SAND2013-0934P

SpinDx™ User Manual

U.S. DEPARTMENT OF ENERGY

National Nuclear Security Administration

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Package contents

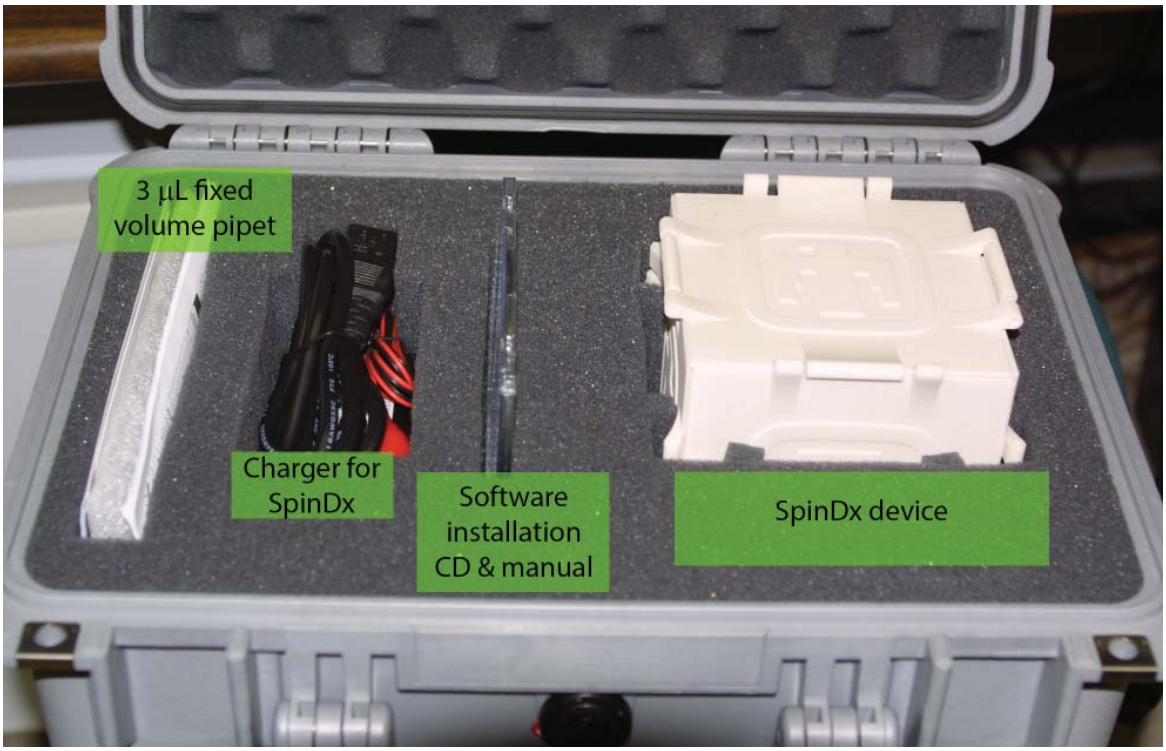


Figure 1. Contents of Pelican case: 3 µL fixed-volume pipet; charger for the SpinDx battery; CD containing software installation files and this manual; the SpinDx device

Figure 2. Contents of consumables package. A) Racked, freeze-dried reagents in tubes; B) Vacuum-packed disposable assay discs; C)Color codes for tubes; D) Color-coded tubes

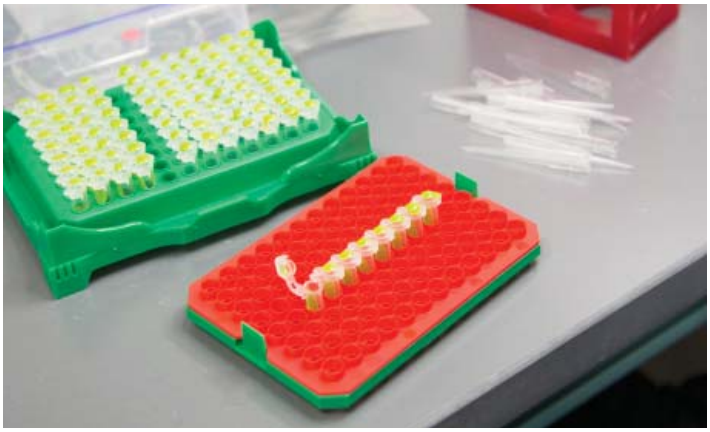
Assay protocol

Figure 3. To begin, the following supplies are needed: pipet, tips, reagent tubes, assay disc, and sample. After the assay is complete, dispose of waste as regulated by your institution's handling of biohazards.

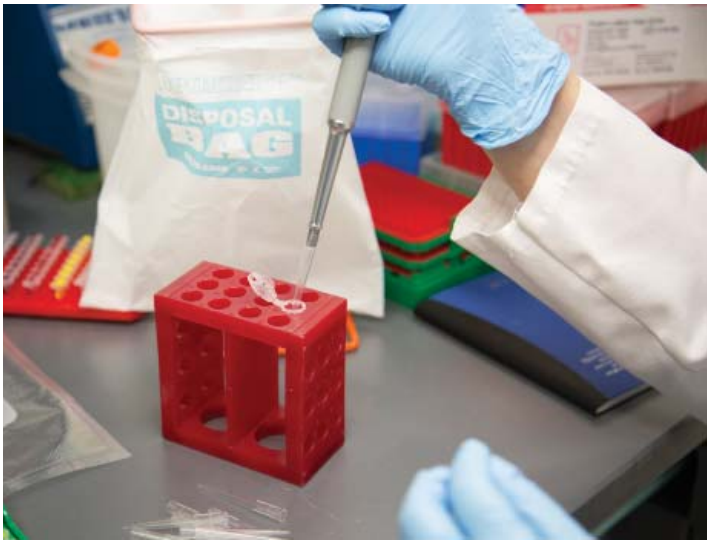
Step 1. Place tip on pipet

Step 2. Choose reagents according to assay to be performed. Reagents are color-coded by antigen. The table below describes the color code.

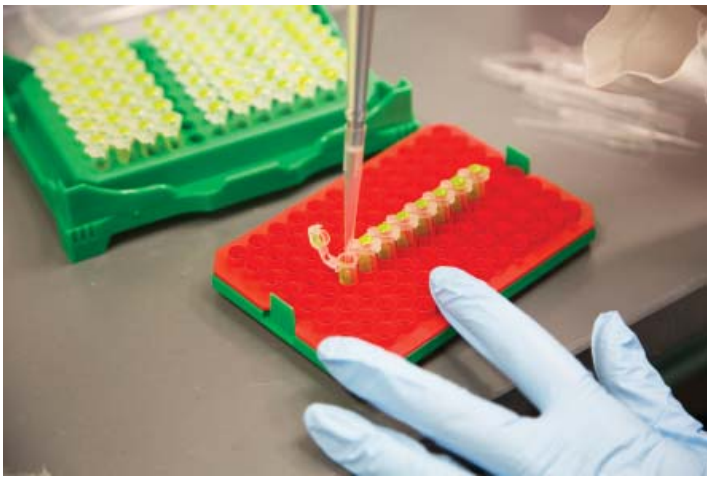
Color of tube	Antigen
Purple	Venezuelan Equine Encephalomyelitis
Green	Bacillus anthracis
Blue	Vaccinia
Red	Botulinum neurotoxin A
Yellow	Yersinia pestis



Step 3. Push the plunger of the pipet to the first stop, submerge the tip in the sample, and slowly release the plunger.



Step 4. Place the tip of the pipet into the reagent tube. Depress the plunger through the first stop to the second stop. Remove the tip from the reagent tube. Release the plunger and discard the tip. Repeat for all samples that are to be analyzed, using a new tube and tip for each sample.

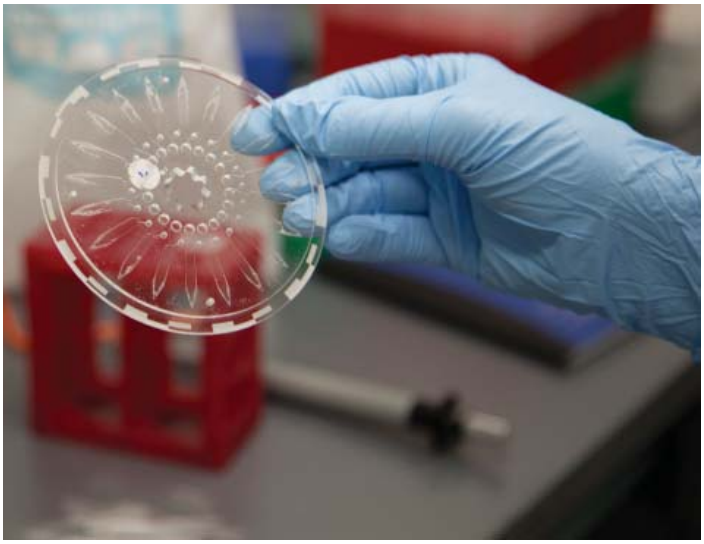


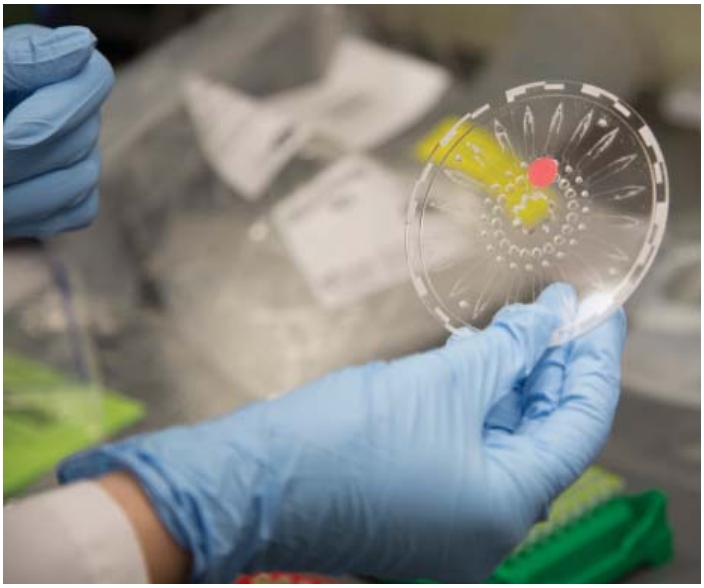
Step 5. Allow sample to incubate with reagents for at least 15 minutes but no more than 90 minutes. Incubations may be performed from room temperature (25 °C) up to 37 °C. Exceeding 37 °C may reduce assay performance. Incubating for less than 15 minutes will substantially decrease assay performance. Incubations for longer than 90 minutes may increase background and lead to reduced assay performance.

Step 6. Before the incubation is complete, select a disc and allow the disc to equilibrate with room temperature.

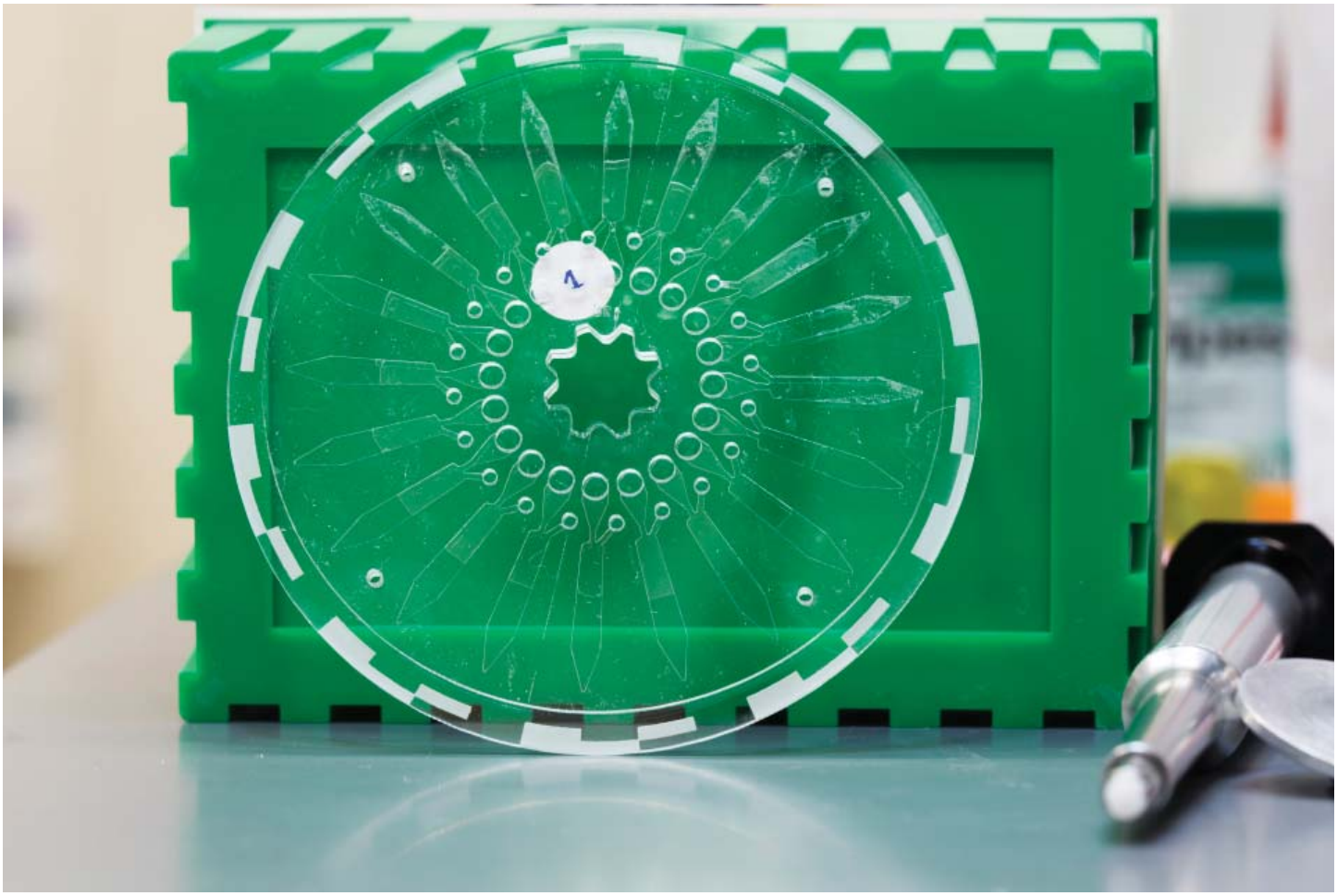
Step 7. To open the disc packaging, grasp at the notched edge and pull apart to tear the package open.

Step 8. Wait a few seconds to allow the disc to equilibrate with atmospheric pressure.



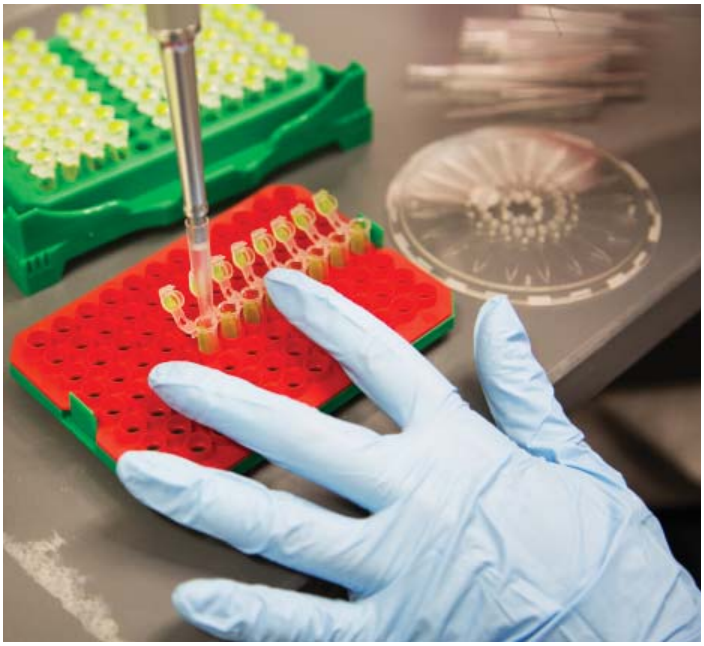


The well positions are encoded for the device on the periphery of the disc. For user reference, a number ‘1’ is visible on the first well toward the center of the disc. If the disc is upside down, a red dot will be seen.

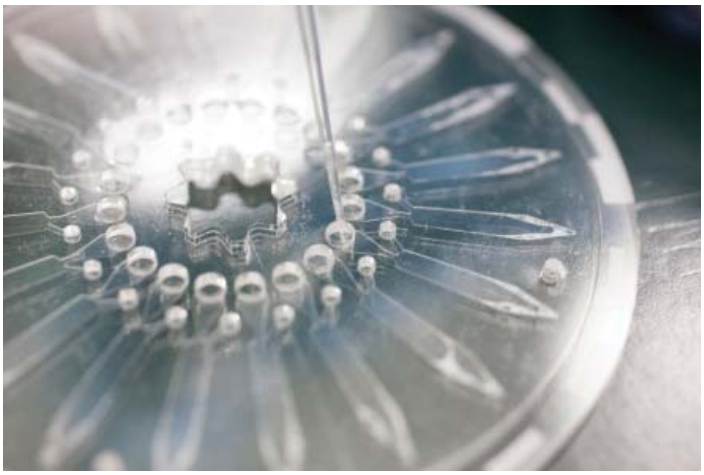


As can be seen in this close-up of the disc, the number ‘1’ indicates the first well. Well numbers increase clockwise around the disc. The density medium is preloaded inside the channels.

Step 9. Push the plunger of the pipet to the first stop and submerge the tip in the sample-reagent suspension. Slowly release the plunger to draw the sample up into the tip. Ensure sample is present in the tip by looking for the white cloudy particle suspension as seen below.



Step 10. Load the sample into the disc. Place the pipet tip at the access port of the channel and smoothly depress the plunger to the second stop. The sample will wick into the channel. It is easier to load samples in channels pointing away from yourself.



Step 11. Place the disc onto the orange hub of the device. Gently press the disc until it is fully seated on the hub. Cover access ports with the included white filter paper to prevent any aerosols from escaping the device. The black plastic magnetic latch secures the filter paper to the disc. Close the lid. The program will begin after a three second delay. Analysis is automated from this point and the results will display on the computer screen.