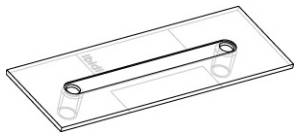


Instructions

sticky-Slide I Luer



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.

sticky-Slides I Luer are also designed for perfusion applications and applying defined shear stress and shear rates on cells inside the channel.

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.

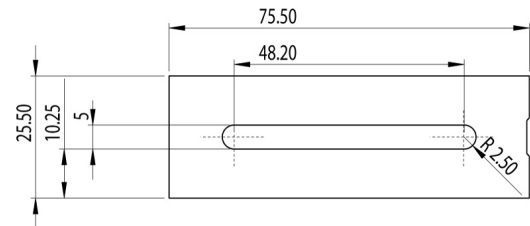
Geometry

All technical details beside bottom material are identical to μ -Slide I Luer. 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 (100 μm ...800 μm) plus the thickness of the adhesive tape (depending on contact pressure, ca. 50 μm).

Geometry of sticky-Slides I Luer

General		
Growth area		2.5 cm ²
Recommended volume per reservoir		60 μl
Bottom		none
Specific		
Product name	channel height	channel volume
sticky-Slide I ^{0.1} Luer	100 + 50 μm	25 + 12.5 μl
sticky-Slide I ^{0.2} Luer	200 + 50 μm	50 + 12.5 μl
sticky-Slide I ^{0.4} Luer	400 + 50 μm	100 + 12.5 μl
sticky-Slide I ^{0.6} Luer	600 + 50 μm	150 + 12.5 μl
sticky-Slide I ^{0.8} Luer	800 + 50 μm	200 + 12.5 μl



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.

Important!

The sticky-Slide I^{0.1} Luer and sticky-Slide I^{0.2} Luer are not recommended for use in static cell culture!

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.

Seeding Cells

- Trypsinize and count cells as usual. Dilute the cell suspension to the desired concentration. The cell density after seeding strongly depends on the channel's height. Please use the following recommended cell concentrations:

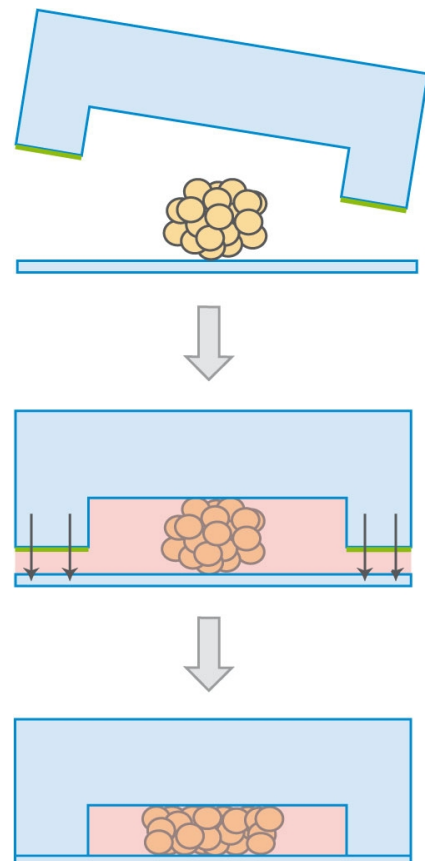
Product name	Volume	Cell concentration
sticky-Slide I ^{0.1} Luer	37.5 μ l	0.80 – 6.5 $\times 10^6$ c/ml
sticky-Slide I ^{0.2} Luer	62.5 μ l	0.50 – 4.0 $\times 10^6$ c/ml
sticky-Slide I ^{0.4} Luer	112.5 μ l	0.25 – 2.2 $\times 10^6$ c/ml
sticky-Slide I ^{0.6} Luer	162.5 μ l	0.20 – 1.5 $\times 10^6$ c/ml
sticky-Slide I ^{0.8} Luer	212.5 μ l	0.15 – 1.2 $\times 10^6$ c/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 caps. Incubate at 37°C and 5% CO₂ as usual.
- After cell attachment fill each reservoir with 60 μ l 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 μ l 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 μ l each.

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:

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

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

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

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

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

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

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

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.

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 μ l)
sticky–Slide VI ^{0.4}	80328	μ –Slide VI ^{0.4}	channel slide (height 400 μ m)
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 μ m)
sticky–Slide I ^{0.2} Luer	80168	μ –Slide I ^{0.2} Luer	channel slide (height 200 μ m)
sticky–Slide I ^{0.4} Luer	80178	μ –Slide I ^{0.4} Luer	channel slide (height 400 μ m)
sticky–Slide I ^{0.6} Luer	80188	μ –Slide I ^{0.6} Luer	channel slide (height 600 μ m)
sticky–Slide I ^{0.8} Luer	80198	μ –Slide I ^{0.8} Luer	channel slide (height 800 μ m)
glass coverslips, unsterile	10812		25.0 mm \times 75.0 mm, No. 1.5 (selected quality, 170 μ m \pm 10 μ m)

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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.

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