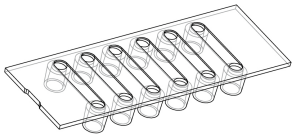


The sticky–Slide family allows you to perform cell culture experiments with custom–specific bottom materials like plastic sheets, glass slides, spotted coverslips, printed circuit boards, etc. The self adhesive (”sticky”) underside of the bottomless blank slide is easily adapted to your specific substrate by pressing on by hand.

The convenient six channel format is ideal for static cell cultivation and the application of standard immunofluorescence protocols for e.g. treatment, staining, and microscopy of living or fixed cells. The sticky–Slide VI 0.4 can also be connected to a pump and enables you to observe cells under flow conditions.

Material

The slide material of sticky–Slides is identical to common µ–Slides (uncoated). The Slides are not autoclavable since they are temperature stable up to 60°C/140°F only. All sticky–Slides are delivered sterile and single packed. Please keep in mind that sterility is lost when non–sterile substrates are used.
The sticky bottom itself is a 50 µm biocompatible double–faced adhesive tape. The tape is covered by a protection film which has to be removed before usage.

Geometry

All technical details beside bottom material is identical to µ–Slide VI 0.4. The Slides provide standard slide format according to ISO 8037/1.

Please keep in mind that the channel height is formed by the channel height itself (400 µm) plus the thickness of the adhesive tape (depending on contact pressure, max. 50 µm).

Geometry of sticky–Slide VI 0.4	
Number of channels	6
Volume of each channel	30 + 12.5 µl
Height of channels	400 + 50 µm
Length of channels	17 mm
Width of channels	3.8 mm
Growth area per channel	0.6 cm^2
Volume per reservoir	60 µl
Bottom	none

Handling and Assembling

- Prepare your sample and/or bottom material.
- Remove the protection film by using sterile tweezers.
- Optionally for channel sticky–Slides, place your sample into the channel.
- Mount bottom and sticky–Slide with some pressure. Press well until the bottom is sealed.
- Incubate at 20-40°C for best results.
- Conduct your experiment.

The adhesive strength strongly depends on temperature and time. Best results are achieved by storing the assembled Slides over night at 20-40°C. Anyhow, sticky–Slides are not leaky immediately after assembling.

sticky–Slides can be removed from the substrate by dipping them into Acetone over night in an appropriate glass container (e.g. a beaker). Please keep in mind that Acetone might be harmful to your used substrate. Once removed sticky–Slides cannot be reused.

Surface compatibility

sticky–Slides are compatible with all flat, clean, dust–free, fat–free surfaces like glass, plastic, metal, silicium or electrode structures. sticky–Slides can be assembled with wet surfaces (protein–free, aqueous solutions like water or PBS buffer). Dusty or fatty surfaces like wax foils or similar surfaces are not compatible. Please test your specific surface in your lab with free samples from www.ibidi.com.

Best results are achieved when flexible substrates like plastic sheets or coverslips are used. Rigid glass slides or metal surfaces are also possible to use but need more pressure to seal.

Seeding Cells

- Trypsinize and count cells as usual. Dilute the cell suspension to the desired concentration. We recommend a cell concentration of 0.25 – 2.2 x 10^6 cells/ml.

- Apply the volume directly into the channel. Depending on the cell concentration and the application, optical confluency is reached after some hours up to some days.
- Cover reservoirs with the supplied lid. Incubate at 37°C and 5 % CO_2 as usual.
- After cell attachment fill each reservoir with 60 µl medium.
- The Slide is now ready for applying flow conditions on the adherent cells. Don't trap air bubbles when plugging in the connecting tubes.

Depending on the cells we recommend exchanging the medium every day in static culture: Aspirate both reservoirs (not the channel). Flush fresh medium inside the channel by filling one reservoir with 120 µl medium and removing the content of the reservoir from the other well, ensuring the channel is never dry. Leave both reservoirs filled with approx. 60 µl each.

Tip:

The day before seeding the cells we recommend placing the cell medium, the µ–Slide, and the tubing into the incubator for equilibration. This will prevent the liquid inside the channel from emerging air bubbles over the incubation time.
Quick dispensing of cell suspension helps to avoid trapped air bubbles and leads to maximal homogeneity of cell distribution.

Solvents for Fixation, Staining and Other Purposes

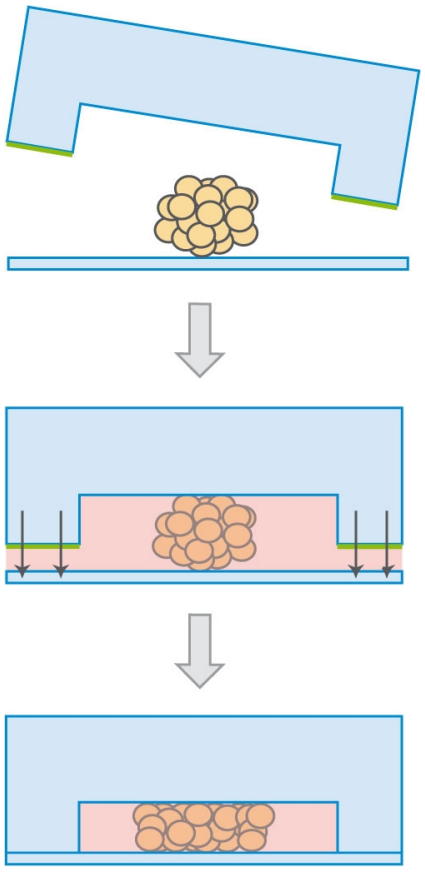
The sticky bottom material and the slide material are compatible to Methanol, acids, alkalis, PFA, DMSO, and silicone oil. Please keep in mind that these substances may be harmful to the used substrate. Acetone is not compatible with the sticky material so it can be used to detach slide and substrate after use.

Immersion Oil

Immersion oil compatibility depends on the used substrate.

Applications

sticky–Slides I Luer and sticky–Slide VI 0.4 are designed for perfusion applications and applying defined shear stress and shear rates on cells inside the channel. The female Luer adapters allow easy connections to tubing and pump systems. Several other cell culture applications are possible, e.g. insertion of tissue samples or spheroids into channel slides. The sticky–Slides I Luer are available in five versions which only differ in their channels' heights and channel volumes.



Application of a sample squeezed into a channel.

Shear stress in sticky–Slides

For perfusion experiments the shear stress is different from normal non-sticky channel µ–Slides. The sticky tape increases the channel height by 50 µm which leads to significantly different shear stress values. The shear stress (τ) with sticky–Slides and a flat and rigid bottom material can be calculated by inserting the flowrate (Φ) in the following formulas:

sticky–Slide I $^{0.1}$ Luer: $\tau \left[\frac{dyn}{cm^2}\right] = 9.060 \cdot \Phi \left[\frac{ml}{min}\right]$

sticky–Slide I $^{0.2}$ Luer: $\tau \left[\frac{dyn}{cm^2}\right] = 3.304 \cdot \Phi \left[\frac{ml}{min}\right]$

sticky–Slide I $^{0.4}$ Luer: $\tau \left[\frac{dyn}{cm^2}\right] = 1.047 \cdot \Phi \left[\frac{ml}{min}\right]$

sticky–Slide I $^{0.6}$ Luer: $\tau \left[\frac{dyn}{cm^2}\right] = 0.516 \cdot \Phi \left[\frac{ml}{min}\right]$

sticky–Slide I $^{0.8}$ Luer: $\tau \left[\frac{dyn}{cm^2}\right] = 0.310 \cdot \Phi \left[\frac{ml}{min}\right]$

sticky–Slide VI $^{0.4}$: $\tau \left[\frac{dyn}{cm^2}\right] = 1.394 \cdot \Phi \left[\frac{ml}{min}\right]$

The shear stress is based on the dynamical viscosity of water at 22 °C, $\eta = 0.01\ dyn \cdot s/cm^2 (= 1\ mPa \cdot s = 1\ cP)$. For simplicity the calculations include conversions of units (not shown).

sticky–Slide family

The sticky–Slide technology is available with different slide formats. Please see table below for choosing your sticky–Slide.

Product name	Ordering number	Based on µ–Slide format	Characteristics
sticky–Slide 8 well	80828	µ–Slide 8 well	8 open wells (volume 300 µl)
sticky–Slide VI $^{0.4}$	80328	µ–Slide VI $^{0.4}$	channel slide (height 400 µm)
sticky–Slide Chemotaxis 3D	80608	µ–Slide Chemotaxis 3D	for chemotaxis experiments
sticky–Slide I $^{0.1}$ Luer	81128	µ–Slide I $^{0.1}$ Luer	channel slide (height 100 µm)
sticky–Slide I $^{0.2}$ Luer	80168	µ–Slide I $^{0.2}$ Luer	channel slide (height 200 µm)
sticky–Slide I $^{0.4}$ Luer	80178	µ–Slide I $^{0.4}$ Luer	channel slide (height 400 µm)
sticky–Slide I $^{0.6}$ Luer	80188	µ–Slide I $^{0.6}$ Luer	channel slide (height 600 µm)
sticky–Slide I $^{0.8}$ Luer	80198	µ–Slide I $^{0.8}$ Luer	channel slide (height 800 µm)
glass coverslips, unsterile	10812		25.0 mm × 75.0 mm, No. 1.5 (selected quality, 170 µm ± 10 µm)

For research use only!

Further technical specifications can be found at www.ibidi.com. For questions and suggestions please contact us by e–mail *info@ibidi.de* or by telephone +49 (0)89/520 4617 0. All products are developed and produced in Germany.