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## **A Simple and Effective Method for Handling Polyacrylamide (PAGE) Gels after Electrophoresis**

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### **Abstract**

Unlike PAGE gels containing coomassie or silver stained protein bands, that do not require visualisation under ultra violet (UV) transilluminator, PAGE gels containing ethidium bromide (EtBr) stained DNA fragments are often visualised on a UV transilluminator. Transfer of these thin gels to a staining tray and on to the transilluminator often results in damaged gels that cannot be recovered. We have devised a simple method that allows safe transfer of PAGE gels for staining and photography.

### **Introduction**

Polyacrylamide gels, especially those less than 0.75mm thick, are often prone to tearing while transferring for EtBr staining and subsequently to the UV illuminator. Traditionally, staining and de-staining is either performed in a tray while the gel is still on a glass plate or else the gel is transferred directly into the tray. After staining, the gel is gently slipped on to the surface of the transilluminator. This step often causes creasing and eventual damage to the gel making it complicated to take a permanent image of the DNA bands (Fig 1). Furthermore, if the gel is required for further staining after visualisation or vice versa it cannot be retrieved for further manipulations. Here we report a simple method using a contact sheet that allows safe handling of gels at any step after electrophoresis.

### **Material and Methods**

Electrophoresis was done using Protean 11 xi apparatus (Bio-Rad, California, USA) using 6% denaturing polyacrylamide or 10-50% denaturing gradient gels. The contact sheet was obtained from a local newsagent. The following steps describe the method involved.

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| Gently separate the gel sandwich after electrophoresis. The gel will adhere to one of |
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the two plates. Absorb excess liquid using lint free paper tissue.

Cut contact sheet to be within 1 cm larger than the gel on each side.

Peel off the backing and gently place the contact sheet over the gel.

Gently peel the sheet and gel together away from glass plate, starting from the top corners, using both hands.

Transfer the gel attached to the contact sheet to the EtBr staining solution in the tray.

Allow 10-15 minutes for staining.

Transfer Ethidium Bromide solution to a storage bottle for future use.

De-stain the gel using tap water for 10 minutes.

Remove any traces of liquid from the tray.

Spray a thin layer of water on the illuminator.

Transfer the contact sheet along with gel to the UV illuminator.

Gently slide away the contact sheet underneath the gel while keeping a mild pressure on the gel.

To transfer the gel for further manipulations remove any trace of water from the gel surface.

Replace the completely dried contact sheet back on to the gel surface with the sticky side facing the gel.

Repeat step 4.

## Results and Discussion

The method described here can be used to consistently transfer PAGE gels safely for staining and taking good images of DNA bands. The technique relies on the hydrophobic nature of the polypropylene contact sheet that allows the gel to cling to its surface. A number of protocols exist that focus on permanent preservation of polyacrylamide gels used for protein analysis as dried gels (Michaels and Ford, 1991, Porter and Gatscef, 1992, Smith, 1994, Guervaziev, 1998). Although the same process may be used to dry DNA-PAGE gels it would still require initial transfer of the gel on to the UV illuminator before the preservation step. Furthermore, the dried gel can pose serious health problem because of the presence of toxic ethidium bromide in dried form.

Thus this described protocol offers several advantages over other methods. It provides a mode for safe transfer of gels that does not require any expensive apparatus or reagents. The gel transferred to the UV illuminator can be removed from the surface of the illuminator for further manipulations using the same contact sheet.

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