

VALIDATION OF THE ILLUMINA ECO FOR FAST, RELIABLE, COST EFFECTIVE qPCR

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Casework Genetics, LLC has recently conducted validation studies using the new Illumina Eco, a qPCR machine that drastically cuts the cost of performing real time PCR while maintaining high data quality.

At a fraction of the price of PCR machines dominating the forensics market today, the Illumina Eco offers a significant savings in set-up costs to laboratories. Additionally, the reaction volumes required on the Eco are approximately one half those typically required by the ABI 7500 Real Time PCR Machine, providing significant cost savings in kit reagents as well.

One immediately noticeable characteristic of the Eco is its small size. The instrument occupies a one square foot area of lab bench, and its software requires only a small notebook computer. The Eco is designed with a heat block one quarter the size of the typical 96-well block, helping to ensure temperature uniformity. Despite this much smaller size, the plate accommodates 48 samples. The Eco software is extremely user friendly, with easy plate set-up and options to save the data in a variety of formats, including a .pdf file.

In one particular experiment, a 48 well plate was loaded with 9 standards from ABI Quantifiler® Human DNA Quantification Kit, four samples of known concentration and a Non Template Control. Two of the samples of known concentration were repeats of Quantifiler kit standards (run as unknowns) and the others were samples NA09947 and NA11839 from Coriell Institute of Medical Research. Dilutions of the 9947 and 11839 samples were at full, half, quarter and one-eighth concentration. All samples were run in duplicate and the total reaction volume for all samples was 12.5 micro-liters.

All samples gave the expected results, with an R² value of 0.997, an efficiency of 93.6%, and a slope of -3.49, with the NTC showing no contamination. Results support the Illumina Eco as a reliable, fast, and economical alternative for performing qPCR.