Kalstein

YR04961

Gel Documentation System

Instruction Manual

Thank you very much for purchasing our Gel Documentation System.

Please read the “Operating Instructions” and “Warranty” before operating this unit to assure proper operation. After reading these documents, be sure to store them securely together with the “Warranty” at a hand place for future reference.

Warning: Before operating the unit, be sure to read carefully and fully understand important warnings in the operating instructions.

Kalstein®

OUR SERVICES

Benefits and Support

In Kalstein France, we take care of the full satisfaction of our customers, that is why we provide value-added services of the highest level based on our experience.

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In any part of the world, receive your induction or training from our specialized team of engineers

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Our work team is always available to response all your consults or questions, in order to support you in any situation.

#Letsgivemore 💚

Thanks to your purchase, a donation will be made to a non-profit foundation that fights against breast cancer and helps most vulnerable communities.

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We take care of all the necessary logistics for the dispatch of your goods, whether is by sea, land or.air.

Kalstein Worldwide

With more than 25 years growing with our customers, Kalstein's multiformat and modern content, is now present in more than 10 countries and increasing.

NAME AND MODEL

Gel Documentation System YR04961

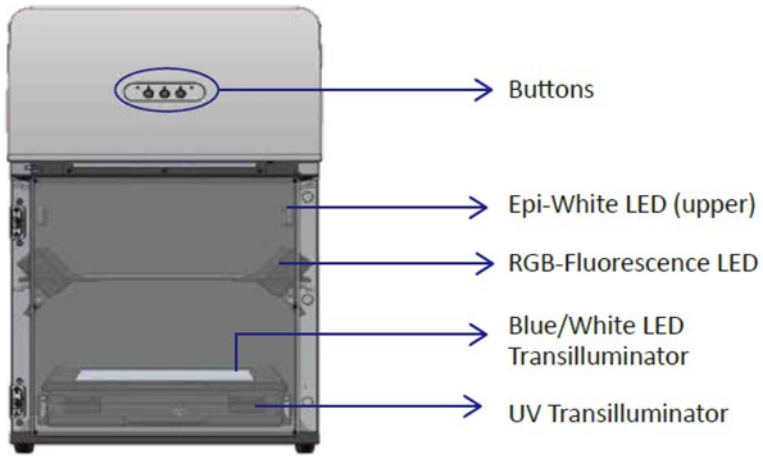
USE

Kalstein´s Gel Documentation System YR04961 and Analysis System is designed for the detection and documentation of nucleic acids and proteins. It adopts a high resolution and high sensitive scientific CCD-Camera, which enables the instrument to capture user weak signals under extremely low illumination condition.

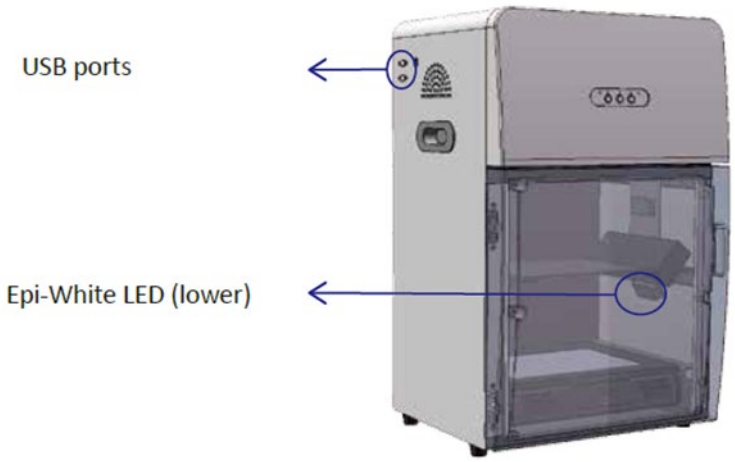
PRODUCT INTRODUCTION

- Panel Components

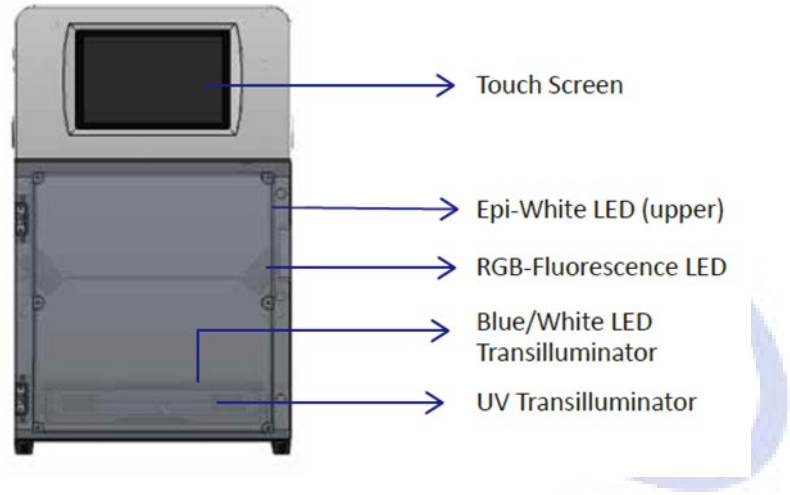
Kalstein´s YR04961 Series front panel components:



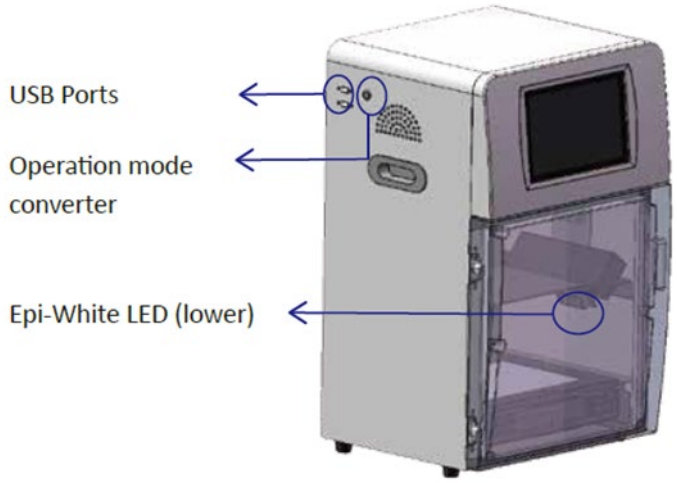
Kalstein´s YR04961 Series side panel Components:



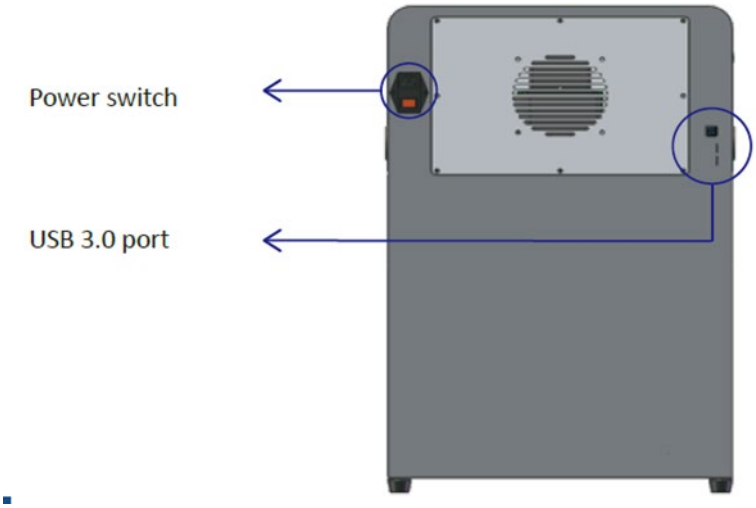
Kalstein´s YR04961 Series side panel Components



Kalstein´s YR04961 Series side panel Components



The back sides of these two series keep consistent



IMPORTANT NOTICE

Read the user guide carefully **!**

The instrument is suitable for research use only. Therefore, it must be used only by specialized personnel who know the health risks associated with the reagents that are normally used with instrument

WARNING! This instrument must be connected to an appropriate AC voltage outlet that is properly grounded.

Do not leave the instrument in a damp, dusty or hot place.

Do not pour liquids or inside the instrument!

Do not drag or scratch with hard or sharp objects to prevent scratches.


The product must not be dismantled without authorization. If you have any problems, please contact us or our authorized distributor.


Clear the sample tray after use!

- Safety Information

UV Danger! Do not look directly unless use UV shielding guard or goggles! The product involves UV illumination. It must be used only by specialized personnel who know the health risks associated with the UV radiation that are normally used with instrument.


The UV™ SMART UV Transilluminator is “no-lamp” design. It seems even no tubes under the high intensive light, when the power is on.


Note 1: If the blue light of power is on, the UV works.

Note 2: Using UV shield is a must, when you need to observe or to cut gel.


Note 3: Wearing the goggles for protection of your eyes away from the blue light illumination, when your need to observe the gel with blue light transilluminator.

HARDWARE GUIDE

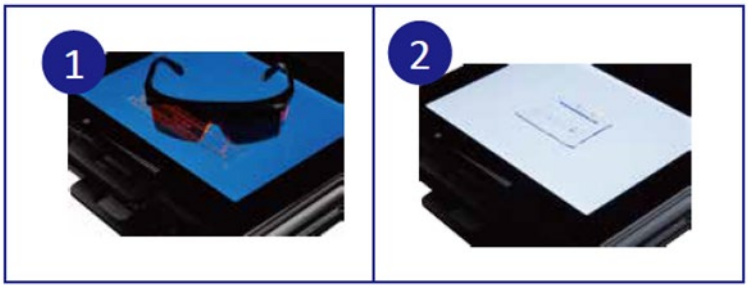
- Check Packing list

Please open the box carefully and check the items up as packing list. If any parts are missed or damaged, please contact your provider immediately.

- Standard Accessories

- Optional Accessories

According to your option, we provide the following accessories:



1. Ultra-slim white LED transilluminator

2. Ultra-slim blue LED transilluminator

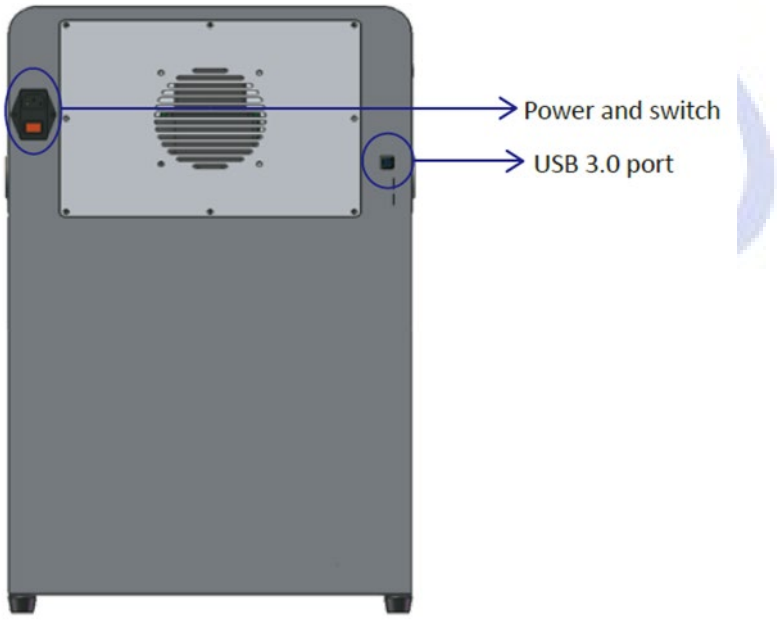
- Configuration and application list

Configuration	Application
Main System	Gel Documentation with EtBr,etc.
White LED Transilluminator	SDS PAGE, Silver staining, etc.
Blue LED Transilluminator	Gel Documentation with Gel Green, etc.
RGB-Fluorescence	Support various fluorescence dyes

- Instrument installation

1. Ensure the machine is plugged in and turn on using the POWER switch on the back of instrument.

2. Connect USB cable to computer if you want to use the stand alone PC) Power switch and USB port are shown as below:

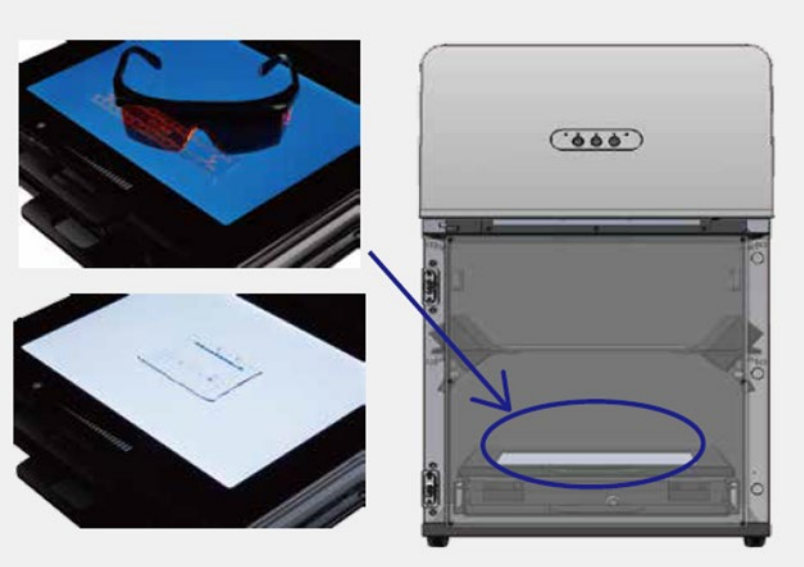


- Installation of super slim Trans white/blue sample stage

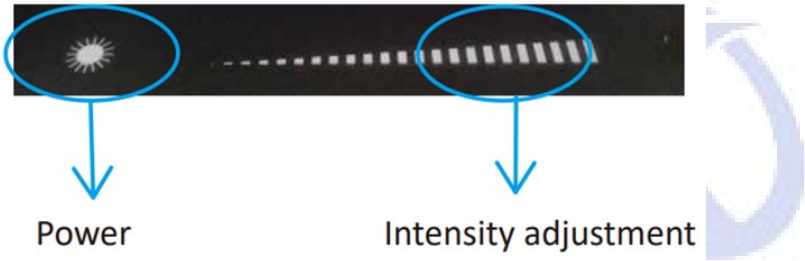
The ultra-thin blue light sample stage has a magnetic thimble port:

The side of the magnetic thimble port should be aimed at the inside of the

instrument and push the blue light stage into the “drawer”. Position is as shown.



- The use of super slim Trans white/blue sample stage



The operation is designed by touch-sensitive design

1.Power On : To power the sample stage on by touching the “power” icon.

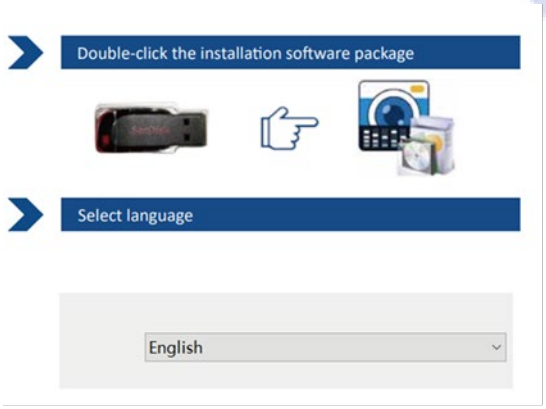
2.Brightness adjustment: Based on indication of brightness in the picture, you can adjust brightness by touching and dragging. The intensity of white and blue light is increased from the left to right.

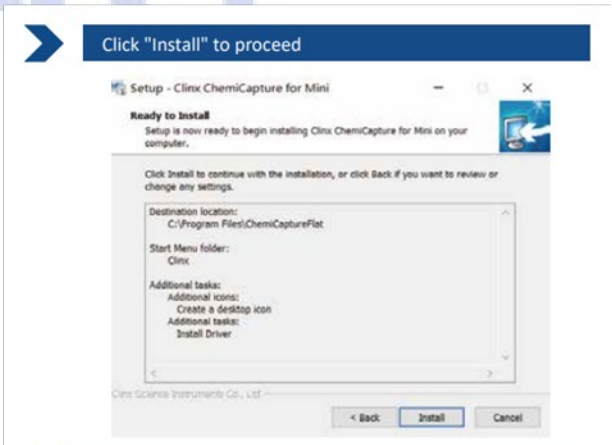
SOFTWARE INSTALLATION

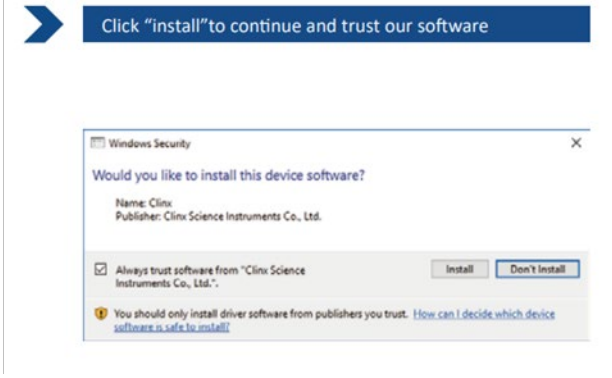
- Software Introduction

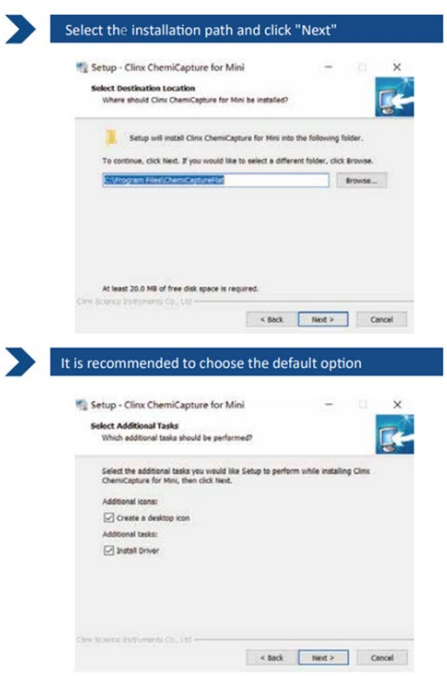
Kalstein´s Gel Documentation System image capture and analysis software is designed for Kalstein´s gel documentation system.

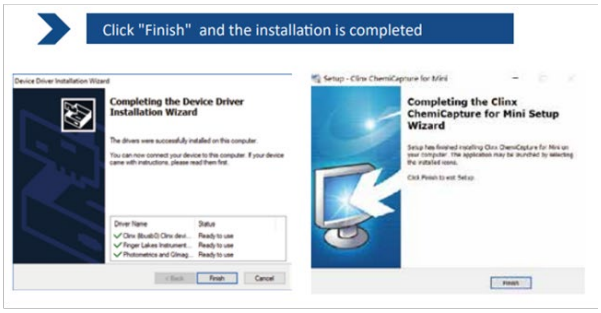
- Installation guide



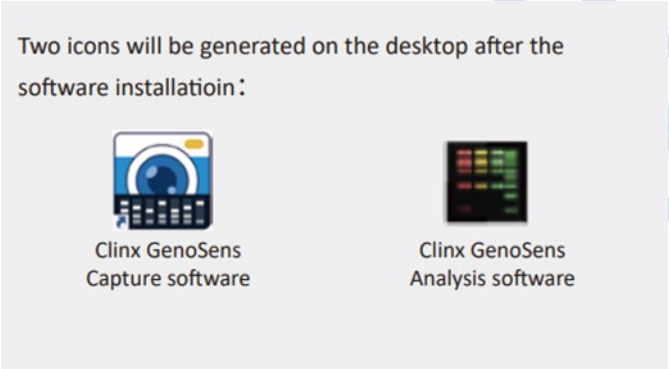








- Software icon



GEL CAPTURE

Before you take pictures of nucleic acid gel, please make sure that your machine is equipped with one of the following transilluminator:

1. UV™ SMART UV Transilluminator UV™SMART UV Transilluminator has an excitation wavelength of 302nm and a 590 nm filter. Support dyes such as EB and Gel Red.

2. Super Slim blue LED Transilluminator Super Slim blue LED Transilluminator has a excitation wavelength of 470nm. Support safety dyes such as Gel Green and SYBR™Green.

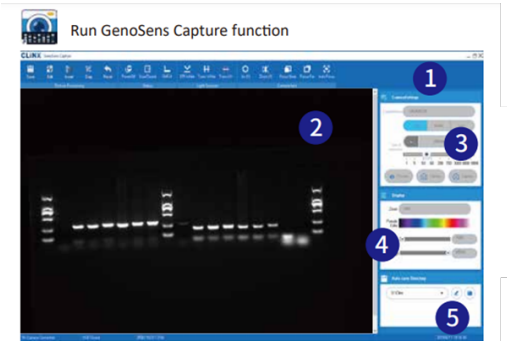
- Safety alert

WARNING: When you use the UV™SMART UV Transilluminator or Super Slim blue LED Transilluminator. It must be used only by specialized personnel who know the health risks associated with the UV radiation that are normally used with instrument. Users should be trained on the appropriate personnel protection gear for working with UV light to minimize UV exposure.

- Super Slim transilluminator Installation

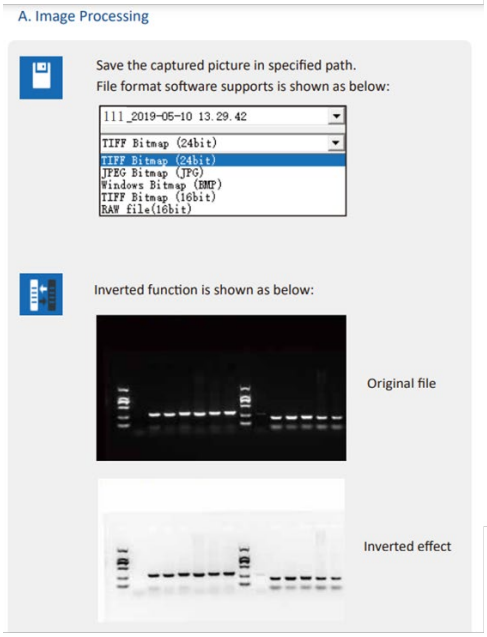
Part 1: Gel Capture PC standalone version

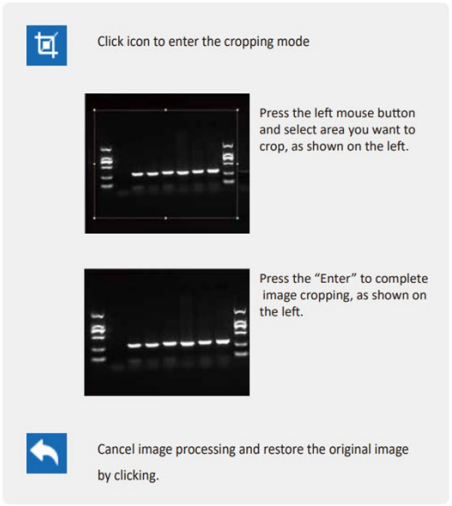
Before using the software, please complete the hardware installation, connect USB cable correctly and turn the power on. Hardware installation refers to P10 in user manual. Notes: If you are using an embedded PC gel documentation system, there is a different UI by interactive touching. If you have an embedded PC gel documentation system, but you want to use standalone computer, and you can press the “mode convertor” button. Button position refers to manual P6-P8 and connect USB cable correctly.

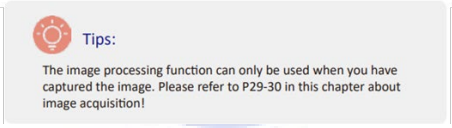


No.	Description
1	Tool Bar
2	Preview window
3	Parameter setting
4	Display setting
5	Auto save path

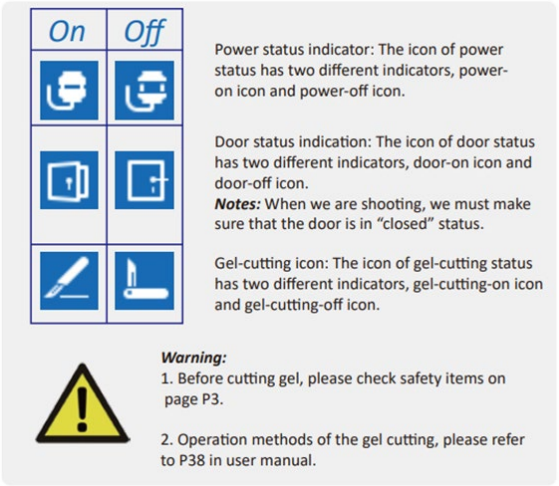
- Tool bar function introduction



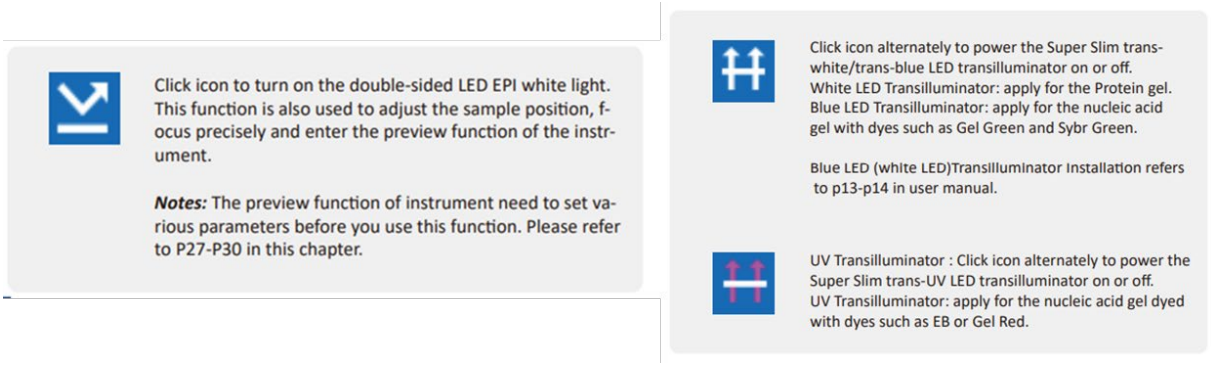




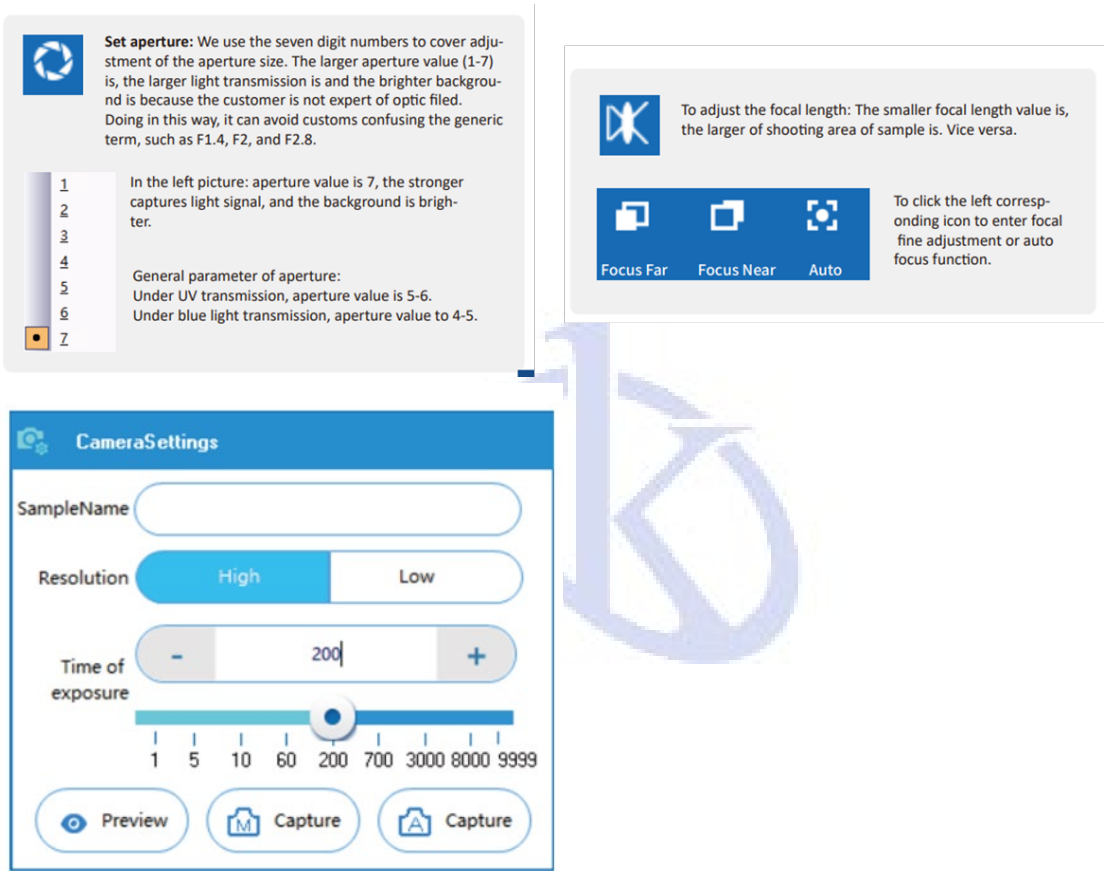
- Status indication



- Light source control



- Camera parameter Setting



A. Input Sample name

You enter the sample name for automatically saving image file after the sample picture is taken. Please refer to P31 in this chapter for file path selection.

B. Resolution selection

High resolution

When you select High resolution for shooting, the system will provide high-definition images. The experimental image can be used to print HD files.

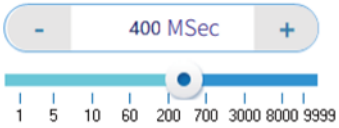
Note: The exposure time will be longer if you choose High resolution mode. The sensitivity of the camera will decrease.

Low resolution

When you select Low resolution for shooting, the system will provide low-definition images.

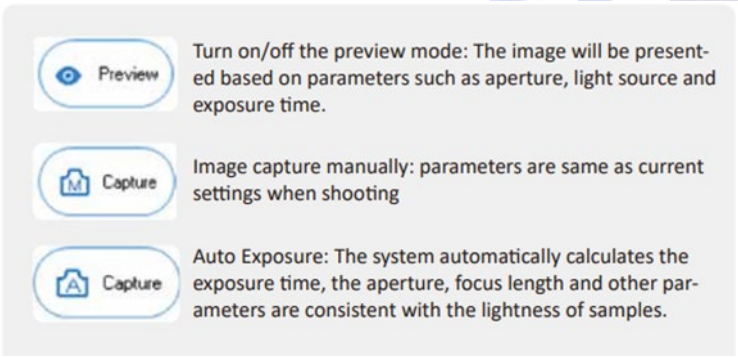
Note: The exposure time will be shorter if you choose Low resolution mode. The sensitivity of the camera will increase.

C. To adjust exposure time



The longer exposure time is, the brighter picture is. The user can adjust exposure time according to different application. What You See Is What You Get when you adjust the exposure time under preview mode.

D. Preview and Capture



- Display setting window

Adjust the grayscale range

Adjust the grayscale range

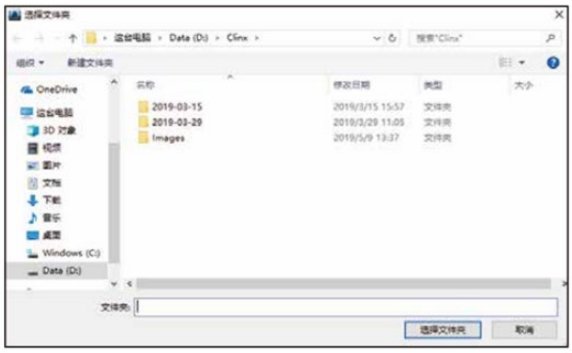
We firstly need to capture images before adjusting grayscale. To adjust grayscale range is for the background and the brightness of bands to be best to watch. The grayscale range is from 0 to 65535.

The lower value means that the background is darker (suggestion: not to adjust). The lower is the high value, the brighter band is. You can control the brightness of band by decreasing the value.

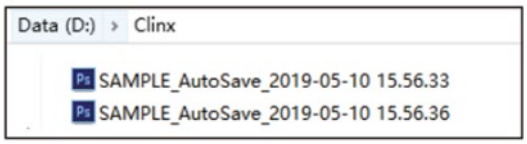
We only turn the High value down.

Auto save file path

Click this icon to select folder path which is automatically saved, shown as below:



It will be automatically saved into this folder when picture is taken in every time, and the customized file name , the date and time of the shooting will be displayed , shown as below:



Part II: Kalstein's Capture Touch operation version

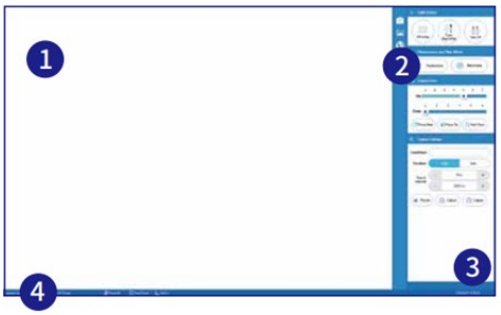
If you are purchasing an embedded gel documentation system, please read the Kalstein's Capture Touch Screen.

Operation Instructions:

It has the same features as the PC version, but the user interface is different. It is designed for more suitable for touch operation.

Before shooting samples, please insert the U disk into the USB port on the left side of the instrument. Please refer to P8 in user manual for the USB port location.

Main interface of Touch screen operation



No.	Description
1	Image display window
2	Parameter setting bar
3	Picture Tool bar
4	Status bar

Tab Bar

Shooting parameters setting

Click this icon to set the shooting parameters including: light source, fluorescence, filter wheel, lens and acquisition settings.

A. Light source setting

Click the icon shown on the left to open the light source.

Introductions to the light source, please refer to P26-P27 in this chapter.

B. Lens setting

As shown on the left, the aperture size and focus length can be adjusted by pulling the slider. To click the corresponding icon to enter focal fine adjustment or auto focus function.

If you need detailed operation instructions, please refer to P26-P27 in this chapter.

C. Image capture setting

You enter sample name in the input box, the pictures will be automatically saved into the specified path after shooting every time.

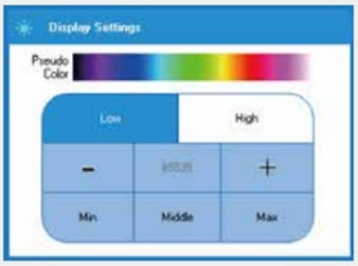
Auto save file path settings, please refer to P31-P35 in this chapter.

Clicking Preview button, you can observe samples on the screen. Details about the exposure time setting and image acquisition operation, please you refer to P26-P27 in this chapter.

Image editing and saving

Click this icon to edit the image and save the picture into the specified path.
Note: Before editing and saving an image, we firstly need to capture the image.

A. Display Setting



After the image is acquired, we can add pseudo-color through the display settings.

To adjust the grayscale value (low value, High value), you can get the best picture to be watched. Instructions on adjusting the grayscale value, please you refer to P30 in this chapter.

B. Auto save file path

Set a file path of saving. The picture will be saved automatically into this path when you shoot images every time.
To use auto save file path please you refer to P31 in this chapter.

C. Image editting

After the image is captured, we can edit images as shown on the left

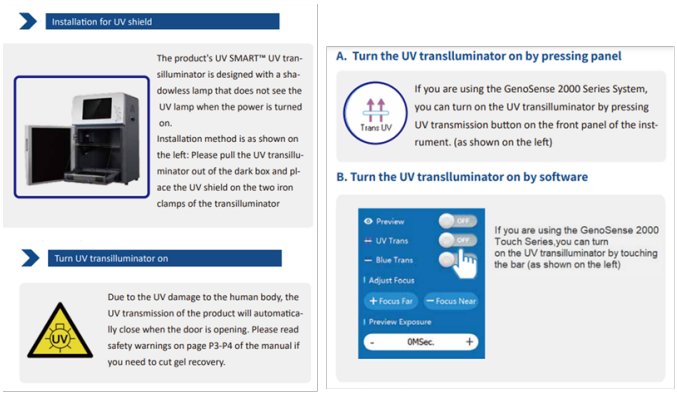
To use image editing function, please you refer to P24 in this chapter.

- Status Bar

The status bar displays the key status when the instrument runs. If you want to know the detailed information, please refer to P26 in this chapter.

GEL OBSERVATION

Part 1: Using UV transilluminator for observing and cutting gel



Part 2: Using blue (white) LED Transilluminator

Transilluminator Installation

Transilluminator Installation,please refer to P13 in manual

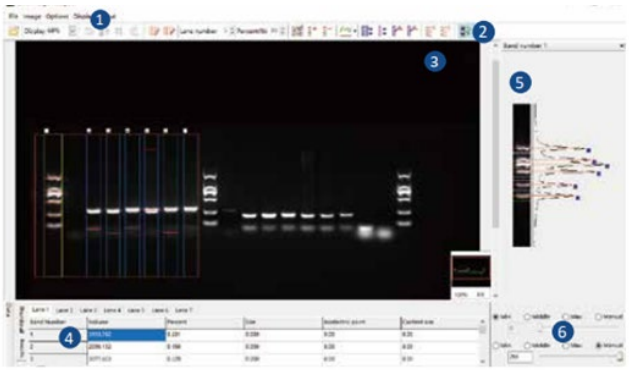
Turn on the LED Transilluminator

No need to turn on blue(white)LED Transilluminator through the software. For details, please refer to P14 in manual.

Blue and white light, and other types of visible light are exposed to eyes that can cause harm. When using blue and white light transmission stations, Please be sure to protect your eyes when using blue (white) LED Transilluminator.For details, please refer to P4 in manual.

ANALYSIS SOFTWARE

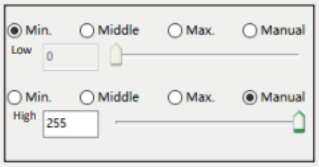
- Enter the main interface



No.	Description
1	Menu bar
2	Tool bar
3	Main image windows
4	Thumbnail and data window
5	Bands window
6	Adjustment of Grayscale range window

- Gray scale display setting

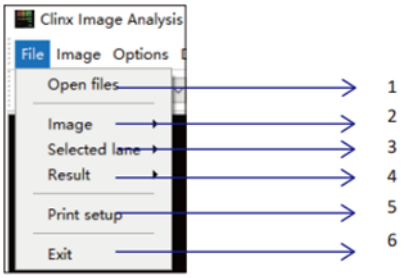
Before we start analyzing the image, we need to adjust grayscale range so that the background and the brightness of bands are the best situation. Firstly, we switch the High and Low values in the left corner of the software to manual state, as shown below:



The Low value is more higher, the background is more darker(suggestion: not to adjust). The High value is smaller, the bands are more brighter. We only turn down the High value.

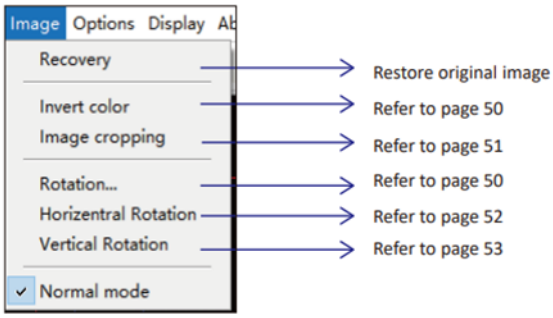
- Menu Bar

File Menu



NO.	Function
1	Open the experimental image. System supports JPG, TIFF and BMP formats.
2	After clicking on the image menu, you can save or print the image of results.
3	After clicking on the "selected lane",you can save save or print the image of lanes
4	Save the analyzed results to an Excel or JPG files
5	Select and set your printer properties
6	Exit the software

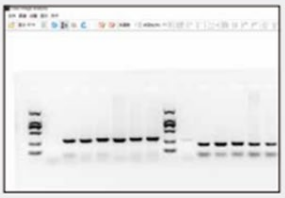
Image Menu



Main function for Image menu bar

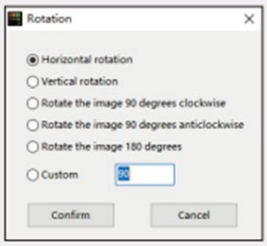
Invert color

Original Image



Inverse effect

Rotation



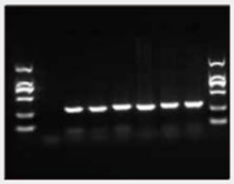
Various rotation modes

Main function for Image menu bar

Image cropping

After click the Image cropping, the menu bar "Cropping" will be ticked Short-cut of the crop will be active.

Hold the left mouse button and select area you want to keep, as shown on the left.

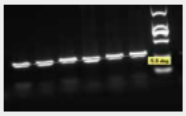


After selecting, press the "Enter" key to complete the cropping of image, as shown on the left

Main function for Image menu bar

Horizental rotation

When the bands of the original image is not horizontal (as shown on the left). We can use this function to put bands horizontally for image analysis.



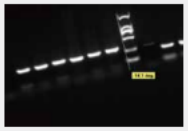
After click this function, we can use the mouse to pull a horizontal line along the strip (as shown on the left)

Adjusted picture is shown on the figure above. The bands basically kept in a horizontal position for later analysis.

Main function for Image menu bar

Vertical rotation

When the bands of the original image is not horizontal (as shown on the left). We can also use this function to put bands horizontally for image analysis.



After click this function, we can use the mouse to pull a vertical line along the edge of the bands.

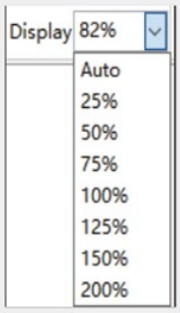
Adjusted picture is shown on the figure above. The bands basically kept in a horizontal position for later analysis.

- Main function for tool bar

A. Open files

Click the icon to open the experiment picture quickly.
Support 8bit, 16bit, 24bit of TIFF, JPG and BMP files.

B. Image size display



On the right side of the short-cut bar, you can adjust the size of the image in the main window by using the drop-down box, or you can select "Auto" function to automatically match the size of the image.

Tips

Place the mouse in the main image window, we can adjust the size of the picture display by scrolling the mouse roller up and down.

C. Image editing tools

Recovery: One-click recovery of the original image

Invert color display: Refer to page 50

Image cropping: Refer to page 51

Image Rotation: Refer to Page 50

D. Auto lane detection

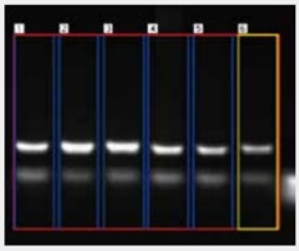
Click the icon to activate "Auto lane detection" and hold left mouse button to select the area you want to identify.

Lanes can be identified automatically.

E. Manual lane configuration

Lane number 5 Percent(%) 90

Click the icon to activate "Manual lane configuration" and enter number in the lanes then define the percent (Percent means the proportion of the space occupied by bands. If the percent is 90%, 10 % is the distance between the lanes. The percent is generally set to 90%).

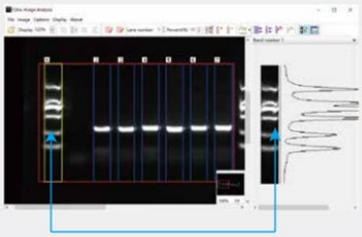


After setting, hold left mouse button to select the area you want to identify. It will be framed if the number of the bands is set to 6. The size and distance of each band is fixed.

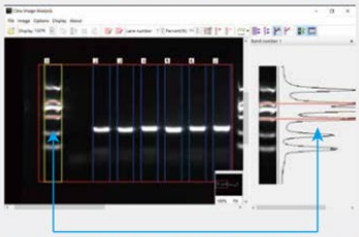
At the same time, use the mouse to select the bands box in the image window, selected bands box is yellow. We can pull the width of the selected electrophoresis by mouse.

F. Bands identification, addition and elimination

Manually add bands. Select the lane in which the band is located (yellow box). The image of the selected lane is displayed in the band window at the right of the software interface. As shown below:



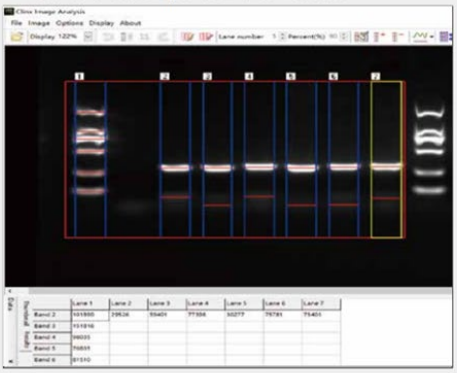
After click the Icon, use the left mouse button to click strip in the right strip window to add a strip. The added bands will be added synchronously on the main window as shown below:



Manually delete strip. The operation method is the same as adding band. Select the lane and use the left mouse button to click the band you want to delete in the strip window.

G.Molecular weight

Setting molecular weight: Mark the molecular weight of each band according to the Marker instruction



As shown above, we first select lane in the area and identify the bands (refer to P55-P58). Click the left mouse button to select the standard lane (in the yellow box).

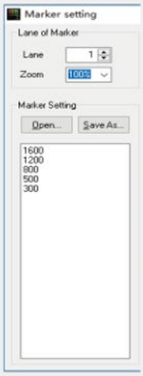
Click to open the window of"Setting molecular weight"that is divided into the following three parts as shown on the left

No.	Description
1	Choose Marker's lane
2	Input molecular weight of Marker
3	Bands window

I. Choose Marker' lane

The selected lane and identified bands are displayed simultaneously in the Marker bands view window

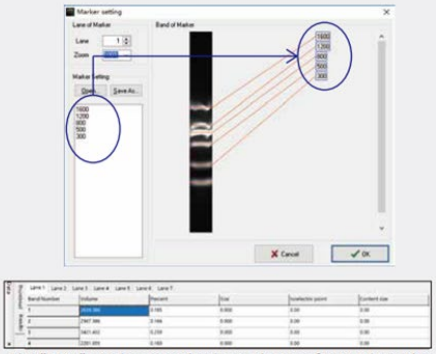
II. Input molecular weight of Marker



In the first time, you can input molecular weight base on the standard molecular weight , as shown on the left, we enter "1600, 1200, 800, 500 and 300" from top to bottom. You can save theseconfiguration into the file as format ".cmr" by "Save As" button in order to use it in the next time without inputting the same molecular weight again.

Click"Open" button to import former configuration file!

After you enter the molecular weight, the bands corresponding to the standard Marker will displayed in the view windows simultaneously. The related data of the band identified in the lane will be automatically calculated and showed in the "Data" window. As shown below:



The "Data" window introductions, please refer to P61 in this chapter.

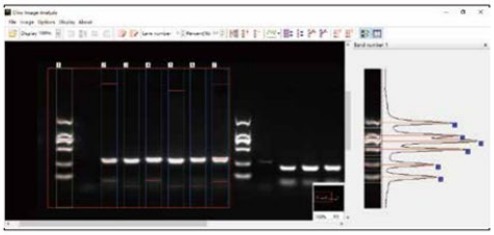
H.Show or hide of lanes and data windows

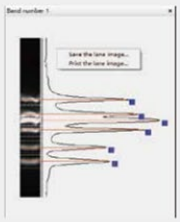
Show/Hide button of lanes window
To display the lanes window by default.

Show/Hide button of Data window
To display the data window by default.

Bands window

When we select lane and identify the band, the selected bands (yellow box) will be displayed in the windows, including the grayscale value of the band. As shown below:



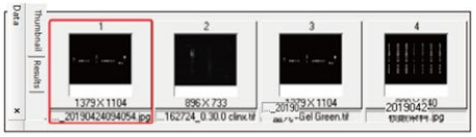


You can save the image in the band window as a JPG, BMP or TIFF file by right-clicking on the band window area, and you can directly print the image.

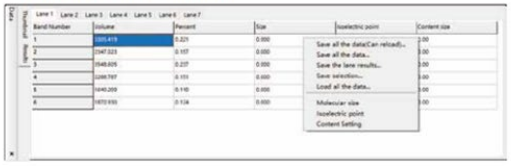
(As shown on the left)

Thumbnail and data window

The analysis software can open multiple image files and they are displayed as thumbnails. We can select the images to be analyzed by clicking the thumbnail, as shown below:



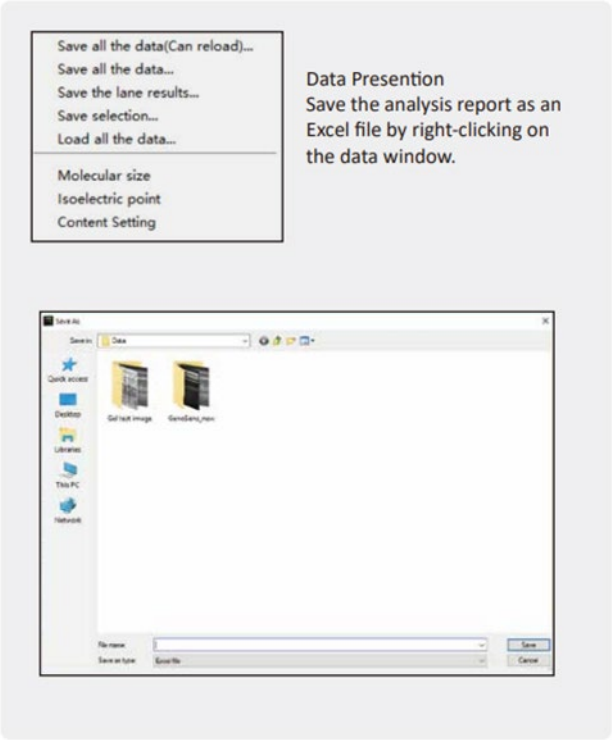
Once the band is recognized, the thumbnail window will automatically switch to the data window. You can also switch manually by clicking the "Thumbnail" or "Analysis Report" tab on the left.



Right click on the data window area, you can open the "Molecular Weight Settings" window in the drop down box, or you can click the "Molecular Weight Settings" button on the toolbar.

Tips:

The setting of molecular weight, please refer to page P60-P61 in manual.



BRIEF INSTRUCTIONS- Kalstein´s Gel Documentation System YR04961

1.- Turn on the Instrument

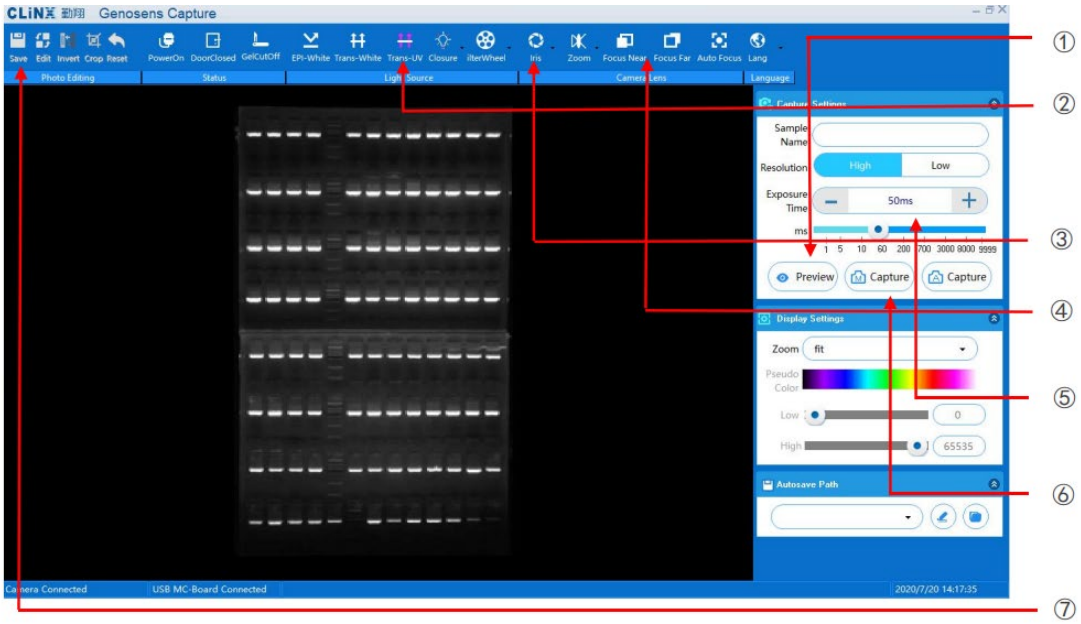
1) Connect the power cable, USB3.0 cable, and turn on the power.

2) Open the “Capture Image Software”, enter the main menu.

2.- Nucleic acid gel capturing

1) Place the sample in the center of the UV-Transilluminator and close the door.

2) Imaging capturing and Save images as following steps.



① Click “Preview” button

② Click “Trans-UV” button

③ Click “Iris” button and choose 7

④ Click “Focus Near” or “Focus Far” to adjust lens focus

⑤ Set exposure time to adjust brightness of the band

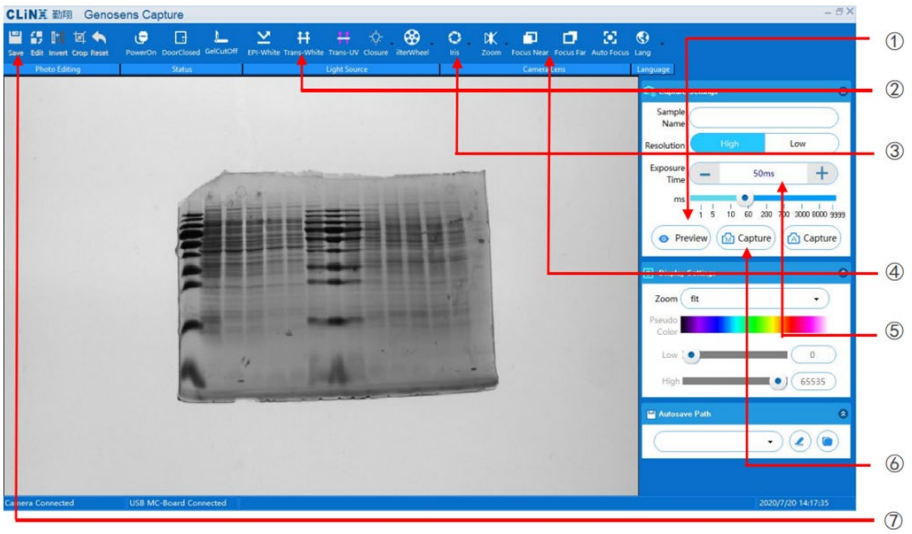
⑥ Click "M manual" exposure or "A automatic" exposure to complete the image capturing

⑦ Click Save button to finish image storage

3.- Protein Gel capturing

1) Put the White-Transilluminator into the cabinet, place the sample in the center of the white-Trans, and close the door.

2) Imaging capturing and Save images as following steps:



① Click “Preview” button
② Click “Trans-White” button
③ Click “Iris button” and choose 3
④ Click “Focus Near” or “Focus Far” to adjust lens focus
⑤ Set exposure time to adjust brightness of the band
⑥ Click "M manual" exposure or "A automatic" exposure to complete the image capturing.
⑦ Click Save button to finish image storage.

4.- Gel Cutting

1) Open the door, pull out the UV-Transilluminator, and place the nucleic acid gel sample in the center of UV-Trans. Please place the UV Shield on the UV-Trans card slot. Make sure the user observes sample on the UV-Trans through the UV Shield.（UV-shield can protect yes from ultraviolet damage）

2) Click "gel cutting off" button to set it on, or press the TUV physical button in the front panel of the instrument at least 3 seconds until the light in the front panel of the instrument is turned on. Then you can do cutting gel operation.

5.- Turn off the instrument, back to the main function/protocol window, click red “EXIT” button, and turn off instrument power.