amplification handling, thereby eliminating laboratory contamination from the amplified product.

PRODUCT

Genie[®] II instrument complete with 150W mains power adaptor, power cable, USB cable, PC software and internal rechargeable battery.

CAT.NO.

GEN2-01

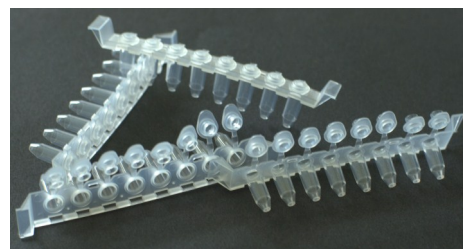
Genie[®] II Accessories

Strips

Genie[®] II uses a proprietary tube strip that maximises optical and thermal efficiencies with a locking cap providing a closed-tube system.

The strips have the following advantages.

- Seal-and-lock mechanism to prevent contamination
- Individually capped
- Non-fluorescent and optically clear
- Wings for ease of handling
- Raised rim for foil sealing
- Each strip has 8-tubes with a working volume of 20 - 150 μ l



Further accessories

- The Prism[™] Mini centrifuge can be used for a wide range of molecular biology separations and quick spins. It has an exceptionally small footprint and includes 2 quick release interchangeable rotors, which spin up to 6000 RPM's.
- The Genie[®] II strip holder enables reactions to be set up quickly and easily.
- A robust carry case can be supplied for Genie[®] II allowing the instrument to be safely transported and stored.



PRODUCT	CAT. NO.	PACK SIZE
Genie [®] tubes pack size 50	OP-0008-50	50 strips
Genie [®] tubes Large pack size	OP-0008-500	500 strips
Cooling block for setting up reactions Block A	GBLOCK-01	1
Cooling block for setting up reactions Block B	GBLOCK-02	1
Cooling block for setting up reactions Blocks A + B	GBLOCK-03	2
Robust Carry Case for Genie [®] II	OP-CASE1	1

OptiGene Reagents

Enzymes

OptiGene has developed a number of different strand displacing DNA polymerases for Isothermal amplification applications.

GspM LF DNA polymerase is functionally identical to *Bst* LF DNA polymerase and can be directly substituted for *Bst*.

GspM2.0 LF DNA polymerase is an enhanced, *in silico* designed, mutant of GspM but with much faster amplification time. It can be used as a direct replacement for GspM with no change in reaction conditions required.

GspSSD LF DNA polymerase is the enzyme used in our standard ISO-001 mastermix and as well as being the fastest enzyme available also has reverse transcriptase activity.

Tin exo- LF DNA polymerase is a thermostable strand displacing polymerase that can be held at 95°C for 15mins prior to amplification. Ideal for single tube combined template lysis and amplification isothermal reactions

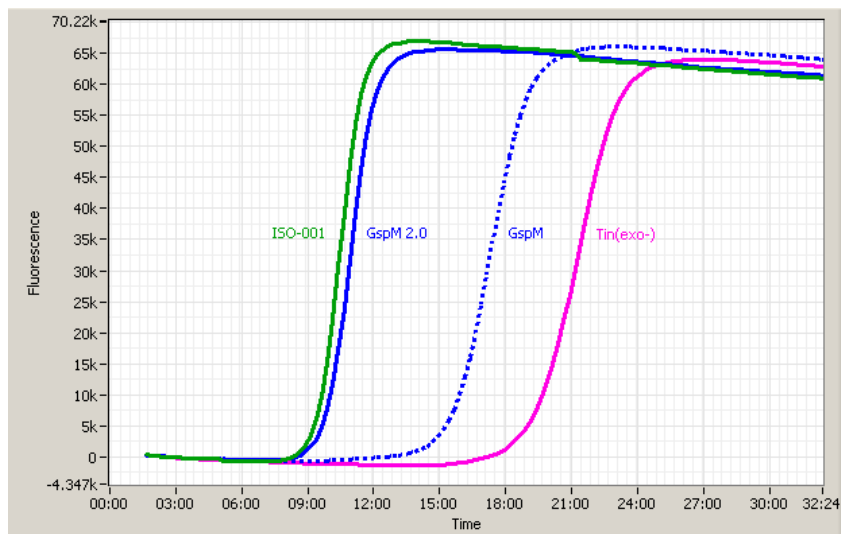


Fig.1 Comparing relative speeds of our enzymes including GspSSD in ISO-001

PRODUCT	CAT. NO.	PACK SIZE
GspM LF DNA polymerase	GspM-001/002	1600/8000u
GspM2.0 LF DNA polymerase	GspM-001/002	1600/8000u
GspSSD LF DNA polymerase	GspSSD-001/002	1600/8000u
<i>Tin</i> LF DNA polymerase	Tin-001/002	1600/8000u

OptiGene Reagents

Mastermixes

OptiGene offers a convenient ready-to-use master mix kit offering rapid isothermal detection. The user just has to add template (sample) and primers!

Master mixes provided by OptiGene contain an engineered large fragment DNA polymerase isolated from a proprietary *Geobacillus* species (*GspSSD*). This enzyme shows the highest speed in a fluorescent LAMP reaction and is the enzyme of choice for rapid isothermal amplification.

OptiGene Isothermal Mastermixes can be used for RCA, SMAP and many other amplification technologies.

Isothermal Mastermix ISO-001

This isothermal amplification mix allows fluorescence detection of the product on the Genie® II platform but may also be used on generic qPCR instrumentation. An anneal curve can then be generated to confirm the product. This eliminates the need for gel electrophoresis or turbidity detection and allows for a closed-tube system.

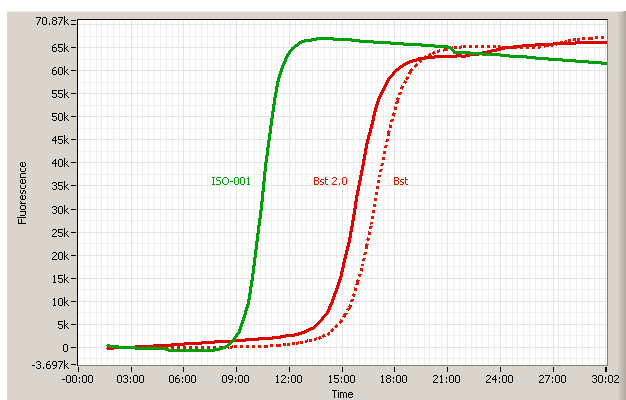


Fig.2 Isothermal Master Mix (ISO-001) vs enzyme competitors

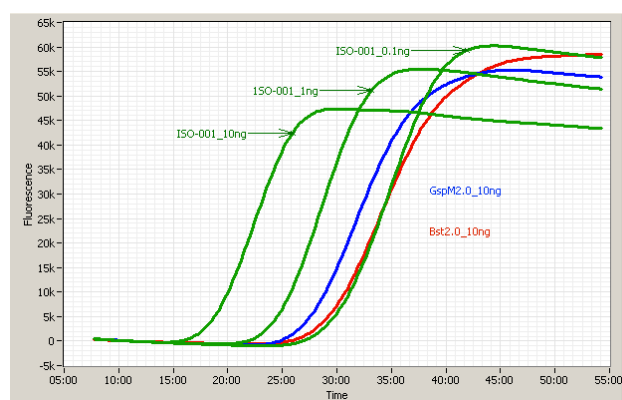


Fig.3 Isothermal Master Mix (ISO-001) RT-LAMP activity

PRODUCT	CAT. NO.	PACK SIZE
Isothermal Master Mix - includes intercalating dye	ISO-001	400 reactions of 25µl
Isothermal Master Mix - no intercalating dye	ISO-001nd	400 reactions of 25µl
Isothermal Master Mix - includes intercalating dye	ISO-002	2000 reactions of 25µl

Genie® II Applications

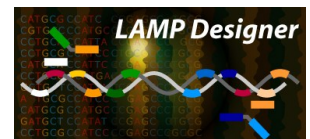
Genie® II is being used all around the world for many different applications, from food inspectors at ports of entry in the UK and Europe, to detecting a lethal disease of coconut palms, which is causing devastation throughout the coastal regions of Ghana.

The use of Genie® II at Ports

Guignardia citricarpa is a fungal pathogen which causes Citrus Black Spot disease, affecting a number of economically important citrus crops including oranges, mandarins, lemons and grapefruits. Imported consignments are inspected at ports in the EU and USA and any fruits found to be infected are rejected. The Food and Environment Research Agency (Fera) has developed a *G. citricarpa*-specific LAMP detection method using the field-portable Genie® II instrument which can provide results in less than 30 minutes. This tool has the potential to be deployed by Plant Health Inspectors at ports. This rapid and easy to use *G. citricarpa* sampling and detection method in conjunction with the Genie® II makes it an invaluable diagnostic tool especially for importers and inspectorate services.



LAMP Designer



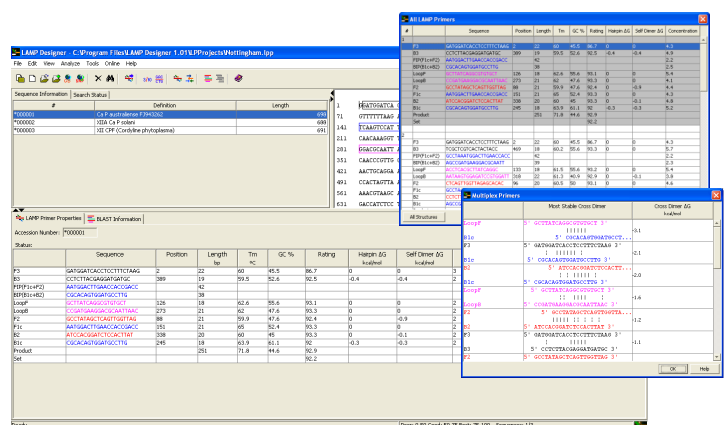
LAMP Designer designs efficient primers for Loop-Mediated Isothermal Amplification assays, that amplify DNA and RNA sequences at isothermal conditions, eliminating the necessity of a PCR setup. The technology relies on autocycling and DNA polymerase mediated strand displacement DNA synthesis, amplifying a few copies of DNA to 10^{14} copies in as little as 30 minutes.

Reverse transcription coupled LAMP can be applied for amplification of RNA sequences.

LAMP employs six specially designed primers that recognize eight distinct regions in the target DNA. Hybridization of the six primers to the target DNA is a very crucial step for the efficiency of LAMP. The design of these six primers is therefore critical for a successful assay.

Key Features include

- Avoid Cross Homologies
- Perform a verification BLAST
- Design Multiplex LAMP Primer Sets
- Export Results
- Data & Database Management Tools
- Free 7 day Trial



PRODUCT

Lamp Designer Software 1 to 3 users

CAT. NO.

LD1



Distributors:

Canada	Pro-Lab Diagnostics Inc.	www.pro-lab.com
United States	Pro-Lab Diagnostics Inc.	www.pro-lab.com
China	Beijing Suntrap Science & Technology Co.,Ltd.	www.suntrapbj.com
Italy	TELTEC srl, BioTeltec div.	www.bioteltec.com
Japan	Nippon Gene Co., Ltd.	www.nippongene.com
South Korea	Chayon Laboratories inc.	www.chayon.co.kr
Poland	Novazym Polska	www.novazym.com
Russia	InterLabService, Moscow	www.interlabservice.ru
Taiwan (ROC)	HUI-SHENG International Corporation	www.hui-sheng.com.tw
India	AmpliGene India Biotech Pvt Ltd	info@ampligeneindia.com
Turkey	BM Labosis	bmlabosis.com

OptiGene Isothermal Mastermixes are sold, for use in LAMP, under license from Eiken Chemical Company.

Trademarks:

The following is a trademark of OptiGene Ltd. :

Genie®

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