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Innovative Engineering for Science

BRAIN SLICE KEEPER

BSK1

BRAIN SLICE KEEPER

CAUTION !

YOUR BRAIN SLICE KEEPER IS A PRECISION ENGINEERED TOOL FOR SCIENTIFIC RESEARCH. PLEASE TAKE A FEW MINUTES TO FAMILIARISE YOURSELF WITH THE KEEPER AND READ THROUGH THIS SHORT MANUAL BEFORE ATTEMPTING TO USE IT.

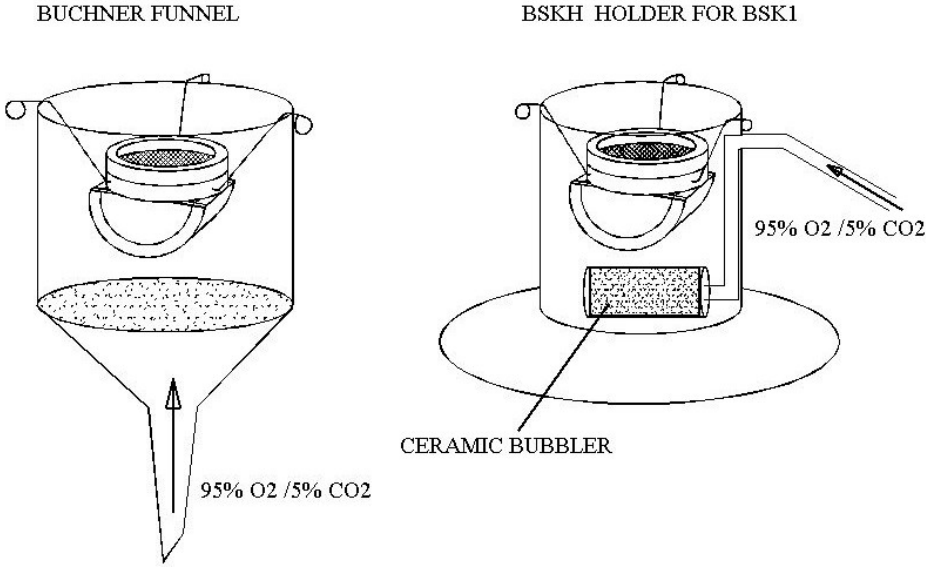
DO NOT USE ALCOHOL OR SIMILAR SOLVENTS IN ANY CONCENTRATION ON ANY PART OF THE KEEPER SINCE AS WITH MOST ACRYLICS, IT MAY FRAGMENT OR DEVELOP HAIR-LINE CRACKS.

OPERATION

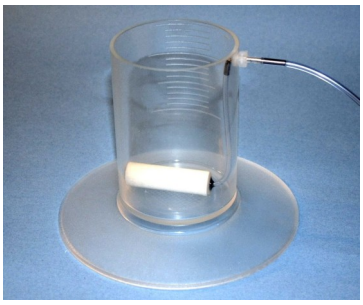
The Brain Slice Keeper has been designed to pre-incubate brain slices prior to transfer into recording chambers. It consists of a pair of closely fitting acrylic rings, upper and lower, between which is wedged a sheet of fine nylon netting.

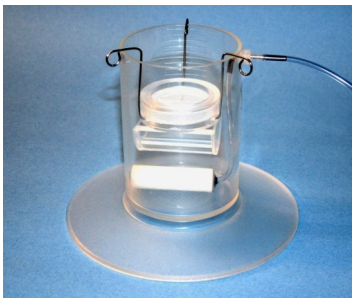
In operation, the BSK1 is totally immersed in an ACSF-filled purpose-designed holding vessel (BSKH) into which a 95% O2, 5% CO2 gas mixture is supplied with a ceramic bubbler. The bubbles rising from the base of the BSKH saturate the ACSF and provide constant circulation of medium to the slices which rest on the nylon net. Since the lower ring of the BSK1 carries a deflecting shield, bubbles are prevented from being trapped under the slices and ensure continuous circulation of medium. It is important to adjust the flow rate of the gas mixture to the bubbler with the needle valve supplied with the BSKH. A fast bubbling rate will cause turbulence above the slices and may cause them to move and float away. The BSK1 together with the BSKH holding vessel can easily be placed into a water bath for regulating the incubating temperature as desired. Alternatively a standard Buchner funnel with 40 to 60 micron porosity sintered glass membrane can be used instead of the BSKH. When first placing the BSK1 into the BSKH, any large air pockets are removed from under the net by means of a teat pipette. When in place, the fluid level is maintained at least 5mm above the upper ring of the BSK1. This ensures circulation of fluid over the top and downwards towards the slices. The typical fluid volume with BSK1 with a BSKH is 220ml and with a Buchner funnel it is 320ml.

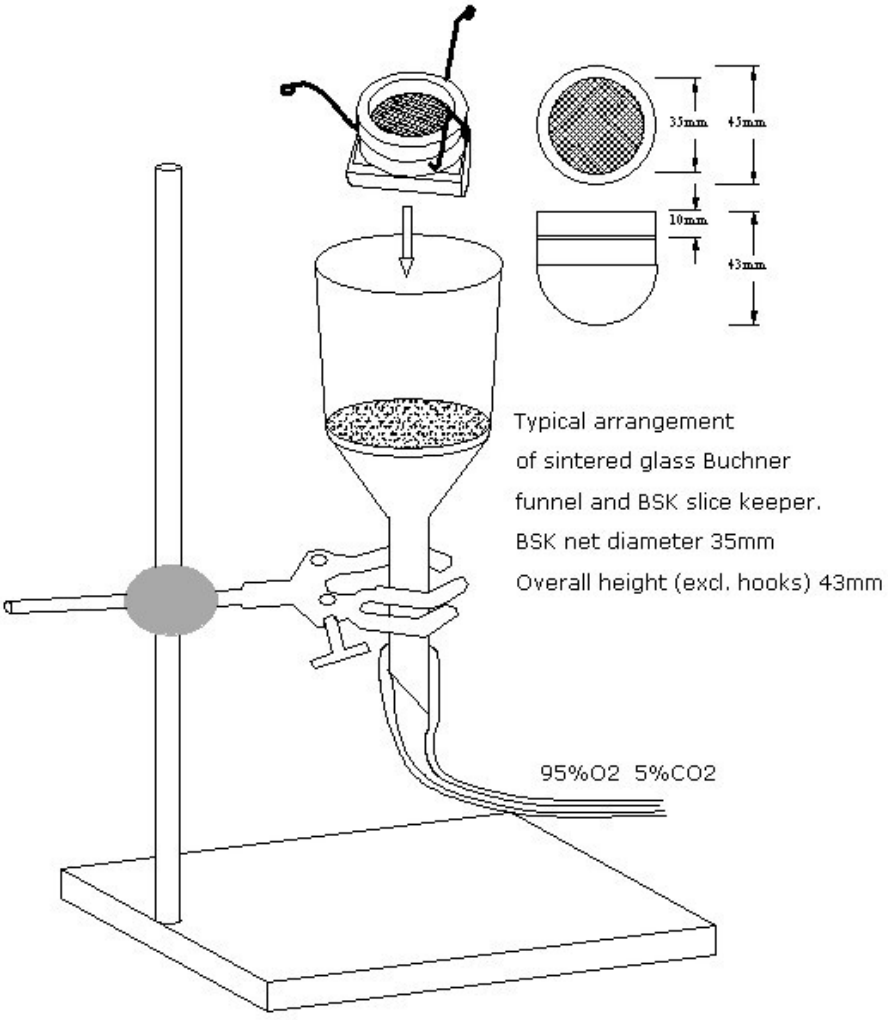
SUPPORT METHODS FOR BRAIN SLICE KEEPER BSK1



BSKH Holder and BSK1 shown positioned for filling with ACSF







Schematic arrangement of BSK1 with Buchner funnel and approximate dimensions of BSK1

The gas mixture source should have a secondary flow regulator for fine adjustments.

TEMPERATURE CONTROL

If a brain slice keeper holder (BSKH) was purchased with the BSK1, it is possible to submerge this holder into a water bath set to the desired temperature. The heated water bath fill level should be about 15mm below the fill level of the BSKH to prevent floating and instability. Bubbling within the BSKH ensures circulation and uniform temperature of the incubating media around the slices.

MAINTENANCE

Alcohol should never be used on the slice keeper for cleaning purposes even at low concentrations because it de-hydrates and produces hair-line cracks in acrylic plastics

A laboratory detergent which completely rinses out should be used, however REMOVE THE CERAMIC BUBBLER FIRST as it will take a very long time to remove even these special detergents. The acrylic component can be cleaned with special laboratory detergents such as *Micro-90™ which completely rinses out. Heavy deposits of salts should be washed out with distilled water overnight and carbonate salts treated with mild acids such as citric acid. The most common contaminant is fungal growth, this can be avoided by washing out with distilled water and drying out completely at the end of each day. Hydrogen peroxide solution is also an effective cleaning agent.

DIMENSIONS