



MASSEY UNIVERSITY
COLLEGE OF SCIENCES
TE WĀHANGA PŪTAIAO

MASSEY GENOME SERVICE OCTOBER 2011 NEWSLETTER

Welcome to another issue of the Massey Genome Service (MGS) Newsletter. The year is going by very rapidly as we work towards some major changes to the service we provide with the re-launching of Next Generation sequencing at Massey University.

INTRODUCTION OF ILLUMINA MiSEQ INSTRUMENTS FOR NEXT GENERATION SEQUENCING

Work is in progress on the introduction of two Illumina MiSeq™ instruments in the MGS laboratory, with the delivery of the instrumentation scheduled for the middle of November. This is a collaborative partnership with New Zealand Genomics Ltd (NZGL) to provide New Zealand with Next Generation Sequencing and Bioinformatics. Applications to be provided through the MGS using the Illumina MiSeq™ technology are:

- Genomic DNA sequencing: small genomes <10 Mb
- mRNA Sequencing
- Small RNA sequencing
- PCR amplicon sequencing: >2.5 Kb

Massey Genome Service (MGS) will keep you informed of progress in this exciting new development and we look forward to continuing to service your Next Generation Sequencing needs in the near future.

MGS WEBSITE ADDRESS AND CUSTOMER LOGIN

Reminder to customers that the MGS is no longer hosted by the Allan Wilson Centre and the service is now hosted by Massey University. You can no longer access your customer login to submit requests and retrieve results via the Allan Wilson Centre website. The Massey Genome Service has its own website accessible via <http://genome.massey.ac.nz>. To submit requests and retrieve results login using your username and password by going to "Customer Login". If you experience problems logging into your account, please contact us.

ABI SERVICE CAPILLARY SEPARATION AND PLATE SERVICES WITH REACTION CLEANUP

In the July 2011 issue of the MGS newsletter we introduced you to two new sequencing services:

- Capillary Separation Service with Reaction Cleanup
- Plate Service with Reaction Cleanup

These two services allow customers to do set up their own sequencing reactions, run the PCR amplification and provide the MGS with the fluorescently labelled sequence products for reaction cleanup. The MGS uses the commercial X-Terminator™ Kit from Applied Biosystems Inc. to remove the unincorporated fluorescently labelled ddNTPs and salts from the sequencing reactions. Our service has found that this method is very effective at removal of the dye fronts which are problematic with all fluorescent Sanger sequencing based methods. For more information regarding Big Dye® X-Terminator™ protocol please refer to life technologies website.



The uptake of this service has been very popular and the customers who have used this service to date have been very satisfied with their sequencing results.

To submit sequencing for either of these two services, when you submit your online request select either “Capillary Separation Service with Reaction Cleanup” or “Plate Service with Reaction Cleanup” from the ‘Procedures’ pull-down menu.

The MGS is now adding a control sample onto each “Capillary Separation Service with Reaction Cleanup” and “Plate Service with Reaction Cleanup” runs. If you are planning to use the “Plate Service with Reaction Cleanup”, please only submit 95 samples and leave well H12 empty for the MGS to add a control.

Further information on these services is provided on the MGS website at <http://genome.massey.ac.nz>, under the section called “ABI Sequencing and Genotyping Services”, or contact Lorraine Berry, e-mail: l.berry@massey.ac.nz.

BIOANALYSER SERVICES

In May 2011, MGS starting offering the “Bioanalyser Service” for the quality and quantification assessment of total RNA and mRNA. This service is run using the Agilent 2100 Bioanalyzer and the RNA 6000 Nano & Pico LabChips. The MGS is not providing a service for the quality checking of DNA.

The Agilent 2100 Bioanalyzer is a microfluidic-based electrophoresis platform for the quality and quantification analysis of RNA, DNA and protein. It is designed to deliver high quality digital data from very small amounts of sample. It is a very valuable tool for assessing the quality of your RNA samples before proceeding with expensive Next Generation sequencing, Microarray and Gene Expression experiments.

MGS is trialling this service for a three month period, to assess the uptake of the service, and at which time pricing may be reviewed.

Please refer to the MGS website at <http://genome.massey.ac.nz>, under the section “Bioanalyzer Service” for information on the assays provided, pricing, sample requirements, and sample submission guidelines.

QUALITY ASSURANCE SYSTEM

MGS is still progressing with work on the implementation of a Quality Management System for the laboratory, to improve operating procedures, implement increased quality control and overall improve the quality of data you receive. This will be an ongoing and evolving process to better improve all aspects of our service from customer relations to data quality. MGS values and appreciates your feedback on the services we are providing.

MGS SUPPLIED T3 PRIMER

The MGS will no longer be supplying the T3 primer as a part of the “Full Sequencing Service”. The MGS has reviewed it’s usage and it is very minimal so the decision has been made to remove this from the list of primers offered. The MGS still offers the following primers:

- M13 forward
- M13 reverse
- T7
- SP6

The primer sequence for each of these primers is available on our website at <http://genome.massey.ac.nz> > ABI Sequencing and Genotyping Services > ABI Sequencing Service Technical Information.

The "Tick Box" on the sequencing online request form has been removed.

The MGS still has a small amount of the T3 primer left that needs to be used up. Should you want to use this primer please note this in the "Customer Notes" section of the sequencing online request form. Once the T3 primer has been used up you will be notified.

JANUS[®] LIQUID HANDLING ROBOT

A reminder to customers who are submitting sequencing for the "Full Sequencing Service"; recently, we updated our Janus[®] Liquid handling instrument to accept 15 µl of samples. Prior to this we required customers to submit their samples in a minimum volume of 30 µl. Please note the minimum premix template/primer volume is now 15 µl or 14 µl if you require one of the MGS primers to be added.

QUALTRACE[™] SOFTWARE REPORT

Recently, MGS purchased and introduced the QualTrace[™] software from Nucleics for identification, detection and generation of an analysis report from the ABI raw trace files.

The MGS uses this software for the monitoring of sequence quality from each run and reporting of problems relating to sequence quality to its customers. The QualTrace[™] software program enables the MGS to rapidly detect sequencing problems that limit sequence read length, and allows for the real-time analysis of trace files and detection of nine different sequencing problem types. This software creates an ideal means for troubleshooting DNA sequencing problems and optimizing production protocols.

The MGS runs all sequencing sample data through the QualTrace[™] software. Customer specific information from each QualTrace[™] analysis (i.e. online request submission) is uploaded to the MGS server as a report for you to download, along with your sequence chromatogram files, sequence read test files, and Analysis Report for each request. A QualTrace[™] Report is generated for each sequencing request you submit to the MGS.

Please refer to the "QualTrace[™] software Report Bulletin, downloadable from the MGS website at <http://genome.massey.ac.nz>, from the section called "ABI Sequencing and Genotyping Services", sub-section "ABI Sequencing Service Technical Information".

CHRISTMAS BREAK CLOSURES

The Christmas break is rapidly approaching and we would like to keep you well informed of what is happening during this period with regards to our shutdown period.

The service will be closing for the Christmas break on 16th December and will be starting up again in the New Year on the 9th January. The last day to submit samples to the ABI sequencing and genotyping services for delivery by overnight courier is the 14th December and for hand delivery is the morning 15th December before 10.30am, for the work to be processed and uploaded to the MGS server before the Christmas break. Should samples be received by our service on and after the afternoon of the 15th December, and are not able to be processed, you will be contacted and the work will be processed upon the service starting up again in 2012.

NEXT ISSUE OF MGS NEWSLETTER

The next issue of the MGS Newsletter will be in March 2012. If you have any concerns and issues with sequencing and genotyping with the MGS please feel free to contact our friendly staff who will be happy to assist you with your concerns and provide you with helpful advice.