



MHarp slice holder (available Jan 2016)

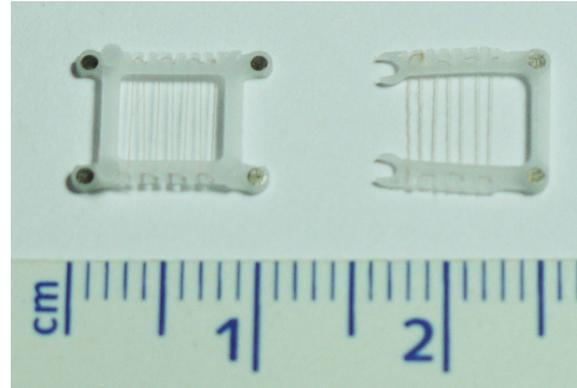
We have developed a **low cost** and **versatile** alternative slice holder (**MHarp**) to the conventional stainless steel or platinum harp. The holder positions the slice above the bottom of the tissue chamber to allow perfusion below and above the slice (perfusion) which improves the viability of brain slices according to several studies. Rather than use the weight of the metal we have miniature magnets in the feet of both the bottom and top. Matching magnets are attached to the underside of the glass bottom of the tissue chamber to keep the holder in position. The **MHarp** can be used with our thick or thin transparent ITO coated heaters. In our initial design **MH5x5Hp7** the central area is approx. 5 x 5mm and the fibers to hold the slice are approx. 0.7mm pitch. The tissue is held approx 0.7mm above the bottom surface to allow solution access to the bottom of the slice.

The top attaches to the bottom by hooking under the posts on the left side of the holder bottom. Magnets in the righthand feet of the top latch onto the right feet of the holder bottom sandwiching the tissue between the two layers of nylon strands. The standard top is designed for 0.4mm thick slices but we can make tops for thinner and thicker slices. The top has an open edge on the left side in the figures to allow unobstructed flow over the slice. The nylon threads in the bottom and top can if necessary be replaced by reweaving into holes at the end of narrow slits on the front and rear.

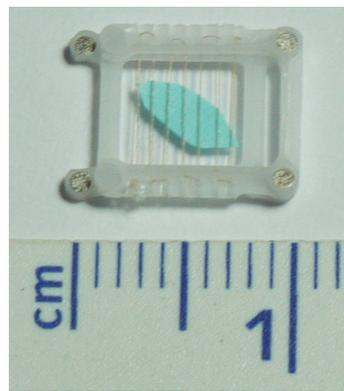
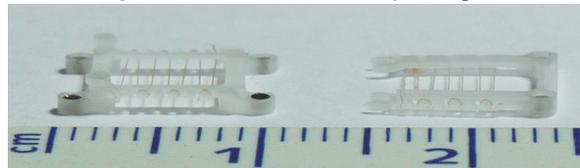
The height and shape and size of area to hold the slice can be customized. We are starting out with the 5x5mm size for mouse hippocampal slices and similar but will have **MHarps** for slices from rat and slices from other parts of the brain. The **MHarps** can also be used for some tissues that are traditionally pinned to Sylgard.

The **MHarp** will fit any chamber with a 13x10 mm area (eg. all of our brain slice chambers) and most of our regular tissue chambers. You can also put multiple holders in some of our larger chambers if for example you wanted to record from multiple slices.

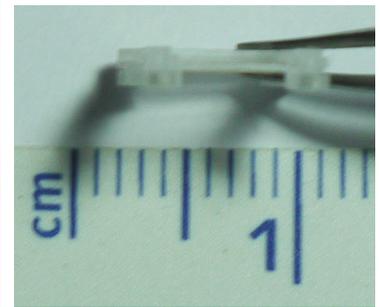
Apart from holding slices in tissue chambers multiple holders can be set up to hold slices that are recovering. The holder can be picked up with forceps to move from one area to another thereby minimizing the trauma to the slice.



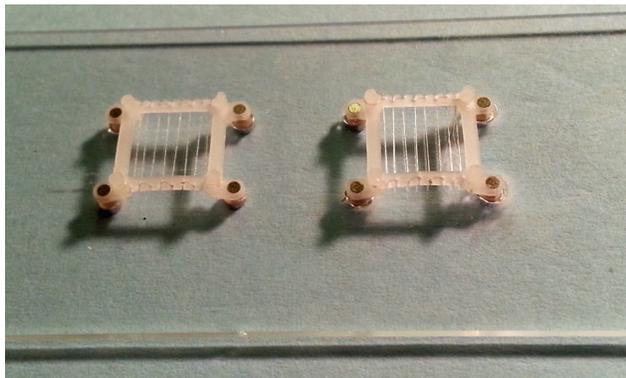
MH5x5Hp7 bottom at left and top at right.



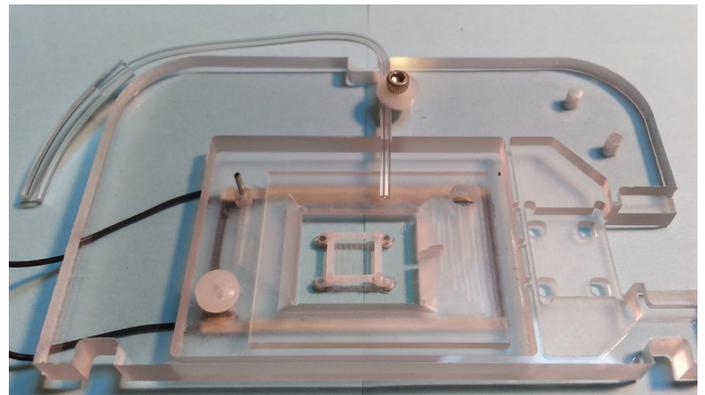
MH5x5H7 with top attached and mock piece of tissue sandwiched between nylon strands.



Left edge view Top has open edge on one side for free flow of solution.



MHarps can be set up in an array so that multiple slices can be set up for recording or for preservation. 4 miniature magnets glued to the bottom of the glass keep the holders in position.



BT-1-TBS tissue chamber with **MHarp** located in chamber and held in position with 4 miniature magnets glued to the bottom of the glass ITO coated heater.