



## Automation of “Hot Start” PCR using VERSA™ Mini PCR Workstation

PCR is a highly sensitive technique, enabling researchers to rapidly select and amplify a specific target sequence from a background of non-related sequences. However, if all reaction components are combined at the same time, at room temperature, it is possible that non-specific annealing will occur between fragments. Such premature mis-priming events may amplify non-specific DNA sequences - especially if target sequences exist in low copy numbers. Time, money, and resources are wasted when PCR tests are redone to check questionable results.

One solution that prevents mis-priming is “hot start” PCR. This method requires one or more essential reaction components to be excluded until the reaction temperature exceeds the annealing temperature of the target primers. One variation of this procedure uses paraffin wax beads embedded with the omitted PCR reagents. Beads are manually added to PCR plates, followed by the remainder of the reagents prior to thermocycling. The wax melts once exposed to sufficient heat, releasing the trapped reagents and enabling the reaction to proceed normally. Cooling the plate causes the paraffin to rise to the surface and solidify, trapping the reaction liquid beneath a wax cap. The cap must then be pierced to allow removal of the sample.

Aurora has validated this “hot start” method using the VERSA™ Mini PCR Setup Workstation. This workstation provides a customizable, an all-in-one solution. Numerous accessories may be utilized including adaptors for various PCR thermocyclers, and electronically controlled plate heating and/or cooling blocks. The electronically controlled plate heater quickly melts wax beads, while the plate cooler quickly hardens the wax layer. The VERSA™ Mini PCR is high precision instrument enabling a researcher to pierce the protective wax layer using a fresh pipette tip, dispose of the resulting wax filled tip, and then aspirate the desired sample volume from the well via the newly pierced hole in the wax layer. Samples can then be automatically transferred to a fresh plate. Easy-to-use VERSAware software allows the user to fully automate the aspiration and dispensing steps, and allows precise temperature control when required.



VERSA™ Mini PCR Setup Workstation enclosed in a UV/HEPA hood



VERSA™ Mini PCR Setup Workstation shown with GeneDisc adaptor

### Features

- High precision XYZ autosampler pierces hole through wax then returns to same coordinates for aspiration
- Electronically controlled reagent cooler maintains reagent integrity
- Electronically controlled plate cooler solidifies wax
- Electronically controlled plate heater melts wax
- Shaker or shaker with heater for mixing hot layers
- Interchangeable deck positions supports wide range of carousel/plate PCR preparation & setup options allowing integration with most standard PCR thermocyclers already present in your laboratory
- Target (for hot-start): 96-well plates (round well & PCR).
- Target (for PCR): 96- and 384-well PCR plates, capillary tubes in carousel, Gene-Disc and 0.1 mL (and up) PCR strip tubes

### Throughput

- “Hot-start” reaction setup time for one 96-well reaction plate is 45 minutes. For two 96-well plates is 90 minutes. Throughput for running up to 1000 PCR reactions/day.

### Workstation

- See the VERSA™ Mini PCR setup Workstation flyer for detailed product information or contact your dedicated Aurora sales representative

*NOTE: Instrument specifications may change without notice as an ongoing effort of product improvement.*

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