

# **Mega<sup>TM</sup>BACE**

## PLANNING GUIDE

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Revision 5

# DRAFT

CONFIDENTIAL

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 **Molecular  
Dynamics**

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May 1998

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The instrument is also an Authorized DNA Sequencer. It is authorized under one or more U.S. Patent Numbers 4,849,513; 5,171,534; 5,015,733; 5,118,800; 5,161,507; 5,118,802; 4,855,225; and 5,366,860, and corresponding foreign patents and patent applications. The purchase of this instrument includes limited, non-exclusive rights under the subject patents to use this instrument for sequencing and fragment length analysis when used with Authorized Reagents. The use of this instrument with Authorized Reagents provides a limited license to perform DNA sequencing and fragment length analysis in accordance with the label rights accompanying such reagents. Purchase of this instrument does not itself convey to the purchaser a complete license to perform DNA sequencing and fragment length analysis under the subject patents. Authorized reagents may be obtained from licensed vendors, or reagents may be authorized under separate license arrangements from PE Applied Biosystems®. The above patent rights are granted solely for research and other uses that are not unlawful. No other licenses are granted expressly, impliedly, or by estoppel.

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# Preface

The *MegaBACE Planning Guide* describes how to set up your laboratory so that you can use the system efficiently. It provides instructions on how to plan and prepare your laboratory before you receive the MegaBACE 1000 DNA Sequencing system.

## About This Guide

**Chapter 1: Introduction**—Introduces the MegaBACE system and lists the system components and specifications.

**Chapter 2: Site Requirements**—Describes how to prepare your laboratory. It includes physical space requirements, electrical requirements, heating and cooling requirements, ventilation requirements, and nitrogen requirements.

**Chapter 3: Chemistry, Consumables, and Additional Equipment Requirements**—Lists the chemistry, consumables, and additional equipment you need to use the MegaBACE instrument.

**Chapter 4: Moving and Reinstalling the Instrument**—Provides important information about moving and reinstalling the instrument.

**Appendix A: Preinstallation Forms**—Provides forms for you to fill out with your site information and a preinstallation checklist.

**Appendix B: Training Checklist**—Provides a list of tasks to use when you train your lab personnel to use the MegaBACE system.

**Appendix C: Summary of Lab Space Requirements**—Provides a summary of the lab space requirements for the MegaBACE system.

**Appendix D: MegaBACE Computer Configuration**—Provides a description of the basic and high-throughput hardware configurations for the MegaBACE instrument.

## Related Publications

In addition to the *MegaBACE Planning Guide*, Molecular Dynamics provides the following publications for the MegaBACE system. The user's guides you receive depend on the analysis software you purchase.

- *MegaBACE Instrument User's Guide*—Provides instructions for using the Instrument Control Manager software to scan samples. It also contains information on using and maintaining the MegaBACE instrument.
- *MegaBACE Sequence Analysis User's Guide*—Provides instructions on how to use the Sequence Analyzer™ software to log in samples, perform base calling, and evaluate the results of the analysis.
- *MegaBACE Genetic Profiler User's Guide*—Provides instructions on how to use the Genetic Profiler™ software to enter sample setup and plate layout definitions, perform fragment sizing, and perform allele calling. The guide also explains how to use the software to evaluate the results of the analysis.

## Special Notices

Make sure you follow the precautionary statements presented in this guide.

**Warning** Indicates a possibility of physical injury or death to the user or other persons if the precautions or instructions are not observed.

**Caution** Indicates that damage to the instrument, loss of data, or invalid data could occur if the user fails to comply with the advice given.

**Important** Highlights information that is critical for optimal performance of the system.

**Note:** Identifies items of general interest.

## **Warranty Statement**

Molecular Dynamics  
MegaBACE 1000 DNA Sequencing System  
U.S.A. only, 10/97

**Note:** This warranty varies outside the United States. If you are located outside the United States, please contact your representative for the exact terms of your warranty.

Molecular Dynamics warrants to the Customer that the Molecular Dynamics MegaBACE 1000 Instrument ("the Instrument") purchased by the Customer will be free from defects in material and workmanship and will meet its performance specifications for a period of one year (365 days) from the date of shipment from the manufacturing site. This warranty covers parts, labor, and travel.

Customers are encouraged to have a Molecular Dynamics service engineer replace or repair technically complex components of the Instrument. Molecular Dynamics warrants to the Customer only that parts installed by a Molecular Dynamics service engineer, including any engineering change initiated by Molecular Dynamics, will be free from defects in workmanship for the remainder of the warranty period or 90 days, whichever is greater. During the one-year period, this warranty covers parts, labor, and travel. All Customer-installed parts supplied by Molecular Dynamics are warranted only to be free from defects in workmanship.

If the Instrument is returned to the factory for repair under warranty, the Customer must call Molecular Dynamics for a return authorization number and packing information. All Instruments must be packed for return according to Molecular Dynamics specifications. Molecular Dynamics will not be responsible for damage to an Instrument incurred during shipping if the Instrument was not packed according to Molecular Dynamics specifications. Molecular Dynamics will pay for air freight in both directions during the warranty period.

At the end of this section is a list of parts that are considered to be Customer-installable consumables. These parts are not covered by this warranty.

This warranty does not extend to any Instruments or parts thereof that have been subject to misuse, neglect, or accident, or that have been modified by anyone other than a Molecular Dynamics representative, or that have been affixed to any nonstandard accessory attachment, or that have been used in violation of Molecular Dynamics instructions.

No agent, employee, or representative of Molecular Dynamics has any authority to bind Molecular Dynamics to any affirmation, representation, or warranty concerning the Instrument; and any affirmation, representation, or warranty made by any agent, employee, or representative shall not be enforceable by the Customer.

This warranty is the sole and exclusive warranty as to the Instrument and extends only to the Customer and is expressly in lieu of any other express or implied warranties, including without limitation any implied warranty or merchantability or fitness for a particular purpose and of any other obligation on the part of Molecular Dynamics.

Molecular Dynamics shall not be liable for any incidental, special, or consequential loss, damage, or expense directly or indirectly arising from the use of the Instrument. Molecular Dynamics makes no warranty whatsoever in regard to products or parts furnished by third parties, such being subject to the warranty of their respective manufacturers. Service under this warranty shall be requested by contacting the Molecular Dynamics service representative at (1) (800) 743-7782, or outside the United States, by contacting your local representative. If you need the name and number of your representative, please contact Molecular Dynamics at (1) (408) 773-1222, Fax (1) (408) 773-0152.

A service contract is available on an annual basis. Information on the service contract may be obtained by contacting the Molecular Dynamics Service Department in Sunnyvale, California, or your local Molecular Dynamics representative.

Excluded from warranty:

- Sample plates
- Water tanks
- Capillary arrays

## Service Policy

Customer satisfaction is a primary goal of Molecular Dynamics. In keeping with this goal, all the instruments we sell are fully supported. The service we provide is covered under our warranty, under a post-warranty service contract, or as a customer-billed service call.

Computers are integral to the instruments we sell. Molecular Dynamics offers you the flexibility of either purchasing the complete system (instrument and computer) from us, or purchasing an approved computer separately from another vendor. When you buy the complete system from us, we configure and test the system in our manufacturing facility before we ship it to you. Doing so ensures the proper operation of the hardware and the software. If you choose to buy a computer from another vendor, we provide you with specifications for the hardware, software, and system configuration. Our assistance in this regard helps to ensure that the computer you buy is approved for use with the Molecular Dynamics instrument.

In servicing computers that were purchased from Molecular Dynamics, we enlist the cooperation of the computer manufacturer who is the expert on the computer. Computers that were purchased from another supplier must be serviced through that supplier. Molecular Dynamics will be happy to provide telephone support to your computer service person to describe the instrument and software requirements.

If you have problems with your Molecular Dynamics instrument, your first call should be to us. Call Technical Support at Molecular Dynamics World Headquarters or subsidiary offices. We can handle many problems over the phone.


If an on-site service call is required for either a complete Molecular Dynamics system or the instrument only, the service may be covered by a warranty or service contract or billed to you as a service call. The Molecular Dynamics service engineer cannot service a computer that was not purchased from Molecular Dynamics because such service may violate the warranty on the computer. The service engineer may work from the keyboard to verify the configuration of the system and check the software/instrument communication.

Please be advised that, if you request a Molecular Dynamics on-site service call for problems relating to a computer purchased from a vendor other than Molecular Dynamics, you may be billed for the service.

Peripheral devices, such as optical drives, tape drives, and printers, that you purchase from Molecular Dynamics will be fully supported as part of the system for the first year by this warranty. A list of peripheral devices sold and supported by Molecular Dynamics is available from your local sales representative. If you purchase peripheral devices from another vendor, that vendor should provide service. Molecular Dynamics may charge you for on-site service calls that are the result of problems relating to peripheral devices purchased from other vendors.

## CE Declaration

If your instrument displays the CE mark on the instrument serial number label, the following CE conformity information applies.

	
<b>Declaration of Conformity</b> (according to ISO/IEC Guide 22 and EN 45014)	
<b>Manufacturer's Name:</b>	Molecular Dynamics
<b>Manufacturer's Address:</b>	928 E. Arques Avenue Sunnyvale, CA 94086-4536
<i>declares that the product:</i>	
<b>Product Name:</b>	MegaBACE™
<b>Product Description:</b>	Capillary Array Electrophoresis Instrument
<b>Model Number(s):</b>	MegaBACE 1000
<i>conforms to the following Standards:</i>	
<b>EMC:</b>	EN 55022:1995, CLASS A EN 50082-2:1992
<b>LVD:</b>	EN 61010-1:1993+A2
<b>Machinery Directive:</b>	EN 983:1996 EN 292-1:1991 EN 292-2:1991+A1 EN 60825-1:1994+A11
<b>Supplementary Information:</b>	"The product complies with the requirements of the EMC Directive 89/336/EEC, Low Voltage Safety Directive 73/23/EEC, and Machinery Directive 89/392/EEC."
<b>Manufacturer's Contact:</b>	Product Quality Manager Molecular Dynamics 928 E. Arques Avenue Sunnyvale, CA 94086-4536  Telephone: (408) 773-1222 Fax: (408) 773-8343

## MegaBACE Site Requirements

### Electrical Requirements

- MegaBACE Instrument Electrical Rating:  
200 to 240V~ 6A 50/60Hz
- Power Supply Fan Module Electrical Rating:  
208 to 220V~ or 230 to 240V~ 10A 50/60Hz

### Environmental Conditions

- Ambient temperature range: 20°C to 25°C (68°F to 77°F)
- Humidity condition:  $\leq 80\%$  noncondensing
- Pollution degree: 2
- Installation category: II

## Assistance

For assistance call your Molecular Dynamics field support specialist. When calling for assistance, be prepared to supply the serial number of your instrument. The serial numbers are located on the lower right side of the MegaBACE instrument and on the back of the power supply fan module. If you need the name and number of your field support specialist, please use one of the phone numbers below.

### United States

Molecular Dynamics World Headquarters, Sunnyvale, CA  
Telephone (1) (800) 743-7782 or (1) (408) 773-1222  
Fax (1) (408) 773-0152  
Ask for Technical Support.

### United Kingdom

Molecular Dynamics Ltd., Buckinghamshire  
Telephone (44) (1494) 793377, Fax (44) (1494) 793222

### Germany

Molecular Dynamics GmbH, Krefeld  
Telephone (49) (2151) 83870, Fax (49) (2151) 838740



**France**

Molecular Dynamics S.A., Paris

Telephone (33) (1) 6086-6513, Fax (33) (1) 6086-6533

**Japan**

Molecular Dynamics Japan, Inc., Tokyo

Telephone (81) (3) 5350-3211, Fax (81) (3) 5350-3654

**Other Countries**

Please call your Molecular Dynamics distributor or representative. If you need the name and number of your representative, please contact Molecular Dynamics World Headquarters at (1) (408) 773-1222, Fax (1) (408) 773-0152.



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# Chapter 1 Introduction

The MegaBACE 1000 DNA Sequencing system is an automated genetic analysis system for high-throughput DNA sequencing, DNA fragment sizing, and genetic profiling. The system consists of the capillary array electrophoresis instrument, the data collection and analysis system, and the installation chemistry kit required to analyze your samples.

This chapter provides a summary of—

- Preinstallation Tasks (section 1.1)
- MegaBACE System Components (section 1.2)
- Computer and Network Specifications (section 1.3)

## 1.1 Preinstallation Tasks

Before you have your MegaBACE system installed, you should read this planning guide. A Site Information form, a Preinstallation Checklist, and a Training Checklist are included in the appendixes. Be sure to fill in the information before the Molecular Dynamics field support specialist is scheduled to install your system.

## 1.2 MegaBACE System Components

The MegaBACE system consists of integrated hardware, software, reagents, and capillary arrays.

The MegaBACE system includes—

- MegaBACE 1000 instrument with a 488-nm argon-ion blue laser and a 532-nm green solid-state laser
- Pentium® II 266 MHz workstation with Microsoft® Windows NT® (see your Molecular Dynamics field support specialist for exact configuration)
- Six capillary arrays consisting of 16 capillaries each for a total of 96 capillaries
- Beamsplitter and optical filter set

- User documentation: The *MegaBACE Instrument User's Guide* and, depending on the analysis software included with your system, the *MegaBACE Sequence Analysis User's Guide* or *MegaBACE Genetic Profiler User's Guide*.
- Installation chemistry kit (sequencing, fragment sizing, and genetic profiling controls)
- Sieving matrix
- Wash tank
- Tools
- Installation and training
- One-year warranty
- Service contract (optional)
- Liability statement for the MegaBACE system

### 1.3 Computer and Network Specifications

The following are the computer and network specifications:

- **Computer**—Pentium II 266 MHz
- **Instrument Connection**—SCSI connection from the MegaBACE instrument to the instrument control workstation (see your Molecular Dynamics field support specialist)
- **Network**—Fast EtherLink® Network Adapter

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## Chapter 2 Site Requirements

This chapter describes the site requirements for the MegaBACE system. Topics include—

- Lab Space Requirements (section 2.1)
- Environmental Requirements (section 2.2)
- System Electrical Requirements (section 2.3)
- Special Site Requirements (section 2.4)
- Requirements for Nitrogen Cylinders and Pressure Regulators (section 2.5)

See appendix C for a summary of the site requirements.

### 2.1 Lab Space Requirements

This section describes the instrument and lab bench space requirements.

#### 2.1.1 Instrument Space Requirements

Figure 2-1 shows the MegaBACE instrument. The dimensions of the MegaBACE instrument are—

Width 1.033 m (40.7 in)  
Height 0.812 m (32 in)  
Depth 0.874 m (34.4 in)

When planning lab space for your MegaBACE instrument, you should allow—

- 0.127 m (5 in) clearance for the hose
- 0.127 m (5 in) clearance behind the instrument for service access

You need an additional 0.279 m (11 in) of clearance above the instrument so that you can open the electrophoresis chamber door. You need room for the power supply fan module, and you must provide lab bench space for the computer and wall space for the nitrogen cylinders.

If you are using an uninterruptible power supply (UPS), you must provide sufficient space for the unit (figure 2-1).

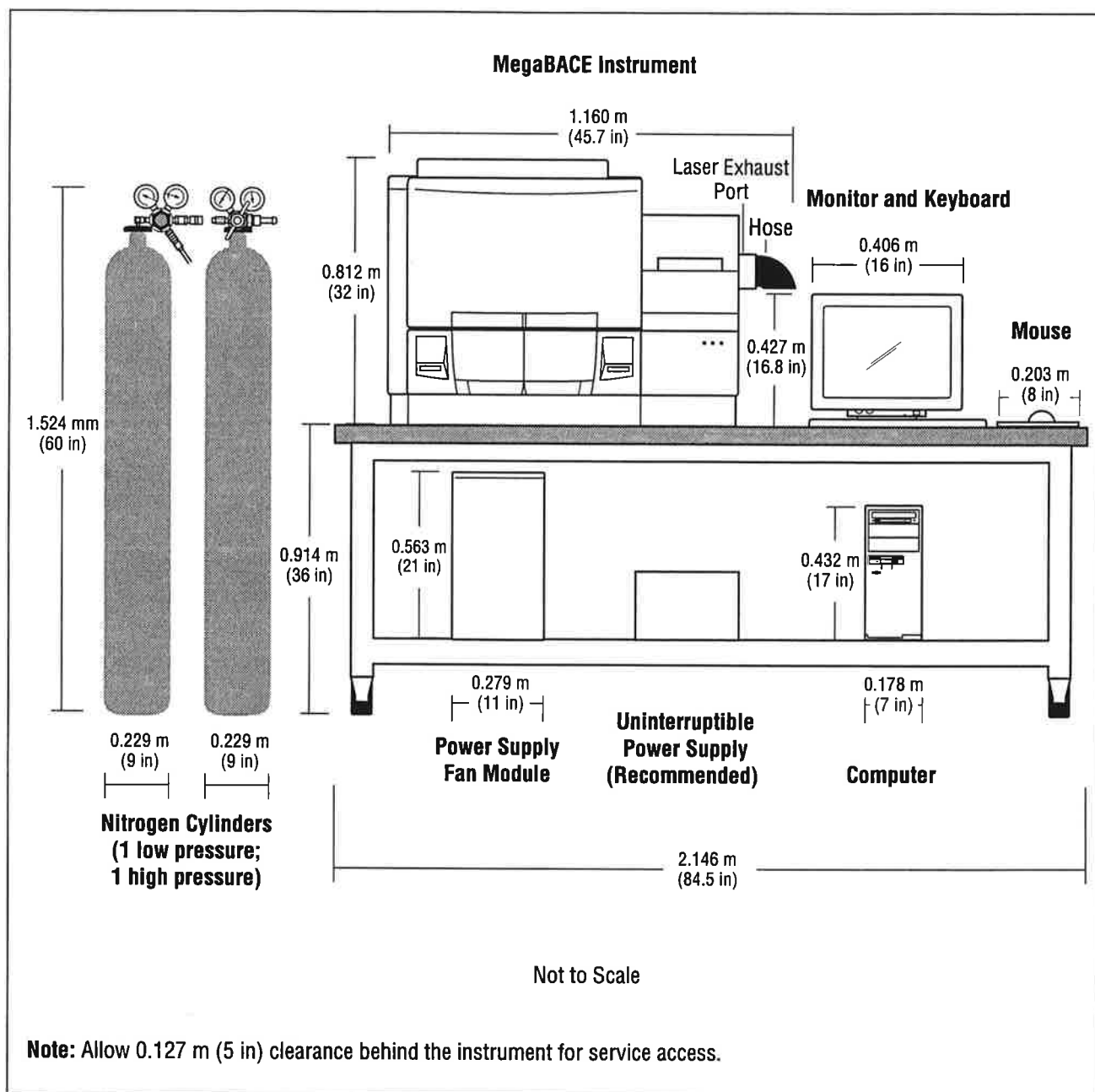


Figure 2-1. The MegaBACE system.

### 2.1.2 Lab Bench Requirements

The MegaBACE instrument weighs approximately 230 kg (510 lb). The computer monitor weighs approximately 19 kg (41.9 lb). The laboratory bench you use must have a rigid surface and be rated to hold at least the combined weight of both units. In addition, you should provide sufficient space to meet or exceed the requirements defined in figure 2-1.

If the bench is not stationary, the legs should have a locking mechanism. Contact your field support specialist for a recommended supplier of benches that meet these requirements.

## 2.2 Environmental Requirements

This section describes the environmental requirements for the MegaBACE instrument.

### 2.2.1 Temperature and Humidity

For optimal performance of the MegaBACE instrument, the laboratory must meet the following requirements:

Temperature	20°C to 25°C (68°F to 77°F)
Humidity	≤ 80% (noncondensing)
Pollution degree	2
Installation Category	II

If the air exhaust from the power supply fan module is vented externally, the rate of heat production of the MegaBACE system is 1 200 watts per unit. If the air exhaust from the power supply fan module is vented internally, the rate of heat production of the MegaBACE system is 3 000 watts per instrument. Use the appropriate heat production quantity to determine the heating and cooling requirements for your laboratory.

Place the MegaBACE instrument away from heat and air conditioning ducts. Do not place the instrument in direct sunlight.

### 2.2.2 Heat Production

Molecular Dynamics will supply a standard power supply fan module with the instrument (figure 2-1). If you vent the air exhaust internally, the rate of heat energy production for each instrument is 3 000 watts. To reduce heat buildup in the instrument room to 1 200 watts per instrument, Molecular Dynamics recommends that you use a separate air blower to vent the exhaust externally. You can vent the exhaust into the ceiling space or outside the building if local safety and building codes permit.

If you vent the exhaust into the ceiling space, make sure that your building ventilation system can handle the 1 800 watts of heat energy that is vented. You should also take into account that the computer and monitor produce 800 watts of heat energy that is vented directly into the room.

To reduce noise in the instrument room, you can use an external exhaust fan. Contact your Molecular Dynamics field support specialist for more information.

To cool the laser power supply, Molecular Dynamics supplies a 0.102-m (4-in) inner diameter (I.D.) hose that attaches to the power supply fan module using a 0.102-m (4-in) flange (Molecular Dynamics part number 101-195). The secondary hose should be no longer than 2.438 m (8 ft).

The airflow requirement is 1.557 m<sup>3</sup>/min (55 ft<sup>3</sup>/min) minimum at 0.038 m (1.5 in) H<sub>2</sub>O static pressure at the laser exhaust port on the instrument (figure 2-1).

## 2.3 System Electrical Requirements

The complete MegaBACE system includes four devices that require electrical power: the instrument, the power supply fan module, the computer, and the monitor. Molecular Dynamics supplies a total of four electrical power cords with each system, one for each of these main components.

**Important** You must locate the right side of the MegaBACE instrument within 2.5 m (8 ft) of the electrical outlets.

**Warning** Use only the power cords supplied. Make sure the cords are in good condition and are not frayed. Use of incorrect power cords



can cause damage to the instrument. Use of frayed or damaged power cords can cause injury.

Molecular Dynamics recommends that you purchase an uninterruptible power supply (UPS) rated for at least 4 kVA. Using a UPS protects the instrument, the capillaries, and your data from damage or loss caused by unexpected power failures, surges, or AC line fluctuations. The UPS also acts as a power line regulator, line conditioner, and surge suppressor and works to protect against all power line problems.

If you are using a UPS, you must connect the instrument, power supply fan module, computer, and monitor to the UPS. If you have an external blower for laser cooling, you must also connect the blower to the UPS.

Contact your Molecular Dynamics field support specialist for information about a qualified UPS. See Assistance in the preface for contact information.

**Note:** A UPS will most likely require electrical connections at the wall that differ from those of the MegaBACE instrument. Contact the UPS manufacturer or your Molecular Dynamics field support specialist for details concerning site preparation when using a UPS.

**Caution** Depending on the duration of the power failure, the UPS may not contain enough stored power to finish the run and allow the capillaries to be flushed for storage.

## 2.4 Special Site Requirements

The computer and monitor do not have any special power requirements and can be connected to any appropriate AC outlet (table 2-1).

**Table 2-1 Electrical Requirements for the Computer and the Monitor**

Location	Volts (AC)
U.S./Canada	110–120
Japan	100–120
Europe	220–240

**Caution** Make sure the voltage selection switch on the back of the computer correctly matches the voltage at the outlet.

### 2.4.1 Instrument and Power Supply Fan Module: North America and Japan

The MegaBACE instrument and power supply fan module are designed to run at 200 volts AC to 240 volts AC worldwide.

See table 2-2 for detailed voltage requirements.

**Table 2-2 Electrical Requirements for the MegaBACE Instrument and the Power Supply Fan Module**

Location	Volts (AC)	Frequency	Amps
U.S./Canada	208 $\pm$ 10% or 220 $\pm$ 10%	60 Hz $\pm$ 1%	15
Japan	200 $\pm$ 10%	50/60 Hz $\pm$ 1%	16
Europe	230 $\pm$ 10%	50 Hz $\pm$ 1%	14
U.K. and Australia	240 +6% or -10%	50 Hz $\pm$ 1%	13

Molecular Dynamics provides two power cords with standard NEMA 6-15P plugs for the instrument and power supply fan module and two 5-15P plugs for the computer and monitor.

Table 2-3 provides the plug and receptacle configurations that can be used for the MegaBACE instrument and the computer and monitor.

**Table 2-3 Power Plug and Receptacle Configurations**

Location	Unit	Plug Supplied	Receptacle Required (Customer Supplied)
U.S./Canada and Japan	Instrument and Power Supply Fan Module	NEMA 6-15P (Quantity 2)	NeMA 6-15R or 6-20R (Quantity 2)
	Computer and Monitor	NEMA 5-15P (Quantity 2)	NEMA 5-15R or 5-20R (Quantity 2)
Europe, U.K., and Australia	Instrument, Power Supply Fan Module, Computer, and Monitor	Country-standard 230V (Quantity 4)	Country-standard 230V (Quantity 4) JAA

**Note:** Molecular Dynamics does not supply the receptacles. Contact Molecular Dynamics for purchasing information.

The instrument and power supply fan module require a 200-volt AC to 220-volt AC circuit with a 20-amp circuit breaker.

**Note:** You must provide a 20-amp grounded circuit that terminates with two 6-15R or 6-20R receptacles. Termination can be at the wall, from a power strip, or at the output of a UPS. The 6-20R receptacle will accept either the 6-15P or 6-20P plug.

### 2.4.2 Instrument and Power Supply Fan Module: Europe

Use of the recommended UPS requires special high-current electrical hook-ups. Please refer to the UPS site planning guide, and follow all applicable local electrical codes during the site preparation. Contact the UPS manufacturer or your Molecular Dynamics field support specialist for more information.

The MegaBACE instrument and its power supply fan module are made to run at 200 volts AC to 240 volts AC worldwide. (See tables 2-2 and 2-3 for detailed voltage and outlet requirements.) Molecular Dynamics provides two power cords with European standard CEE 7/7 ("Schuko") plugs for the instrument and power supply fan module. This configuration allows the use of standard plugs and receptacles that are found in continental Europe.

**Note:** If you do not want to use a UPS, you can plug the MegaBACE instrument and the power supply fan module into separate grounded circuits capable of delivering at least 10 amps each at 230 volts, using the standard country-accepted outlet.

**Caution** Without the recommended UPS, the instrument is vulnerable to power line fluctuations.

## 2.5 Requirements for Nitrogen Cylinders and Pressure Regulators

You can use a centralized nitrogen source or provide a separate nitrogen cylinder for each instrument. This section describes the requirements for a single, locally installed nitrogen cylinder for both high- and low-pressure nitrogen, but the principles apply similarly to remote nitrogen sources.

**Warning** When you install a nitrogen cylinder, make sure you bolt a standard cylinder bracket to a solid permanent structure in a manner that meets or exceeds all local seismic and safety code requirements. Failure to secure the nitrogen cylinder can cause injury to the operator.

### 2.5.1 Regulator Configuration

A single nitrogen source for both high- and low-pressure supplies—

- High pressure for injecting and removing the sieving matrix.
- Low pressure for rinsing the capillaries and operating the cathode and anode stages and the service door.

**Note:** If you are using multiple instruments, contact your Molecular Dynamics field support specialist for the recommended configuration.

**Warnings** Do not attempt to adjust the regulators to pressure settings above those described in this guide and in the *MegaBACE Instrument User's Guide*. If you are using separate cylinders for high and low pressure, make sure that the correct pressure is applied to each line.

The nitrogen pressure in the high-pressure line must not exceed  $6.89 \times 10^3$  kPa (1 000 psi). The nitrogen pressure in the low-pressure line must not exceed  $6.89 \times 10^2$  kPa (100 psi). Never apply high pressure to the low-pressure line. This can damage the instrument or the low-pressure line and can cause injury.

Use only hose types with ratings that exceed the required operating pressures. Do not use a frayed or damaged hose, which can rupture and can cause injury.

### 2.5.2 Ordering Information for the High- and Low-Pressure Nitrogen Systems

You must provide the high- and low-pressure nitrogen systems that connect to the center rear of the MegaBACE instrument. You must also provide the high- and low-pressure cylinders, which you can obtain from your local supplier. Be sure to order 5.0 ultrahigh purity nitrogen.

The specifications for the nitrogen are—

- 99.999%
- $O_2 < 1$  ppm

- $\text{H}_2\text{O} < 3 \text{ ppm}$
- $\text{THC} < 0.5 \text{ ppm}$  (Ar and Ne Free Basis)

The following sections provide ordering options for the nitrogen manifold assemblies.

### Option 1: Ordering High- and Low-Pressure Manifold Assemblies

You can order a high- and a low-pressure nitrogen manifold assembly, each of which includes the high- and low-pressure regulators and tubing.

Table 2-4 provides the ordering information for the high-pressure manifold assembly and the female adapter required to attach the manifold to the instrument.

**Table 2-4 High-Pressure Nitrogen Manifold**

Item	Description	Supplier (Company Name, Telephone Number)	Part Number
High-pressure manifold assembly	Includes 1/4-inch O.D. flexible braided stainless steel tubing with male 1/4-inch NPT at each end	Valin Corporation (408) 730-9850	9G00294 (Rev. C)
Female adapter	1/4-inch O.D. tube with 1/4-inch NPT	Sunnyvale Valve and Fitting Company (408) 734-3145	Swagelok SS-4-TA-7-4

**Note:** The female adapter comes in the instrument accessory kit.

Table 2-5 provides ordering information for the low-pressure manifold assembly.

**Table 2-5 Low-Pressure Nitrogen System**

Item	Description	Supplier (Company Name, Telephone Number)	Part Number
Low-pressure manifold assembly	Includes 1/8-inch I.D. polyurethane tubing	Valin Corporation (408) 730-9850	9G00293 (Rev. E)

### Option 2: Ordering Separate Parts

If you are using multiple instruments, contact your Molecular Dynamics field support specialist for the recommended parts.

### 2.5.3 Requirements for the High-Pressure Nitrogen System

The following are the requirements for the high-pressure nitrogen system used with the MegaBACE instrument:

- **Setpoint of high-pressure input**— $6.89 \times 10^3$  kPa (1000 psi)
- **Maximum allowable pressure**— $7.07 \times 10^3$  kPa (1025 psi)
- **Flow rate**—Depends on usage
- **Pressure sensing**—The instrument has a built-in pressure transducer that allows the system to monitor high pressure
  - **High setpoint**— $7.07 \times 10^3$  kPa (1025 psi)
  - **Low setpoint**— $6.55 \times 10^3$  kPa (950 psi)
- **Volume used per single command (flush or rinse)**—Estimated at  $10 \text{ cm}^3$  ( $0.6 \text{ in}^3$ )

### 2.5.4 Requirements for the Low-Pressure Nitrogen System

The following are the requirements for the low-pressure nitrogen system:

- **Standard low-pressure input**— $6.21 \times 10^2$  kPa (90 psi)
- **Maximum allowable pressure**— $6.89 \times 10^2$  kPa (100 psi)
- **Pressure sensing**—The instrument is equipped with a pressure switch to indicate low pressure. The pressure switch is set to trip at  $5.86 \times 10^2 \pm 20$  kPa ( $85 \pm 3$  psi) as the pressure falls.

The pressure switch will trip in the range of  $5.65 \times 10^2$  kPa to  $6.07 \times 10^2$  kPa (82 to 88 psi) if the pressure falls below  $6.21 \times 10^2$  kPa (90 psi). The pressure must be set above  $6.07 \times 10^2$  kPa (88 psi) to satisfy the pressure switch, or the system will identify a low-pressure condition.

- **Volume used per cycle (estimated)—**
  - Anode stage up and down: 650 cm<sup>3</sup> (40 in<sup>3</sup>)
  - Cathode stage up and down: 250 cm<sup>3</sup> (15 in<sup>3</sup>)
  - Volume used per single rinse command: 10 cm<sup>3</sup> (0.6 in<sup>3</sup>)

### 2.5.5 Checking the Available Nitrogen Pressure

To prevent pressure loss during a cycle, you should check the available nitrogen pressure on a regular basis to determine when to replace the cylinders.

### 2.5.6 Installing a Nitrogen Cylinder

When you install a nitrogen cylinder, make sure you follow the local safety code requirements for the placement and mounting of the cylinder.

Follow the instructions provided with the cylinder for removal and installation. Always use good laboratory practices when handling a high-pressure cylinder.

After you install the new cylinder—

- Make sure the valve area and the passageway are free of dust or dirt.
- Make sure you check the new connections for leaks.
- Set the high-pressure regulator gauge to the proper pressure: 6.89 x 10<sup>3</sup> kPa (1000 psi).
- Set the low-pressure regulator gauge to the proper pressure: 6.21 x 10<sup>2</sup> kPa (90 psi).





## Chapter 3 Chemistry, Consumables, and Additional Equipment Requirements

This chapter provides lists of consumables and laboratory equipment. Topics include—

- Chemistry (section 3.1)
- Laboratory Equipment (section 3.2)
- Consumables (section 3.3)

### 3.1 Chemistry

Tables 3-1 and 3-2 list the chemistry requirements for the MegaBACE system.

**Table 3-1 Chemistry Requirements for DNA Sequencing**

Item	Storage Conditions	Quantity	Part Number
MegaBACE matrix sieving buffer	-70°C	100 tubes per pack	US79643
MegaBACE ET primers	-20°C	2 000 reactions per pack	
M13 -40 primer set			US79475
SP6			US79850
T7			US79855
M13 -21			US79880
MegaBACE Reaction Buffer		2 000 reactions per pack	US79607
MegaBACE Loading Buffer			US79448
Thermo Sequenase™ MegaBACE formulation		2 000 reactions per pack	E79000M
MegaBACE dG sequencing blend*		2 000 reactions per pack	US79655
MegaBACE 7-deaza dG sequencing blend*		2 000 reactions per pack	US79657
MegaBACE sequencing standards		2 x 96 reactions per pack	US79659

\*Choose the blend that is appropriate for your application and conditions.

You can order the MegaBACE sequencing reagents directly from—

**United States**

Amersham Pharmacia Biotech  
2636 South Clearbrook Drive  
Arlington Heights, IL 60005  
Telephone (1) (800) 323-9750

**Europe**

Amersham Pharmacia Biotech U.K., Ltd.  
Amersham Place  
Little Chalfont  
Buckinghamshire HP7 9NA  
United Kingdom  
Telephone (44) (1494) 544000

**Japan**

Amersham Pharmacia Biotech  
Otsuka Office  
32-22 Higashi Ikebukuro 2-chome  
Toshima-ku, Tokyo 170  
Telephone (81) 3 5992 2015

Table 3-2 Chemistry Requirements for Genetic Profiling

Item	Storage Conditions	Quantity	Supplier (Company Name, Telephone Number)	Part Number
MegaBACE matrix sieving buffer	-70°C	100 tubes per pack	Amersham Pharmacia Biotech U.S.: (800) 323-9750 Europe: (44) (1494) 544000	US79643
MegaBACE ET Standard	To Be Supplied	To Be Supplied	Amersham Pharmacia Biotech U.S.: (800) 323-9750 Europe: (44) (1494) 544000	To Be Supplied
ET-60-350 bp ET-60-500 bp	To Be Implemented			
MegaBACE DNA Quantitation Standard	To Be Supplied (1 fmol/peak)	To Be Supplied	Amersham Pharmacia Biotech U.S.: (800) 323-9750 Europe: (44) (1494) 544000	To Be Supplied
ABD Fluorescent Amidite Matrix Standards (desalted dye separation standards)	2°C–8°C	5 tubes per pack (1 tube per standard)	Perkin-Elmer® U.S.: (800) 874-9868 U.K.: (44) (01925) 825650 France: (33) (1) 6959-8585	401546
6-FAM™ Matrix Std		25 µl		
HEX™ Matrix Std		25 µl		
TET™ Matrix Std		25 µl		
ROX™ Matrix Std*		25 µl		
TAMRA™ Matrix Std*		25 µl		
ABD NED™ Matrix Std	2°C–8°C	25 µl	Perkin-Elmer U.S.: (800) 874-9868 U.K.: (44) (01925) 825650 France: (33) (1) 6959-8585	402996

\*ROX and TAMRA are included in the kit but are not required for the MegaBACE system.

## **3.2 Laboratory Equipment**

In addition to the chemistry, you must supply the laboratory equipment listed below.

- Microcentrifuge for 1.5-ml microcentrifuge tubes (optionally refrigerated)
- Centrifuge with microplate-format rotor (optionally refrigerated)
- Micropipettors with volume ranges of 1  $\mu$ l to 10  $\mu$ l, 10  $\mu$ l to 100  $\mu$ l, and 100  $\mu$ l to 1000  $\mu$ l and tips (optional 8-channel autopipettors in 10- $\mu$ l and 250- $\mu$ l volumes)
- Tube racks
- Pipets with volumes of 5 ml, 10 ml, and 25 ml
- 96-well thermocycler
- Speed Vac<sup>®</sup> concentrator with microplate-format buckets
- Balance, 1 g to 500  $\pm$ 0.1 g
- Squirt water bottle
- -20°C storage for the samples and reagents
- -70°C storage for the matrix
- Ice bucket
- Assorted beakers and flasks

## 3.3 Consumables

You should have the consumables listed in table 3-3 available in your lab before instrument installation. If you are doing genetic profiling, you also need the consumables listed in table 3-4.

**Table 3-3 Additional Consumables Required for the MegaBACE System**

Item	Supplier (Company Name, Telephone Number)	Part Number
2-ml microcentrifuge tubes with screw caps	VWR Scientific U.S.: (800) 932-5000 Europe: (41) 1-745-1155	20170-216
0.2-ml strip PCR tubes	Applied Scientific (415) 244-9851	AS-2071 natural AS-2071B blue AS-2071G green AS-2071Y yellow AS-2071R red AS-2071V violet
Strip dome cap	Applied Scientific (415) 244-9851	AS-2072 natural
MicroAmp™ 9600 tray/retainer set (new)	Perkin-Elmer (800) 874-9868	403081
<b>Note:</b> If you are using this tray/retainer set, you must also use the Molecular Dynamics tray adapter that comes in the accessory kit. Contact your field support specialist for information.		
MicroAmp 9600 tray/retainer set	Perkin-Elmer (800) 874-9868	N801-0530
MicroAmp 9600 Base	Perkin-Elmer (800) 874-9868	N801-0531
Wet ice	Local supplier	
Deionized water (18.2 megohm/cm)	Local supplier	
100% ethanol	Local supplier	
Ammonium acetate	Sigma®	A-7262
Capillary arrays	Molecular Dynamics (See Assistance in the preface)	MB-CAPS

**Table 3-3 Additional Consumables Required for the MegaBACE System**

<b>Item</b>	<b>Supplier (Company Name, Telephone Number)</b>	<b>Part Number</b>
Nitrogen cylinders (5.0 ultrahigh purity) 99.999% O <sub>2</sub> < 1 ppm H <sub>2</sub> O < 3 ppm THC < 0.5 ppm (Ar and Ne Free Basis)	Local supplier	

**Table 3-4 Additional Consumables Required for Genetic Profiling**

<b>Item</b>	<b>Supplier (Company Name, Telephone Number)</b>	<b>Part Number</b>
N-Methyl formamide	Sigma Chemical Co. U.S.: (800) 521-8956 Sigma-Aldrich Co. Ltd. U.K.: (0800) 717181 Sigma-Aldrich Chimie S.a.r.l. France: (0800) 211408	M-2769
RNase-free water	Amersham Pharmacia Biotech U.S.: (800) 323-9750 Europe: (44) 1494-544000	US70783
TBE buffer concentrate (10X) (electrophoresis grade)	Amersham Pharmacia Biotech U.S.: (800) 323-9750 Europe: (44) 1494-544000	US70454
96-well filtration plate assembly (Required for desalting PCR* samples)	Millipore® U.S. East: (800) 645-5476 U.S. West: (800) 632-2708	MAVMN 0510

\* The polymerase chain reaction (PCR) process for amplifying DNA is covered by U.S. patent numbers 4,683,195 and 4,683,202 assigned to Hoffmann-La Roche Inc. and F. Hoffmann-La Roche Ltd. Patents are pending or issued in other countries.

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## Chapter 4 *Moving and Reinstalling the Instrument*

This chapter provides information about moving and installing the MegaBACE instrument. Topics include—

- Moving the Instrument (section 4.1)
- Connecting a New Computer (section 4.2)
- Required Parts (section 4.3)

Molecular Dynamics installs your MegaBACE instrument after delivery. If you need to move the instrument, contact your Molecular Dynamics representative before you move it.

**Warning** Do not connect or disconnect cables with the power on. Instead, turn off the instrument and computer by following the instructions in chapter 3 of the *MegaBACE Instrument User's Guide*.

**Important** To avoid loose or lost connections, make sure the screws holding the connectors in place are tight.

### 4.1 Moving the Instrument

If you need to move your MegaBACE instrument, review chapters 2 and 3 for information on selecting the new location, as well as nitrogen pressure and electrical power requirements for your instrument.

**Caution** Do not attempt to move your MegaBACE instrument. Doing so will void your warranty. Instead, contact your Molecular Dynamics representative to set up an appointment.

**Warnings** The MegaBACE instrument weighs approximately 320 kg (510 lbs). The instrument requires adequate physical support.

Never attempt to lift the instrument without using proper equipment and trained personnel.

## 4.2 Connecting a New Computer

To connect your MegaBACE instrument to a new computer, first turn off the MegaBACE instrument using the instructions in chapter 3 of the *MegaBACE Instrument User's Guide*.

Make sure that a SCSI adapter card is installed in the computer and that the Windows NT device drivers are loaded. See the instructions provided with the adapter card and in the Windows NT manuals.

Install the system and analysis software using the instructions provided with the software.

For information about SCSI and network connections, see your field support specialist.

## 4.3 Required Parts

The following parts are required for installing the instrument:

### Major Parts

- MegaBACE instrument
- Power supply fan module
- Computer, mouse, monitor, and keyboard
- Accessory kit (includes hoses, cable clamps, cables, fittings, and documents as needed)

### Power Cords to—

- MegaBACE instrument (220 volt, 20 or 35 amp)
- Power supply fan module (220 volt, 20 or 35 amp)
- Computer (120 volt)
- Monitor (120 volt)

**Caution** Use only the power cords and cables supplied with the MegaBACE system.

Make sure the power cords are in good condition and are not frayed.

**Important** An Uninterruptible Power Supply (UPS) is recommended.



---

## *Appendix A Preinstallation Forms*

This chapter includes—

- Site Information Form (section A.1)
- Preinstallation Checklist (section A.2)

### **A.1 Site Information Form**

Fill in the site and system information in the space provided below. You and your Molecular Dynamics field support specialist will need this information to schedule your MegaBACE system installation.

---

**Organization Name:**

---

**User/Manager Name(s):**

---

---

**Telephone:**

---

**Address:**

---

**Additional Storage Location, if needed:**

---

**MegaBACE System Serial Number:**

---

**Scheduled Ship Date:**

---

**Scheduled Installation Date:**

---

**Service Engineer:**

---


**Technical Support Specialist:**

---

## A.2 Preinstallation Checklist

The checklist below contains the preinstallation requirements. You must satisfy every item in the checklist that is applicable for your system before the system is installed. Please check all the applicable items and send a copy of the checklist to your field support specialist at Molecular Dynamics. A Molecular Dynamics field support specialist will contact you to verify that you have completed the checklist before system installation.

### Preinstallation Checklist

Check if Completed	Task
	<b>General</b>
<input type="checkbox"/>	Complete each item in this checklist and then schedule installation and training.
	<b>Electrical</b>
<input type="checkbox"/>	Provide an appropriate heating and cooling system.
<input type="checkbox"/>	Provide two 220-volt, 20- or 35-amp power plugs on a dedicated line. These plugs should fit an electrical outlet, as shown below.
	
<input type="checkbox"/>	Provide two 120-volt plugs.
<input type="checkbox"/>	Provide a phone line near the system (recommended).
	See section 2.3 for electrical specifications.
	<b>Laboratory</b>
<input type="checkbox"/>	Provide a laboratory bench with adequate room for the MegaBACE instrument (section 2.1 and appendix C).
<input type="checkbox"/>	Provide the appropriate number of nitrogen cylinders (section 2.5).
<input type="checkbox"/>	Locate a vendor or contractor for the appropriate tubing and regulators for nitrogen cylinders (section 2.5).
<input type="checkbox"/>	Provide the appropriate ventilation for the power supply fan module (section 2.2).
<input type="checkbox"/>	Provide -70°C storage for the matrix.
<input type="checkbox"/>	Provide -20°C storage for the samples.
<input type="checkbox"/>	Provide -20°C storage for the DNA Sequencing reagents, if applicable.
<input type="checkbox"/>	Provide 2°C-8°C storage for the Genetic Profiling reagents, if applicable.

## Preinstallation Checklist (Cont.)

Check If Completed	Task
<b>Laboratory Equipment and Consumables</b>	
<input type="checkbox"/>	Microcentrifuge for 1.5-ml microcentrifuge tubes (optionally refrigerated)
<input type="checkbox"/>	Centrifuge with microplate-format rotor (optionally refrigerated)
<input type="checkbox"/>	Micropipettors in various volume ranges
<input type="checkbox"/>	8-channel autopipettors in 10- $\mu$ l and 250- $\mu$ l volumes
<input type="checkbox"/>	Pipets in various sizes
<input type="checkbox"/>	2-ml microcentrifuge tubes with screw caps
<input type="checkbox"/>	1.5-ml tubes and 0.2- $\mu$ l MicroAmp strip-well tubes
<input type="checkbox"/>	0.2-ml conical tubes and strip tubes
<input type="checkbox"/>	Tube racks
<input type="checkbox"/>	96-well thermocycler
<input type="checkbox"/>	96-well microplates
<input type="checkbox"/>	Capillary arrays
<input type="checkbox"/>	Speed Vac concentrator with microplate-format buckets
<input type="checkbox"/>	Deionized water
<input type="checkbox"/>	Squirt water bottle
<input type="checkbox"/>	Balance
<input type="checkbox"/>	Ice bucket
<input type="checkbox"/>	Wet ice
<input type="checkbox"/>	Assorted beakers and flasks
<input type="checkbox"/>	Uninterruptible power supply (optional, but recommended)
<b>Additional Consumables for Genetic Profiling</b> (not required for DNA Sequencing)	
<input type="checkbox"/>	N-Methyl formamide
<input type="checkbox"/>	RNase-free water
<input type="checkbox"/>	TBD buffer concentrate (10X)
<input type="checkbox"/>	96-well filtration plate assembly for desalting PCR samples
See chapter 3 for equipment specifications.	
<b>DNA Sequencing Chemistry</b> (not required for Genetic Profiling)	
<input type="checkbox"/>	MegaBACE matrix sieving buffer
<input type="checkbox"/>	MegaBACE ET primers (select all that apply)
<input type="checkbox"/>	M13 –40 primer set
<input type="checkbox"/>	SP6
<input type="checkbox"/>	T7
<input type="checkbox"/>	M13 –21
<input type="checkbox"/>	Thermo Sequenase MegaBACE formulation
<input type="checkbox"/>	MegaBACE dG sequencing blend*
<input type="checkbox"/>	MegaBACE 7-deaza dG sequencing blend*
<input type="checkbox"/>	MegaBACE sequencing standards

\*Choose the blend that is appropriate for your application and conditions.

**Preinstallation Checklist (Cont.)**

Check if Completed	Task
	<b>Genetic Profiling Chemistry</b> (not required for DNA Sequencing)
<input type="checkbox"/>	MegaBACE matrix sieving buffer
<input type="checkbox"/>	MegaBACE ET Standard
<input type="checkbox"/>	ET-60-350 bp
<input type="checkbox"/>	ET-60-500 bp
<input type="checkbox"/>	MegaBACE DNA Quantitation Standard
<input type="checkbox"/>	ABD Fluorescent Amidite Matrix Standards (desalted)
<input type="checkbox"/>	6-FAM
<input type="checkbox"/>	HEX
<input type="checkbox"/>	TET
<input type="checkbox"/>	NED
	See chapter 3 for chemistry details

---

## Appendix B Training Checklist

The checklist below provides a list of items that should be covered when training the MegaBACE system users. You and your Molecular Dynamics field support specialist will determine which tasks to assign to each MegaBACE system user.

### Training Checklist

Check if Completed	Tasks and Subtasks
<input type="checkbox"/>	<b>Windows NT (Workstation and Server)</b> <ul style="list-style-type: none"><li><input type="checkbox"/> Logon and shutdown procedures</li><li><input type="checkbox"/> Features and multitasking</li><li><input type="checkbox"/> Database (Microsoft Access)</li><li><input type="checkbox"/> Database for Genetic Profiler (SQL Server 6.51)</li><li><input type="checkbox"/> Windows NT workstation and server administration</li></ul>
<input type="checkbox"/>	<b>Nitrogen cylinder</b> <ul style="list-style-type: none"><li><input type="checkbox"/> Valve operation</li><li><input type="checkbox"/> Tubing hookup</li><li><input type="checkbox"/> Cylinder changing</li></ul>
<input type="checkbox"/>	<b>Sequencing protocols and procedures</b>
<input type="checkbox"/>	<b>Genetic Profiling protocols and procedures</b>
<input type="checkbox"/>	<b>Instrument hardware components</b> <ul style="list-style-type: none"><li><input type="checkbox"/> System startup and shutdown</li><li><input type="checkbox"/> Workflow</li><li><input type="checkbox"/> Capillary installation and change</li><li><input type="checkbox"/> Changing filters</li></ul>
<input type="checkbox"/>	<b>System software</b> <ul style="list-style-type: none"><li><input type="checkbox"/> System startup</li><li><input type="checkbox"/> Sequence Analyzer Software<ul style="list-style-type: none"><li><input type="checkbox"/> Sample Login for Sequence Analysis<ul style="list-style-type: none"><li><input type="checkbox"/> Search window</li><li><input type="checkbox"/> Plate Log view</li><li><input type="checkbox"/> Sample List view</li></ul></li><li><input type="checkbox"/> Instrument Control Manager (ICM)<ul style="list-style-type: none"><li><input type="checkbox"/> Search window</li><li><input type="checkbox"/> Plate Log view</li><li><input type="checkbox"/> Instrument Setup window</li><li><input type="checkbox"/> Instrument Control view</li><li><input type="checkbox"/> Run Image view</li><li><input type="checkbox"/> Options windows</li></ul></li></ul></li></ul>

Training Checklist (Cont.)

Check if Completed	Tasks and Subtasks
<input type="checkbox"/>	<b>System software (continued)</b>
<input type="checkbox"/>	Sequence Analyzer Software (continued)
<input type="checkbox"/>	Sequence Analyzer
<input type="checkbox"/>	Sample Status view
<input type="checkbox"/>	Electropherogram view
<input type="checkbox"/>	Sequence view
<input type="checkbox"/>	Consensus view
<input type="checkbox"/>	Export and print results
<input type="checkbox"/>	Genetic Profiler Software
<input type="checkbox"/>	Sample Login
<input type="checkbox"/>	Locus window
<input type="checkbox"/>	Marker window
<input type="checkbox"/>	Marker Set window
<input type="checkbox"/>	Sample window
<input type="checkbox"/>	Sample Group window
<input type="checkbox"/>	Dye window
<input type="checkbox"/>	Standard window
<input type="checkbox"/>	Plate Layout window
<input type="checkbox"/>	Trace Parameters view
<input type="checkbox"/>	Fragment Parameters view
<input type="checkbox"/>	Genotype Parameters view
<input type="checkbox"/>	Instrument Control Manager (ICM)
<input type="checkbox"/>	Search window
<input type="checkbox"/>	Plate Log view
<input type="checkbox"/>	Instrument Setup window
<input type="checkbox"/>	Instrument Control view
<input type="checkbox"/>	Run Image view
<input type="checkbox"/>	Options windows
<input type="checkbox"/>	Fragment Analyzer™
<input type="checkbox"/>	Status view
<input type="checkbox"/>	Electropherogram view
<input type="checkbox"/>	Peak Editor view
<input type="checkbox"/>	Genetic Profiler
<input type="checkbox"/>	Electropherogram view
<input type="checkbox"/>	Allele Histogram view
<input type="checkbox"/>	<b>System reagents</b>
<input type="checkbox"/>	Matrix fill and flush
<input type="checkbox"/>	Sample preparation
<input type="checkbox"/>	Sample injection
<input type="checkbox"/>	PCR pooling and desalting
<input type="checkbox"/>	<b>Troubleshooting</b>

## Appendix C Summary of Lab Space Requirements

This appendix summarizes the space requirements for the MegaBACE system. The table below lists the space requirements for the various components of the system. Refer to the preceding chapters for specific details.

**Warning** Do not attempt to lift the instrument. The MegaBACE instrument weighs approximately 230 kilograms (510 pounds). Lifting the instrument can cause injury.

Space Requirements for the MegaBACE Instrument

Hardware Component	Width	Height	Depth
MegaBACE instrument	1.033 m (40.7 in)	0.812 m (32 in)	0.874 m (34.4 in)
Power supply fan module*	0.279 m (11 in)	0.563 m (21 in)	0.393 m (15.5 in)
Uninterruptible power supply (recommended)*	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
Data collection workstation tower*	0.178 m (7 in)	0.432 m (17 in)	0.425 m (16.75 in)
Data collection workstation monitor	0.406 m (16 in)	0.427 m (16.8 in)	0.451 m (17.8 in)
Data collection workstation keyboard	0.457 m (18 in)	0.035 m (1.375 in)	0.171 m (6.75 in)
Data collection workstation mouse pad	0.203 m (8 in)	0.006 m (0.25 in)	0.178 m (7 in)
Analysis workstation tower*	0.178 m (7 in)	0.432 m (17 in)	0.425 m (16.75 in)
Analysis workstation monitor	0.406 m (16 in)	0.427 m (16.8 in)	0.451 m (17.8 in)
Analysis workstation keyboard	0.457 m (18 in)	0.035 m (1.375 in)	0.171 m (6.75 in)
Analysis workstation mouse pad	0.203 m (8 in)	0.006 m (0.25 in)	0.178 m (7 in)

\* The power supply fan module, uninterruptible power supply (if used), and the workstation tower can be located below the bench.





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## *Appendix D MegaBACE Computer Configuration*

This chapter describes—

- Basic Hardware Configuration for the MegaBACE System (section D.1)
- Computer Configuration for the MegaBACE System in a High-Throughput Laboratory (section D.2)

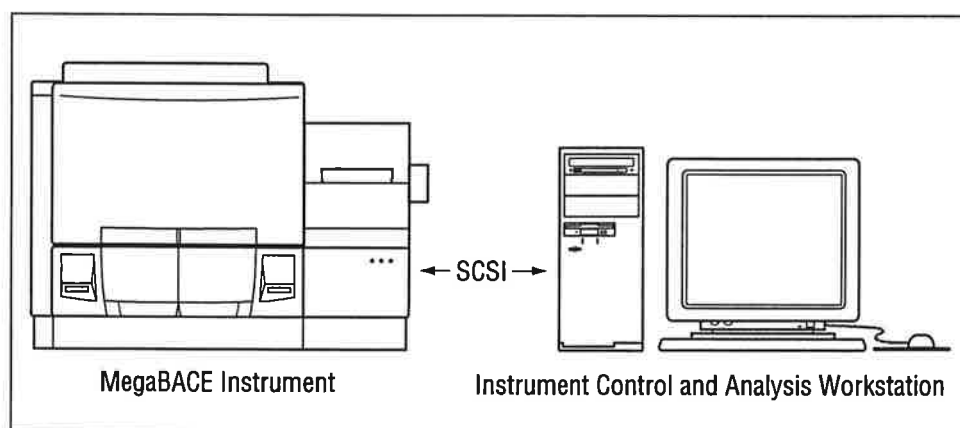
You can configure the MegaBACE system in many different ways. This appendix discusses the basic configuration and a high-throughput configuration.

Contact your Molecular Dynamics field support specialist for the latest computer hardware and software specifications. See Assistance in the preface for locations and phone numbers.

### **D.1 Basic Hardware Configuration for the MegaBACE System**

The basic hardware configuration for the MegaBACE system is one MegaBACE instrument and one workstation that contains all of the MegaBACE Lab Bench software. Molecular Dynamics recommends that you do not perform analysis while scanning is in progress.

Figure D-1 shows the basic configuration for the MegaBACE system. The computer hardware and software specifications are described below.



*Figure D-1. The basic MegaBACE system configuration.*

## D.2 Computer Configuration for the MegaBACE System in a High-Throughput Laboratory

If your laboratory requires high throughput, Molecular Dynamics recommends that you use at least two workstations—one workstation connected to the MegaBACE instrument for data collection and one workstation for data analysis.

You can network multiple analysis workstations to the MegaBACE instrument and transfer the data to any workstation. Molecular Dynamics recommends that you store the run data on the workstation connected to the instrument. After data collection is complete, you transfer the data to the analysis workstation.

Figure D-2 shows a sample high-throughput MegaBACE system configuration.

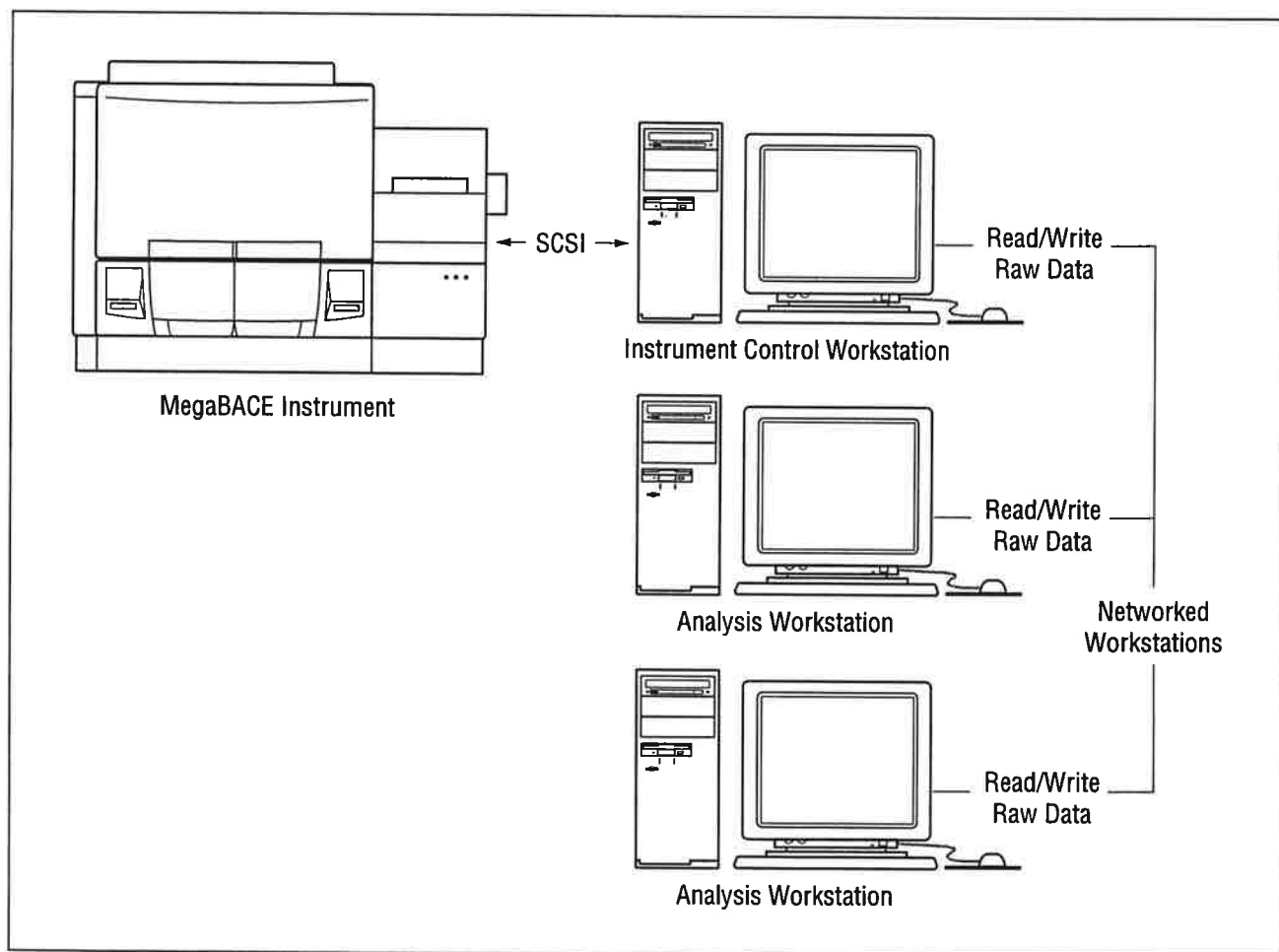


Figure D-2. High-throughput MegaBACE system configuration.

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