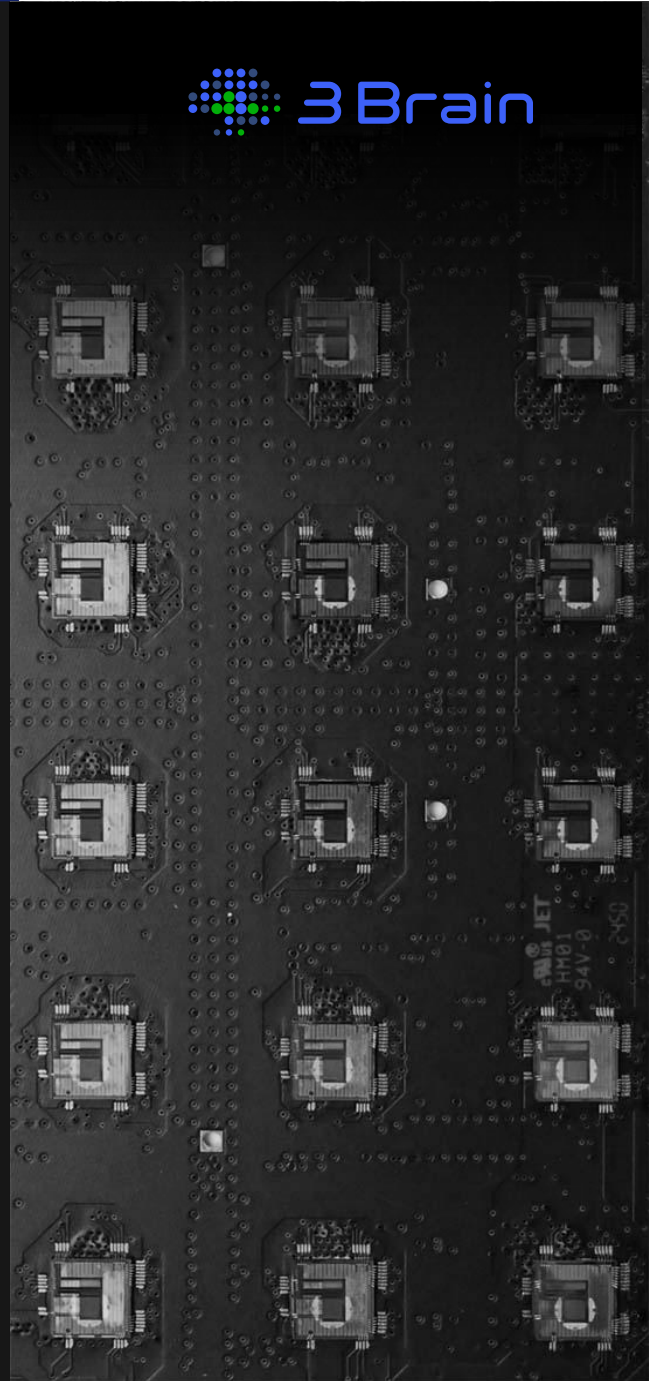


Sample Holder 1 - User Guide for CorePlate™ 1W & 6W

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Introduction

CorePlate™ 1W & 6W are advanced HD-MEAs designed for high-resolution electrophysiological recordings across a wide range of biological models. To record from 3D biological samples such as brain slices, organoids, or neuronal spheroids, specialized sample holders are required to maintain maximum stability during recording to ensure accurate and reliable acute measurements. This document provides a comprehensive guide to the 3Brain Sample Holder Set, highlighting its key benefits and offering step-by-step user instructions.

CorePlate™ 1W & 6W refer to the following:

- CorePlate™ 1W 38/60, 1W-3D 38/60/90, 1W 27/42, 27/42L, 1W 51/81
- CorePlate™ 6W 38/60, 6W-3D 38/60/90

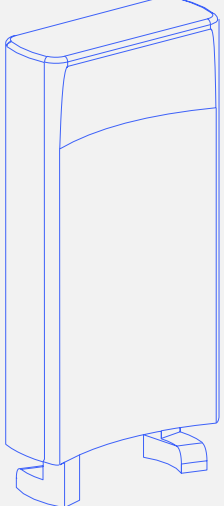
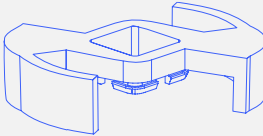
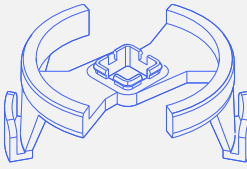
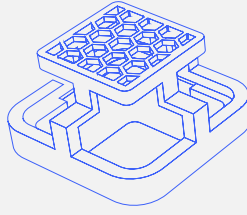
The Sample Holder Set

Stable positioning is crucial when working with 3D biological samples such as brain slices, organoids, or neuronal spheroids. To address this challenge, we developed the **Sample Holder Set**, available in both single-well and six-well formats, and it is designed to offer:

- **Improved signal.** The design optimizes coupling between the sample and electrodes, leading to enhanced signal quality and sensitivity.
- **Minimized displacement.** The holder prevents sample movement during long-term studies or compound testing, increasing results robustness.
- **Minimal damage.** The silicon net prioritizes sample integrity, prolonging sample viability during recording.

The **Sample Holder Set** is available in single well and six well format and is comprised of three main components as shown in Table 1:

Table 1. Sample holder set components

Sample Holder Set	Handling tool for CorePlate™ 1W or 6W	Sample Holder Body	Silicone net
	<p data-bbox="726 1198 1021 1254">Sample Holder Body for CorePlate™ 1W</p>  <hr/> <p data-bbox="726 1444 1021 1500">Sample Holder Body for CorePlate™ 6W</p> 		

The sample holder is constructed with biocompatible materials. No signs of cytotoxicity were observed for extended periods (in-house evaluations indicate no cytotoxic response observed during a 30-day incubation period).

Silicone Net Selection

The selection of the most suitable silicone net type is dependent on the characteristics of the biological samples being analysed. The following table (Table 2) provides suggestions for specific net types based on sample characteristics.

Table 2. Silicone nets & corresponding biological model used

		Types of silicone nets (Pore Size μm / Net Force μNm)					
		300/600	300/900	1000/600	1000/900	-/600	-/900
Biological Model	Organoids < 1.5mm			A	B		
	Organoids > 1.5mm			B	A		
	Spheroids < 300 μm	B				A	B
	Slices – Old Tissue			B	A		
	Slices – Young Tissue	B	A				
	Retina					B	A

A - First choice, B - To be used as an alternative to the first choice if the latter is not suitable.

Note: These guidelines provide recommendations for optimal use. Effectiveness may vary depending on specific research parameters (e.g., age of the biological model, thickness of the slice). Users should adapt these suggestions as needed for their unique research context.

Cleaning and Sterilization of the Sample Holder Set

After each use, the sample holder set should be cleaned with ddH₂O and/or 70% ethanol. If sterilization of the sample holder set is required, the following methods may be used.

- **Ethanol (Recommended)**
Immerse all components of the sample holder set in 70% ethanol for 30 minutes. After ethanol sterilization, ensure to rinse the sample holder set abundantly with ddH₂O.
- **UV Light**
Only the sample holder body and handling tool may be sterilized with UV light. Expose these components to UV-C light for 45 minutes, ensuring uniform exposure.
- **Autoclave**
Only the silicone net is compatible with autoclaving.

1W Sample Holder Set Assembly and Use

After cleaning and sterilizing the Sample Holder Set as required, you can assemble and use it with CorePlate™ 1W by following the steps below. For additional guidance, refer to our video user guide: [How to Use the 1W Sample Holder Set](#)

1. Rinse the net

Rinse the net with a water-based solution (e.g. PBS, cell culture media etc.) to reduce hydrophobicity.

2. Position the net

Position the silicone net on the central area of the sample holder body. Secure the net onto the sample holder body at each corner utilizing tweezers or by hand.

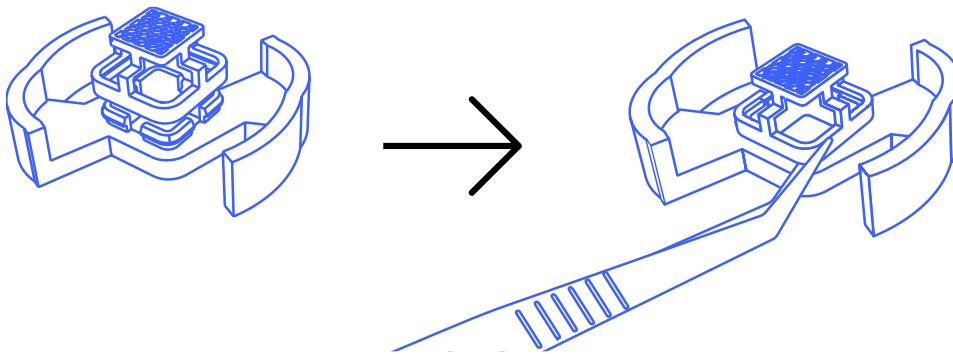


Figure 1. Positioning and securing the silicone net onto the sample holder body.

3. Insert the handling tool into the sample holder body

Position the sample holder body with the silicone net facing downwards. Insert the handling tool into the gaps of the sample holder body.

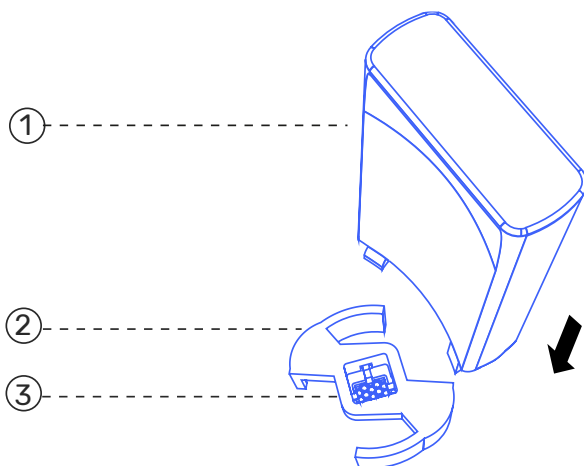


Figure 2. Insertion of the handling tool onto the sample holder body. Handling tool (1), Sample holder body (2), Silicone net (3).

4. Attach the sample holder body to the handling tool.

Rotate the handling tool clockwise to secure it to the sample holder body.

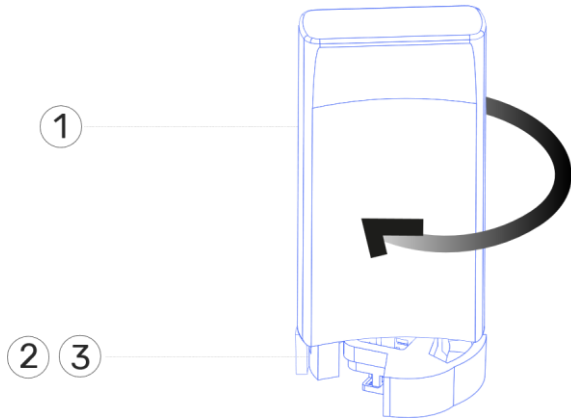


Figure 3. Attachment of the handling tool to the sample holder body. Handling tool (1), Assembled sample holder body & silicone net (2)(3).

5. Insert the sample holder body into CorePlate™ 1W.

Gently push the assembled handling tool, sample holder body and silicone net into the well ensuring the indentations of the well align with the protrusions on the sample holder body.

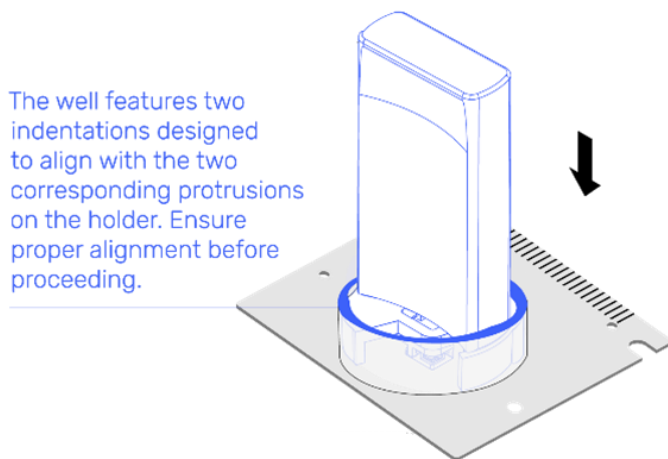


Figure 4. Insertion of the sample holder body and silicone net into CorePlate™ 1W.

6. Remove the handling tool.

Rotate the handling tool counter-clockwise to detach the handling tool from the sample holder body. When detached, remove the handling tool. The setup is now ready for the next step of your experiment e.g. media addition.

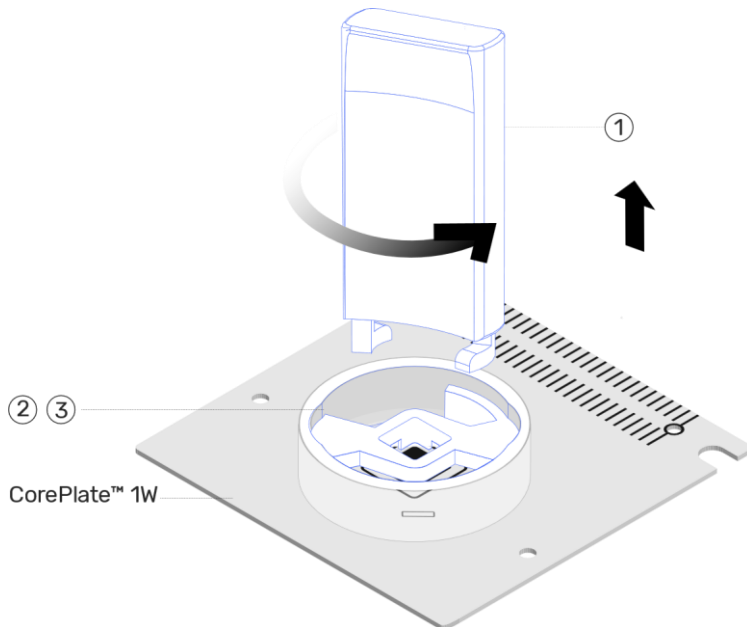


Figure 5. Removal of the handling tool from the inserted sample holder body and silicone net in CorePlate™ 1W. Handling tool (1), Assembled sample holder body & silicone net (2)(3).

6W Sample Holder Set Assembly and Use

After cleaning and sterilizing the Sample Holder Set as required, you can assemble and use it with CorePlate™ 6W by following the steps below. For additional guidance, refer to our video user guide: [How to Use the 6W Sample Holder Set](#)

1. Rinse the net

Rinse the net with a water-based solution (e.g. PBS, cell culture media etc.) to reduce hydrophobicity.

2. Position the net

Position the silicone net on the central area of the sample holder body. Secure the net onto the sample holder body at each corner utilizing tweezers or by hand.

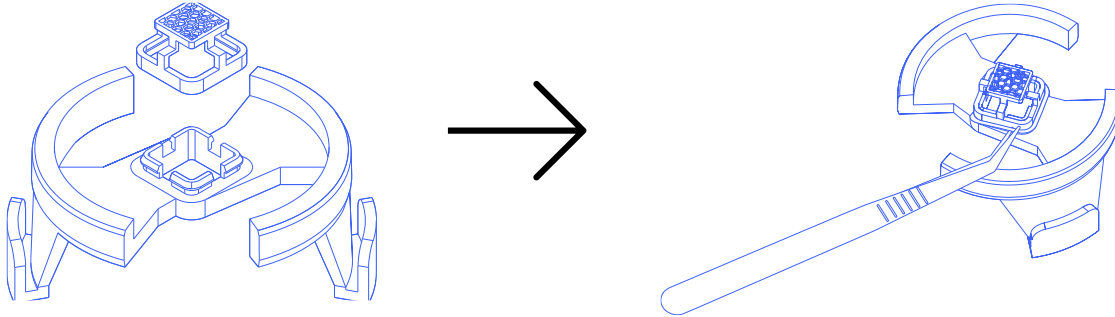


Figure 6. Positioning and securing the silicone net onto the sample holder body.

3. Insert the handling tool into the sample holder body

Position the sample holder body with the silicone net facing downwards. Insert the handling tool into the gaps of the sample holder body.

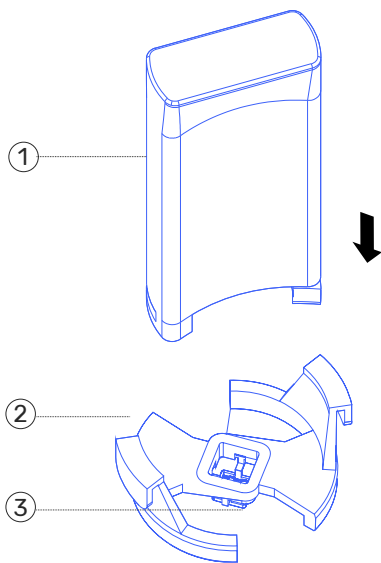


Figure 7. Insertion of the handling tool onto the sample holder body. Handling tool (1), Sample holder body (2), Silicone net (3).

4. Attach the sample holder body to the handling tool.

Rotate the handling tool clockwise to secure it to the sample holder body.

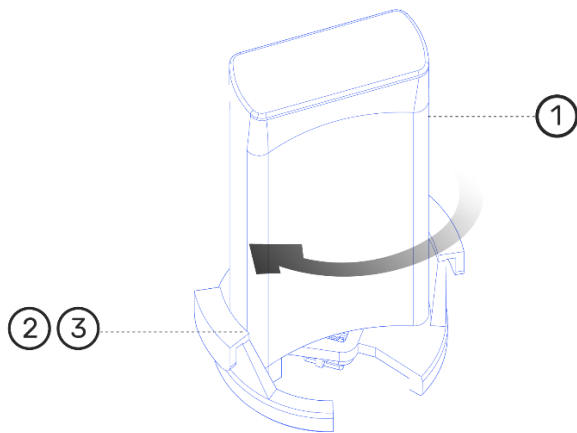


Figure 8. Attachment of the handling tool to the sample holder body. Handling tool (1), Assembled sample holder body & silicone net (2)(3).

5. Insert the sample holder body into CorePlate™ 6W.

Gently push the assembled handling tool, sample holder body and silicone net into the well ensuring the indentations of the well align with the protrusions on the sample holder body.

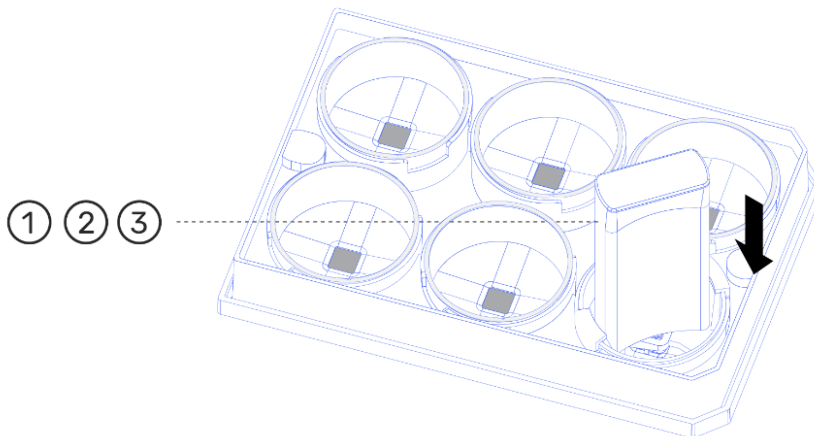


Figure 9. Insertion of the sample holder body and silicone net into CorePlate™ 6W. Assembled handling tool, sample holder body and Silicone net (1)(2)(3).

6. Remove the handling tool.

Rotate the handling tool counter-clockwise to detach the handling tool from the sample holder body. When detached, remove the handling tool. The setup is now ready for the next step of your experiment e.g. media addition.

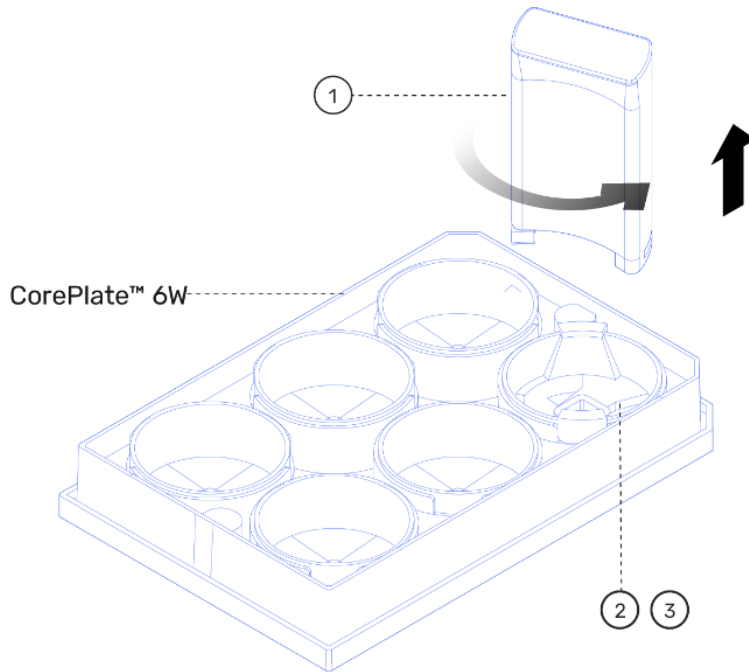


Figure 10. Removal of the handling tool from the inserted sample holder body and silicone net in CorePlate™ 6W. Handling tool (1), Assembled sample holder body & silicone net (2)(3).

Support

For any further questions, please contact our Customer Success team at cs@3brain.com