

High Performance Gel Documentation of KETA GL

INTRODUCTION

For general gel documentation, agarose gel and SDS-PAGE are the most common gels used in the imaging system for every basic research lab. Staining with different kinds of detection dyes, samples can be observed easily through the UV transilluminator or epi-white light. For normal gel documentation, KETA G series imaging system is provided as the most trustable computer-controlled capturing system on the market. Users only need an additional UV/white light converter plate or filter for visual observation of common used nucleic acid or protein dyes. About the performance of KETA GL with a cooled-CCD camera in common image capturing, followed are the result for reference.

EQUIPMENTS AND MATERIALS

- KETA GL imaging system (Wealtec)
- Coomassie Brilliant Blue R-250 (Sigma)
- SYPRO Red, SYPRO Orange for protein samples (Invitrogen)
- SYBR Green I and SYBR Safe for DNA samples (Invitrogen)
- Ethidium Bromide (Sigma)
- PVDF Membrane (PerkinElmer)

PROCEDURES

1. Prepare the protein and DNA samples with different sample amounts.
2. Separate the samples by using 1% agarose and 12 % SDS-PAGE gels through mini-GES and V-GES, respectively.
3. Transfer the protein samples onto PVDF membrane via Yrdimes.
4. Stain the gels or membranes with different dyes according to the instructions.
5. Observe the result with KETA GL imaging system by using the following condition:

(A) Coomassie Brilliant Blue stained SDS-PAGE and PVDF:

a. SDS-PAGE:

Using of MD-25K UV transilluminator with UV/White light converter plate on it as light source and observe the image through WK101 filter in the KETA GL imaging system.

b. PVDF:

Using of U10 epi-white light as light source and observe the image through KETA GL imaging system.

(B) Fluorescents stained DNA agarose gel:

Using of MD-25K UV transilluminator as the light source and coupled with different filters to observe the samples. For EtBr stained gel, WK101 filter was used. For SYBR Green I stained gel, WK102 filter was used. For SYBR Safe stained gel, WK102 filter was used.

(C) Fluorescents stained Protein SDS-PAGE:

Using of MD-25K UV transilluminator as the light source and coupled with WK101 or WK104 filters to observe the samples.

RESULTS

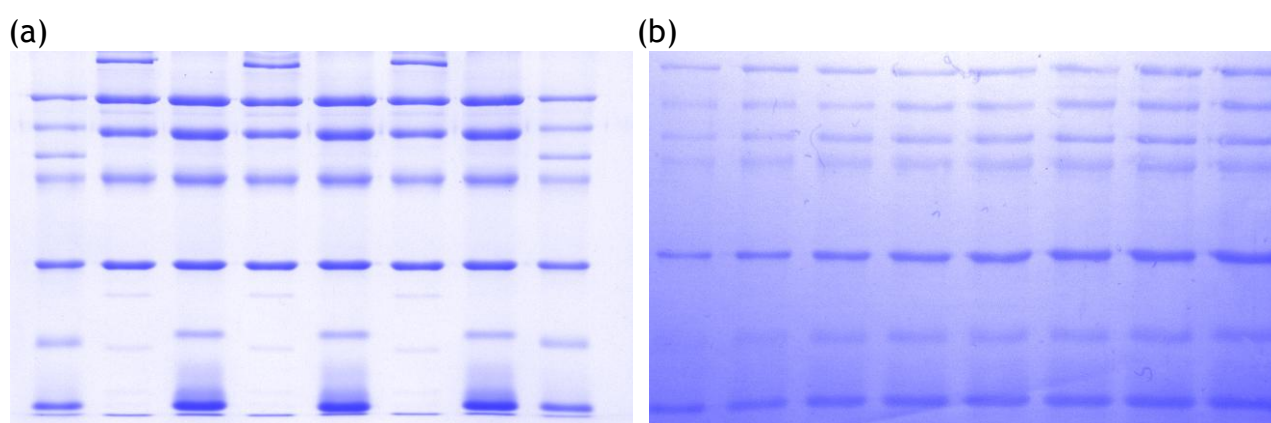


Figure 1. General gel documentation: (a) Protein markers on the SDS-PAGE. (b) Serial diluted ProMarker on the PVDF which transferred via Yrdimes. Sample: Various protein markers.

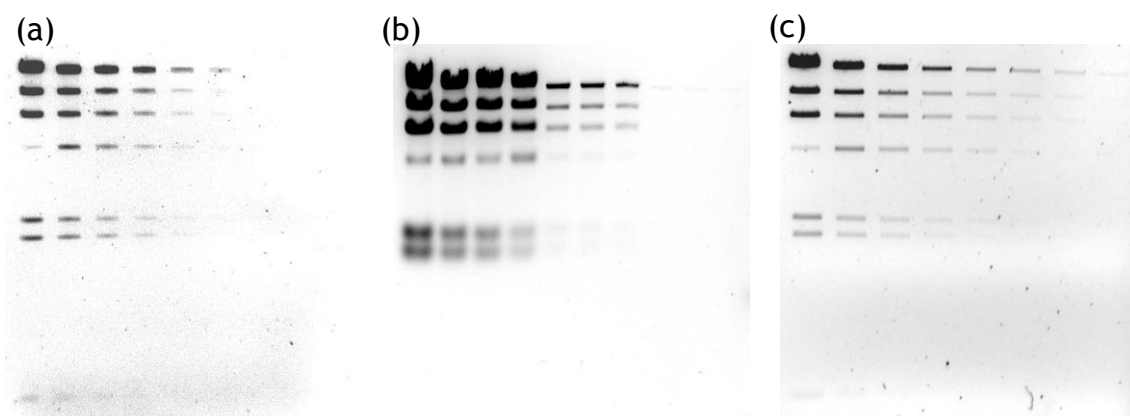


Figure 2. *Fluorescent Stained DNA agarose gel observation. (a) Stained with EtBr. (b) Stained with SYBR Green I. (c) Stained with SYBR Safe. Sample: series diluted λ DNA/HindIII ladder.*

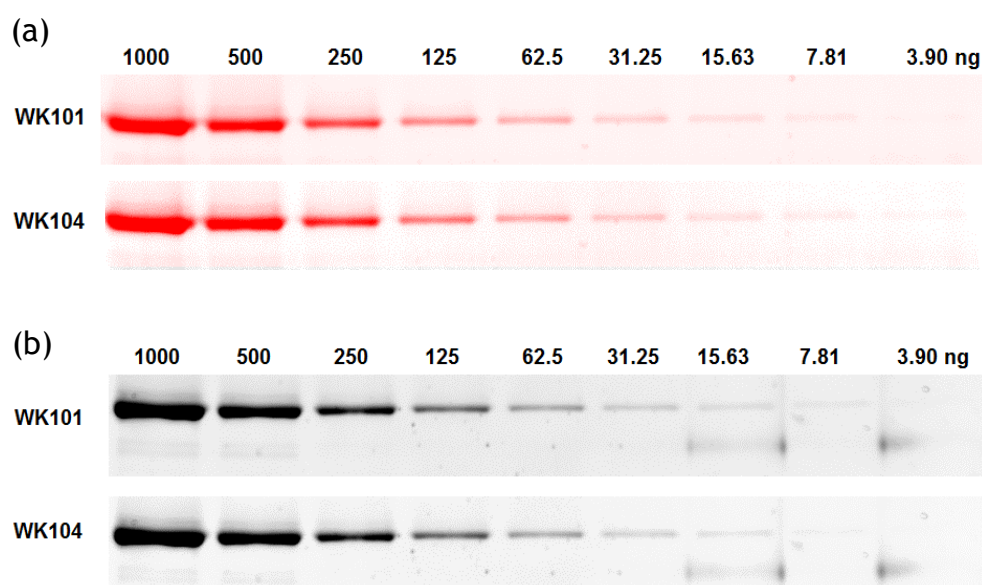


Figure 3. *Fluorescently Stained SDS-PAGE observation. (a) Stained with SYPRO Red. (b) Stained with SYPRO Orange. Sample: Series diluted pure transferrin protein.*

DISCUSSION

KETA GL imaging system is offered as high quality gel documentation system. Configured with Peltier-cooled CCD, KETA GL provides better S/N ratio for the sample detection among all other gel documentation systems on the market. As in figure 1, it is proved to have excellent performance in general gel documentation. Samples stained with the fluorescent dyes which can be excited through the UV transilluminator can all be detected very well as in the figure 2 and 3. With lower noise signal interference, KETA GL can capture the image with lower background signal intensity, which is easier for user to analyze the desired data. Referring to the instruction manual of sample stains, all the result that captured in KETA GL imaging system can meet the lowest detection limit that suppliers claimed. Also due to the system is paired with cooled CCD, KETA GL system has been proved capable to be applied on chemiluminescence detection when upgraded with Magic Chemi software. With high quality gel documentation and fluorescence observation ability additional with chemiluminescence detection, KETA GL is considered as a highly cost-effective system to meet researcher's needs.