ROY J. CARVER CENTER FOR GENOMICS

"ACCELERATING GENOMICS RESEARCH"

Newsletter: Volume 2 - October 2024

RECENT NEWS:

- UI Research Services Fair at the IMU on Wednesday, October 30 from 1:00-4:30pm.

  Register by October 28: https://research.uiowa.edu/research-development-office/collaboration/ui-research-services-fair

- Applications Seminar focusing on qPCR: Wednesday, November 20 from 10:00am-1:00pm in 106 BBE.

- **CCG Services:** https://biology.uiowa.edu/research/carver-center-genomics-ccg/services

CCG UPDATES

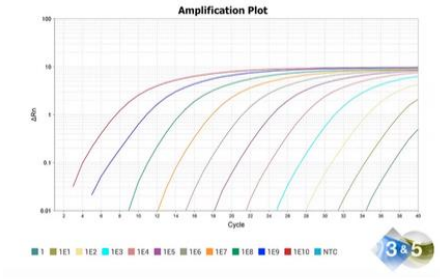
Upcoming CCG Events: The Carver Center for Genomics (CCG) and Carver Center for Imaging (CCI) will be attending the campus-wide UI Research Services Fair on Wednesday, October 30, 1:00-4:30pm, at the IMU. We have exciting NEW giveaways planned for this event including raffles, swag, and free services to win on our wheel of prizes. Come spin the prize wheel for your chance to win! You don't want to miss out! Snacks and drinks are provided by IMU Catering. This is a great event to attend to see all the core research facilities that are available across campus. Registration is required by Monday, October 28. For additional information and registration, visit: https://research.uiowa.edu/research-development-office/collaboration/ui-research-services-fair.

The CCG is holding its Fall 2024 Applications Seminar focusing on the QuantStudio 3 (QS3) qPCR system which is highlighted in this month's newsletter (see below). The seminar will be presented by an Applications Specialist from Applied Biosystems on Wednesday, November 20 from 10:00am-1:00pm in 106 BBE. The seminar concludes with a free lunch and question/answer session. Please register by emailing the CCG (ccg@uiowa.edu) by Wednesday, November 13, to reserve your space. This is a great way to learn about various types of experiments that can be done and how to analyze your data. I encourage you to take advantage of this opportunity and broaden your research expertise.

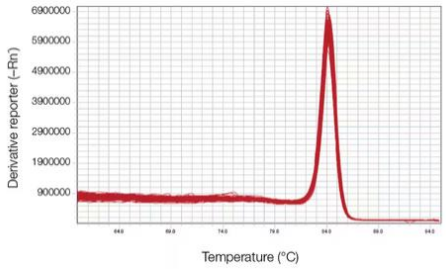
The agenda for the Applications Seminar is:

- SYBR Green and TaqMan Probe assays best practice, including multiplexing basics
- Experiment type selection and set-up in Design & Analysis Software
- Data Analysis troubleshooting and review
- Review and use of Assay Design Hub (https://www.thermofisher.com/us/en/home/life-science/pcr/real-time-pcr/real-time-pcr-assays/assay-design.html)

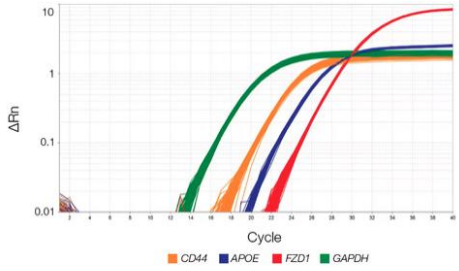
Reminder: Please review last month's newsletter if you missed any of the new updates and changes to the CCG's facility policies outlined. (https://biology.uiowa.edu/sites/biology.uiowa.edu/files/2024-09/CCG-Newsletter-vol2-Sept2024-final.pdf).



Real-time PCR reproducibility shown by results from amplification of KAZ target plasmid DNA in 10-fold dilutions using the 96-well block.



Melt curve analysis using the online version of the software for 96 replicates of human genomic DNA.



Multiplex reaction with four targets plus passive reference for whole-plate amplification plots of 96 replicates of cDNA made from universal human RNA (UHR). Specific to QuantStudio 5 system.

Contact Us

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Labeling qPCR files: Please label the file for your qPCR runs as follows: "Your initials-sample name". This new file label allows for easy cross-check identification of your runs and enables the CCG staff to correctly identify runs for accurate billing. You are still required to reserve the machine for use online and note if you are doing multiple runs in the comments (https://servicecenters.biology.uiowa.edu/login.php).

If you have any questions or would like to be added to our listserv for future newsletters, please email the CCG (ccg@uiowa.edu).

Equipment Highlighted

Applied Biosystems QuantStudio 3 qPCR System is a real-time PCR system capable of running 96 samples in a 0.2ml or 0.1ml format. The system can detect differences in target quality as low as 1.5-fold and has multiplexing capabilities for up to 4 targets. The 96 well blocks feature VeriFlex technology for optimal temperature control allowing for 3 to 6 independent temperature zones with 0.4°C and 0.25°C temperature uniformity and accuracy, respectively. The system also has 4 channels with the following excitation/emission filters: 1) 470/520nm, 2) 520/558nm, 3) 550/586nm, and 4) 580/623nm. Thus, it is compatible with the following dyes: FAM, SYBR Green, VIC, JOE, HEX, TET, ABY, NED, TAMRA, Cy3, ROX, JUN, and Texas Red. In addition to intercalating dyes, the system can also be used with probe-based assays such as TaqMan. Currently, our system is calibrated for FAM, VIC, ROX, and SYBR dyes.

The QS3 system has easy to navigate software with a graphical interface including a plate layout view making editing of experimental conditions straight forward. In addition, there are pre-optimized protocol templates and default protocols for standard applications. Some of the applications the QS3 system is capable of preforming include analysis of gene expression, microRNAs, noncoding RNAs, SNPs, copy number variation, somatic mutations, drug metabolism enzymes, and protein expression.

For additional information, see the special guides, tools, or documents sections under Resources in the following link:
https://www.thermofisher.com/us/en/home/life-science/pcr/real-time-pcr/real-time-pcr-instruments/quantstudio-systems/resources.html

Important Use of Equipment Information

Please reserve a time to run your experiments using the online scheduling system: https://servicecenters.biology.uiowa.edu/login.php. Email the CCG (ccg@uiowa.edu) to remove your reservation if you need to cancel. This will allow other labs to sign-up in your cancelled spot. Please leave the PCR 2 machine open for sequencing analysis on Tuesdays and Thursdays.

Billing Information

QuantStudio 3 PCR system: $25/plate run
Billed at the end of the month.