CLAIMS

1. A fluidic system, comprising:

a reagent manifold including at least one valve in fluid communication with an inlet port of a flow cell that includes an array of amplification sites, the reagent manifold further including a plurality of channels fluidly connected between the at least one valve and corresponding reagent reservoirs; and

a controller including one or more processors, the controller to control the at least one valve and a pump to flow a first solution through the inlet port over the array of amplification sites on the flow cell and to subsequently flow a different, second solution through the inlet port over the array of amplification sites on the flow cell;

wherein the first solution includes a number of target nucleic acids and a first reagent mixture that comprises nucleoside triphosphates (NTPs) and one or more replication enzymes, the number of target nucleic acids in the first solution exceeding a number of the amplification sites in the array, the first solution reacting on the flow cell to produce clonal populations of amplicons at the amplification sites originating from corresponding target nucleic acids, the target nucleic acids in the first solution transporting to and binding to the amplification sites at a transport rate, the first reagent mixture amplifying the target nucleic acids that are bound to the amplification sites to produce the amplicons at an amplification rate that exceeds the transport rate;

and wherein the second solution includes a second reagent mixture and lacks the target nucleic acids, the second solution reacting on the flow cell to increase a number of amplicons in the clonal populations of amplicons at the amplification sites.

2. The fluidic system of claim 1, wherein the second reagent mixture has the same composition as the first reagent mixture.

3. The fluidic system of claim 1, wherein the controller is to control the at least one valve and the pump to mix a sample template that includes the target nucleic acids with the first reagent mixture to form the first solution, and wherein the controller is to control the at least one valve and the pump to form the second solution by mixing the second reagent mixture together

without mixing the sample template with the second reagent mixture.

4. The fluidic system of claim 1, wherein the controller is to control the at least one valve and the pump to remove the first solution from the flow cell prior to flowing the second solution over the array of amplification sites on the flow cell such that the only target nucleic acids that are present as the second solution flows over the array of amplification sites are bound to the flow cell and not free-floating within the first solution.

5. The fluidic system of claim 1, wherein the flow cell further comprises multiple lanes extending between, and fluidly connected to the inlet port and an outlet port of the flow cell.

6. The fluidic system of claim 5, wherein the multiple lanes include the array of amplification sites.

7. The fluidic system of claim 1, wherein the reagent manifold further includes a plurality of ports respectively fluidly connected to the plurality of channels, and wherein the plurality of ports are fluidly connected to the at least one valve.

8. The fluidic system of claim 5, wherein the outlet port is fluidly connected to a waste reservoir.

9. The fluidic system of claim 5, further comprising a recirculation conduit extending between, and fluidly connected to the outlet port and the at least one valve.

10. The fluidic system of claim 5, further comprising:

a waste reservoir fluidly connected to the outlet port; and

a recirculation conduit extending between, and fluidly connected to the outlet port and the at least one valve.