CLAIMS

1. A method of denaturing double-stranded DNA (dsDNA), comprising:

loading the dsDNA into a first portion of a cartridge, wherein sodium hydroxide is located in a second portion of the cartridge, wherein the sodium hydroxide is in a dry form, and

wherein the dsDNA and the dried sodium hydroxide are not in contact with each other, when the dsDNA is loaded into the first portion of the cartridge;

and

mixing the dsDNA with the sodium hydroxide, thereby denaturing the dsDNA.

2. The method of claim 1, further comprising neutralizing the sodium hydroxide.

3. The method of claim 1, further comprising hydrating the sodium hydroxide.

4. The method of claim 3, wherein hydrating the sodium hydroxide is performed before mixing the dsDNA with the sodium hydroxide.

5. The method of claim 4, wherein hydrating the sodium hydroxide comprises adding water to the sodium hydroxide in the second portion of the cartridge, when the dsDNA and the sodium hydroxide are not in contact with each other.

6. The method of claim 3, wherein mixing the dsDNA with the sodium hydroxide, hydrates the sodium hydroxide.

7. The method of claim 1, wherein the cartridge comprises a constriction that temporarily inhibits contact between the dsDNA and the sodium hydroxide, when the dsDNA is loaded into the first portion of the cartridge.

8. The method of claim 7, wherein suction is used to mix the dsDNA with the sodium hydroxide.

9. The method of claim 1, wherein the cartridge comprises an hourglass-shaped reservoir, and wherein the first portion of the cartridge is an upper compartment of the hourglass-shaped reservoir, and the second portion of the cartridge is a lower compartment of the hourglass-shaped reservoir.

10. The method of claim 9, wherein a constriction in the hourglass-shaped reservoir temporarily inhibits contact between the dsDNA and the sodium hydroxide, when the dsDNA is loaded into the first portion of the cartridge.

11. The method of claim 10, wherein suction is used to mix the dsDNA with the sodium hydroxide.

12. The method of claim 11, wherein the suction that is used to mix the dsDNA with the sodium hydroxide, hydrates the sodium hydroxide.

13. The method of claim 9, further comprising hydrating the sodium hydroxide, wherein hydrating the sodium hydroxide precedes mixing the dsDNA with the sodium hydroxide.

14. The method of claim 1, wherein the cartridge comprises a tube that connects the first portion of the cartridge to the second portion of the cartridge, the method further comprising transferring the dsDNA to the second portion of the cartridge, using the tube.

15. The method of claim 14, wherein transferring the dsDNA to the second portion of the cartridge using the tube, mixes the dsDNA with the sodium hydroxide.

16. The method of claim 14, wherein transferring the dsDNA to the second portion of the cartridge using the tube, hydrates the sodium hydroxide.

17. The method of claim 14, further comprising hydrating the sodium hydroxide, wherein hydrating the sodium hydroxide precedes transferring the dsDNA to the second portion of the cartridge, using the tube.

18. The method of claim 17, wherein hydrating the sodium hydroxide comprises water passing through the tube to contact the sodium hydroxide and the dsDNA.

19. A method of denaturing double-stranded DNA (dsDNA), comprising:

loading the dsDNA into an upper compartment of a spin tube that contains sodium hydroxide in a dry form, thereby denaturing the dsDNA,

wherein a lower compartment of the spin tube contains a neutralizing agent;

and

centrifuging the spin tube to transfer the denatured DNA to the lower compartment of the spin tube, thereby neutralizing the sodium hydroxide.

20. A method of denaturing double-stranded DNA (dsDNA), comprising:

loading dsDNA into a tube that contains sodium hydroxide in a dry form and a neutralizing agent comprising a time-triggered coat, thereby denaturing the dsDNA;

and

incubating the tube to allow for release of the neutralizing agent from the time-triggered coat, thereby neutralizing the sodium hydroxide.