CellScape™ Whole-Slide Imaging Chamber Assembly

Below are guidelines for assembling the CellScape Whole-Slide Imaging Chamber (WSIC) from traditional 1 mm thick microscope slides with FFPE or FF tissue sections adhered.

Note: For clarity in this User Manual, the following naming conventions are used:

1. The thin glass half-chamber, product number PRSM-CS-WSIC, is the **WSIC Coverslip**.
2. The WSIC fully adhered to a glass microscope slide is the **Assembled WSIC**.

Materials & Reagents

- ☐ FFPE or FF Tissue section on slide
- ☐ CellScape Slide Assembly Tool
- ☐ CellScape Fluidics Unit

Bruker Item	Size	Catalog #	Contents
CellScape Whole-Slide Imaging Chambers	10 CellScape WSICs	PRSM-CS-WSIC-010	1 Biobanking Box 10 CellScape WSIC coverslips 1 Roll of 100 Sealing Tape 10 Pipette Adaptors
CellScape Wash Buffer	500 mL	PRSM-BUF-WASH-500mL	500 mL Wash Buffer
CellScape Storage Buffer	50 mL	PRSM-BUF-STR-50mL	50 mL Storage Buffer

Before You Start

- Follow good laboratory practices and maintain a clean environment when working with samples.
- Storage Buffer is sterilized during manufacturing. A biobanked assembled WSIC should have the Storage Buffer replaced after **1 year** to reduce risk of contamination.

Step 1: Preparing Assembly Tool and WSIC Coverslip

a. Open the CellScape Slide Assembly Tool (Figure 1) by squeezing the white prongs at the front of the unit with your fingers and sliding out the tray.

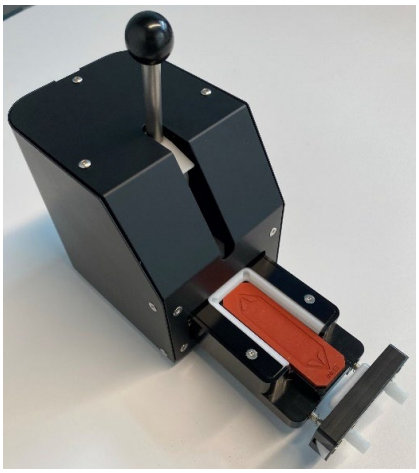

Figure 1. CellScape Slide Assembly Tool with tray open.

b. The WSIC coverslip can be cleaned if needed using 70% ethanol and a lint-free wipe. Hold the coverslip by the edges near the pull tab to stabilize it and avoid pressing on the center of the glass.

c. Remove the film by pulling the tab down toward the opposite end of the WSIC coverslip (Figure 2). The film can be thrown away.

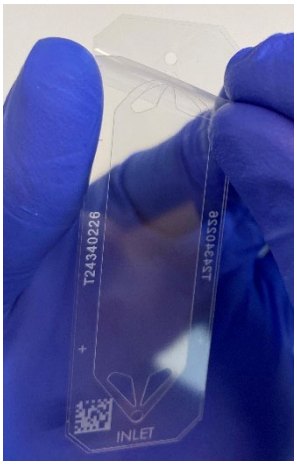

Figure 2. Removing the protective film from the WSIC coverslip.

d. Place the WSIC coverslip onto the colored silicone insert of the Assembly Tool tray with the adhesive facing up and the “INLET” side matching the word on the silicone (Figure 3).

Step 2: Clamping Slide to WSIC Coverslip

a. If the sample slide is stored in CellScape Wash Buffer, remove the slide and dry the slide edges thoroughly with a lint-free wipe to remove any liquid that could obstruct adhesion around the borders and flow diverters of the WSIC coverslip.

b. If the slide has a frosted end, position the slide with the frosted end at the outlet (opposite inlet).

c. With the tissue side facing down, gently lower the slide onto the white upper platform of the tool tray (white area in Figure 3) so that it is resting above the WSIC coverslip without making contact. It helps to use two fingers in the area where the tray is cut out (toward the inlet) when lowering the slide.

Figure 3. Placing the WSIC coverslip correctly onto the silicone pad of the Slide Assembly Tool.

d. Push the tray in fully until you hear a click. This will align the slide and the cover glass to the back of the tray.

e. Pull the lever down entirely and leave the slide clamped for 5 minutes to ensure complete adhesion.

f. Lift the lever and open the tray to remove the Assembled WSIC.

g. Visually inspect the assembled chamber to ensure that the glass is completely adhered. If areas of incomplete adherence are seen (Figure 4; adhesion can be inhibited by hydrophobic markings or at the interface with frosted end on certain slides), gently press the glass together in those areas. Air does not need to be completely removed for a good seal.

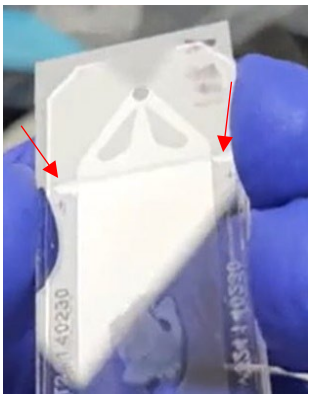

Figure 4. Checking for complete adherence of WSIC coverslip to slide. Red arrows indicate pockets of air at interface of frosted end that should be gently massaged out.

h. Following inspection of the Assembled WSIC, fill a P1000 pipette with 500 µL of CellScape Storage Buffer and place the pipette tip against the inlet hole. Very slowly pipette the Storage Buffer and allow capillary action to fill the chamber. Only 50 µL will be needed to fill the chamber. Some air bubbles may be present in the chamber, but they are not detrimental as long as they are not above significant parts of the tissue. If air bubbles are too large or located over tissue, they can be removed using the CellScape fluidics unit by flowing CellScape Wash Buffer through the chamber (as the buffer is degassed by the system).

   Note: Alternatively, the chamber can also be filled using the CellScape fluidics unit after priming it (see the section 'Priming Microfluidics') by delivering CellScape Storage Buffer from a reservoir.

i. If assembling multiple WSICs, fill each one with Storage Buffer prior to beginning assembly of the next sample to prevent tissue from drying out on the slide.

j. Cover each hole with sealing tape (Figure 5) to prevent evaporative loss. Gently press across the area where the sealing tape meets the inlet and outlet holes to ensure complete seals. The Assembled WSICs can now be stored at 4 °C until ready for use on the CellScape instrument.

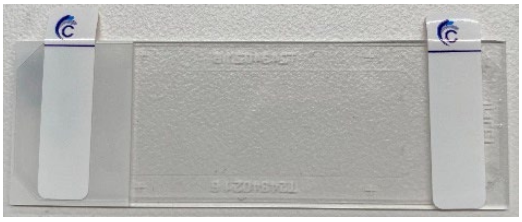

Figure 5. Covering holes of Assembled WSIC with sealing tape.

Note: For WSIC adhesive to fully cure, avoid running fluid through the imaging chamber on the CellScape until at least 30 minutes after full assembly.

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