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PERFORMANCE CHECK OF CASEWORK DIRECT WORKSHEET USED WITH PROMEGA'S POWERQUANT DNA QUANTITATION SYSTEM IN CONJUNCTION WITH APPLIED BIOSYSTEMS® QUANTSTUDIO™ 5 REAL-TIME PCR INSTRUMENT

Prepared in February, 2024

PURPOSE

This performance check was conducted to test the function of the DFS Casework Direct-specific (CD; Promega Corp., Madison, WI) worksheet used in conjunction with the Promega PowerQuant® DNA Quantification System assay (PowerQuant) and Applied Biosystems® QuantStudio™ 5 Real-Time PCR Instrument (QuantStudio; Thermo Fisher Scientific, Waltham, MA) for the quantification of CD DNA extracts.

MATERIALS AND METHODS

The CD-specific populatable worksheet was modified to include the plate map, reagents and automatic master mix volume calculations specific for the PowerQuant kit. It was also updated to format the text file created for importing sample names into the Applied Biosystems® QuantStudio™ Design & Analysis Software (Thermo Fisher Scientific) used on the QuantStudio to set up and run experiments using PowerQuant.

Since the revisions to and functions performed using this worksheet were minor in nature, a functional test of this Microsoft Excel® (Excel) macro-enabled worksheet was performed using different numbers of samples and sample setup configurations, including a full plate.

The calculations computed using the worksheet were compared to those calculated manually, according to the kit manufacturer's recommendations and draft VDFS Procedures Manual.¹ The sample-specific information entered for each run was compared to the text file created for use with the QuantStudio and to the resulting imported plate setup.

RESULTS

All calculations performed by the modified populatable worksheet for determination of the PowerQuant reagent volumes were accurate. In every instance, the text file created for importing the plate setup in the QuantStudio software reflected the correct sample names and

¹ PowerQuant® System Technical Manual. Promega. Revised 8/2022.

well positions, and imported successfully to perform a PowerQuant run on the QuantStudio instrument.

CONCLUSION

A functional check of the CD worksheet for use with the PowerQuant assay and QuantStudio instrument was performed, following minor revisions to the macro-enabled populatable Excel worksheet. It showed all calculations are accurate and all processes work as expected, thus this worksheet is suitable for use with casework procedures for quantifying CD DNA extracts.