IPGbox and IPGbox Kit

2-D ELECTROPHORESIS

IPGbox and IPGbox Kit are tools for enhancing the reswelling of Cytiva's precast Immobiline™ DryStrip Gels (IPG strips). The IPGbox (Fig 1) is an accessory to the Multiphor™ and IPGphor™ isoelectric focusing systems. It provides a convenient method for rehydrating up to twelve precast IPG strips (7 to 24 cm) at a time. Individual slots in the Reswell trays allow rehydration of individual IPG strips in a minimum volume of solution. The IPGbox includes a lid that protects the strips from dust and other contaminants during the rehydration period, which ranges from 10 h to overnight. The rehydration trays are designed for maximum flexibility and can accommodate all IPG strip sizes including 7, 11, 13, 18, and 24 cm (Fig 2). The IPGBox is supplied with a complete set of accessories to rehydrate 10 full rounds of 12 strips each. The IPGbox Kit contains ten disposable Reswell trays and one disposable IPGbox insert.

The combination of Ettan™ IPGphor 3 IEF System, Ettan IPGphor Manifold, and the newly developed IPGbox and Reswell trays using the Immobiline DryStrip Gels allows you to analyze more proteins in lower concentrations than ever before with significantly improved ease of use and reproducibility.

IPGBox with Insert and Reswell trays offer:

- **A redesigned Reswelling tray:** Made of highly hydrophobic material to prevent the rehydration solution from sticking to the tray
- **Oil-free rehydration:** The ability to rehydrate IPG strips in the redesigned reswelling tray provides a smoother reswelling of the strips and better ease of use
- **Greater rehydration quality:** The improved design provides easy and even distribution of the rehydration solution in the reswelling tray and an improved consistency of rehydration of the IPG strips
- **Convenience:** The IPGbox Insert maintains optimal conditions for rehydration and it is positioned inside the lid of the IPGbox. It can be used for up to ten reswelling cycles before disposal
- **Improved IPGbox design:** The lid prevents the strips from drying during rehydration thus eliminating the possibility of urea crystallization and the need for Immobiline DryStrip Cover Fluid

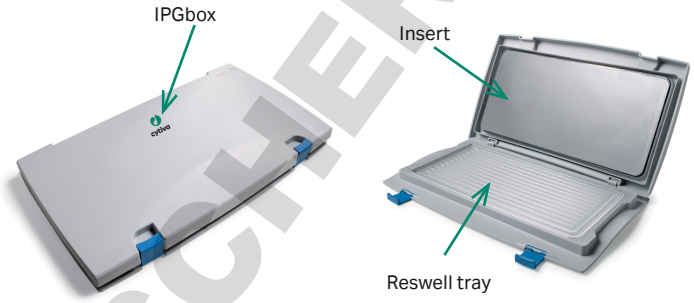

Fig 1. IPGbox is designed for rehydrating Immobiline DryStrip Gels.

Fig 2. Reswell tray containing rehydrated strips with variable lengths.

2-D electrophoresis is a key technology for comparing complex protein mixtures from biological samples in proteomics research. We provide exceptional products for successful, highly reproducible 2-D electrophoresis using Immobiline DryStrip immobilized pH gradient gels rehydrated in an IPGbox, and focused in either IPGphor or Multiphor II for the first dimension followed by running SDS gels on Ettan DALT systems for the second dimension separation.

Fig 3. 2-D electrophoresis workflow.

Complete system solutions

IPGbox and IPGbox Kit are integral parts of a total system solution (Fig 3).

Immobiline DryStrip Gels

Resolution and sample loading capacity are two important factors for the successful comparison of complex protein samples by 2-D electrophoresis, particularly for the detection of low abundance proteins. Using high-quality Immobiline DryStrip gels greatly improves resolution and sample loading capacity. Immobiline DryStrip gels are easy to handle and highly reproducible, providing a wide selection of pH ranges and strip lengths to simplify the development of clear strategies for the analysis of complex cell extracts. Immobiline DryStrip gels contain a preformed pH gradient immobilized in polyacrylamide gels on a plastic backing.

Reagents

Dedicated reagents include DeStreak Rehydration Solution for rehydrating the Immobiline DryStrip and an extensive range of Ettan Sample Preparation Kits and Reagents for IEF, SDS-PAGE, and 2-D electrophoresis.

Rehydration and sample application

Rehydrate directly in the IPGbox containing the Reswell tray and Insert. Up to 12 strips can be individually rehydrated at the same time, and protein samples can be included in the solution. In-gel rehydration allows you to load larger volumes of dilute samples and utilize more of the capacity of the gel for micropreparative separations.

Proven first dimension equipment

Ettan IPGphor 3 with Ettan IPGphor Manifold offers a dedicated platform for running up to 12 first-dimension IEF separations with Immobiline DryStrip gels. Multiphor II Flatbed Electrophoresis Unit is another alternative. The excellent first dimension separation ensures that spots in the second dimension are well separated (Fig 4).

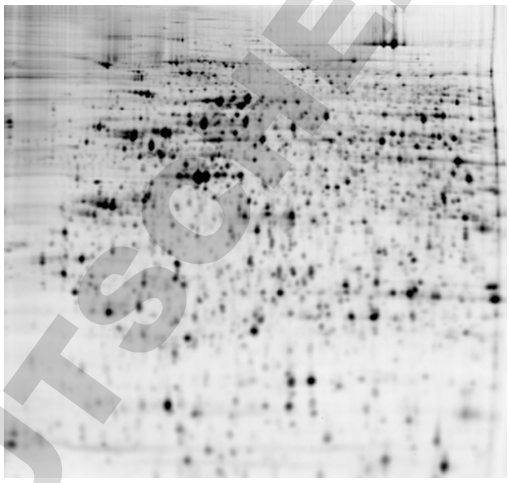

Fig 4. 2-D map image. HeLa reference sample (100 µg) labeled with CyDye™ DIGE Fluor, Cy™5 minimal dye. Sample preparation buffer = 8 M urea, 4% CHAPS, 20 mM DTT, 2% IPG Buffer 3–10. Immobiline DryStrip pH 4–7, 24 cm were rehydrated overnight at room temperature in 2 M Thiourea, 7 M Urea, 2% CHAPS, 20 mM DTT, 2% IPG buffer 4 to 7 in the IPGbox. First dimension separation run on Ettan IPGphor 3 IEF unit, anodic cup loading. Focused for 54 kVhr. Second dimension separation: 12.5% Lab-cast gel run on Ettan DALTtwelve electrophoresis system.

Second dimensional gels and equipment

Large format DALT Gel 12.5 are precast polyacrylamide gels for second dimension SDS runs using Ettan DALTtwelve and Ettan DALTsix electrophoresis systems. Ettan DALTtwelve system for the second-dimension separation runs up to 12 precast DALT gels. Ettan DALTsix runs up to six precast gels. Equipment and chemicals for lab-cast gels are also available. Low fluorescence glass plates are available for DIGE experiments.

Summary

2-D electrophoresis can readily display thousands of proteins from prokaryotic or eukaryotic cells as discrete spots that can be quantitated. When you use Immobiline DryStrip gels for the first-dimension separation, the resultant 2-D spot maps provide superior results in terms of resolution and reproducibility. IPGbox together with the IPGbox Kit can be used to rehydrate Immobiline DryStrip gels (7 to 24 cm). We have redesigned the Reswell tray to offer significant improvements on the previous model. IPGbox and the new Reswell trays are easier to use for rehydrating IPG strips without the need to use oil for a smoother reswelling of the strips. The Reswell tray consists of a material with high hydrophobicity to prevent the rehydration solution from sticking to the tray. As a result, the Rehydration solution is easily distributed in the wells and reswelling is smoother due to the absence of oil. The IPGbox Insert is located within the lid of the IPGbox and it maintains optimal conditions for rehydration. The lid prevents the strips from drying during rehydration. It is no longer necessary to use Immobiline DryStrip Cover Fluid to minimize evaporation; in addition, urea crystallization is eliminated. The sealable IPGbox with Reswell tray for reswelling IPG strips improves the overall quality of 2-D electrophoresis and provides better reproducibility and reliability for the entire 2-D electrophoresis process.

Ordering information

Products	Quantity	Code No
IPGbox	1 IPGbox + 1 IPGbox Kit	28-9334-65
IPGbox Kit	10 Reswell trays + 1 IPGbox Insert	28-9334-92

Related Products	Quantity	Code No
DeStreak Rehydration Solution	5 × 3 ml	17-6003-19
Urea	500 g	17-1319-01
Thiourea	100 g	RPN6301
CHAPS	1 g	17-1314-01
Ettan IPGphor 3 Isoelectric Focusing Unit	1	11-0033-64
IPGphor Manifold ceramic tray	1	80-6498-57
Electrode set	1	80-6498-76
Sample cups	120	80-6498-95
IPGphor Strip Holder cleaning solution	950 ml	80-6452-78
DALT Gel 12.5 (26 × 20 cm)	6	17-6002-36
Ettan DALTtwelve Separation Unit and Power Supply/Control Unit, 230 V	1	80-6466-27
Ettan DALTtwelve Separation Unit and Power Supply/Control Unit, 115 V	1	80-6466-46
Typhoon Trio with ImageQuant TL and PC	1	63-0055-88

Product	Pack size	Code No
IPG Buffer pH 3.5-5.0	1 ml	17-6002-02
IPG Buffer pH 4.5-5.5	1 ml	17-6002-04
IPG Buffer pH 5.0-6.0	1 ml	17-6002-05
IPG Buffer pH 5.5-6.7	1 ml	17-6002-06
IPG Buffer pH 4-7	1 ml	17-6000-86
IPG Buffer pH 6-11	1 ml	17-6001-78
IPG Buffer pH 7-11 NL	1 ml	17-6004-39
IPG Buffer pH 3-10 NL	1 ml	17-6000-88
IPG Buffer pH 3-10	1 ml	17-6000-87
IPG Buffer pH 3-11 NL	1 ml	17-6004-40

Related literature	Code No
2-D Electrophoresis Principles and Methods	80-6429-60
Ettan DIGE System User Manual	18-1173-17

Ordering information

	Code No				
Immobiline DryStrip gels for IEF	**24 cm**	**18 cm**	**13 cm**	**11 cm**	**7 cm**
DryStrip pH 3–10 Non-Linear	17-6002-45	17-1235-01	17-6001-15	—	17-6001-12
DryStrip pH 3–10	17-6002-44	17-1234-01	17-6001-14	18-1016-61	17-6001-11
DryStrip pH 3–11 Non-Linear	17-6003-77	17-6003-76	17-6003-75	17-6003-74	17-6003-73
DryStrip pH 3–7 Non-Linear	17-6002-43	—	—	—	—
DryStrip pH 4–7	17-6002-46	17-1233-01	17-6001-13	18-1016-60	17-6001-10
DryStrip pH 6–9	17-6002-47	17-6001-88	—	—	—
DryStrip pH 6–11	—	17-6001-97	17-6001-96	17-6001-95	17-6001-94
DryStrip pH 3–5.6 Non-Linear	17-6003-57	17-6003-56	17-6003-55	17-6003-54	17-6003-53
DryStrip pH 5.3–6.5	17-6003-62	17-6003-61	17-6003-60	17-6003-59	17-6003-58
DryStrip pH 6.2–7.5	17-6003-67	17-6003-66	17-6003-65	17-6003-64	17-6003-63
DryStrip pH 7–11 Non-Linear	17-6003-72	17-6003-71	17-6003-70	17-6003-69	17-6003-68

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