Miltenyi Biotec

MACSwell™ Imaging Frames

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1. Description

This product is for research use only.

Components Sterile and single-packed MACSwell Imaging Frames, 10 pieces per box.

Product	Order no.
MACSwell One	130-124-673
MACSwell One Small	130-126-794
MACSwell Two	130-124-675
MACSwell Four	130-124-676

Storage Store MACSwell Imaging Frames dry and protected from light at +19 to +25 °C. The expiration date is indicated on the box label. Do not use after this date.

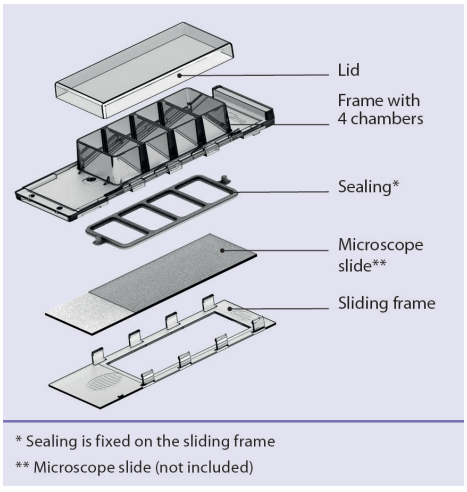


Figure 1: Parts of the MACSwell Imaging Frames.

1.1 Important safety information

⚠ CAUTION **Burn due to contact with material at a high temperature.**

Disposables could overheat if handled incorrectly. Contact with overheated disposables could result in moderate burns. Overheating can lead to disposables melting and samples becoming unusable.

- Avoid using dark pens to label the used disposables.
- Avoid using dark or flammable mounting media and any light absorbing materials.
- Only use MACSwell Sample Carriers and MACSima Buffers for processing samples with the instrument.

1.2 Background information

The MACSwell Imaging Frames have been designed for the use with the MACSima Imaging System. The MACSima Imaging System is a fully automated instrument capable of staining hundreds of markers on one sample using the MICS (MACSima Imaging Cyclic Staining) technology. The frames allow for the use of microscope slides in the MACSima Imaging System. They form a liquid-tight contact with the microscope slide containing the sample, which enables analysis on the MACSima Imaging System.

1.3 Technical specifications

- For single use only.
- For professional laboratory use only.
- Frame material: cyclo olefin polymer (COP)
- Slider material: Polycarbonate
- Frames are not compatible with acetone.
- Recommended working temperature betweeen +4 °C and +40 °C.
- Size: 95 mm × 31 mm × 14.5 mm (length × width × height)

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140-005-698.04

	MACSwell One	MACSwell One Small or MACSwell Two	MACSwell Four
Weight [g]	11.3	11.3	11.3
Number of wells	1	1 or 2	4
Well area [mm²]	931	437	190
Maximum filling volume [mL]	12.5	5.9	2.7
Working volume [µL] (staining)	1000	500	250
Maximum sample size [mm]	47.25×17	21.25×17	8×17

Table 1: Data of MACSwell Imaging Frames.

▲ **Note:** MACSwell One Small has one centered well, MACSwell Two has two wells.

1.4 Reagent and instrument requirements

- MACSima Imaging System (# 130-121-164)
- MACSima Running Buffer (# 130-121-565)
- Standard microscope slide (75–76 mm × 25–26 mm × 1 mm) or one variant of MACSwell Micro Slide, e.g., MACSwell Micro Slide (17 µm) (# 130-124-678)

2. Use of the MACSwell Imaging Frames

▲ Please refer to the MACSima Imaging System user manual for detailed information on using the instrument.

▲ For cell culture experiments prior to microscopy experiment, all steps should be performed under sterile conditions.

▲ Wet microscope slides can be used. Ensure that the sealing of the frame is free from any contamination before assembling the sample carrier.

▲ If the sealing is in contact with a written part of the slide, the related well is not usable.

2.1 Sample preparation

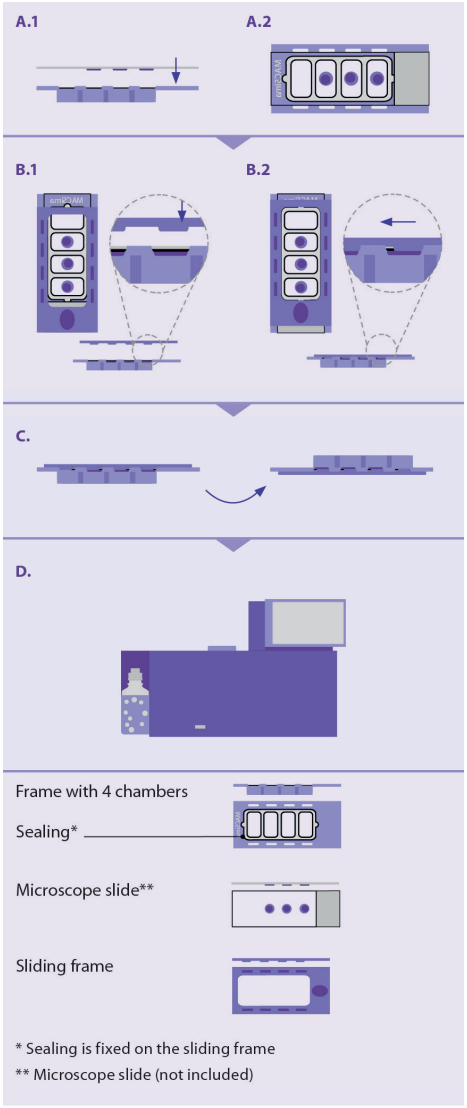


Figure 2: Use of the MACSwell Imaging Frames.

2.1.1 When working with fixed tissue samples

▲ Every box is supplied with a black positioning template for the MACSwell Imaging Frame model ordered. Arrange the template underneath the microscope slide in use. The hole in the template indicates the optimal position of the sample on the microscope slide.

1. Prepare a microscope slide with a fixed tissue sample. For positioning the sample(s) on the microscope slide refer to figure 3. Maximum sample sizes are listed in table 1 in chapter 1.2.

   ▲ **Note:** When working with the MACSwell Two, up to two samples can be processed in parallel, with the MACSwell Four up to four samples in parallel.

2. Remove frame including the lid from the sliding frame. Turn the frame upside down. The sealing is now on top.

   ▲ **Note:** The lid is only used for subsequent cell culture experiments.

3. Place the microscope slide with a fixed sample on the sealing of the frame with the sample orientated to the sealing (figure 2, A.1).
4. Ensure that the sample is not placed underneath the sealing (figure 2, A.2).

   ▲ **Note:** To adjust the position move the microscope slide carefully. Avoid fingerprints on the microscope slide.
5. Place the sliding frame on the frame. Start inserting the sliding hooks in the wider spot of the gaps, away from the MACSima Logo (figure 2, B.1).

   ▲ **Note:** Make sure the sliding hooks of the sliding frame are correctly inserted in the gaps of the frame.
6. Adjust the sliding frame in the direction of the MACSima Logo. The end position is defined by the stopping edge on the sliding frame (figure 2, B.2). Stop when the sliding frame can't be shifted anymore without applying too much pressure to avoid breakage.
7. Turn the MACSwell Imaging Frame back up (figure 2, C).
8. Add MACSima Running Buffer to each well for a total volume of:

   1900 µL for MACSwell One,

   950 µL for MACSwell One Small,

   950 µL for MACSwell Two, or

   475 µL for MACSwell Four Imaging Frames.
9. Proceed with loading the MACSwell Imaging Frames into the MACSima Imaging System (figure 2, D).

2.1.2 When working with cell suspension samples

▲ MACSwell Micro Slides are compatible with all variants of the MACSwell Imaging Frames. If using MACSwell Micro Slides, refer to the respective data sheet.

1. Remove the frame including the lid from the sliding frame.

   ▲ **Note:** The lid is only used for subsequent cell culture experiments.
2. Turn the frame upside down. The sealing is now on top. Place the empty MACSwell Micro Slide onto the sliding frame. The microcavities, where the sample will later be applied (figure 2, A.1), should be orientated towards the sealing. Ensure that the microcavities will not be placed under the sealing (figure 2, A.2).

   ▲ **Note:** To adjust the position move the MACSwell Micro Slide carefully. Avoid fingerprints on the MACSwell Micro Slide.
3. Place the sliding frame on the frame. Start inserting the sliding hooks in the wider spot of the gaps, away from the MACSima Logo (figure 2, B.1).

   ▲ **Note:** Make sure the sliding hooks of the sliding frame are correctly inserted in the gaps of the frame.
4. Adjust the sliding frame in the direction of the MACSima Logo. The end position is defined by the stopping edge on the sliding frame (figure 2, B.2).
5. Turn the MACSwell Imaging Frame back up.
6. Add the previously fixed cell suspension to the cavity of the imaging frame and wait the appropriate time for the cells to settle in the cavities.

   ▲ **Note:** An initial equilibration step might be needed.
7. After seeding the cells, add MACSima Running Buffer to each well for a total volume of:

   1900 µL for MACSwell One,

   950 µL for MACSwell One Small,

   950 µL for MACSwell Two, or

   475 µL for MACSwell Four Imaging Frames.
8. Proceed with loading the MACSwell Imaging Frames into the MACSima Imaging System (figure 2, D).

2.1.3 When working with adherent cell samples

1. First mount the frame on a microscope slide (figure 2, A–C).
2. (Optional) Coat the slide.
3. Seed cells and follow the culture protocol.
4. Fix cells according to the protocol. Wash sample thoroughly to remove the fixating agent.

   ▲ **Note:** Do not use acetone fixation!
5. Add MACSima Running Buffer to each well for a total volume of:

   1900 µL for MACSwell One,

   950 µL for MACSwell One Small,

   950 µL for MACSwell Two, or

   475 µL for MACSwell Four Imaging Frames.
6. Proceed with chapter 2.2 (figure 2, D).

2.2 Loading the MACSwell Imaging Frame into the MACSima Imaging System

▲ For more information please refer to the MACSima Imaging System manual.

1. Start the MACSima Imaging System and software.
2. Follow the instructions of the instrument. When the software asks to scan the barcode: Scan the 2D barcode on the MACSwell Imaging Frame with the barcode scanner of the MACSima Imaging System.

   ▲ **Note:** Barcodes of MACSwell Imaging frames can be read even if still in primary packaging.
3. When the MACSima Imaging System door is open, insert the MACSwell Imaging Frame into the MACSima Imaging System so that the MACSima Logo is facing upwards on the far side of the cavities.

   ▲ **Note:** Make sure to always remove the lid before loading the MACSwell Imaging Frame into the MACSima Imaging System.
4. Follow the instructions of the instrument.
5. After the MICS experiment has finished, the MACSwell Imaging Frame can be removed from the instrument. Follow the instructions of the instrument. Disassemble the MACSwell Imaging Frame by removing the sliding frame and subsequently the microscope slide. Discard the MACSwell Imaging Frame.

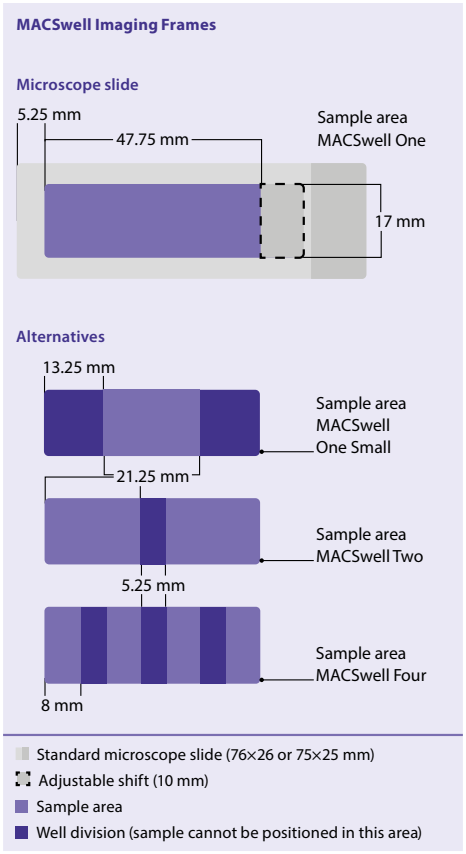


Figure 3: Sample area of the MACSwell Imaging Frames.

Refer to **www.miltenyibiotec.com** for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit www.miltenyibiotec.com for local Miltenyi Biotec Technical Support contact information.

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