

VISUALIZATION TOOL FOR qPCR GENOTYPING DATA

INTRODUCTION

[0001] Quantitative polymerase chain reaction (qPCR) instruments or cyclers allow data to be collected during each cycle. PCR data is typically collected at each cycle using an optical system within the qPCR instrument that can detect electromagnetic radiation emitted by one or more labeling probes attached to each nucleic acid sample analyzed by the qPCR instrument. The PCR data, therefore, includes one or more labeling probe intensity values for each sample at each cycle or at each time associated with a cycle.

[0002] Various embodiments of systems according to the present teachings include a qPCR instrument, as well as a processor or computer for controlling and/or monitoring the qPCR instrument. The processor is used to create and modify the experiment parameters sent to the qPCR instrument and/or to monitor the qPCR instrument and analyze the PCR data received from the qPCR instrument after the experiment. Although qPCR systems receive and analyze the qPCR data, they generally only display useful or discriminatory information at the end-point or after completion of the PCR experiment. Also, although the qPCR instrument and the processor of a qPCR system can communicate across a network, each qPCR system may include one qPCR instrument and one processor. Finally, although high throughput experimental workflows may require that the same PCR experiment be run on batches of samples, qPCR systems may often require entry of experimental parameters for each batch placed in a qPCR instrument.

SUMMARY

[0002a] According to an aspect of the present invention, there is provided a computer-readable storage medium encoded with instructions, executable by a

processor, for a visualization tool for genotyping data, the instructions comprising:

receiving by the processor a first data set at a first time, wherein the first data set comprises a first intensity signal for a first probe and a first intensity signal for a second probe;

receiving by the processor a second data set at a second time, wherein the second data set comprises a second intensity signal for the first probe and a second intensity signal for the second probe;

presenting an end user with a visualization tool, wherein the visualization tool provides a dynamic display of the data selected from:

generating by the processor a first plot from the first data set and displaying the first plot; and;

generating by the processor a second plot from the second data set and displaying the second plot;

wherein the dynamic display of the data provides for analysis of genotyping data.

[0002b] According to another aspect of the present invention, there is provided a computer implemented method for a visualization tool for genotyping data, the method comprising:

receiving by a processor a first data set at a first time, wherein the first data set comprises a first intensity signal for a first probe and a first intensity signal for a second probe;

receiving by a processor a second data set at a second time, wherein the second data set comprises a second intensity signal for the first probe and a second intensity signal for the second probe;

processing the data set on a computer to analyze genotyping data, the processing comprising:

presenting an end user with a visualization tool, wherein the visualization tool provides a dynamic display of the data selected from:

generating by the processor a first plot from the first data set and displaying the first plot; and;

generating by the processor a second plot from the second data set and displaying the second plot;

wherein the dynamic display of the data provides for analysis of genotyping data.

[0002c] According to another aspect of the present invention, there is provided a system comprising:

a processor; and

a memory in communication with the processor; the memory storing instructions for:

receiving by the processor a first data set at a first time, wherein the first data set comprises a first intensity signal for a first probe and a first intensity signal for a second probe;

receiving by the processor a second data set at a second time, wherein the second data set comprises a second intensity signal for the first probe and a second intensity signal for the second probe;

presenting an end user with a visualization tool, wherein the visualization tool provides a dynamic display of the data selected from:

generating by the processor a first plot from the first data set and displaying the first plot; and;

generating by the processor a second plot from the second data set and displaying the second plot;

wherein the dynamic display of the data provides for analysis of genotyping data.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003] The skilled artisan will understand that the drawings, described below, are for illustration purposes only. The drawings are not intended to limit the scope of the present teachings in any way.

[0004] FIG. 1 is an exemplary flowchart showing a method for displaying data obtained from a qPCR instrument, upon which embodiments of the present teachings may be implemented.

[0005] FIG. 2 is a block diagram that illustrates a polymerase chain reaction (PCR) instrument, upon which embodiments of the present teachings may be implemented.

[0006] FIG. 3 is a block diagram that illustrates a computer system, upon which embodiments of the present teachings may be implemented.