

Multi-Inner-Reflection Transilluminator in Bio-Safe Excitation

INTRODUCTION

Newly launched BW-20 blue and white light transilluminator was designed according to Multi-Inner-Reflection principle to provide most uniform transparent light source. MIR technique constructed mainly with three different layers, including enhancing layer, light path leading plate, and blurry layer. As light goes into the light path leading plate, the direction of light beams will be changed by refraction and reflection, and will form with more even light distribution inside the leading plate. Some refraction light beams will head to blurry layer as some go toward enhancing layer. After cross-reflection and refraction, all lights come out from the BW-20 become very uniform. Applicable to use individually and applied in present gel imaging systems, BW-20 dual light sources transilluminator provides the most flexible application for SDS-PAGE, agarose gel, X-ray film, and microtiter plate documentations.

MATERIALS

- KETA S with BW-20 transilluminator (Wealtec)
- Southern blot X-ray film and Coomassie Brilliant Blue stained SDS-PAGE
- SYBR® Gold* and SYBR® Safe stained agarose gel

PROCEDURES

- Dilute the 100 bp DNA marker with 450 μ L 10% glycerol in 0.5 x TAE buffer.
- Run 1.2 % 0.5x TAE agarose gel with 100 bp markers with the following amount with 100 V, 70 minutes: Lane 1 to 10: 8, 7, 6, 5, 4, 3, 2, 1, 0.5, 0.25 μ L.
- The gel was casted with 5 μ L SYBR® Gold or SYBR® Safe stock (1:10000).
- Observe the result with BW-20 blue or white light in KETA S imaging system through the orange filter or WK101 filter.
- Take pictures with Microtiter plate, SDS-PAGE, and X-ray film with BW-20 white light.

RESULT

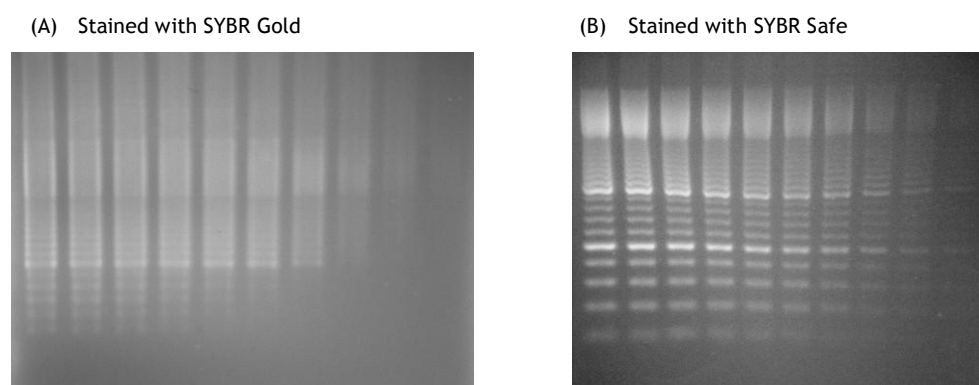


Figure 1. Observation of agarose gel through BW-20 blue light and Hight transparent orange filter

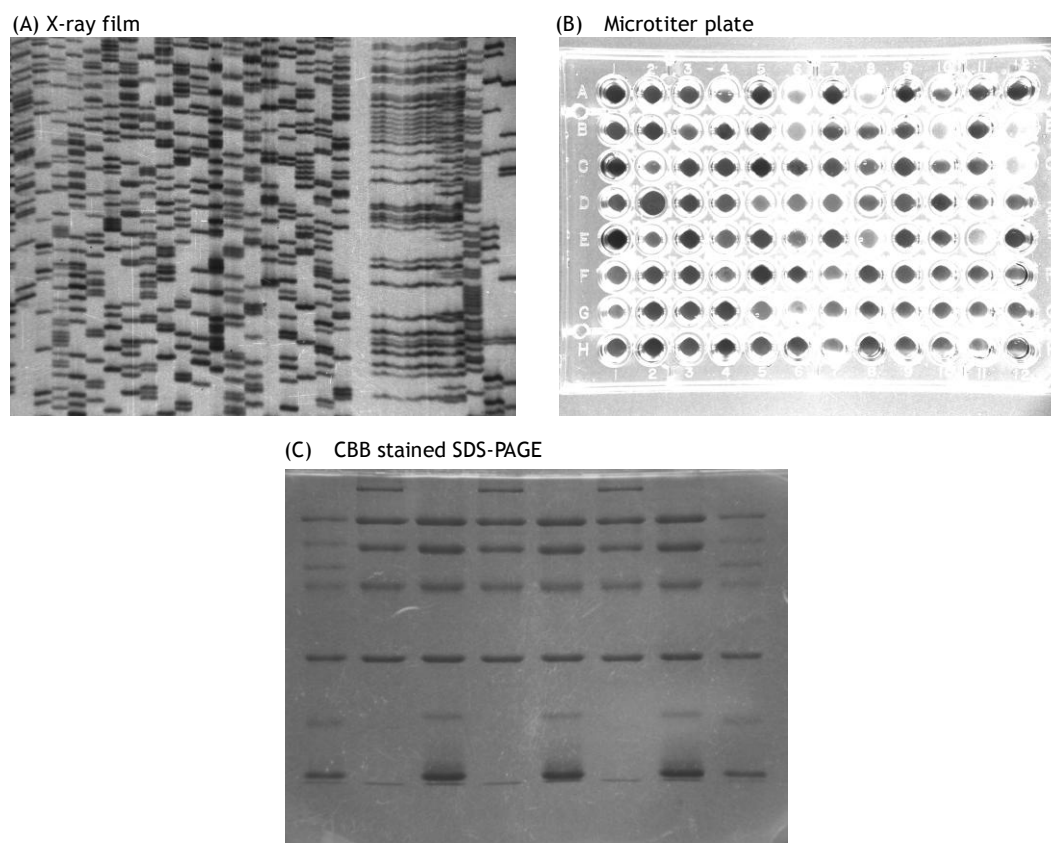


Figure 2. Observation through BW-20 white light

(A) X-ray film, (B) Microtiter plate, and (C) Commasie Brilliant Blue stained SDS-PAGE.

DISCUSSION

For those imaging systems that equipped with no blue light source, adding BW-20 is the best and easiest option for upgrade the system without any modifications on the system. BW-20 can be applied very easily into the Wealtec imaging system by built-in 24V power source, or adapted through present UV-transilluminator power cord with 24V power adaptor into the system. After applied the BW-20 into the normal gel documentation systems, user can practice their experiment with Bio-Safe stains, such as SYBR® Gold and SYBR® Safe as in fig. 1.

In the past, users used to capture the X-ray film, Coomassie Brilliant stained blue SDS-PAGE, or microtiter plate images by using epi-white light to observe. However, due to the light reflection interference on the target samples, quantification was not easy and usually got incorrect results. Since BW-20 has no reflection and provides the most uniform light distribution images, using white light from BW-20 is the best option for sample capturing as in fig. 2.

Combined with dual light sources in one system, BW-20 transilluminator provides the widest range applications from blue light Bio-Safe application to white light X-ray film documentation. The general imaging system can be upgraded with BW-20 to become a powerful multi-purpose imaging system.

*SYBR is the registered trade mark of Molecular Probe Inc.