E-Base™ Electrophoresis Device

invitrogen

QUICK REFERENCE Pub. No. MAN0018775 Rev. A.0

Contents

Catalog Numbers EBM03, EBD03

Product	Cat. No.	Amount
Mother E-Base™ Device	EBM03	1 each
Daughter E-Base™ Device	EBD03	1 each

Product description

- The E-Base™ Device is an easy-to-use, programmable, automated small-footprint device combining a base and power supply to simplify electrophoresis of precast E-Gel™ 48, E-Gel™ 96, E-PAGE™ 48 and E-PAGE™ 96 gels.
- High-throughput and automation-compatible.
- Provides fast, safe, consistent, high-resolution electrophoresis.
- Eliminates the need to prepare agarose gels, buffers, and to stain gels.

Required materials

DNA analysis

- E-Gel™ 48 or 96 agarose gels (See Gel selection guide)
- E-Gel™ DNA Ladder (See Ladder selection guide)
- UltraPure™ DNase/RNase-Free Distilled Water (Cat. Nos. 10977015, 10977035)
- E-Gel™ Imager System with Blue Light Base (Cat. No. 4466612)
- (*Optional*) 1X E-Gel™ Sample Loading Buffer (Cat. No. 10482055)
- (*Optional*) Safe Imager™ 2.0 Blue-Light Transilluminator (Cat. No. G6600)

Protein Aanalysis

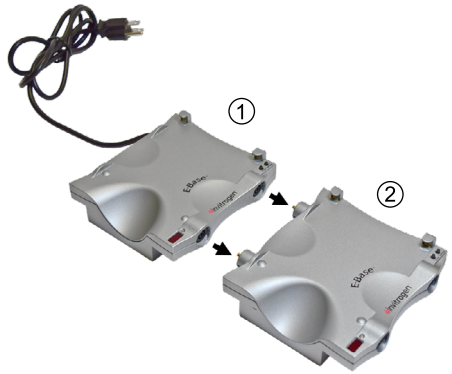
- E-PAGE™ 48 or 96 gels (See Gel selection guide)
- E-PAGE™ SeeBlue™ Pre-stained Standard (Cat. No. LC5700)
- E-PAGE™ Loading Buffer 1 (Cat. No. EPBUF01)

Online resources

- Visit our product pages for protocols, safety, and additional product information.
- Go online to view related E-Gel™ products.
- For support, visit thermofisher.com/support.

Connecting a Daughter E-Base™ Device

- For higher throughput, up to three E-Base™ Daughter units can be connected to an E-Base™ Mother Device.
- **IMPORTANT!** Ensure the Mother E-Base™ Device is unplugged before connecting any Daughter E-Base™ Devices.



① Mother E-Base™ Device with
② Daughter E-Base™ Device

Mother E-Base™ Device with multiple Daughter E-Base™ Devices

Troubleshooting

For detailed troubleshooting instructions see the E-Base™ Electrophoresis System User Guide at thermofisher.com or contact Technical Support.

Limited product warranty and licensing information

Disclaimer: TO THE EXTENT ALLOWED BY LAW, LIFE TECHNOLOGIES AND/OR ITS AFFILIATE(S) WILL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, INDIRECT, PUNITIVE, MULTIPLE OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH OR ARISING FROM THIS DOCUMENT, INCLUDING YOUR USE OF IT.

Corporate entity: Life Technologies | Carlsbad, CA 92008 USA | Toll Free in USA 1.800.955.6288

For Research Use Only. Not for use in diagnostic procedures.

ThermoFisher SCIENTIFIC

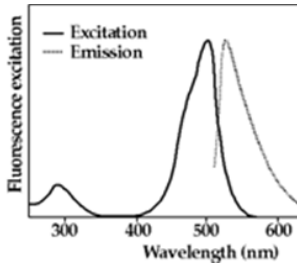
E-Base™ DNA electrophoresis protocol

Important guidelines

- Use 10–200 ng DNA per band for samples with one unique band or up to 500 ng per lane for samples with multiple bands.
- Dilute samples with high salt concentrations (>50 mM NaCl, >100 mM KCl, >10 mM acetate ions, >10 mM EDTA) 2- to 5-fold in deionized water, TE, or 1X E-Gel™ Sample Loading Buffer, in a final volume of 15 µL (48-well gels) or 20 uL (96-well gels).
- Load E-Gel™ agarose gels within 30 minutes after opening the pouch; run gels within 1–3 minutes after loading samples.

	Step			Action
1–5 min	1		**Prepare samples**	Prepare DNA samples in deionized water OR 1X E-Gel™ Sample Loading Buffer. ▪ For optimal separation use 20–100 ng of DNA per band for samples with one unique band or up to 500 ng per lane for samples with multiple bands. ▪ The total sample volume for 48-well gels is 15 µL. ▪ The total sample volume for 96-well gels is 20 µL.
5–10 min	2		**Prepare gel cassette**	a. Plug the Mother E-Base™ Device into an electrical outlet. b. Remove the gel from the package and gently remove the comb(s) from the E-Gel™ cassette. c. Insert the cassette into the E-Base™ Device, starting from the right edge. When properly inserted, the device indicates its initialized status with a steady red light. **Note**:The protocol type on the display shows EG for E-Gel™ DNA cassettes, and EP for E PAGE™ cassettes.
	3		**Load samples**	Load samples with a multichannel pipettor. Load a volume of **15 µL in each well for 48-well gels**. Load a volume of **20 µL in each well for 96-well gels**. a. Load prepared samples into sample wells. Keep all sample volumes uniform. b. Load prepared E-Gel™ DNA ladder into marker wells. c. Load 1X E-Gel™ Sample Loading Buffer or deionized water in all empty wells. The buffer for empty wells should have a similar salt concentration to adjecent sample wells.

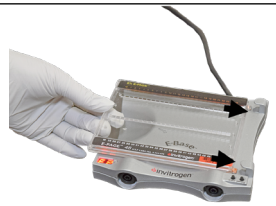
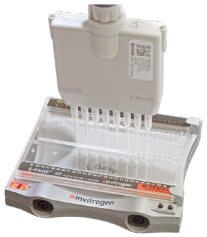
E-Base™ DNA electrophoresis protocol

<table>
<tr><th colspan="3">Step</th><th>Action</th></tr>
<tr><td rowspan="2">12–30 min</td><td>4</td><td> 
</td><td>Run the gel</td><td>a. Select the EG program (default run time 12 minutes) for running E-Gel™ cassettes by pressing and releasing the “pwr/prg”.
b. Select the recommended run time for a specific gel type by pressing and releasing the time button, then press and hold the time button to increase the time. Release time button when the desired run time for the gel is reached.
<table>
<tr><th>Gel type</th><th>Recommended run time</th><th>Maximum run time</th></tr>
<tr><td>E-Gel™ 48 agarose gel</td><td>20 min</td><td>25 min</td></tr>
<tr><td>E-Gel™ 96 agarose gel</td><td>12 min</td><td>17 min</td></tr>
</table>
c. Start the run by pressing and releasing the “pwr/prg” button. The red indicator light will change to green.</td></tr>
<tr><td>5</td><td> 
</td><td>End the run</td><td>a. A flashing red indicator light and rapid beeping indicates the end of the run. Press and release “pwr/prg” to stop the device.
b. For better detection sensitivity, allow the gel to cool down for 10 minutes after the end of the run.</td></tr>
<tr><td>1–2 min</td><td>6</td><td> 
</td><td>Analyze the gel</td><td>a. Visualize the with a DNA imager using blue-light transillumination (e.g., with the E-Gel™ Imager System with Blue Light Base).
▪ SYBR Safe™ DNA gel stain has an excitation maxima at 280 and 502 nm, and an emission maximum at 530 nm when bound to nucleic acid.
▪ Use the E-Editor™ 2.0 software available at thermofisher.com/egel to analyze 96-well format digital images.</td></tr>
</table>

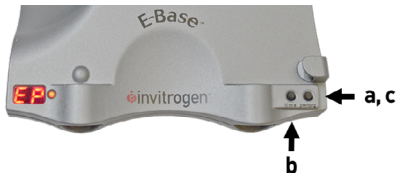
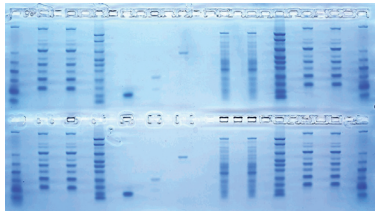
E-Base™ protein electrophoresis protocol

Important guidelines

- E-PAGE™ Gels contain SDS and are designed for electrophoresis under denaturing conditions.
- Dilute samples with high salt or detergent concentrations to prevent loss of resolution. See **Table of recommended final concentrations**.
- For optimal separation use up to 20 µg of protein per well. Limit the protein (or lipid) amount in the sample to 2 µg/µL in the final sample volume for a proper LDS to protein ratio.

<table>
<tr><th colspan="3">Step</th><th>Action</th></tr>
<tr><td>1–5 min</td><td>1</td><td>  </td><td>Prepare samples</td><td>a. Prepare protein samples in a total volume of 10 µL according to the following table. Scale volumes according the to the required sample volume.
▪ The total sample volume for 48-well gels is 10 µL.
▪ The total sample volume for 96-well gels is 15 µL.
<table><tr><th>Reagent</th><th>Reduced</th><th>Non-reduced</th></tr><tr><td>Protein sample</td><td>x µL</td><td>x µL</td></tr><tr><td>4X E-PAGE™ Loading Buffer 1</td><td>2.5 µL</td><td>2.5 µL</td></tr><tr><td>10X NuPAGE™ Sample Reducing Agent</td><td>1 µL</td><td>—</td></tr><tr><td>Deionized water</td><td>to 10 µL</td><td>to 10 µL</td></tr></table>b. Incubate the samples at 70°C for 10 minutes.</td></tr>
<tr><td rowspan="2">5–10 min</td><td>2</td><td>  </td><td>Prepare gel cassette</td><td>a. Remove the gel from the package and gently remove the combs from the E-PAGE™ cassette.
b. Insert the cassette into the E-Base™ Device, starting from the right edge. When properly inserted, the device indicates its initialized status with a steady red light.
Note:The protocol type on the display shows EG for E-Gel™ DNA cassettes, and EP for E-PAGE™ cassettes.</td></tr>
<tr><td>3</td><td>  </td><td>Load samples</td><td>Load samples with a multichannel pipettor.
Load a volume of 10 µL in each well for 48-well gels.
Load a volume of 15 µL in each well for 96-well gels.
a. Load 5–10 µL of deionized water into all wells prior to adding samples or standards.
b. Load prepared samples into sample wells. Keep all sample volumes uniform.
c. Load prepared E-PAGE™ standard into marker wells.
d. Load deionized water in all empty wells.</td></tr>
</table>

E-Base™ protein electrophoresis protocol

<table>
<tr><th colspan="3">Step</th><th>Action</th></tr>
<tr><td rowspan="2">14–30 min</td><td>4</td><td> 
</td><td>Run the gel</td><td>a. Select the EP program (default run time 14 minutes) for running E-PAGE™ cassettes by pressing and releasing the “pwr/prg”.
b. Select the recommended run time for a specific gel type by pressing and releasing the time button, then press and hold the time button to increase the time. Release time button when the desired run time for the gel is reached.
<table>
<tr><th>Gel type</th><th>Recommended run time</th><th>Maximum run time</th></tr>
<tr><td>E-PAGE™ 48 gel</td><td>25 min</td><td>30 min</td></tr>
<tr><td>E-PAGE™ 96 gel</td><td>14 min</td><td>25 min</td></tr>
</table>
c. Start the run by pressing and releasing the “pwr/prg” button. The red indicator light will change to green.</td></tr>
<tr><td>5</td><td> 
</td><td>End the run</td><td>a. A flashing red indicator light and rapid beeping indicates the end of the run. Press and release “pwr/prg” to stop the device.
b. For better detection sensitivity, allow the gel to cool down for 10 minutes after the end of the run.</td></tr>
<tr><td>1–2 hr</td><td>6</td><td>  </td><td>Stain the gel</td><td>a. Open the gel cassette.
b. Visualize the protein by staining the gel using any of the following techniques (See the E-PAGE™ Technical Guide for details on staining and imaging).
▪ SYPRO™ Ruby Protein Gel Stain protocol
▪ Coomassie R-250 protocol
▪ SimplyBlue™ SafeStain protocol
▪ SilverQuest™ Silver Stain protocol
▪ SilverXpress™ Silver Stain protocol</td></tr>
</table>

Gel selection guide

Application	Product	Gel %	Sample wells	In-gel stain [1]	Amount	Cat. No.
DNA sample analysis	E-Gel™ 48 Agarose Gels, 1%	1%	48 + 4 ladder lanes	SYBR Safe™	8 gels	G820801
					4 x 8 gels	G820841
	E-Gel™ 48 Agarose Gels, 2%	2%	48 + 4 ladder lanes	SYBR Safe™	8 gels	G820802
					4 x 8 gels	G820842
	E-Gel™ 96 Agarose Gels, 1%	1%	96 + 8 ladder lanes	SYBR Safe™	8 gels	G720801
					4 x 8 gels	G720841
	E-Gel™ 96 Agarose Gels, 2%	2%	96 + 8 ladder lanes	SYBR Safe™	8 gels	G720802
					4 x 8 gels	G720842
Protein sample analysis	E-PAGE™ 8% Protein Gels, 48-well	8%	48 + 4 ladder lanes	—	8 gels	EP4808
	E-PAGE™ 6% Protein Gels, 96-well	6%	96 + 8 ladder lanes	—	8 gels	EP9606

[1] For other stain options visit thermofisher.com/egel.

Ladder selection guide

Product	Recommended DNA ladder		
	E-Gel™ 96 High Range DNA Ladder (Cat. No. 12352019)	E-Gel™ 50 bp DNA Ladder (Cat. No. 10488099)	E-Gel™ Low Range Quantitative DNA Ladder (Cat. No. 12373031)
E-Gel™ 48 Agarose Gels, 1%	✔	—	—
E-Gel™ 48 Agarose Gels, 2%	—	✔	—
E-Gel™ 96 Agarose Gels, 1%	✔	—	—
E-Gel™ 96 Agarose Gels, 2%	—	—	✔

For more ladder options visit thermofisher.com/egelladders.