Welcome to the December 2014 issue of the Massey Genome Service (MGS) Newsletter.

CHRISTMAS CLOSURES

Christmas is now upon us. Below are the dates the Massey Genome Service (MGS) will be closing for the Christmas break and reopening again in the New Year.

The service will be closing for the Christmas break on 19th December and will be starting up again in the New Year on the 5th January. The last day to submit samples to the ABI sequencing and genotyping services for delivery by overnight courier is Tuesday 16th December and for hand delivery is the morning of Wednesday 17th December before 11.00am, 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 17th 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 2015. The final date for samples to be received by MGS for the NZGL Illumina MiSeq Service is 5pm on Friday 19th December and processing of the samples is subject to the terms of the NZGL Service Agreement.

All MGS staff would like to wish you, your friends and family a very Merry Christmas and a happy New Year. Thank you all for all for using and supporting our service over the past year. Have a wonderful break and we will see you all again next year with more sequencing and genotyping work.

Please note that invoice requests and internal transfers for all sequencing and genotyping requests submitted to the Massey Genome Service on and after the 10 December 2014 will be charged in the January 2015 payment period.

ILLUMINA MiSEQ NEXT GENERATION SEQUENCING

A reminder, all enquiries regarding Illumina MiSeq projects are to be directed to NZGL via their website enquiry at http://nzgenomics.co.nz. Please provide a detailed description of your project and experimental plan, so that NZGL genomics and bioinformatics personnel involved with scoping of projects are provided with a good description of your project requirements.

Please send enquiries regarding quotations to Jenny Shackelford, Project Manager, NZGL. Contact details are:
E-mail: jenny.shackelford@nzgenomics.co.nz
Phone: +64 3 470 3543
We have information on our website regarding the Illumina MiSeq service at http://genome.massey.ac.nz, under “Next Generation Sequencing Services”. The information includes:

- Process to follow for submission of work to our service
- Applications currently being provided
- Sample preparation, quantification and quality requirements
- Sample and library QC checks performed by our service
- Sample delivery information
- Storage and retention of samples by the service
- Sequencing Run report delivered with the data upon completion of the work
- NZ Genomics Ltd Contact

NEW DEVELOPMENTS

NZGL and the MGS Illumina MiSeq Service offer the following Illumina MiSeq run options:

- Illumina MiSeq v3 (2 x 300 base PE) providing ~20-30 million reads (~12-15 Gb output)
- Illumina MiSeq v3 (2 x 75 base PE) providing ~20-30 million reads (~3-3.8 Gb output)
- Illumina MiSeq v2 (2 x 250 base PE) providing ~12-15 million reads (~6-7.5 Gb output)
- Illumina MiSeq v2 (2 x 150 base PE) providing ~12-15 million reads (~3-4.5 Gb output)
- Illumina MiSeq v2 (2 x 25 base PE) providing ~12-15 million reads (~600-750 Mb output), for small RNA projects only.
- Illumina MiSeq Micro v2 (2 x 150 base PE) providing ~4 million reads (~1.2 Gb output)#
- Illumina MiSeq Nano v2 (2 X 150 base) PE ~ 1 million reads (~0.3 Gb output)#
- Illumina MiSeq Nano v2 (2 X 250 base) PE ~ 1 million reads (~0.5 Gb output)#

NOTE: # These run options are ideal for small scale projects, containing a small numbers of bacterial genomes or PCR amplicons.

MGS is now offering 16S rRNA amplicon sequencing, which targets the V3-V4 hyper-variable region of 16S. The libraries are prepared using a “Single Step PCR Approach”, using Illumina tailed primers, where up to 384 libraries can be multiplexed onto one Illumina MiSeq run. The run can either be an Illumina MiSeq 2X 250 base PE run; version 2 chemistry or an Illumina MiSeq 2X 300 base PE run; version 3 chemistry.

MGS will keep you informed of future developments with these services and we look forward to servicing your Next Generation Sequencing needs in the near future.

NZGL BIOINFORMATICS SERVICES

NZGL offers bioinformatics services for NGS work, which is provided through each of the three collaborators, Massey University, University of Otago and University of Auckland, and is charged at a hourly rate. If you want NZGL bioinformatics assistance please include this in your NZGL online enquiry.

NZGL Q&A Sessions: Talk to a Bioinformatician

The NZGL Massey Bioinformatics Team is still offering weekly Q&A Sessions where you can spend some time talking to one of the NZGL bioinformatics staff about your proposed project before you proceed with an NZGL enquiry. Locations and times are listed below.
Massey University - Palmerston North

Day of week: Friday
Time: 11am – 12pm
Location: Massey University, Turitea campus, Science tower D rooms 5.30-5.33
Virtual location: Skype patrick.j.biggs or dave.wheeler75
Staff available: Dave Wheeler and Patrick Biggs
Other contact information: Dave Wheeler, +64-6-3569099 ext 84598

ABI SERVICE ONLINE SAMPLE SUBMISSION
A reminder to all clients, all Sanger sequencing and genotyping work for the ABI Service must be submitted via our online submission system.
Clients who have not used our services before, you will need to set up a new account by registering with our service. This can be done on line via the Massey Genome Service website at http://genome.massey.ac.nz. To register click on “Customer Login”, then click on “register”. You will be asked to create your own username and password, fill in your name and contact details. Once you have registered you will need to use the username and password each time you submit a new online request for sequencing or genotyping.
In the “Customer Login” section of the MGS website there is a PDF download which provides detailed instructions on the submission of samples and the downloading of results for the ABI service.

HAND DELIVERY OF SAMPLES TO MGS
A reminder, laboratories within the Institute of fundamental Science (IFS) are required to meet PC1/PC2 compliance to function as a “Containment Facility”. In order to continue to meet compliance IFS has installed security doors throughout Science Towers C and D to restrict and control access to laboratories. A security door has been installed on level 3, right next to the Science Tower D lift, which restricts free access into the Massey Genome Service laboratory.
For all customers outside of IFS who require access to the Massey Genome Service laboratory to talk to our staff, FIRST go to the IFS admin office where you will be instructed to sign for a temporary access card. The access card needs to be returned to the IFS admin office before you leave the building.
Activation of the security doors will take effect as of the 27th May 2014. The IFS admin office located on the 4th floor of Science Tower B, room ScB4.11.
IFS admin office contacts are:
  • Cynthia Cresswell: ext 84706
  • Colleen Blair: ext 84612
  • Ann Truter: ext 84703

Natisha Magan and Andy Trow will also be holding a supply of temporary access cards, which you can use:
Natisha Magan: location – ScB3.33, ext 84588
Andy Trow: location – ScA3.18, ext 84601
Please contact Natisha Magan or Andy Trow if you have any concerns.
If you are only delivering samples and you do not have to talk to any of the MGS staff, we now have a small fridge located just outside the security doors, on the 3rd floor of Science Tower D, across from the lift. You are welcome to put your samples into this fridge along with the sample submission form. The MGS laboratory staff collect the samples from the fridge at least twice a day.

**BIOANALYSER SERVICE**

MGS is still providing the “Bioanalyser Service” for the quality and quantification assessment of total RNA and mRNA only, using the Agilent RNA 6000 Nano Labchip. The service is no longer providing the Agilent RNA 6000 Pico Labchip due to the lack of demand.

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.

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

There are three Agilent RNA 6000 Nano Labchip Assays that the Massey genome Service provides:
- RNA 6000 Labchip Eukaryote Assay
- RNA 6000 Labchip Prokaryote Assay
- RNA 6000 Labchip Plant Assay

On the “Sample Submission Form” please make sure you select the most appropriate assay type for your samples.

The minimum number of samples per request is 6 samples. The cost per sample is $17.00 excl. G.S.T.

**PURCHASE OF BIGDYE TERMINATOR MIX**

Clients who are purchasing BigDye Terminator Mix from MGS for the ABI Sequencing Service “Capillary Separation Services” and “Plate Services”, the price per aliquot are as follows

- Purchase 80 µL aliquot: $160.00 excl. G.S.T
- Purchase 800 µL aliquot: $1600.00 excl. G.S.T

**LIQUID HANDLING AUTOMATION**

MGS has upgraded our PerkinElmer Janus liquid handling instrument, which will cater for the automation of library preparations for the Illumina MiSeq services. The service has also purchased the PerkinElmer Victor Fluorescent Plate Reader for the QC checking of samples and libraries. The service is currently in the process of validating the protocols.

Reminder: The processing of samples for the ABI “Full Sequencing Services” will still be carried out using our PerkinElmer Janus liquid handling instrument. However, due to the software and hardware upgrades some changes to the volume of sample/primer mix you supply have had to be made.
You must now submit a total volume of 20µl of sample/primer mix (increased from 15µl). You need to modify the template and primer amounts as tabled below:

NEW TEMPLATE AND PRIMER REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirements</th>
<th>PCR Template</th>
<th>Plasmid Template</th>
<th>Cosmid/Fosmid Template</th>
<th>Bacterial Genomic Template</th>
</tr>
</thead>
<tbody>
<tr>
<td>Template Amount</td>
<td>2.5ng/100bp</td>
<td>250-625ng/20µl</td>
<td>0.625-1.25µg/20µl</td>
<td>2.5-3.75µg/10µl</td>
</tr>
<tr>
<td>Primer Amount</td>
<td>4pmol</td>
<td>4pmol</td>
<td>6.4pmol</td>
<td>6.4pmol</td>
</tr>
<tr>
<td>Total Volume</td>
<td>20µl</td>
<td>20µl</td>
<td>20µl</td>
<td>20µl</td>
</tr>
</tbody>
</table>

These sample and primer requirements for the “Full Sequencing Services” have been updated on our website. To find these requirements please click on “ABI Sequencing & Genotyping Services”, then click on “ABI Sequencing Service Technical Information”. An example of how to make up the template/primer mix is provided on our website.

MGS requires all “Full Sequencing Service” samples to be supplied in a 20µL volume. You can start transitioning over to supplying your samples at the new volume as of now.

MGS SUPPLIED PRIMERS

The MGS 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.

A reminder that MGS is no longer be supplying the T3 primer as a part of the “Full Sequencing Service”. The “Tick Box” on the sequencing online request form has been removed for this primer.

We would also like to emphasize that we have a re-run policy. MGS does provide a re-run (under strict criteria) and you will have to speak to us and report your problems accordingly. You are welcome to use the report fault ‘function’ on your MGS account under the ‘results page’. Please refer to the “Submission of Online Problem Report” section in the downloadable “Submission of Online Request Bulletin”, which is located on our website in the “Customer Login” section. If you fall under one of our re-run policy criteria, we will provide an additional run for you. Please do not submit a re-run without informing us, or else we assume it is a new sequencing run.

COURIER BAG SERVICE

MGS provides a free courier service for both our ABI sequencing and genotyping services. Prepaid courier bags can be mailed to New Zealand customers free of charge.

If you wish to use our free courier service, please send an email to Pani Vijayan (e-mail: p.vijayan@massey.ac.nz) stating the number of courier bags to be sent to you, your courier address, postal address and contact phone number.
Please send the samples to IFS Inwards Goods at the following address:
Massey Genome Service
Institute of Fundamental Sciences
Inward Goods
Science Tower A, Level 1,
Columbo Road, Massey University
Palmerston North 4410
New Zealand

**NEXT ISSUE OF MGS NEWSLETTER**
The next issue of the MGS Newsletter will be in March 2015. 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.