Fluorescence Chemiluminescence Imaging System

MANUAL

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CLiNX

Clinx Science Instruments Co., Ltd.

Contents

01

Important Notice

Important Notice

Read the user guide carefully!
The instrument is suitable for research use only. Therefore ,it must be used onlyby 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 outletthat 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.

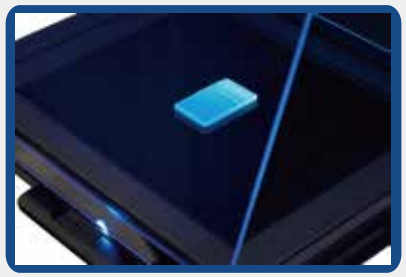
Clear the sample tray after use!

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.

Note2:
Using UV shield is a must, when you need to observe or to cut gel.

Note3:
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.

02

Product Introduction

Summary

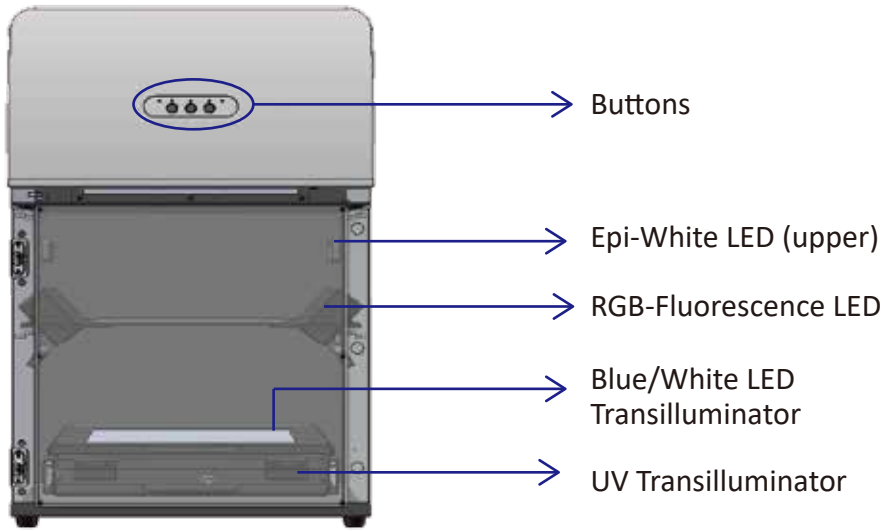
Thank you for choosing our products!

Clinx ChemiScope series is a fluorescence and chemiluminescence-capable gel/blot imaging systems. The scope of its application is based on your machine's configuration you have chosen. If you want to upgrade the system, please contacts our sales or authorized dealer of our company.

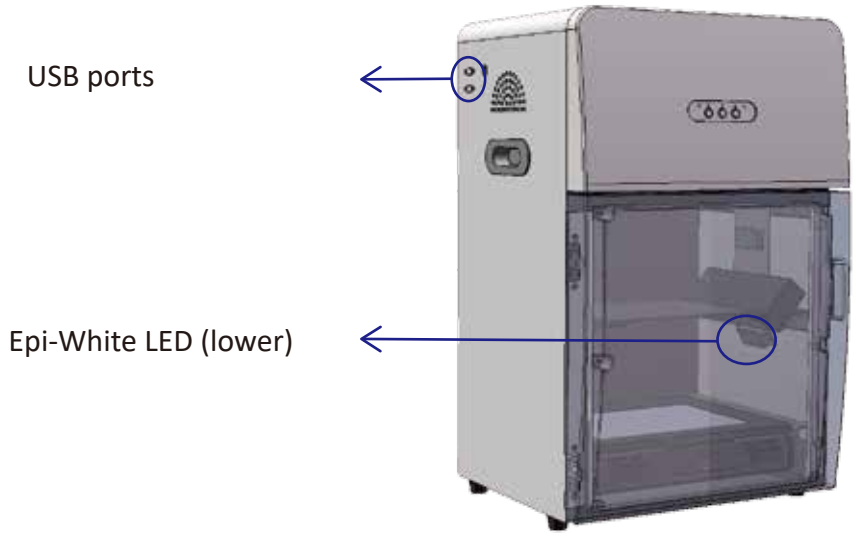
It is easy to use. Position the sample on a sample tray, choose the image acquisition preset, and capture the image by clicking the button.

Panel Components

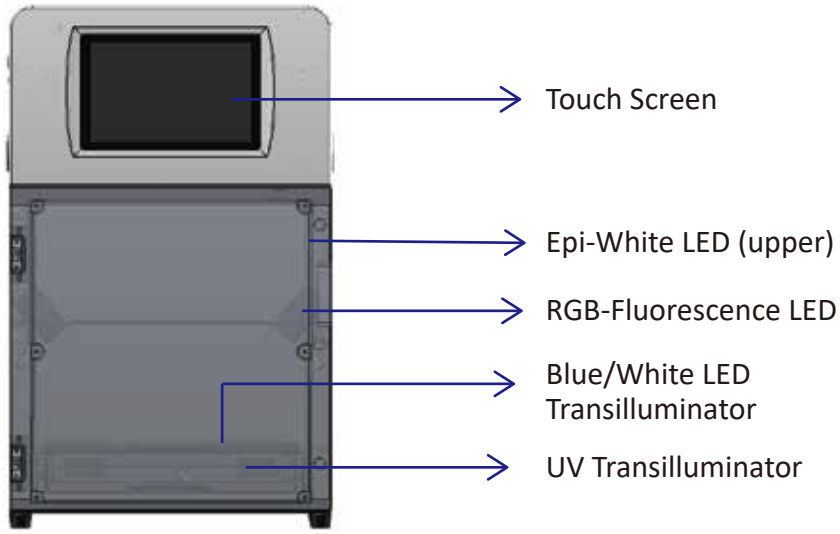
ChemiScope 6000 Series front panel components



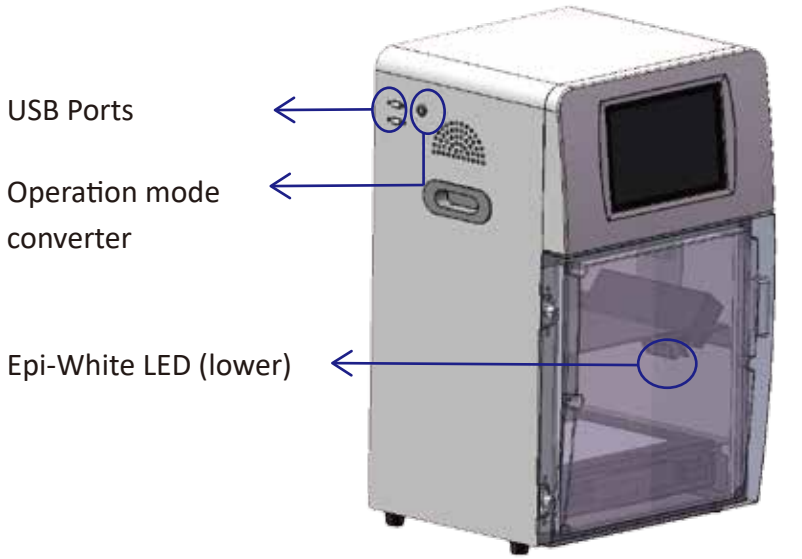
ChemiScope 6000 Series side Panel Components



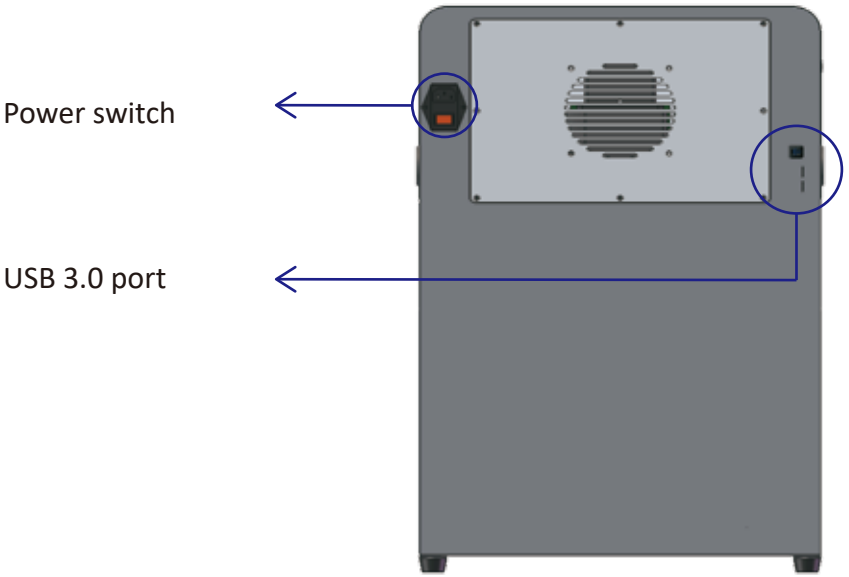
ChemiScope 6000 Touch Series front panel components



ChemiScope 6000 Touch Series side panel components



The back sides of these two series keep consistent



03

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

1 	2 
3 	4 
5 	1. USB disk 2. Software Dongle 3. USB 3.0 cable 4. Power cord 5. Chemiluminescent sample tray

Optional Accessories

According to your option, we provide the following accessories:

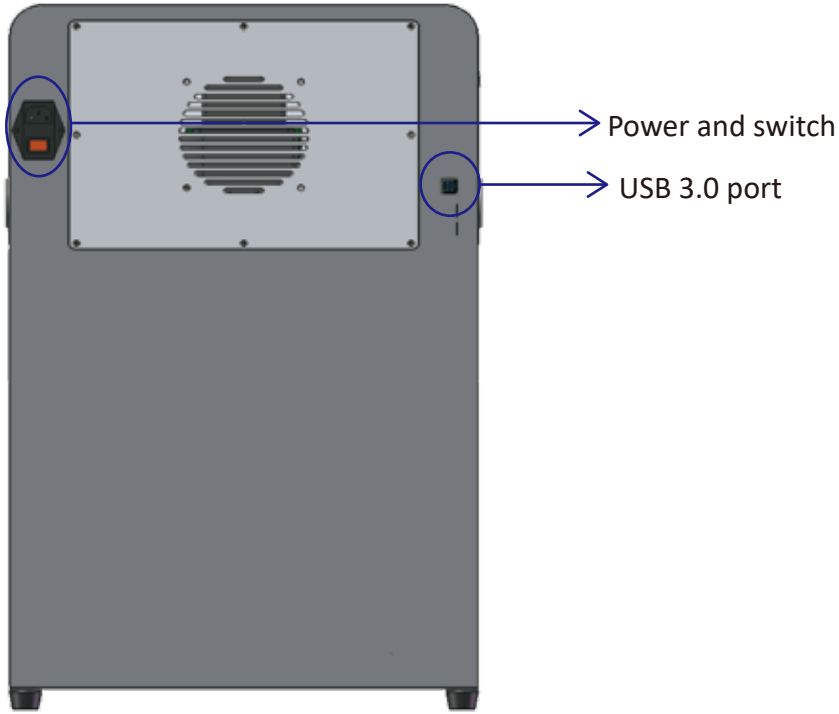
1 	2 
3 	1. UV Transilluminator & UV protection shield 2. Ultra-slim white LED transilluminator 3. Ultra-slim blue LED transilluminator

Configuration and application list

Configuration	Application
Main System	Chemilluminescence Imaging for Western blot
UV-Transilluminator	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

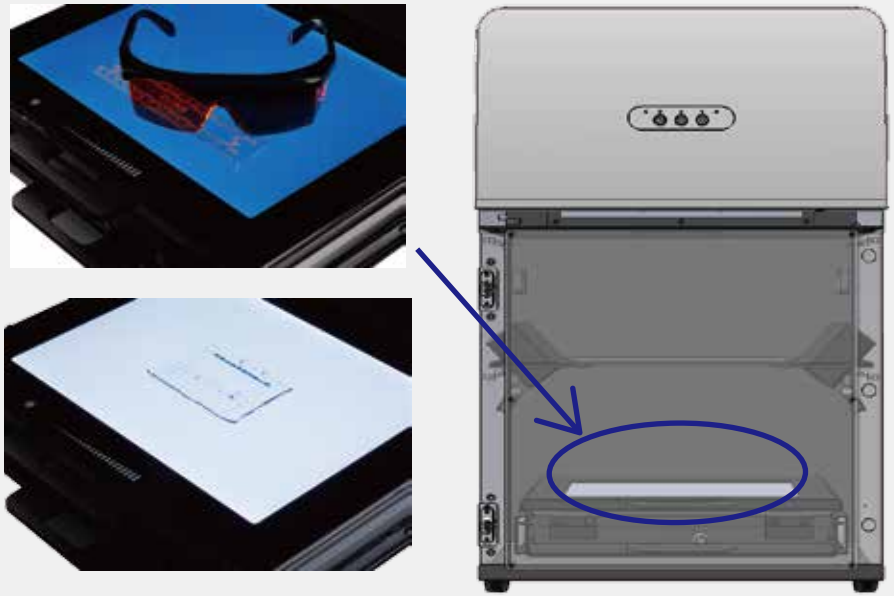
1. Ensure the machine is plugged in and turn on using the POWER switch on the back of instrument.
2. Connect the USB cable to your computer if you want to use the stand alone PC operation mode and USB port are shown as below:



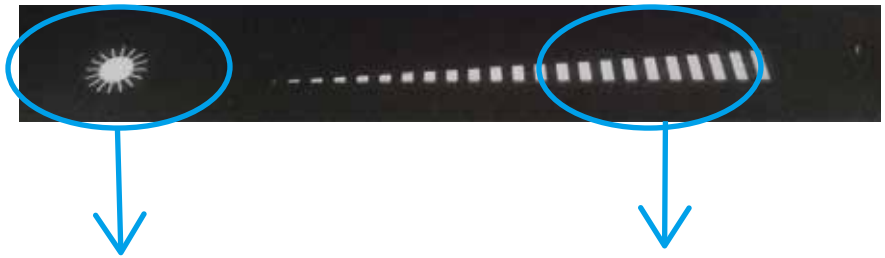
Installation of super slim Trans white/blue sample stage

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.

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Software Installation

Software Introduction

ChemiScope Capture and ChemiScope analysis software is designed for ChemiScope6000 Series Fluorescence&Chemiluminescence Imaging System.

ChemiScope Capture applys for capturing sample picture . Capture parameters are automatically matched different samples without configration. It supports four modes: gel documentation, protein gel, chemiluminescence and fluorescence.

ChemiScope analysis software mainly used for semi-quantitative analysis of the image results.

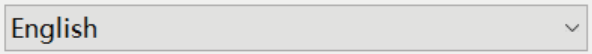
Tips

ChemiScope 6000 Touch Series and ChemiScope 6000 Series have same software operation interface.

Installation guide

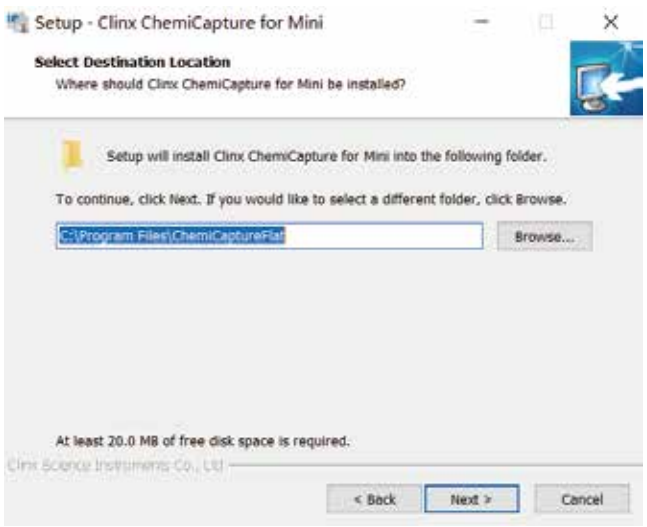
Double-click the installation software package

Select language

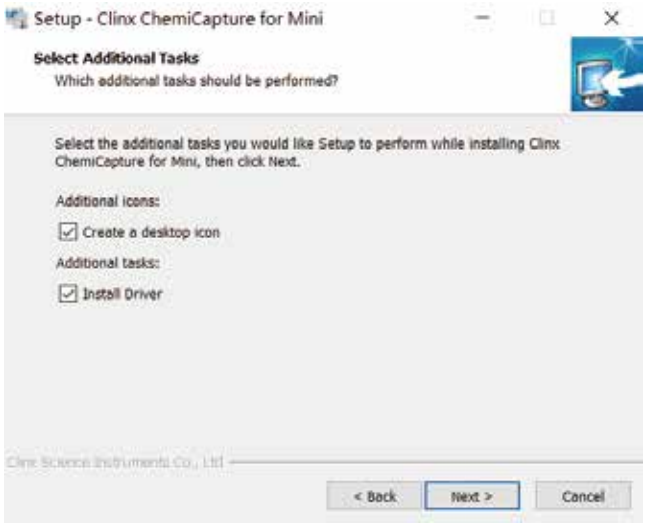


Click "Next"

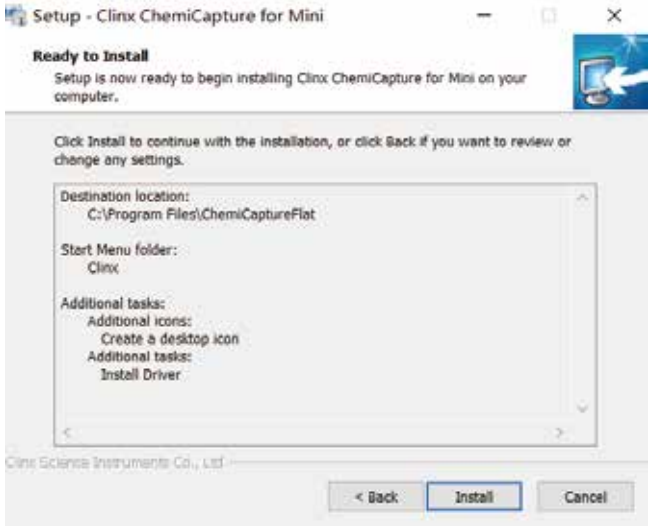
Select the installation path and click "Next"



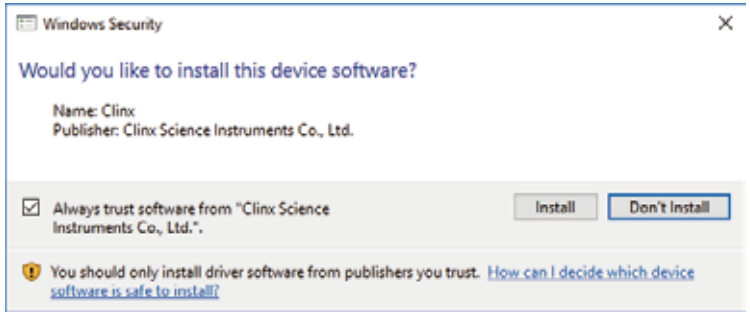
It is recommended to choose the default option



Click "Install" to proceed

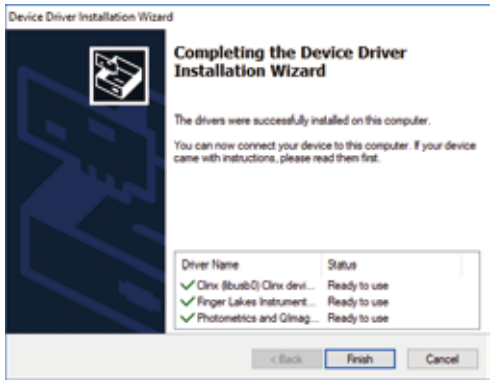


Click “install”to continue and trust our software



Installation guide

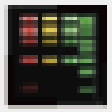
Click "Finish" and the installation is completed



Software icon

Two icons will be generated on the desktop after the software installatioin：

Clinx ChemiScope Capture software



Clinx ChemiScope Analysis software

05

Save and open the files

Save and open the files

Click "Open" on the bottom to open the files

In the dialog bix, we can find images that have been classified by the system according to “this time”, “this day”, “this week”, “this month” or “earlier”.

Tips

The “Open” function does not appear on the Touch Screen.

Name a file and set the saving path

Set file path

Click the icon to choose file directory. The software will automatically generate a file folder under the specified path after the capture is completed.The folder name is the date, for example“2019-05-09”that the picture was taken.

Name files

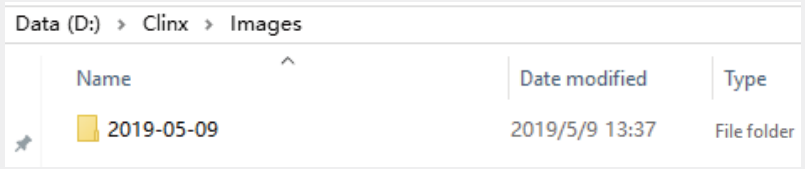
At the top of the shooting interface (shown above), type the name of the experiment result what you want in the input box of the sample name. After the capture is completed, the software will generate a CLX file with the following naming rules:

“sample name_generation date_generation time_exposure time”

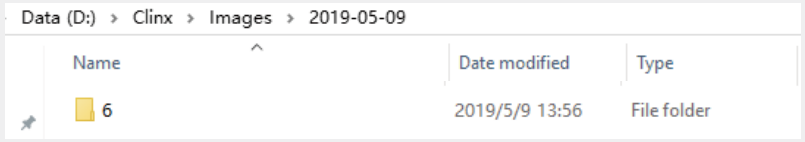
For Example

Select D:\Clinx as the saving path and the file name is “SAMPLE” (as shown below)

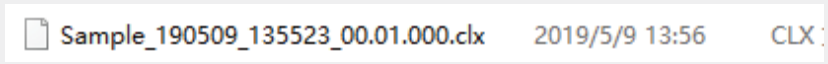
The software will automatically generate a folder named “2019-05-09” on the selected path after the shooting is co-mpleted, the shooting will be May 9th, 2019.



Double-click the folder of "2019-05-09" and find a subfolder named "6". The number "6" means that the shooting software was opened for the sixth time on the same day.



Double-click the folder "6" and we can find the CLX file "Sample_190509_135523_00.01.000".
The prefix SAMPLE is the name we entered, 190509 is the date when the shooting was taken, 135523 is the time we shot, and 00.01.000 is the exposure time: 00 minutes.01 seconds.000 milliseconds.



CLX files have raw data that can be opened by the capture or analysis software.

06

DNA and RNA Module

DNA and RNA Module

Before you take pictures, please make sure that whether the host is equipped with one of the following optional accessories:

1. UV™ SMART- UV Transilluminator

Excitation wavelength is 302 nm and equipped with a 590 nm filter, supported dyes such as EB and Gel Red.

2. Ultra-thin blue light sample stage

Transmission wavelength is 470nm and support safety dyes such as Gel Green and SYBR™Green. Dyes should be matched with our nucleic acid module.

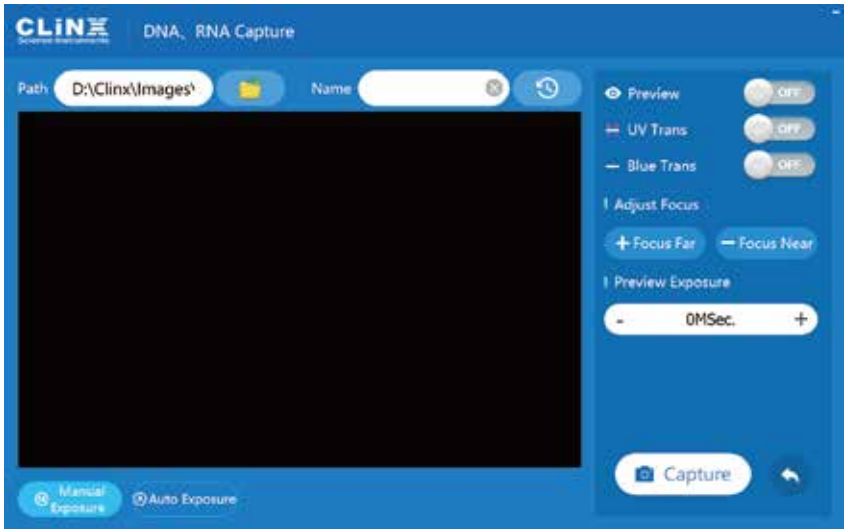
Safety alert

Please read safety warnings on page 4 carefully before used!

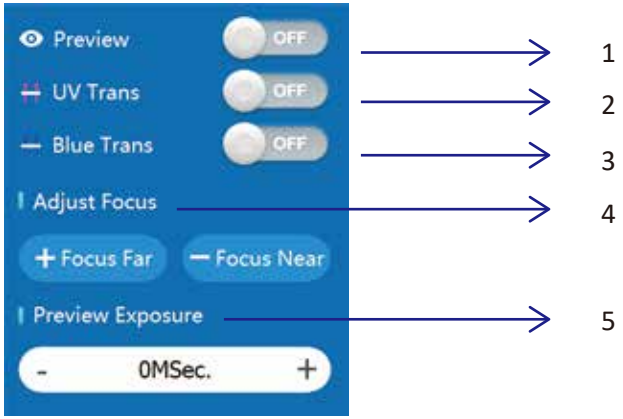
Installation for Ultra-thin blue light sample stage

Please read the installation guide on page 13 and page 14 carefully before used!

Click “DNA/RNA” button to start gel documentation



Overview of the right menu



NO.	Function
1	Preview function to observe the sample and adjust the focus and apture.
2	Manually turn the UV transilluminator on to observe and cut the gel.
3	Manually turn the Blue LED transilluminator on to observe and cut the gel.
4	Focus adjustment
5	Manually adjust the exposure time: Langer time, brigher is the picture.

Select manual or automatic to start capturing images

Manual Exposure

To set the exposure time, we need to enter the “Preview Exposure Time” on the right side.

Auto Exposure

The system automatically calculates the exposure time without intervention.

Click the Capture button below to capture the image

When “Shooting” button is clicked, the system will take a sample shot according to the selected shooting mode and automatically save the result in the specified folder.

Tips

Access of the Image, please refer to page 21.

07

Protein Module

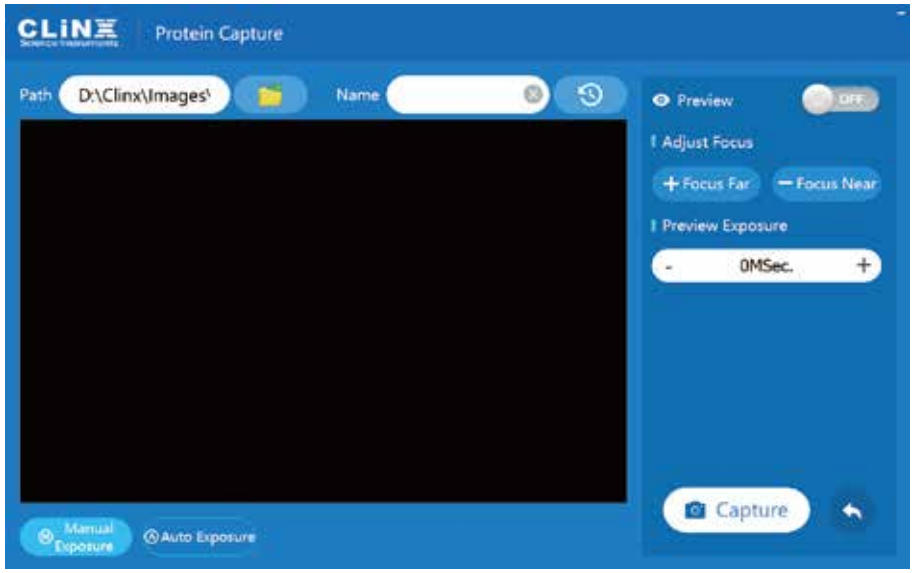
Protein Module

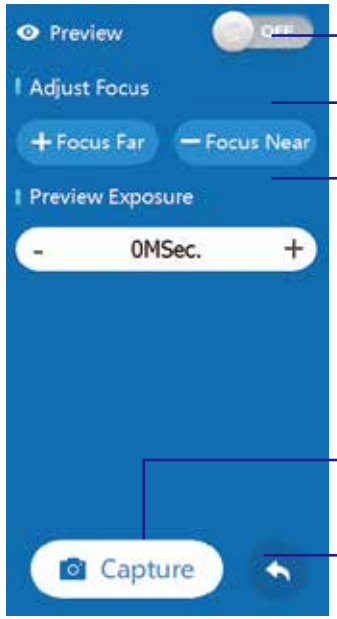
Before you take pictures, please make sure that whether the host is equipped with Ultra-thin white light sample stage. It support protein detection including: Coomassie Brilliant Blue, Sliver Staining and Fluorescent dyes such as Sypro™ Red，Sypro™Orange，Deep Purple ,Pro-Q Diamond etc.

Installation for Ultra-thin white light sample stage

Please read the installation guide on page 13 and page 14 carefully before used!

Click “protein” button to enter the shooting interface





Preview function :Turn on/Turn off

Focus adjustment function

Exposure time adjustment

Capture button

Return to the previous menu

Select manual or automatic to start capturing images

Manual Exposure

To set the exposure time, we need to enter the “Preview Exposure Time” on the right side.

Auto Exposure

The system automatically calculates the exposure time without intervention.

Click the Capture button below to capture the image

When “Shooting” button is clicked, the system will take a sample shot according to the selected shooting mode and automatically save the result in the specified folder.

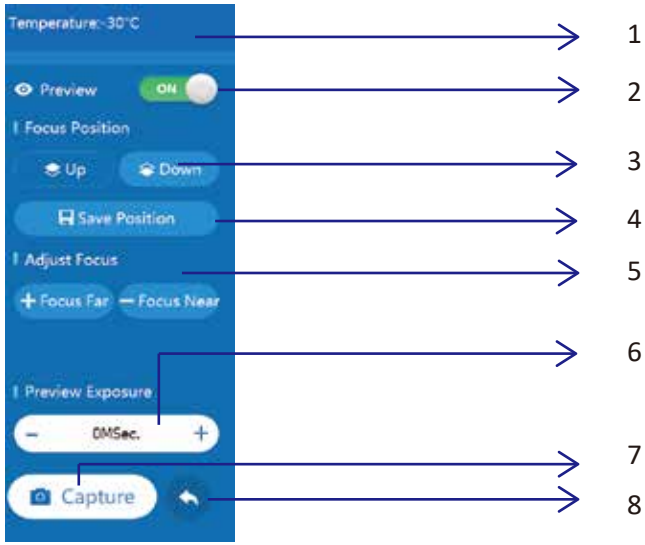
Tips

Access of the Image, please refer to page 21.

08

Chemiluminescence

Introductions for the Right Menu



NO.	Function
1	Camera temperature: please take a picture when it has dropped to at least -25 °C!
2	Preview function: Turn on/Turn off.
3	The selection of sample stage function: upper level or lower level
4	Save the parameters related to upper level or lower level
5	Focus adjustment function
6	The exposure time adjustment: The longer the exposure time, the brighter the picture is.
7	Capture button for image capture
8	Return to the home page

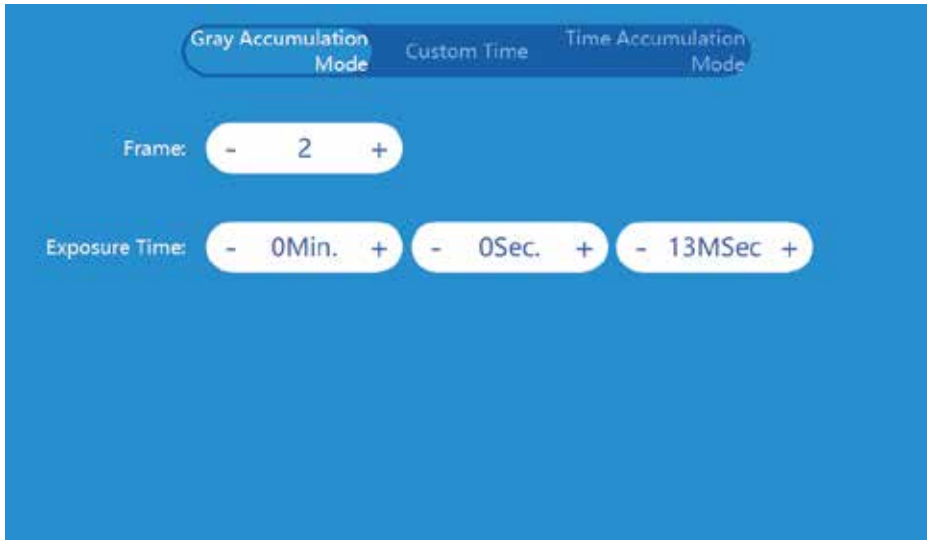
Setting for chemiluminescent capture mode

The capture modes including:
-“Multi-frames”,
-“Auto Exposure”
-“Manual Exposure”

Multi-frame

In ”Multi-frame shooting”, there are three ways to be provided: “Gray Accumulation”, “Custom Time” and “Time Accumulation”.

A. Gray Accumulation

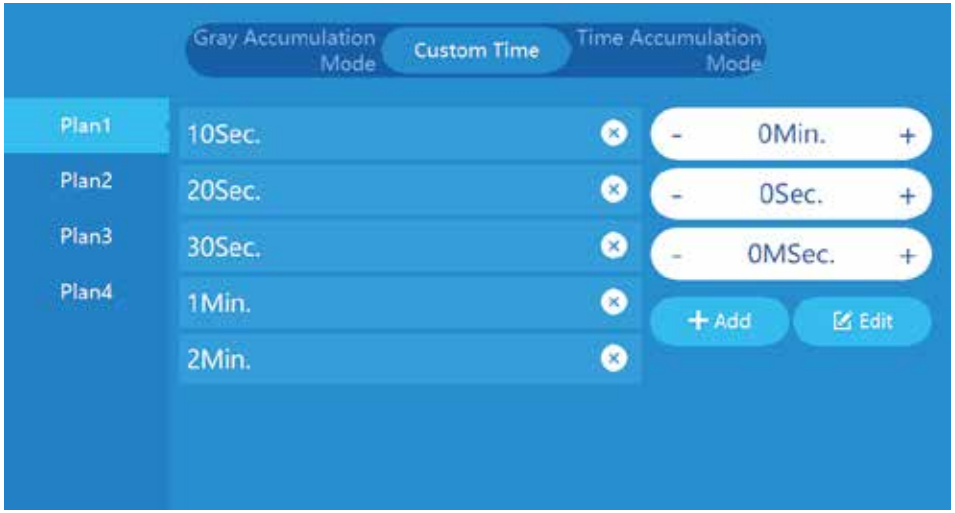


Frame: Set the numbers of shots
Exposure time: Set the exposure time for each shot
Description: It will increase the signal strength by accumulation of the grayscale of each shot

For example

As shown in the figure above: set the numbers of frames to 2 and the exposure time to 13 milliseconds. The instrument was taken twice, each exposure time was 13 milliseconds, and the final image is two shots. First is 13ms exposure time and second is 26ms exposure time
Note: If no signal is acquired for both shots, the superimposed image is black, no signal is obtained.

B. Customizing exposure Time

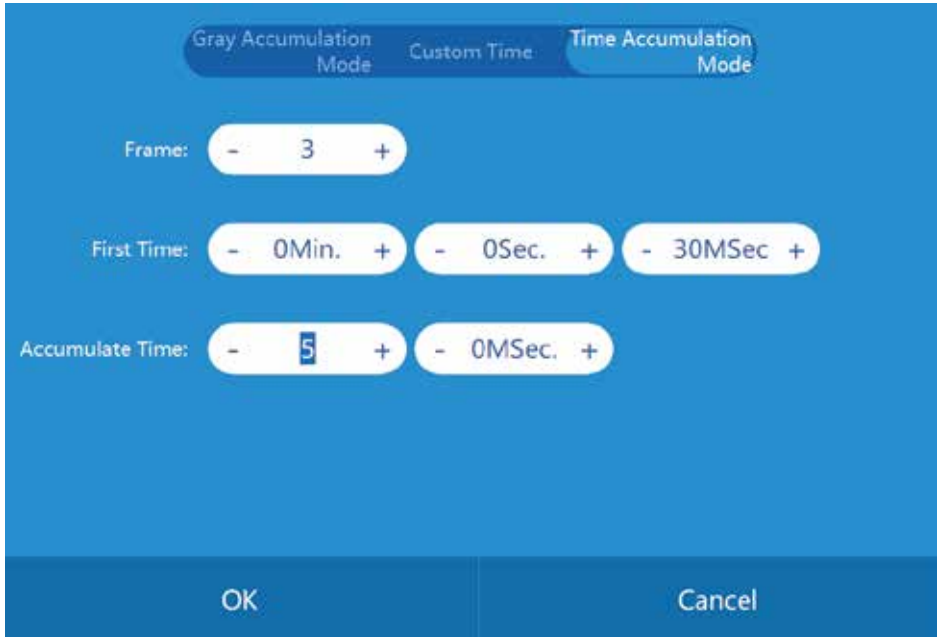


We can set the exposure time of each frame separately. Firstly enter “minutes”, “seconds”, “milliseconds” in the text bar of right side. Also we can change the exposure time by click “+” or “-“. Secondly, click “add” button, the exposure time will be added to the left column. Enter the exposure time on the right side and click the “Edit” button. The system provides four options configuration so that users can keep their capturing habits in order to use easily lately.

For example

As shown above: Set the exposure time to 10 seconds, 20 seconds, 30 seconds, 1 minute, 2 minutes. Multi-frame shooting will be taken in this way: first picture with 10 seconds ,second with 20 seconds, third with 30 seconds,fourth with 1 mintues and fifth with 2 mintues.

C. Exposure Time Accumulation



The number of pictures is taken by setting the "frame number". The cumulative time is the interval time of the each subsequent picture.

For example

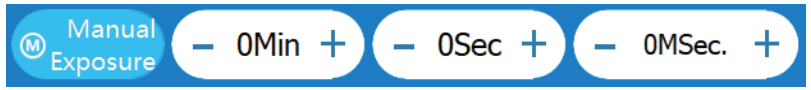
As shown above: we set the “frame number” to 3, which means we will take 3 pictures. The initial time is 30 milliseconds and the cumulative time is 5 seconds. Then the exposure time of these three pictures is: first 00 seconds 30 milliseconds second 05 seconds 30 milliseconds third 10 seconds 30 milliseconds.

After setting the three modes of multi-frame shooting ("Grayscale Accumulation", "Custom Time" or "Time Accumulation"), click the OK button to start the multi-frame shooting mode, then click "Capture" Button, the system will take samples according to the parameters and save the results in the specified folder automatically.

Auto Exposure

Click "Auto Exposure" to choose this mode. Then click on the "Capture" button. The system will calculate the exposure time and save the pictures in the specified folder automatically.

Manual Exposure



Click "Manual Expore" to choose this mode. The time box will be changed to enable status then you can set time. After the time is set, click the "shooting" button, the system will take a sample according to the exposure time, and the pictures will be automatically saved in the specified folder.

Tips

Access of the Image, please refer to page 21.

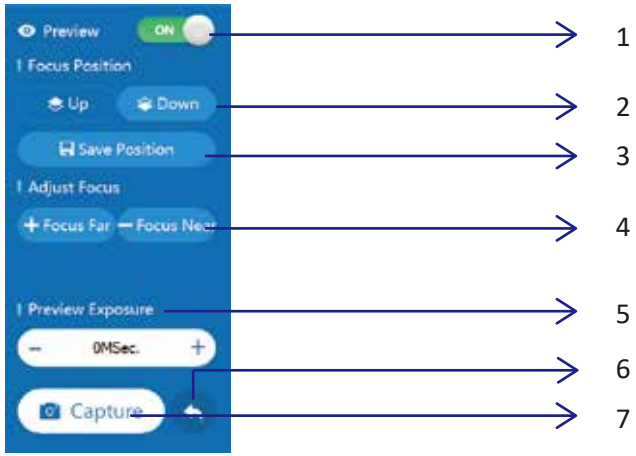
09

Fluorescence Module

Fluorescence

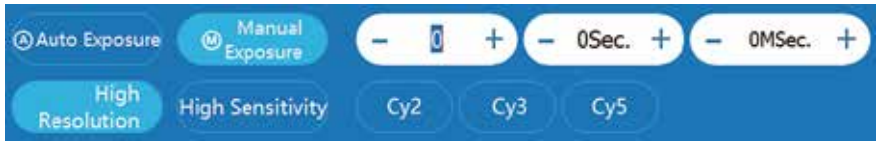
Click the “fluorescence” button to enter this mode

Introductions for the Right Menu



NO.	Function
1	Preview function: Turn on/Turn off.
2	The selection of sample stage function: upper level or lower level
3	Save the parameters related to upper level or lower level
4	Focus adjustment function
5	The exposure time adjustment: The longer the exposure time, the brighter the picture is.
6	Capture button for image capture
7	Return to the home page

Parameter settings



High resolution

When “High Resolution” is selected for shooting, the system provides high-definition images, the experimental pictures are HD files.
Note: The payoff of high resolution is less sensitivity..

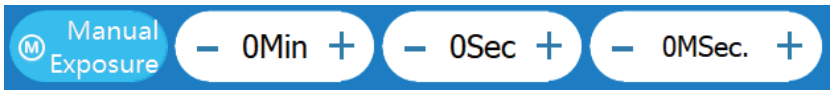
High sensitivity

When “High Sensitivity” is selected for shooting, the system provides high-sensitivity images..
Note: When this mode is selected for shooting, the resolution of the image will be decreased, .

Auto Exposure

Click "Auto Exposure" to choose this mode. Then click on the “Capture” button. The system will calculate the exposure time and save the pictures in the specified folder automatically.

Manual Exposure



Click “Manual Expore” to choose this mode. The time box will be changed to enable status then you can set time. After the time is set, click the “shooting” button, the system will take a sample a-ccording to the exposure time, and the pictures will be automat-ically saved in the specified folder.

Tips

Access of the Image, please refer to page 21.

Sample Selection

The fluorescent module’s standard configuration is RGB source. There are three sets the excitation/emission source. Please select at least one set of the dyes (for example cy2 or others) you use when processing the fluoresc-ence-funtion!

Tips

To choose the type of light source in the experiment is closely based onconfiguration of fluorescent module. Please you consult our regio-nal agents before conducting the fluorescence experiment!

10

Gel Observation

Part 1: Using UV transilluminator for observing and cutting gel

Installation for UV shield

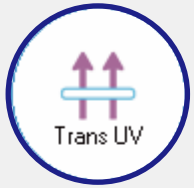
The product's UV SMART™ UV transilluminator is designed with a shadowless lamp that does not see the UV lamp when the power is turned on.

Installation method is as shown on the left: Please pull the UV transilluminator out of the dark box and place the UV shield on the two iron clamps of the transilluminator

Turn UV transilluminator on

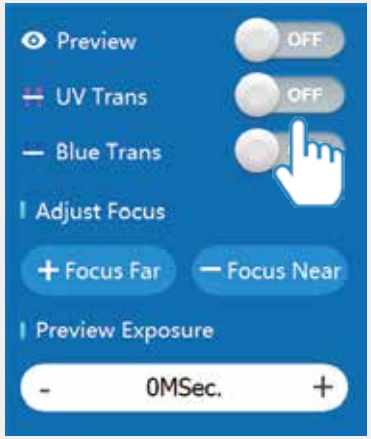
Due to the UV damage to the human body, the UV transmission of the product will automatically close when the door is opening. Please read safety warnings on page P3-P4 of the manual if you need to cut gel recovery.

A. Turn the UV translluminator on by pressing panel



If you are using the ChemiScope 6000 Series System, you can turn on the UV transilluminator by pressing UV transmission button on the front panel of the instrument. (as shown on the left)

B. Turn the UV translluminator on by software



If you are using the ChemiScope 6000 Touch Series, you can turn on the UV transilluminator by touching the bar. (as shown on the left)

Indicator light of UV working

When indicator light in the front of UV transilluminator is light, it means that the UV transmission has been turned on.

Warning: Please pay attention to the eye protection from the UV to avoid looking directly!

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.

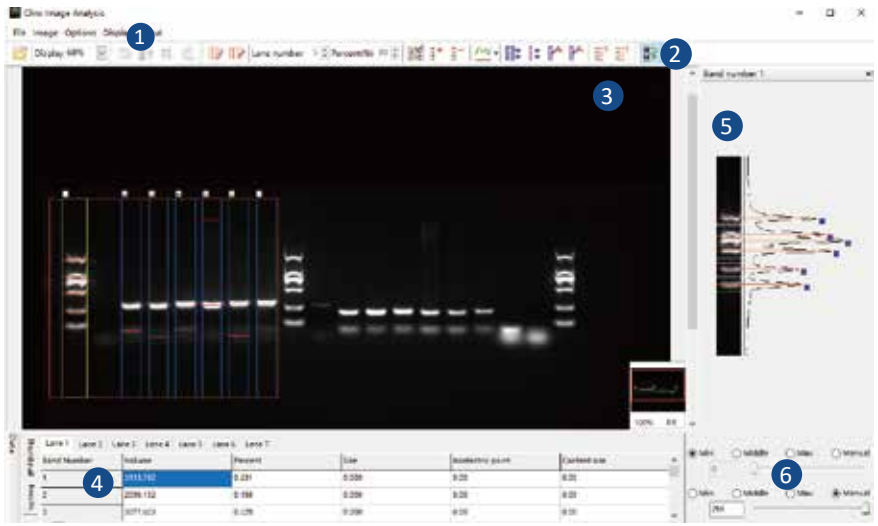
Blue and white light, and other types of visible light are exposed to eyes that can cause harm. When using blue and white light transmission stations, Please be sure to protect your eyes when using blue (white) LED Transilluminator.For details, please refer to P4 in manual.

11

Analysis Software

Analysis Software

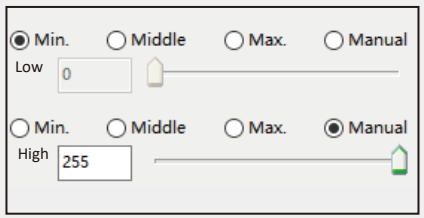
Enter the main interface



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 settings

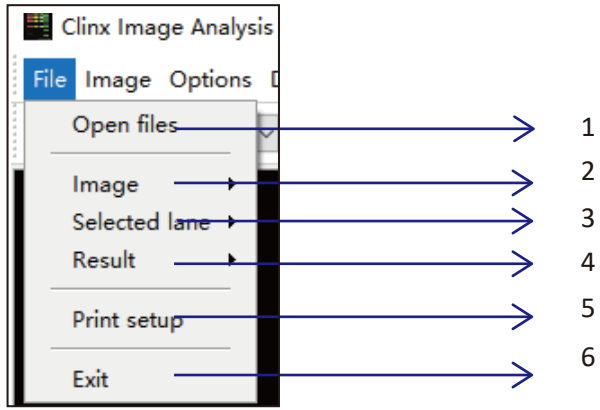
Before we start analyzing the image, we need to adjust grayscale range so that the background and the brightness of bands are the best situation. Firstly, we switch the High and Low values in the left corner of the software to manual state, as shown below:



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.

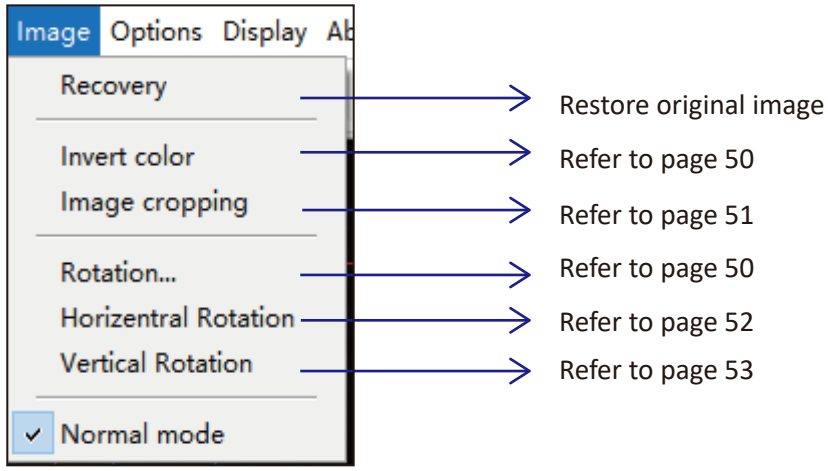
Menu Bar

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



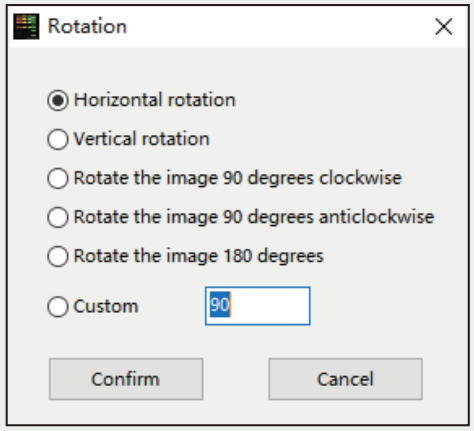
Main function for Image menu bar

Invert color

Original Image

Inverse effect

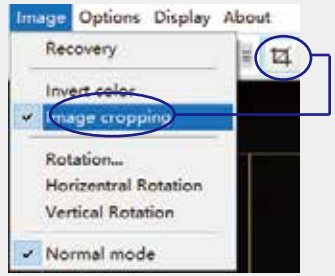
Rotation



Various rotation modes

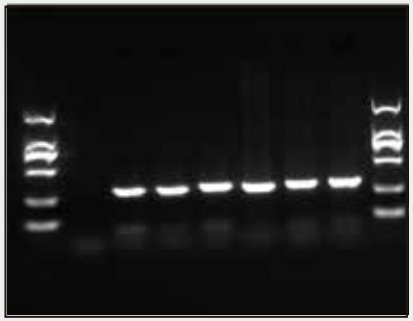
Main function for Image menu bar

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.

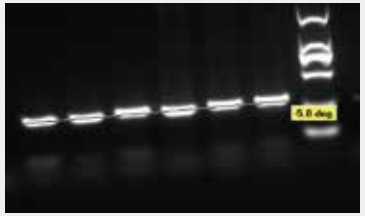


After selecting, press the “Enter” key to co-mplete the cropping of image, as shown on the left

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.



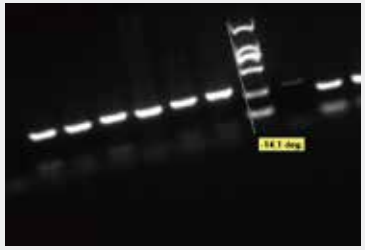
After click this function, we can use the mouse to pull a horizontal line along the strip (as shown on the left)

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.

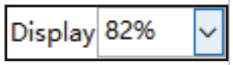
Adjusted picture is shown on the figure above. The bands basically kept in a horizontal position for later analysis.

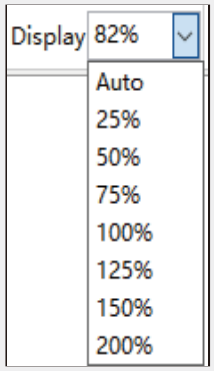
Main function for tool bar

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



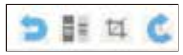


On the right side of the short-cut bar, you can adjust the size of the image in the main window by using the drop-down box, or you can select “Auto” function to automatically match the size of the image.

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



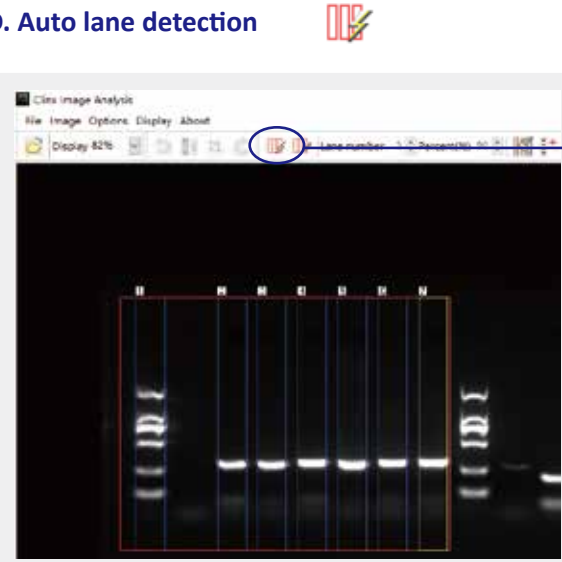
Recovery：One-click recovery of the original image

Invert color display：Refer to page 50

Image cropping：Refer to page 51

Image Rotation：Refer to Page 50

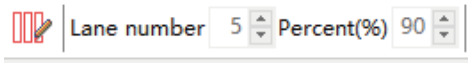
D. Auto lane detection



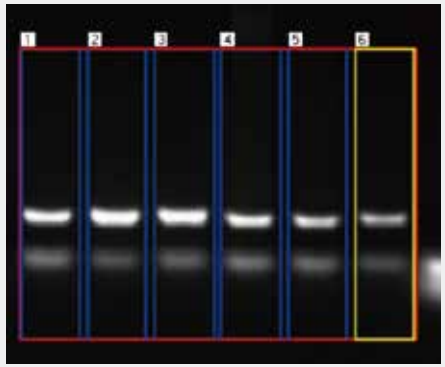
Click the icon to activate "Auto lane detection” and hold left mouse button to select the area you want to identify.

Lanes can be identified automatically.

E. Manual lane configuration



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%).

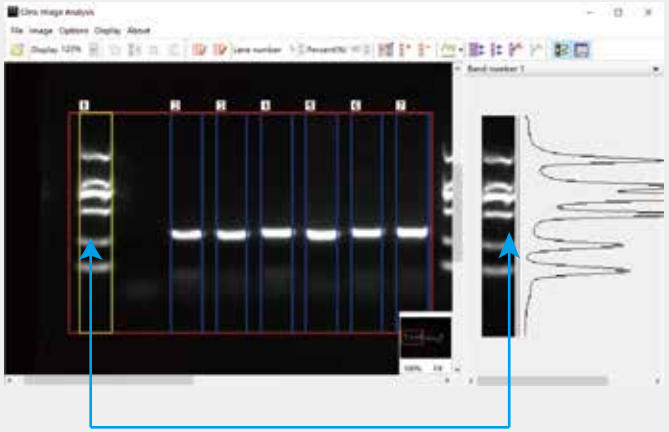


After setting, hold left mouse button to select the area you want to identify. It will be framed if the number of the bands is set to 6. The size and distance of each band is fixed.

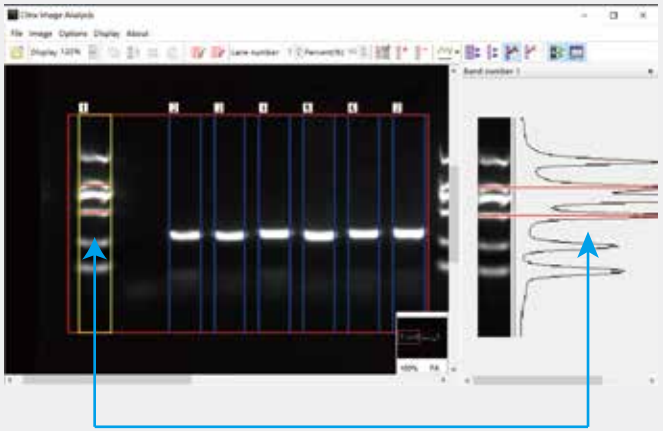
At the same time, use the mouse to select the bands box in the image window, selected bands box is yellow. We can pull the width of the selected electrophoresis by mouse.

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:



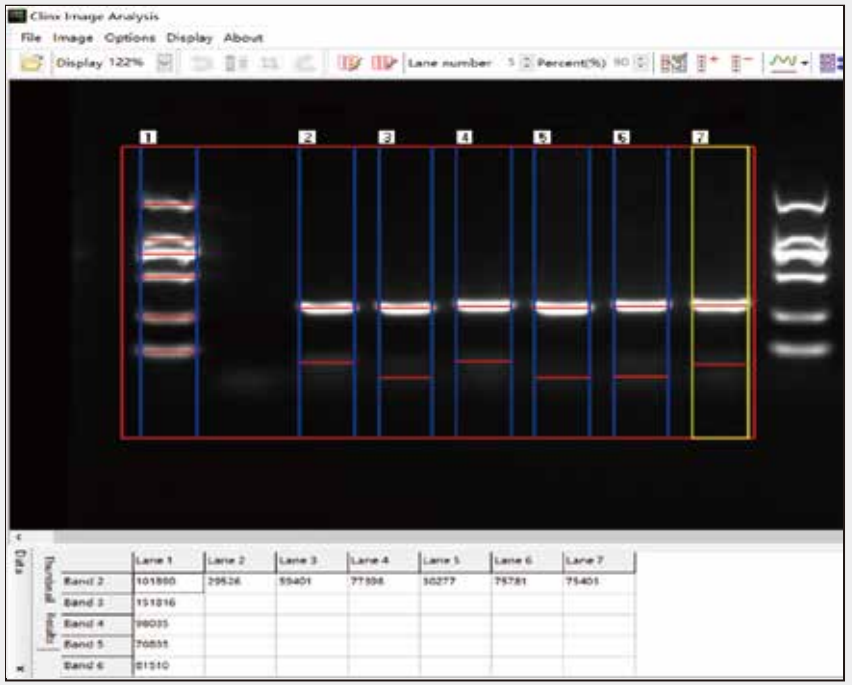
After click the Icon, use the left mouse button to click strip in the right strip window to add a strip. The added bands will be added synchronously on the main window as shown below:



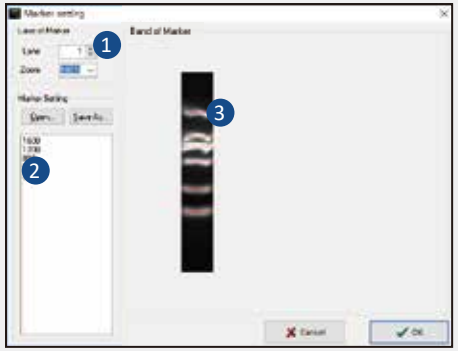
Manually delete strip. The operation method is the same as adding band. Select the lane and use the left mouse button to click the band you want to delete in the strip window.

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).

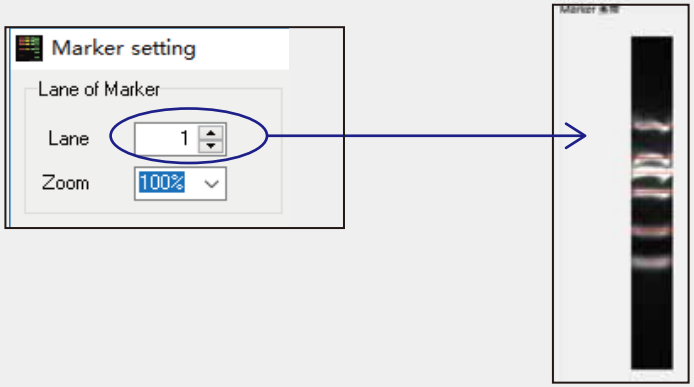


Click to open the window of"Setting molecular weight"that is divided into the following three parts as shown on the left

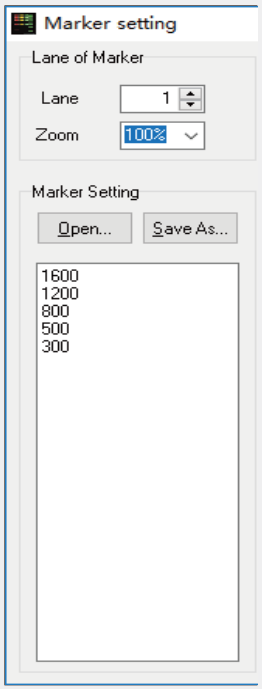
No.	Description
1	Choose Marker's lane
2	Input molecular weight of Marker
3	Bands window

I. Choose Marker' lane

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



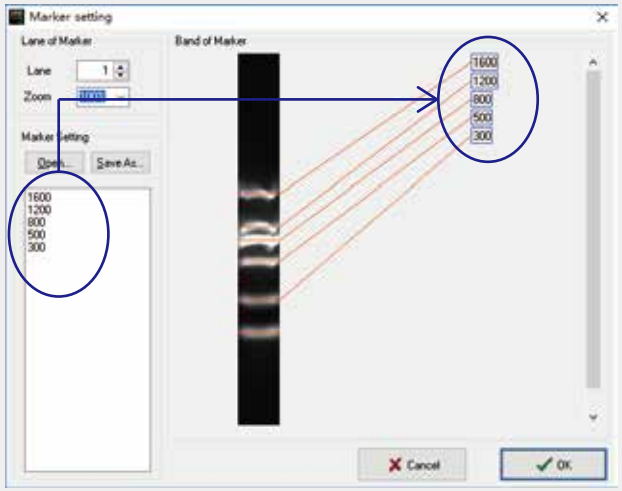
II. Input molecular weight of Marker

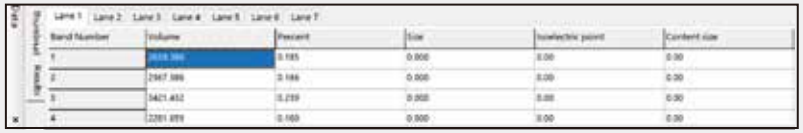


In the first time, you can input molecular weight base on the standard molecular weight , as shown on the left, we enter "1600, 1200, 800, 500 and 300" from top to bottom. You can save theseconfiguration into the file as format ".cmr" by "Save As" button in order to use it in the next time without inputting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

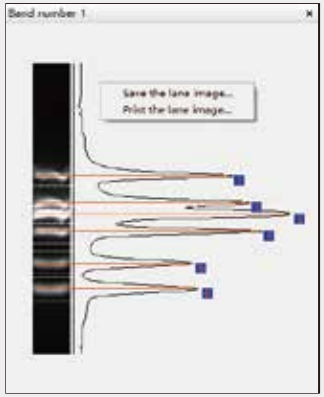
H.Show or hide of lanes and data windows 

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:

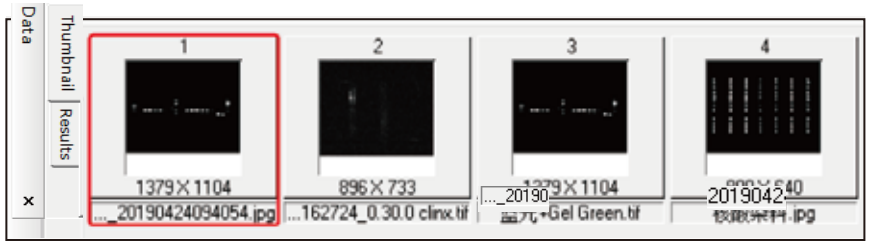


You can save the image in the band window as a JPG, BMP or TIFF file by right-clicking on the band window area, and you can directly print the image.

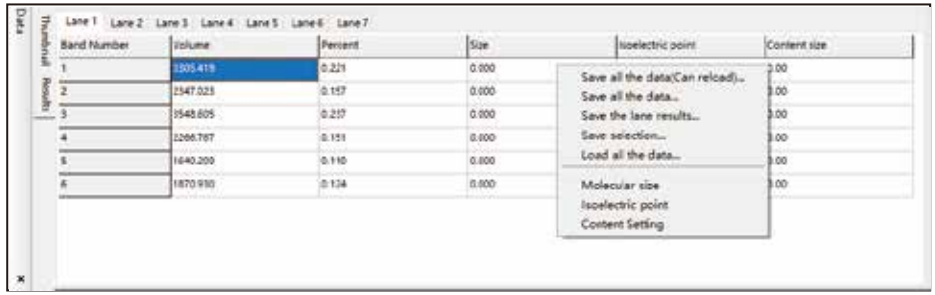
（As shown on the left）

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:



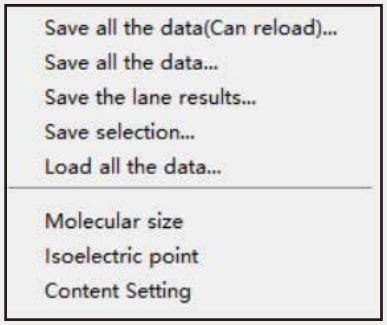
Once the band is recognized, the thumbnail window will automatically switch to the data window. You can also switch manually by clicking the “Thumbnail” or “Analysis Report” tab on the left.



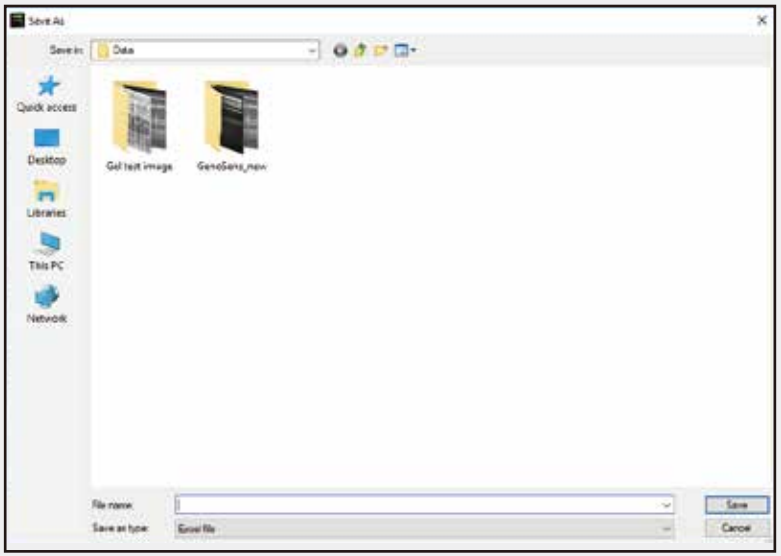
Right click on the data window area, you can open the "Molecular Weight Settings" window in the drop down box, or you can click the "Molecular Weight Settings" button on the toolbar.

Tips:

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



Data Presention
Save the analysis report as an Excel file by right-clicking on the data window.



12

Warranty Liablity

Warranty Liability

We ensure that all of products are fully tested before shipment and in according with the published specifications. It must be installed and used with the manuals provided by our company. We provide one-year warranty without the external force or man-made damage. Improper use or wrong operation result in the loss of the income or business opportunity that is not within the responsibility of our company.

Contact us

If you have any question about the products, contact us please.

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