CLAIMS

1. A method comprising:

(a) moving ~~(2010)~~ an aliquot of first reagent fluid ~~(122)~~ into a fluidic device ~~(102)~~;

(b) after step (a), moving ~~(2015)~~ a volume of fluid buffer into the fluidic device ~~(102)~~;

(c) after step (b), moving ~~(2020)~~ at least a portion of the volume of fluid buffer ~~(123)~~ moved in step (b) from the fluidic device into a first fluid buffer reservoir ~~(113)~~;

(d) after step (c), moving ~~(2025)~~ an aliquot of second reagent fluid ~~(124)~~ into the fluidic device ~~(102)~~;

(e) after step (d), moving ~~(2030)~~ a volume of fluid buffer into the fluidic device ~~(102)~~; and

(f) after step (e), moving ~~(2035)~~ at least a portion of the volume of fluid buffer ~~(124)~~ moved in step (e) from the fluidic device into a second fluid buffer reservoir ~~(115)~~;

(g) after step (f), moving ~~(2040)~~ an aliquot of the first reagent fluid ~~(122)~~ into the fluidic device ~~(102)~~;

(h) after step (g), moving ~~(2045)~~ a volume of fluid buffer into the fluidic device ~~(102)~~, wherein at least a portion of the volume of fluid buffer moved in step (h) is moved from the first fluid buffer reservoir ~~(113).~~;

~~2. The method of claim 1 further comprising:~~

~~(~~i) after step (h), moving ~~(2050)~~ an aliquot of the second reagent fluid ~~(124)~~ into the fluidic device ~~(102)~~; and

(j) after step (i), moving ~~(2055)~~ a volume of fluid buffer into the fluidic device ~~(102)~~, wherein at least a portion of the volume of fluid buffer moved in step (j) is moved from the second fluid buffer reservoir ~~(115)~~.

~~3~~2. The method of claim ~~2~~1, further comprising:

(k) after step (h) and before step (i), moving at least a portion of the volume moved in step (h) back into the first fluid buffer reservoir ~~(113)~~; and

(l) after step (j), moving at least a portion of the volume moved in step (j) back into the second fluid buffer reservoir ~~(115)~~.

~~4~~3. The method of ~~any of claims 1-3~~ claim 1, wherein step (b) comprises moving a volume of fluid buffer from the first fluid buffer reservoir ~~(113)~~ into the fluidic device ~~(102)~~, and thereafter, moving a volume of fluid buffer from a common fluid buffer reservoir ~~(111)~~ into the fluidic device ~~(102)~~, and

wherein step (e) comprises moving a volume of fluid buffer from the second fluid buffer reservoir ~~(115)~~ into the fluidic device ~~(102)~~, and thereafter, moving a volume of fluid buffer from the common fluid buffer reservoir ~~(111)~~ into the fluidic device.

~~5~~4. The method of claim ~~4~~3, wherein ~~in~~ step (b), the volume of fluid buffer moved from the first fluid buffer reservoir ~~(113)~~ is substantially equal to the volume of fluid buffer moved from the common fluid buffer reservoir ~~(111)~~.

~~6~~5. The method of ~~any of claims 1-5~~ claim 1, wherein step (b) comprises moving a volume of fluid buffer from the first fluid buffer reservoir ~~(113)~~ into the fluidic device ~~(102)~~; and

wherein step (e) comprises moving a volume of fluid buffer from the second fluid buffer reservoir ~~(115)~~ into the fluidic device ~~(102)~~.

~~7~~6. The method of ~~any of claims 1-6~~ claim 1, wherein the portion of fluid buffer moved to the first fluid buffer reservoir ~~(113)~~ in step (c) ranges from about 30% to 70% of the volume of fluid buffer moved in step (b).

~~8~~7. The method of claim ~~2~~1, wherein in step (h), the portion of fluid buffer moved from the first fluid buffer reservoir ~~(113)~~ ranges from about 30% to 70% of the volume of fluid buffer moved into the fluidic device ~~(102)~~.

~~9~~8. The method of ~~any of claims 1-8~~ claim 1, wherein in step (d), the aliquot of the second reagent ~~(124)~~ is not mixed with the aliquot of the first reagent ~~(123)~~ in the fluidic device ~~(102)~~.

~~10. A system comprising:~~

~~a fluidic device (102);~~

~~a flow control valve (104);~~

~~a first reagent fluid reservoir (112) fluidly connectable to the fluidic device (102) by the flow control valve (104);~~

~~a first fluid buffer reservoir (113) fluidly connectable to the fluidic device (102) by the flow control valve (104);~~

~~a common fluid buffer source (111) fluidly connectable to the fluidic device (102) by the flow control valve (104); and~~

~~a pump (106) operatively associated with the fluidic device (102), the first reagent fluid reservoir (112), the common buffer source (111), and the first fluid buffer reservoir (113);~~

~~wherein the flow control valve (104) and the pump (106) are configured to sequentially cause:~~

~~(i) flow from the first reagent fluid reservoir to the fluidic device,~~

~~(ii) flow from the common fluid buffer source to the fluidic device,~~

~~(iii) flow from the fluidic device to the first fluid buffer reservoir,~~

~~(iv) flow from the first reagent fluid reservoir to the fluidic device, and~~

~~(v) flow from the first fluid buffer reservoir to the fluidic device.~~

~~11. The system of claim 10 further comprising:~~

~~a second reagent fluid reservoir (114) fluidly connectable to the fluidic device (102) by the flow control valve (104); and~~

~~a second fluid buffer reservoir (115) fluidly connectable to the fluidic device (102) by the flow control valve (104);~~

~~wherein the flow control valve (104) and the pump (106) are further configured to cause, after (i) (iii) and prior to (iv) (v):~~

~~(vi) flow from the second reagent fluid reservoir to the fluidic device,~~

~~(vii) flow from the second fluid buffer reservoir to the fluidic device,~~

~~(viii) flow from the common buffer source to the fluidic device, and~~

~~(ix) flow from the fluidic device to the second fluid buffer reservoir.~~

~~12. The system of claim 10 or 11, wherein the first fluid buffer reservoir (113) comprises a cache channel comprising a consistent cross-sectional dimension across a length thereof.~~

~~13. The system of claim 10, 11 or 12, wherein the first fluid buffer reservoir (113) is fluidly connected to the fluidic device (102) by a channel, and the fluid buffer reservoir comprises a cache reservoir comprising a cross-sectional dimension larger than a cross-sectional dimension of the channel.~~

~~14. The system of any of claims 10-13 wherein the pump is a syringe pump such that the syringe pump generates a pressure differential between the fluidic device (102) and any one of the first reagent fluid reservoir (112), the common fluid buffer source (111), or the first fluid buffer reservoir (113) to drive fluid flow.~~

~~15. The system of any of claims 10-14, wherein the flow control valve (104) is a rotary valve.~~

~~16. The system of any of claims 10-15, further comprising a controller (140) in electrical communication with the flow control valve (104) for transmitting commands controlling operation of the flow control valve (104) to perform the sequence.~~

~~17. The system of any of claims 10-16, wherein the first fluid buffer reservoir holds a first volume of fluid that is at least 30% of a volume of fluid held by the fluidic device.~~

~~18~~9. A computer readable medium encoded with computer-executable instructions that, when executed by a computer controller of an automated system, causes the system to execute the following system processes:

(a) move an aliquot of first reagent fluid into a fluidic device ~~(2010)~~;

(b) after process (a), move a volume of fluid buffer into the fluidic device ~~(2015)~~;

(c) after process (b), move at least a portion of the volume of fluid buffer moved in process (b) from the fluidic device into a first fluid buffer reservoir ~~(2020)~~;

(d) after process (c), move an aliquot of second reagent fluid into the fluidic device ~~(2025)~~;

(e) after process (d), move a volume of fluid buffer into the fluidic device ~~(2030)~~; and

(f) after process (e), move at least a portion of the volume of fluid buffer moved in process (e) from the fluidic device into a second fluid buffer reservoir ~~(2035)~~;

(g) after process (f), move an aliquot of the first reagent fluid into the fluidic device ~~(2040)~~;

(h) after process (g), move a volume of fluid buffer into the fluidic device, wherein at least a portion of the volume of fluid buffer moved in process (h) is moved from the first fluid buffer reservoir ~~(2045).~~;

~~19. The computer readable medium of claim 18, wherein the system processes further comprise:~~

~~(~~i) after process (h), move an aliquot of the second reagent fluid into the fluidic device ~~(2050)~~; and

(j) after process (i), move a volume of fluid buffer into the fluidic device, wherein at least a portion of the volume of fluid buffer moved in process (j) is moved from the second fluid buffer reservoir ~~(2055)~~.

~~20~~10. The computer readable medium of claim ~~18 or 19~~ 9, wherein process (b) comprises ~~move~~moving a volume of fluid buffer from the first fluid buffer reservoir into the fluidic

device, and thereafter, moving a volume of fluid buffer from a common fluid buffer reservoir into the fluidic device, and

wherein process (e) comprises ~~move~~moving a volume of fluid buffer from the second fluid buffer reservoir into the fluidic device, and thereafter, moving a volume of fluid buffer from the common fluid buffer reservoir into the fluidic device.