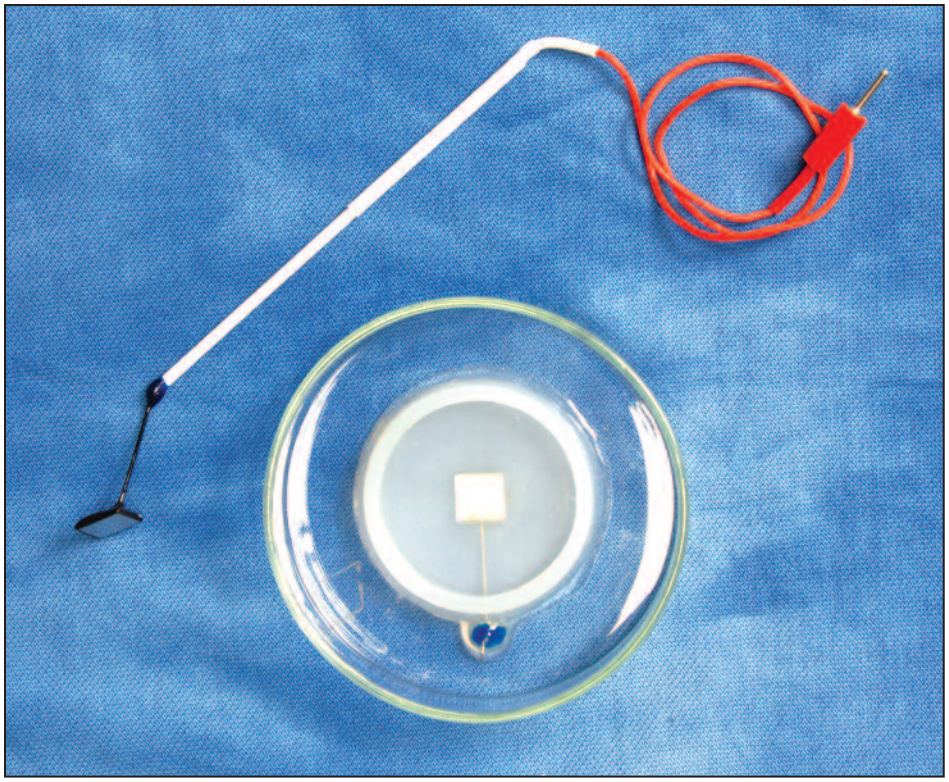
Petri Dish Platinum Electrode for Tissue Slices

USER'S MANUAL

BTX® HARVARD APPARATUS
The Electroporation Experts



INTRODUCTION

The Petri Dish Platinum Electrode is designed for delicate and/or difficult tissue transfection. Ex vivo electroporation is an efficient, effective method to introduce genes, drugs or any number of molecules into a tissue. A common application is mouse brain slice for studying neuronal development. This specialty electrode makes transfection quick and simple and is compatible with the BTX ECM 830 and ECM 2001 generators. The electrode is compromised of two parts, the Petri dish and wand. The Petri dish contains a platinum electrode chamber to secure the tissue. The wand incorporates an identical shaped platinum electrode, which is placed over the chamber to complete electroporation. This sandwich configuration ensures a homogeneous field of energy for optimum transfection.

IMPORTANT: Read all Instructions, Warnings and Precautions prior to use.

FOR RESEARCH PURPOSES ONLY

Order No.	Description
45-0500*	Petri Dish Platinum Electrode for Tissue Slices Chamber Kit, 10 mm
45-0490*	Petri Dish Platinum Electrode for Tissue Slices Chamber Kit, 7 mm
45-0501**	Petri Dish Platinum Electrode Chamber Only, 10 mm, negative
45-0491**	Petri Dish Platinum Electrode Chamber Only, 7 mm, negative
45-0502***	Platinum Electrode Wand Only, 10 mm, positive
45-0492***	Platinum Electrode Wand Only, 7 mm, positive
45-0503	Micro-Grabber Cable for Chamber, negative
45-0511	Single Adaptor Cable for Wand

*Kits include dish chamber, wand and cables

** Requires, 45-0502, 45-0503, 45-0504

*** Requires, 45-0501, 45-0503, 45-0504

Petri Dish Platinum Electrode

GENERAL INFORMATION

Warranty

BTX/Harvard Apparatus warranties this BTX Petri Dish Platinum Electrode for a period of 90 days from date of purchase. At its option, BTX/Harvard Apparatus will repair or replace the item if it is found to be defective as to workmanship or material. This warranty does not extend to damage resulting from misuse, neglect, or abuse, normal wear and tear, or accident. This warranty extends only to the original customer purchase.

IN NO EVENT SHALL HARVARD APPARATUS BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. Some states do not allow exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you.

THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, OR OF ANY OTHER NATURE. Some states do not allow this limitation on an implied warranty, so the above limitation may not apply to you. If a defect arises within the 90 day warranty period, promptly contact: **BTX/Harvard Apparatus, 84 October Hill Road, Holliston, Massachusetts 01746-1388** using our toll free number **1-800-272-2775 (Outside the U.S. call 1-508-893-8999).** Goods will not be accepted for return unless an RMA (Return Materials Authorization) number has been issued by our customer service department. The customer is responsible for shipping charges. Please allow a reasonable period of time for completion of repairs or replacement and return. If the unit is replaced, the replacement unit is covered only for the remainder of the original warranty period dating from the purchase of the original device. This warranty gives you specific rights, and you may also have other rights which vary from state to state.

Note: BTX electrodes are not recommended for use with power supplies or cables from other manufacturers. Such use is completely at the customer's own risk as it may result in damage, create unsafe conditions and will immediately void the 90 day warranty.

IMPORTANT: Read all Instructions, Warnings and Precautions prior to use.

Technical & Customer Service

BTX® is the ultimate resource for technical information on the use of high voltage bacterial transformation and general electroporation of molecules and drugs into cells. We constantly track and monitor scientific publications in this area. Our Technical Service group extracts and enters pertinent information, such as results and parameters from these papers into a Protocol database. This database is available via the BTX website. Please visit www.btxonline.com. For technical assistance, additional information or an inquiry/request for repair service, contact BTX/Harvard Apparatus Technical Support/Customer Service Group at:

BTX®
A Division of Harvard Apparatus
84 October Hill Road
Holliston, MA 01746-1388 U.S.A.
Toll Free: 1-800-272-2775 (U.S. only)
Phone: 1-508-893-8999
Fax: 1-508-429-5732
E-mail: techsupport.btx@harvardapparatus.com
Internet: www.btxonline.com (click on customer service)

If outside the United States and Canada: call **1-508-893-8999** or contact your nearest BTX Distributor. A complete list of distributors is on our website.

GENERAL SAFETY INFORMATION

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazard, use this product only as specified. Only qualified BTX personnel should perform service procedures.

To Prevent Hazard or Injury:

ARCING CAN OCCUR AT HIGH VOLTAGES

An unfavorable combination of parameters such as high voltage settings and a small sample volume with a highly conductive medium might lead to flashover between the electrodes (ARC) and/or explosive evaporation of the medium. Reduce voltage or pulse length to avoid repeating this condition.

DO NOT OPERATE WITH SUSPECTED FAILURES

If you suspect there is damage to the product, have it inspected by qualified BTX service personnel.

DO NOT CONTACT ELECTRODES

To avoid fire or shock hazard, observe all ratings and markings on the product or in this manual before using the device.

AVOID EXPOSURE TO CONTACT

Do not insert fingers or try to remove electrode or sample during pulsing sequence.

WEAR PROPER EYE PROTECTION DURING ELECTROPORATION

DO NOT OPERATE IN AN EXPLOSIVE ENVIRONMENT

DO NOT OPERATE IN WET/DAMP CONDITIONS

Safety Terms and Symbols:

Terms that appear in this manual:

WARNING. Warning statements identify conditions or practices that could result in injury or loss of life.

CAUTION. Caution statements identify conditions or practices that could result in damage to these products or other property.

Symbols that may appear on the products:

Danger High Voltage

Attention Refer to Manual

Protective (Earth) Terminal

Functional Ground Terminal

CAUTION
FOR RESEARCH USE ONLY NOT FOR CLINICAL USE ON PATIENTS

Petri Dish Platinum Electrode

OPERATION: GETTING STARTED

WARNING HIGH VOLTAGE

Make sure the BTX electroporator is switched off before continuing.

1. Cast a 1% agarose gel, about 2 mm thick. The agarose slab is used as a conductive buffer between the electrodes and the tissue slice to prevent heat damage.
2. Cut a small block from the gel to serve as a mount for the slice and place on the bottom electrode (see Figure 1).
3. The tissue slice is transferred onto a polycarbonate membrane floating on MEM (minimal essential medium) buffer in a culture dish (can be kept at 37ºC for up to 2 hours until the start of electroporation). The slice supported by the membrane is lowered onto the 1% agarose block on the bottom electrode.
4. A tiny column of agarose is attached to the wand electrode (column can be made in different diameters with a set of clipped and filed syringe needles, see Figure 1).
5. About 0.5 – 1.0 µl of plasmid solution is transferred to lower edge of the agarose column, and the whole electrode is lowered, so that the DNA solution contacts the slice at the desired place.
6. Connect the Micro-Grabber Cable (cat. 450503) to the gold-plated electrode (negative) lead protruding from the base of the chamber. The black terminal end of the banana plug is plugged into the voltage output of the BTX electroporator.
7. Connect Single Adaptor Cable (cat. 450511) to the male end of the Wand cable. The red terminal end (positive) of the banana plug is inserted into the voltage output of the BTX electroporator.
8. Deliver the electroporation pulse(s) to the sample.
9. The agarose block should be changed for every new tissue slice. The agarose column for the wand electrode should be changed for every electroporation.

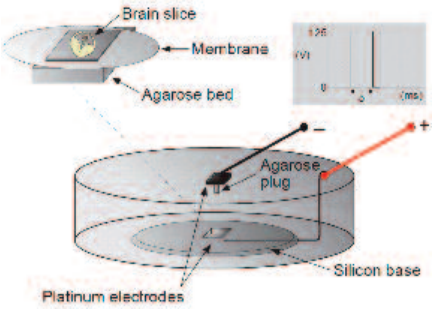


Figure 1. (Source: Stuhmer, T. et al., Ectopic expression of the Dlx genes induces glutamic acid decarboxylase and Dlx expression, 2002, Development)

APPENDIX A: SPECIFICATIONS

Petri Dish Platinum Electrode Electrical & Technical Specifications

Standard Capabilities*:

Voltage Range	0-100 Volts
Pulse Length Range	10 _sec to 100 msec
Chamber Depth	1mm
Electrode Material	Platinum
Wand Material	Platinum

Dimensions:

Dish Electrode:	
10 mm	10 mm x 10 mm x 1 mm
7 mm	7 mm x 7 mm x 1 mm
Wand Electrode:	
10 mm	10 mm x 10 mm
7 mm	7 mm x 7 mm

Compatibility:

Generators	ECM 630, ECM 830, ECM 2001
Monitoring	The Enhancer 3000® Monitoring System

Depending on buffer composition and generator capability

APPENDIX B: REPLACEMENT PARTS

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APPENDIX C: TROUBLESHOOTING

Please contact BTX Technical Service at any of the numbers listed below in the event of any failure.

BTX®
A Division of Harvard Apparatus
84 October Hill Road
Holliston, MA 01746-1388 U.S.A.
Toll Free: 1-800-272-2775 (US only)
Phone: 1-508-893-8999
Fax: 1-508-429-5732
E-mail: techsupport.btx@harvardapparatus.com
Internet: www.btxonline.com (click on customer service)

APPENDIX D: MAINTENANCE

Do not attempt maintenance while the Petri Dish Electrodes are connected to the pulse generator. Clean the chamber with a mild detergent and rinse with distilled water. Use 70% ethanol under a sterile hood to sterilize chamber. Use a mild bristle brush to loosen any build-up in the chamber. The wand can be washed in a mild detergent and rinsed thoroughly with distilled water. Use a mild bristle brush to remove any residual build-up. Use 70% ethanol to sterilize the wand under a sterile hood. The agarose may burn somewhat where it contacts the electrodes and this can reduce the conductivity of the sample and seriously impede the electroporation. It is very important remove any residual agarose and check the electrodes frequently. Ensure that all metal parts are dried thoroughly to prevent corrosion.

WEEE/RoHS Compliance Statement

EU Directives WEEE and RoHS

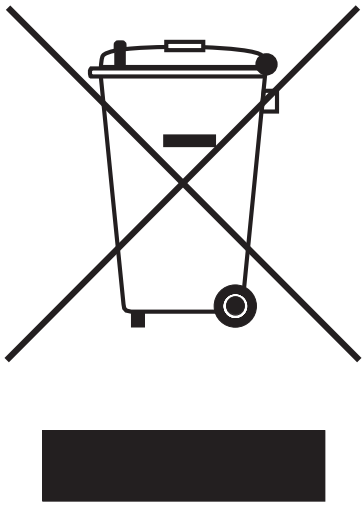
To Our Valued Customers:

We are committed to being a good corporate citizen. As part of that commitment, we strive to maintain an environmentally conscious manufacturing operation.

The European Union (EU) has enacted two Directives, the first on product recycling (Waste Electrical and Electronic Equipment, WEEE) and the second limiting the use of certain substances (Restriction on the use of Hazardous Substances, RoHS). Over time, these Directives will be implemented in the national laws of each EU Member State.

Once the final national regulations have been put into place, recycling will be offered for our products which are within the scope of the WEEE Directive. Products falling under the scope of the WEEE Directive available for sale after August 13, 2005 will be identified with a "wheelie bin" symbol.

Two Categories of products covered by the WEEE Directive are currently exempt from the RoHS Directive – Category 8, medical devices (with the exception of implanted or infected products) and Category 9, monitoring and control instruments. Most of our products fall into either Category 8 or 9 and are currently exempt from the RoHS Directive. We will continue to monitor the application of the RoHS Directive to its products and will comply with any changes as they apply.



- **Do Not Dispose Product with Municipal Waste**
- **Special Collection/Disposal Required**

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