

CCM-iBIS Viewer Software

Phototune

Instruction Manual



Caution

Before using this product, be sure to read this instruction manual carefully in order to use it properly.

After reading the manual, keep in an appropriate place which is easily accessible to operators.

Please note that loss of substances caused by malfunction of the product will not be compensated by ASTEC.



Revision History

Edition Number	Revision Date	Revision Description
1st edition	2/19/2015	Issue of the 1st edition
2nd edition	3/23/2016	Software version upgrade, function addition (Ver. 1.1)
3rd edition	4/1/2017	Logo change (Ver. 1.3)

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<Installation Procedure>

1.

Execute installer "setup_Phototune.exe".

Installation will create the following folders and files:

"C:\¥IBIS_Data" and "C:\¥Phototune" folders; "dotNetFx40_Full_x86_x64.exe", "QuickTimeInstaller.exe", and "CRRuntime_32bit_13_0_4.msi" files.

2.

To enable the program to be executed, install the following:

"dotNetFx40_Full_x86_x64.exe" (runtime module, which is required);

"QuickTimeInstaller.exe" (AVI/MOV/MPEG save module);

"CRRuntime_32bit_13_0_4.msi" (print module).

Installation is complete.

3.



To start the program, double-click the "Phototune" icon located on the desktop or in the program folder.

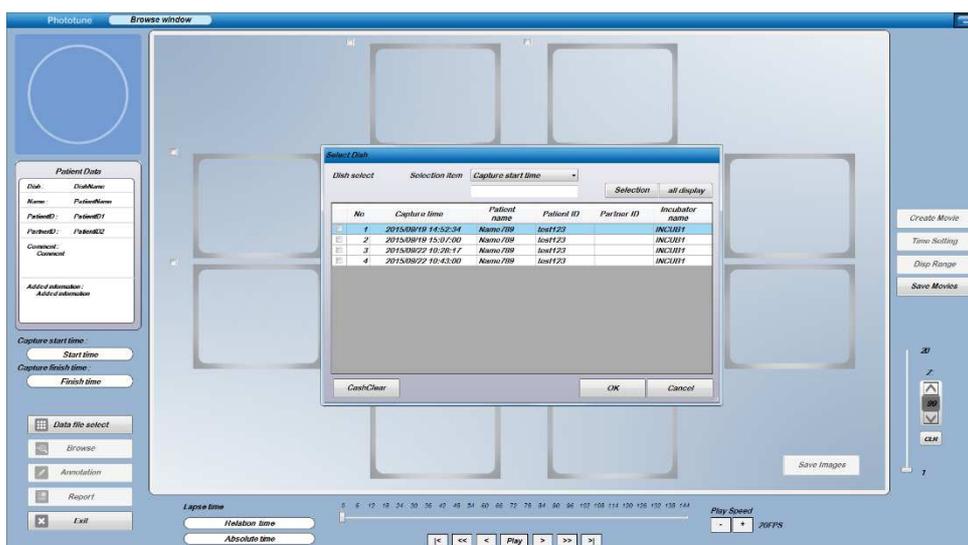
<Start Procedure>



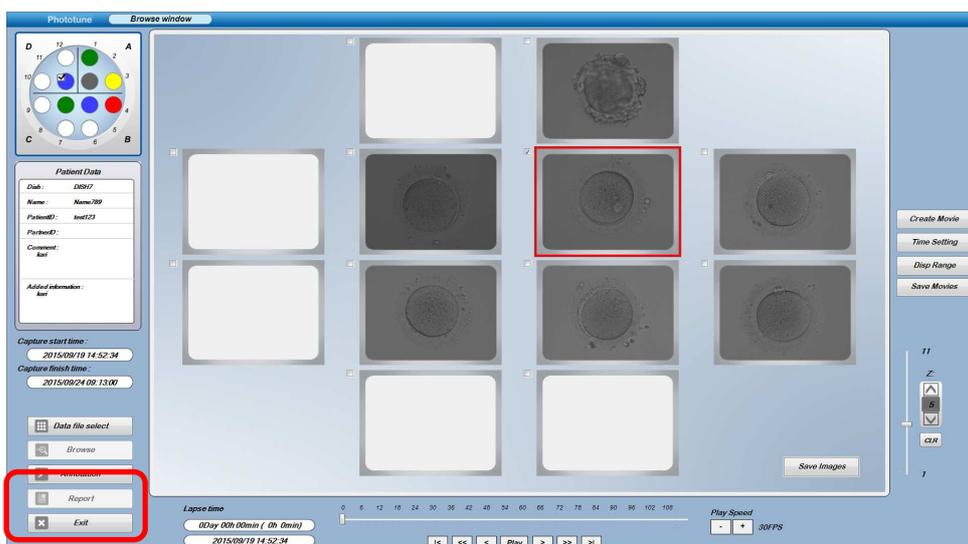
Double-click the "Phototune" icon to start the program.

The size of the screen is automatically adjusted based on the size of the PC monitor. (The program has been designed so as to fit with 1920 by 1080 pixels.)

Immediately after the program is started, a screen for selecting data to be shown will be displayed.



<Termination Procedure>



To terminate the program, click the **Exit** button at the bottom left of the screen.

<Operation Procedures>

(1) Data file select screen

No	Capture time	Patient name	Patient ID	Partner ID	Incubator name	
<input type="checkbox"/>	1	2015/09/31 22:23:45	患者名	患者ID	INCUB1	
<input checked="" type="checkbox"/>	2	2015/09/19 14:52:34	Name789	test123	INCUB1	
<input checked="" type="checkbox"/>	3	2015/09/19 15:07:00	Name789	test123	INCUB1	
<input checked="" type="checkbox"/>	4	2015/09/22 10:28:17	Name789	test123	INCUB1	
<input checked="" type="checkbox"/>	5	2015/09/22 10:43:00	Name789	test123	INCUB1	
<input type="checkbox"/>	6	2015/10/01 00:00:00	PatientName	PatientID1	PatientID2	INCUB1

All image data captured is listed. Select data to be shown.

Using the search function makes it possible to list only data which meets specified parameters such as Patient ID and Patient name.

After execution of search, select data to be shown, and then press the **OK** button. Then, the display is switched to the browse screen (in (2)), which shows the selected data.

Also in the case where data has been split up for reasons such as image capture interruption, select multiple data items at this point.

Once selections are made here, the selected data is cached, so that it is shown promptly when the screen is displayed again.

In the case where data to be shown was manually deleted or data update occurred through additional image capture regarding data to be shown, press the **CashClear** button to clear the cache data and update the data selections. Use the **CashClear** button to update if additional image capture does not result in selection update or if deleted data is still present in the list.

Search procedure

The screenshot shows the 'Select Dish' dialog box. At the top, there is a 'Dish select' label and a 'Selection item' dropdown menu set to 'Capture start time'. Below this is a text input field containing '09/19'. To the right of the input field are two buttons: 'Selection' and 'all display'. Below the input field is a table with the following data:

No	Capture time	Patient name	Patient ID	Partner ID	Incubator name
<input type="checkbox"/>	1	2015/09/19 14:52:34	Name789	test123	INCUB1
<input type="checkbox"/>	2	2015/09/19 15:07:00	Name789	test123	INCUB1

At the bottom of the dialog box, there are three buttons: 'CashClear', 'OK', and 'Cancel'.

1. With "Selection item", select search items (Patient ID/Patient Name/Capture start time/Incubator name).
2. For example, if data with 09/19 entered for Capture start time is to be selected, enter "09/19" into the field below the search item selection box.
3. Then, by pressing the Selection button, only the corresponding data (having 09/19 entered for Capture start time) will be listed.
4. To clear the search result, press the all display button.

How to select multiple data items from the list

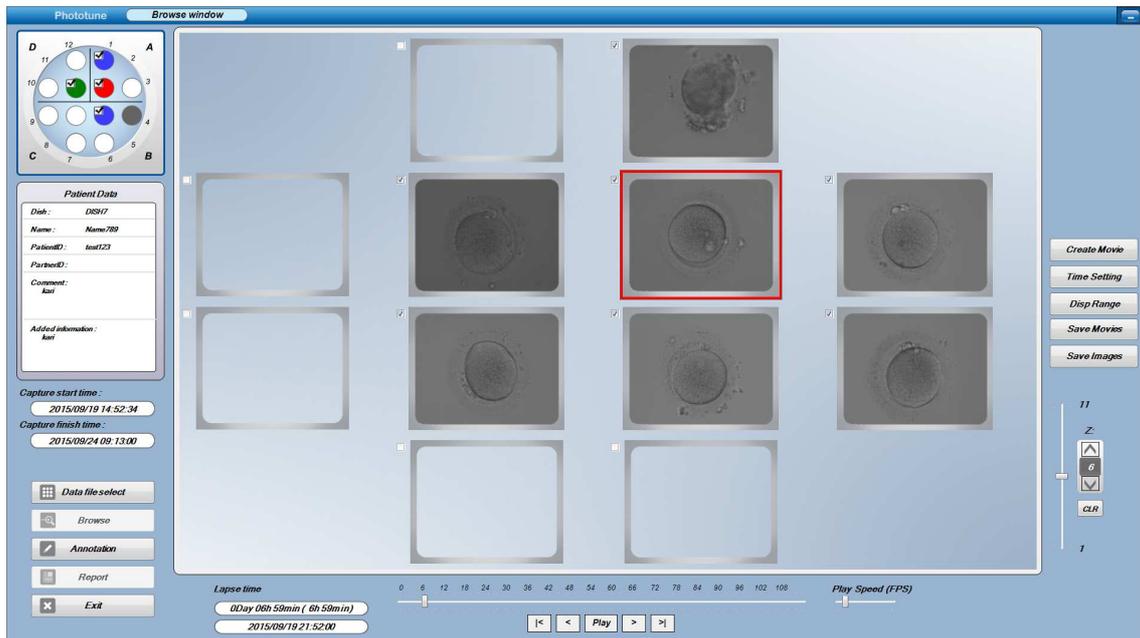
The screenshot shows the 'Select Dish' dialog box. At the top, there is a 'Dish select' label and a 'Selection item' dropdown menu set to 'Patient ID'. Below this is a text input field containing '123'. To the right of the input field are two buttons: 'Selection' and 'all display'. Below the input field is a table with the following data:

No	Capture time	Patient name	Patient ID	Partner ID	Incubator name
<input checked="" type="checkbox"/>	1	2015/09/19 14:52:34	Name789	test123	INCUB1
<input checked="" type="checkbox"/>	2	2015/09/19 15:07:00	Name789	test123	INCUB1
<input checked="" type="checkbox"/>	3	2015/09/22 10:28:17	Name789	test123	INCUB1
<input checked="" type="checkbox"/>	4	2015/09/22 10:43:00	Name789	test123	INCUB1

A callout box with a mouse cursor icon points to the checkboxes in the table. The text inside the callout box reads: "Check the checkboxes of all data items to be shown." At the bottom of the dialog box, there are three buttons: 'CashClear', 'OK', and 'Cancel'.

To select multiple data items split up during image capture, check the checkboxes at the left of the data items.

(2) Browse window

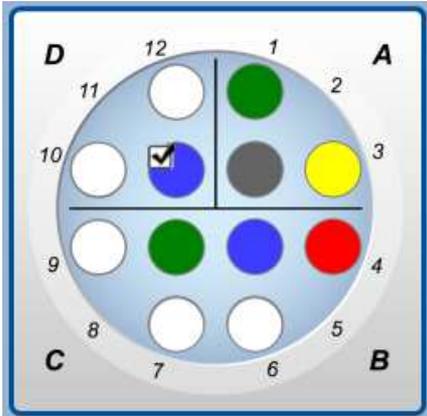


The data selected (searched for) on the Data file select screen is shown.

Data is shown like an in-dish well placement image, and multiple wells captured can be simultaneously checked using the temporal axis and z axis.

To enter a comment, select and highlight the target well (with a red frame), and then press the **Annotation** button. Or, double-click the target well to move to the Annotation screen.

Screen indication



The indicators located at the top left of the screen show in-dish well mark status and storage status.

Mark status is indicated with colors and storage status is indicated with check marks.

Mark status reflects settings with the Annotation screen.

Storage status reflects storage through the Report screen.

Patient Data	
Dish :	<i>DISH7</i>
Name :	<i>Name789</i>
PatientID :	<i>test123</i>
PartnerID :	
Comment :	<i>kari</i>
Added information :	<i>kari</i>

Capture start time :
2015/09/19 14:52:34

Capture finish time :
2015/09/24 09:13:00

This indicator shows the status of the dish of the patient data currently selected.

Dish No., patient name, patient ID, and comment are shown.

Under the display of these items, capture start time and end time are shown.

[Buttons located at the bottom left of the screen]



- Data file select** Select data files.
The Data file select screen is displayed.
Reselect data to be shown.
- Browse** Moves to the Browse screen.
- Annotation** Moves to the Annotation screen.
- Report** Moves to the Report screen.
- Exit** Closes the screen to end.

[Buttons located at the right of the screen]



- Create Movie** Makes movie settings for the selected well (red frame) and create a movie file.
- Time Setting** Set the offset of the temporal axis located at the bottom of the screen.
- Disp Range** Set an image display range. This is an expansion function (for display) which makes image viewing easier.
- Save Movies** Saves all selected (checked) wells as a movie file.
- Save Images** Saves screen shots of all wells and all images of each well in files.

- Z** Allows to adjust the z-axis position of the selected well (red frame). It can be also adjusted by using the up and down cursors of the keyboard.
The z-axis position can be adjusted for each arbitrary time, and the change becomes effective after change-made time. If the z-axis position is set to "8" 10 hours later, the z-axis position changes to "8" after 10 hours. Note that the changed z-axis position will also be used as the z-axis position for movie creation.
- CLR** Clears all changed z-axis positions. Clearing with this makes the z-axis position come to the middle of its range.

[Descriptions of bottom of the screen]

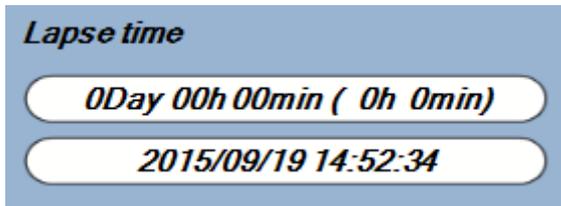


Image capture time is shown.

The upper field shows the relative time from image capture start time.

The lower field shows image capture time.



The well selected (checked) is subject to operations of the temporal axis. The right and left cursors of the keyboard can also be used for operations.

The slider can be dragged with the mouse, for broad movement.



Top Move backward by 1 Move forward by 1 End

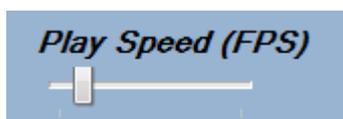
Use to move the temporal axis backward or forward.

* If moving backward is repeated ten times, the temporal axis is moved backward by ten time points.

The value of one time point depends on the time lapse interval. If the time lapse interval is 15 minutes ten time points equal 150 minutes.



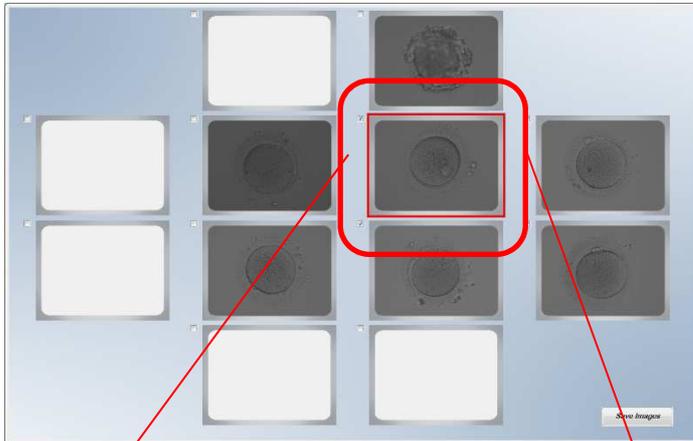
Press to play. (The space key can be used for play and stop operations.)



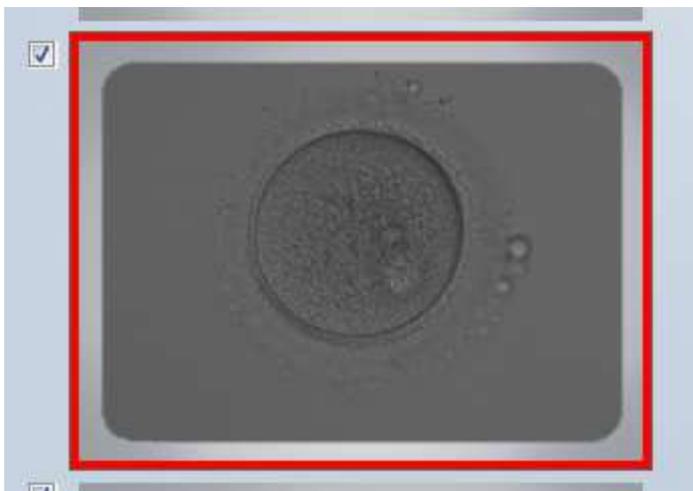
Use to adjust the maximum refresh speed for play.

[Descriptions of center of the screen]

Captured images are shown in accordance with well locations.



Save Images The outline image of an entire dish and individual well images are saved in the specified folder.



Clicking a well with the mouse selects it (red frame).

Clicking the checkbox at the left of a well enters a check mark in the box, for selection status indication.

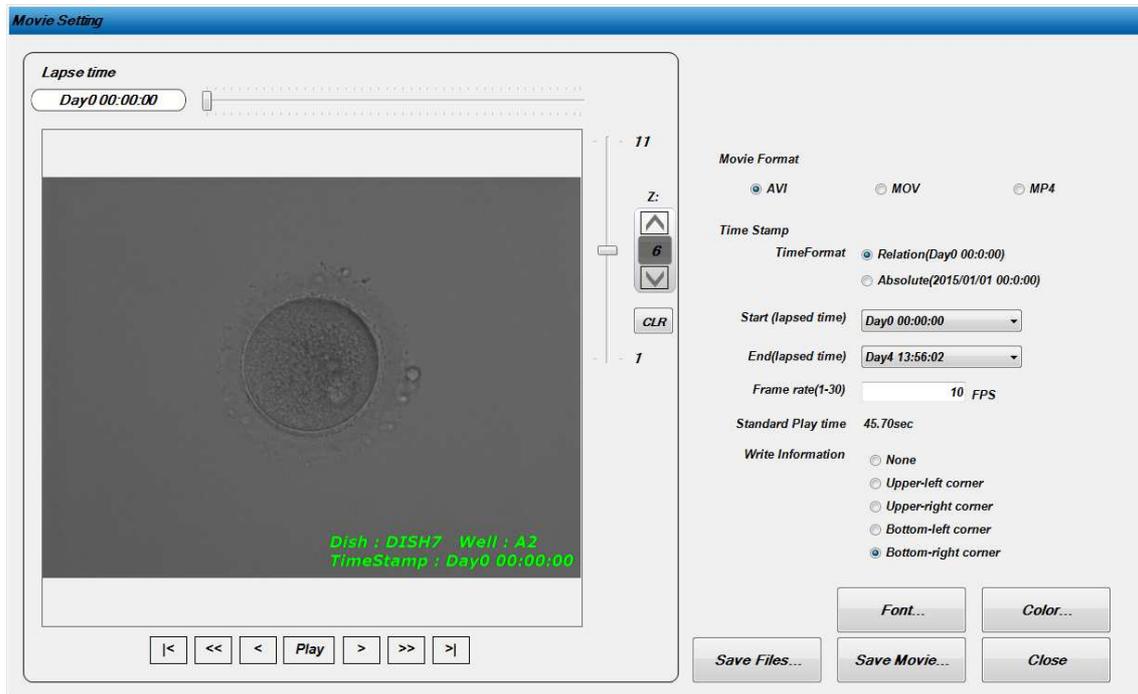
Wells selected and highlighted with a red frame are to be subject to single-well operations such as z-axis position adjustment and annotation.

Selecting wells with checkboxes is effective for operations of functions such as Save Movies and Save Images and for temporal-axis operations.

Note that selections with checkboxes are linked with selections on the Report screen, and are used also when sorting out wells which meet the conditions.

2-A. Create Movie button

The dialog as below is displayed:



Preview of movie to be created is presented at the left of the dialog.

Similarly to operations on the Browse window, adjust the positions of the temporal axis and z axis.

While seeing the preview display, set conditions of the movie to be created.

The possible setting conditions for a movie are as follows:

Movie Format AVI, MOV, MP4 (AVI: Microsoft video format/ MOV: QuickTime format/ MP4: MPEG-4 format)

Time Stamp Select which Time Format to be shown on the movie.

Start Selecting the beginning of the movie, with start time

End Selecting the end of the movie, with end time

Frame rate Number of frames per second

Standard Play time The play duration of the movie to be created is calculated (and shown) based on the values of Start, End, and Frame rate.

Write Information Select a position into which information is to be put. Selecting None results in no information being shown.

Font Set font for information display letters.

Color Set color for information display letters.

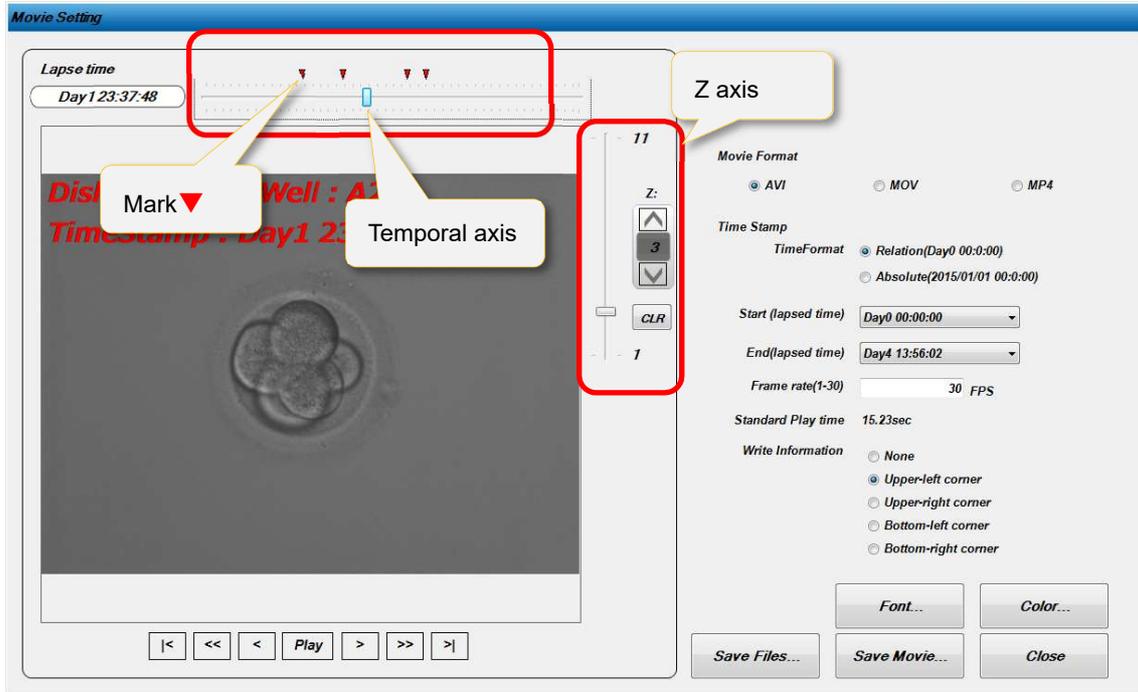
After setting movie conditions, press the following buttons to create a movie.

Save Files... Saves each of image files (separately) which compose a movie, in files. To execute saving, specify a file save location.

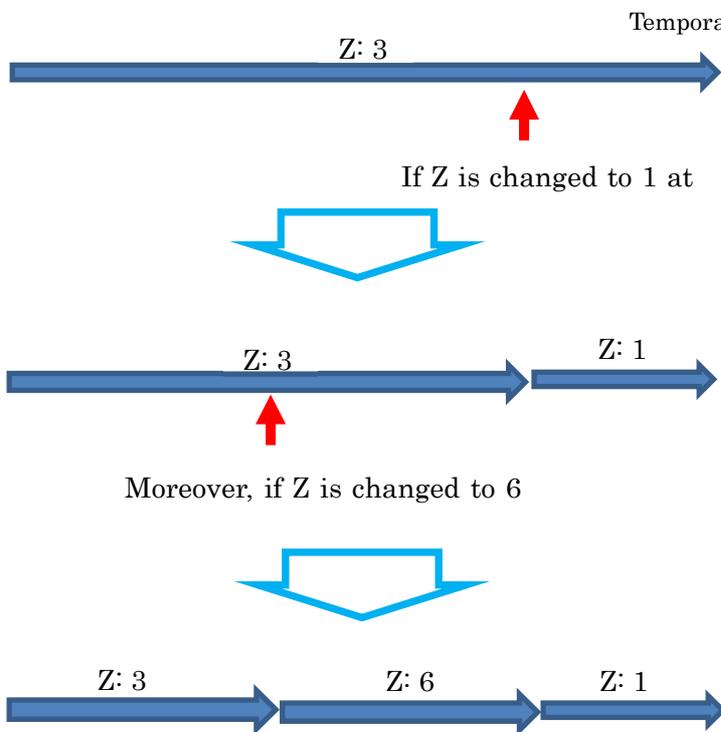
Save Movie... Saves a movie with the set conditions. To execute saving, specify a file save location and file name.

Close Ends movie creation, closes the dialog, and restores the Browse window.

To shift the position of the z axis and change the focus when in preview display, see the preview while shifting the temporal axis, and then change the z-axis position at the time point at which focus shift is desired.



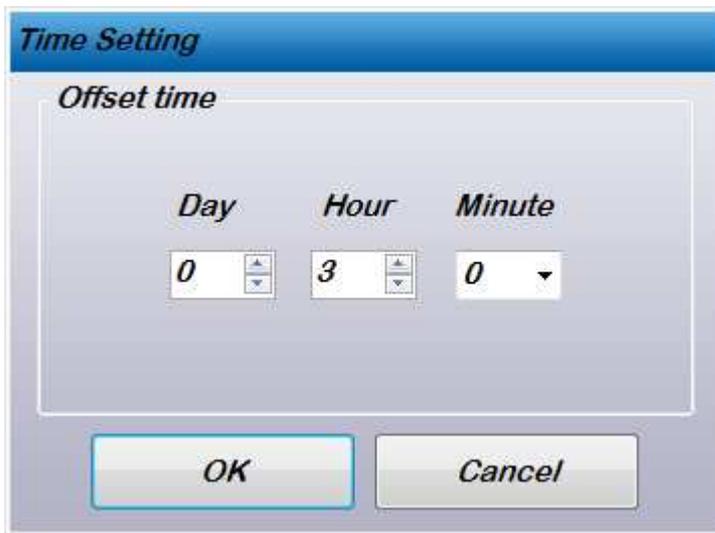
A "▼" mark is added to the time point position to indicate the z-axis change position.



When z-axis switching is performed, the span from the switched time point to the next z-axis switching point is updated to the switched z-axis position.

* Z-axis switching positions here are linked with z-axis positions switched on the Browse window.

2-B. Time Setting button

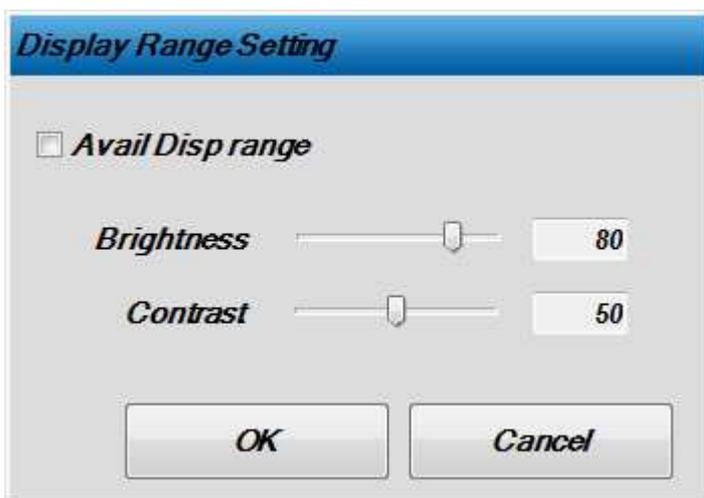


The Lapse time indication at the bottom of the screen can be switched.

Offset time Allows to add offset time to image capture time, for indication.

* This change of indication applies only to display on the browse screen, and data themselves are not revised.

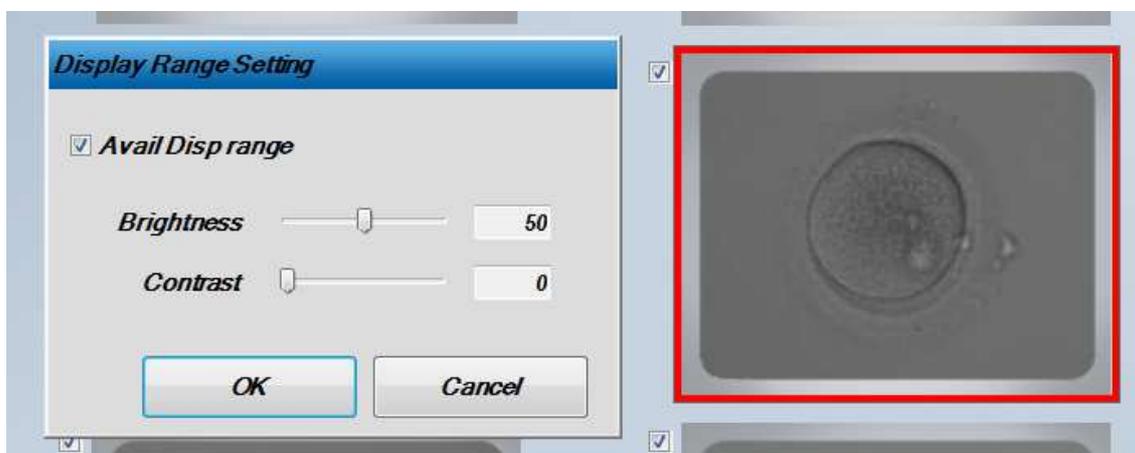
2-C. Disp Range button



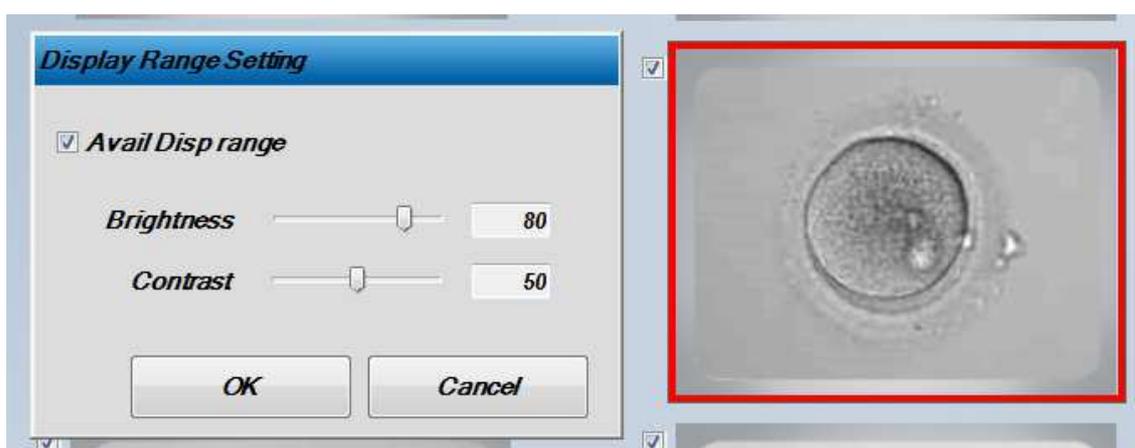
The display range can be adjusted to make viewing easier.

The effect of this adjustment is as follows.

Normally, with 50 specified for brightness and 0 specified for contrast, an image such as below is shown.



By changing the brightness to 80 and contrast to 50 for Disp Range adjustment, an easy-to-see image with appropriate contrast is shown.



This is a Phototune-unique expansion function (for display) which makes image viewing easier, and image data itself is not modified or corrected. When movie data and image data are saved, copies are made from the original data to save.

2-D. Save Movies button

Images of all wells selected with checkboxes can be saved as a movie.

The file is saved in the pre-specified folder, and the parameters specified with 2-A. Create Movie button are used to save it.

Processing will take time because all wells selected (checked) are saved. If the **Cancel** button is pressed during movie creation, the processing is halted at an appropriate possible timing.

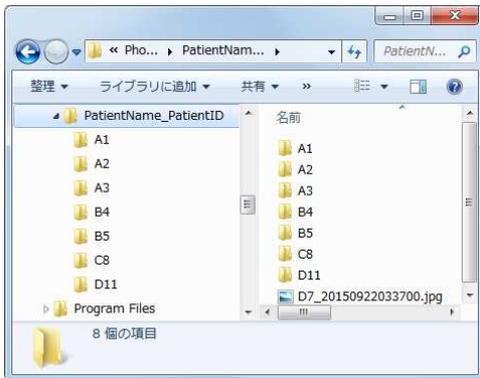
2-E. Save Images button

Images of wells selected with checkboxes and the image of the entire dish can be saved.

The file is saved in the pre-specified folder.

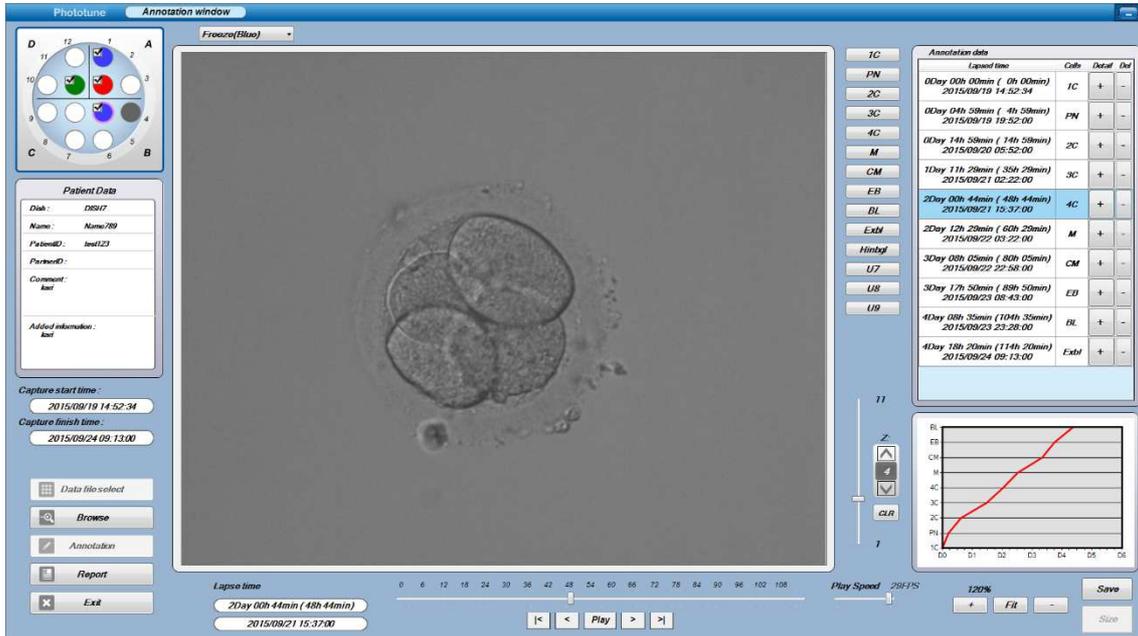
In the case where "C:\¥PhototuneData" has been set as the save destination folder, the save location and the file name will be as follows and the data as below will be generated:

C:\¥PhototuneData¥Browse¥patient name_patient ID¥well name¥dish No.&well No.&Z No._capture date.jpg.



* The save location is to be specified with Phototune Utility described in "<Utility Use Procedures for System Administrators>".

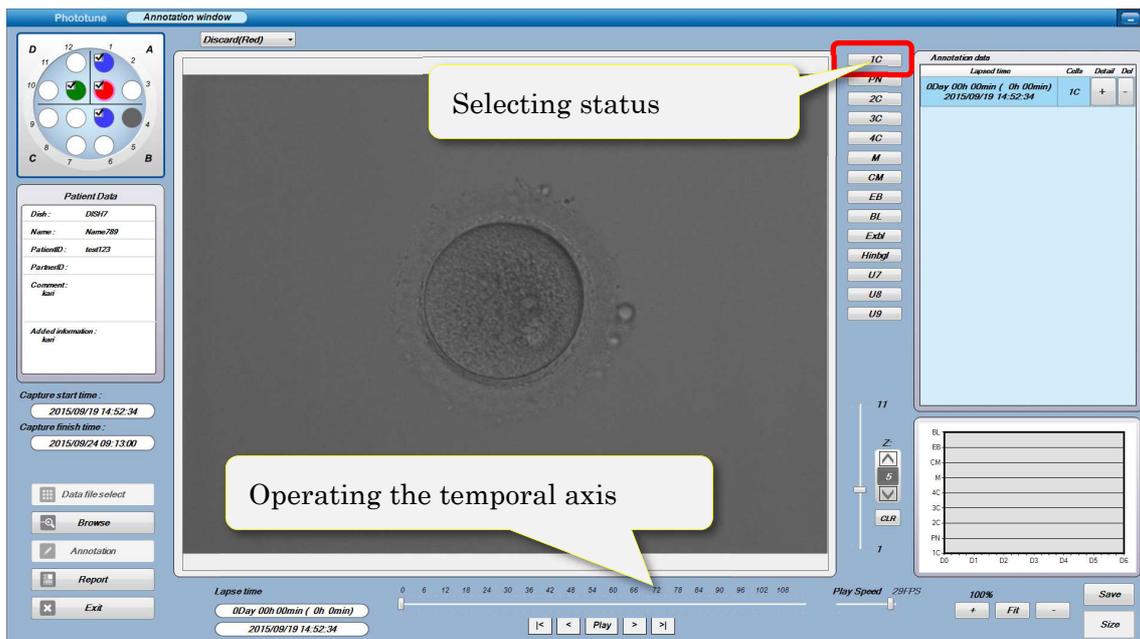
(3) Annotation screen



Detail images of a single well selected on the Browse window are shown, so that cell status can be checked.

While viewing images, change the temporal axis. Then, select the status from buttons located on right side of the image. The information of Lapse Time and cell status will be added on Annotation data section.

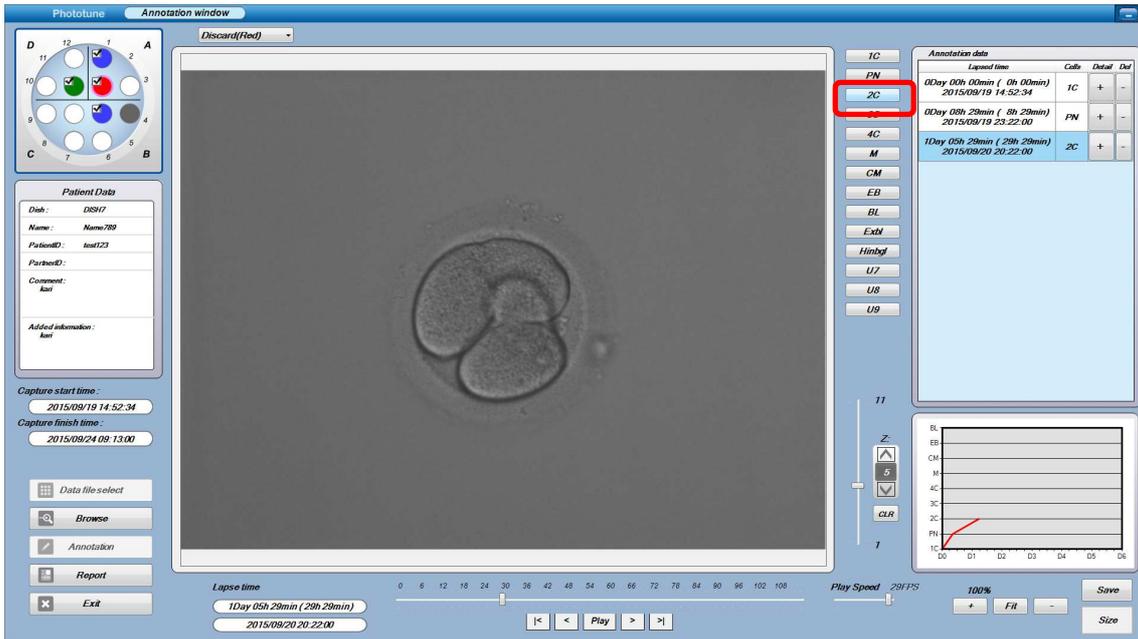
To add a status, perform the following operations, for example:



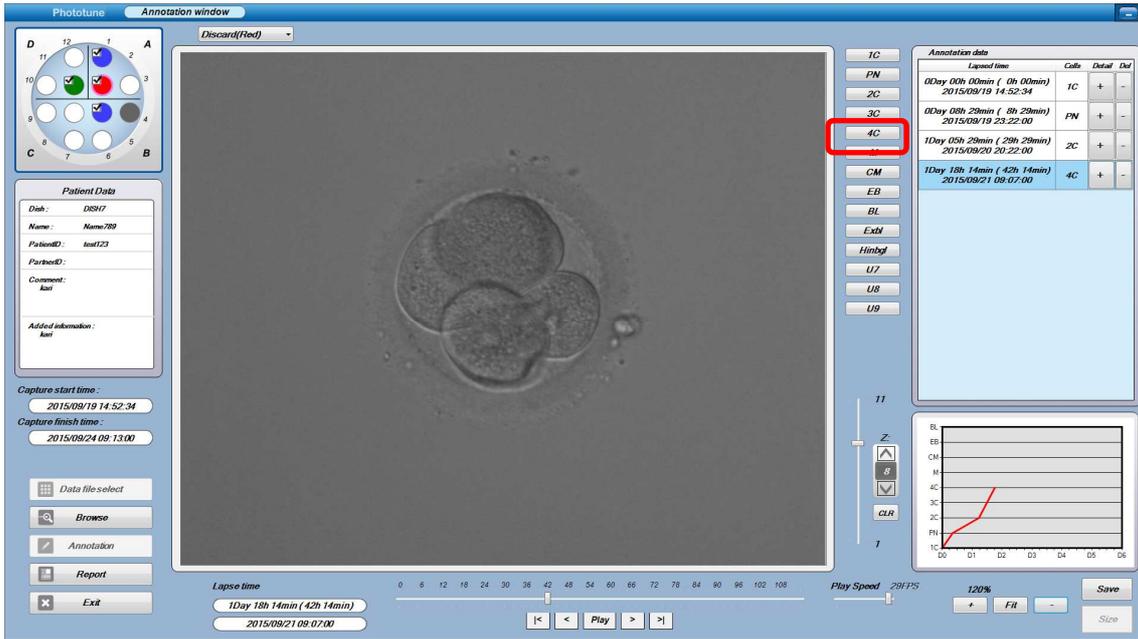
Adding 1C status



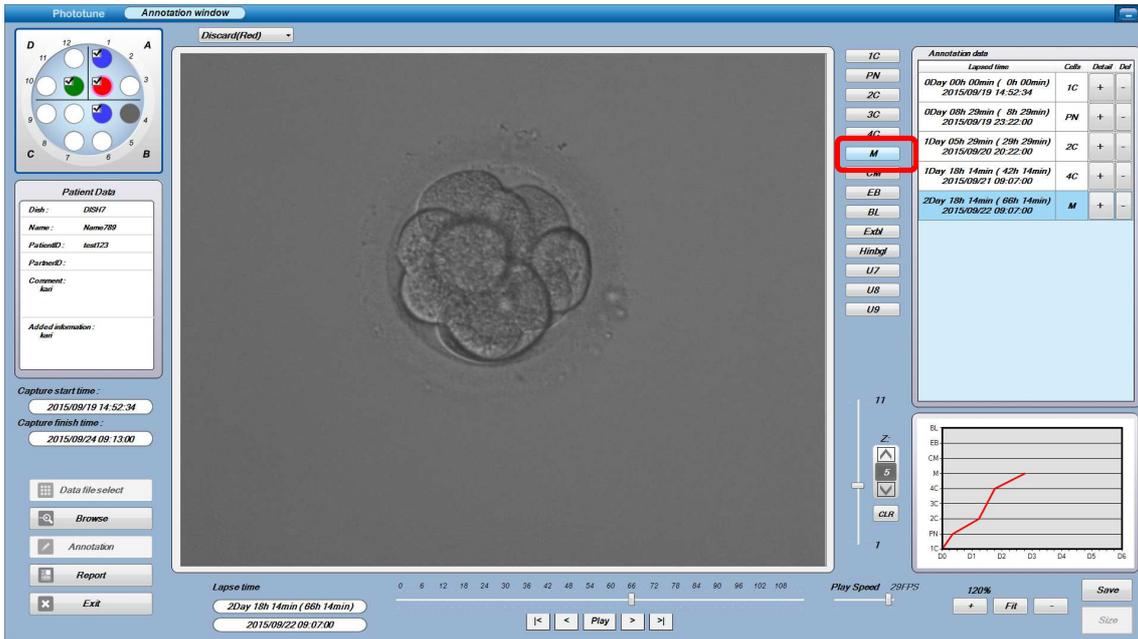
Adding **PN** status



Adding **2C** status



Adding **4C** status

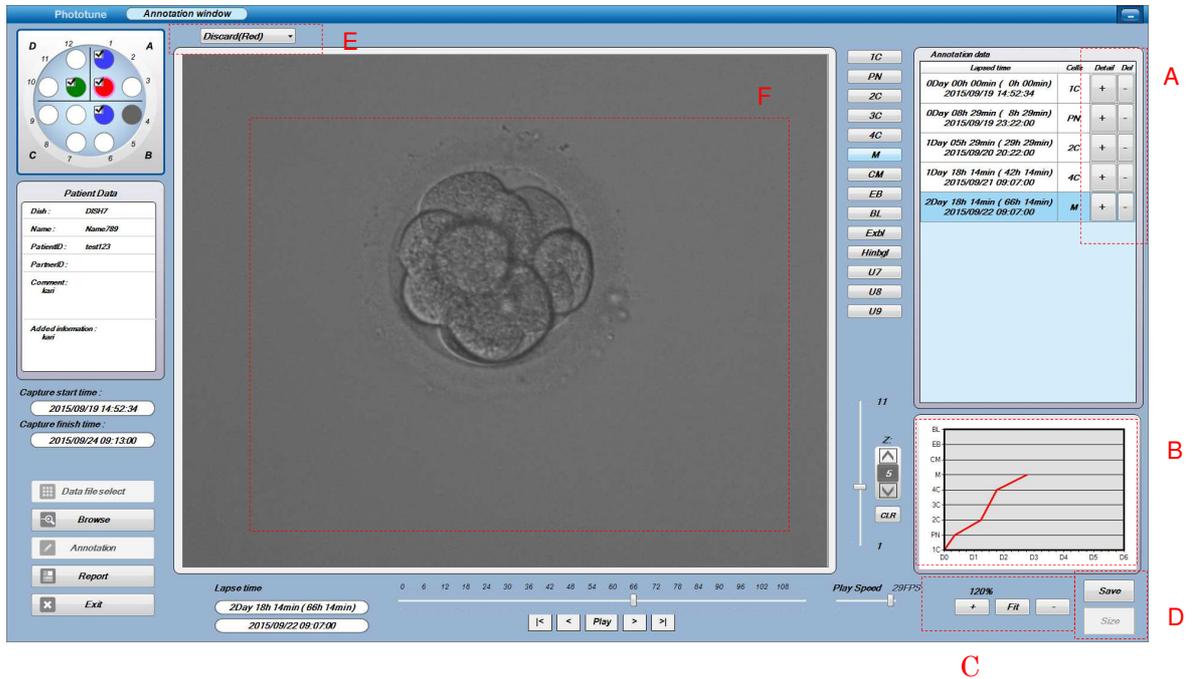


Adding **M** status

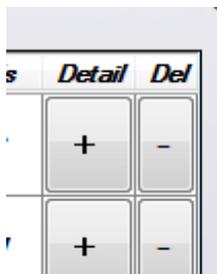
Also when checking, it is possible to change the z-axis position and perform image enlargement/reduction.

<Other operations>

The details of the items A to F in the image below are described as follows.



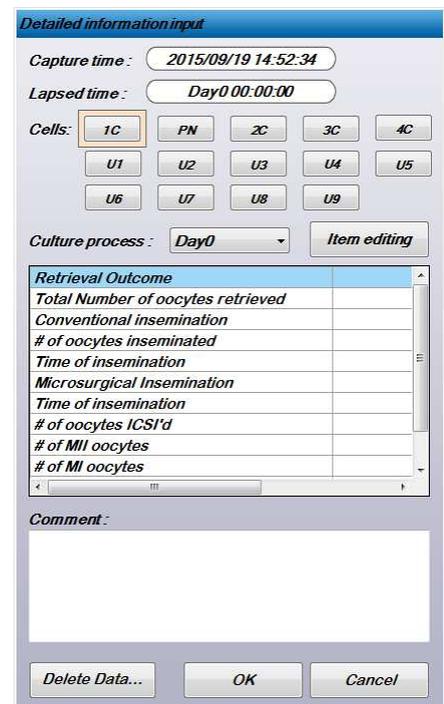
3-A. Detail added-data display and data deletion



Pressing the button above leads to the display of the dialog shown to the right.

The dialog allows to add detail information and delete wrong data entered.

To delete data, press the button, which is shown when pressing the button or button.



To enter a comment, use the following procedure.

Detailed information input

Capture time : 2015/09/19 18:22:00

Lapsed time : Day0 03:29:26

Cells: 1C PN 2C 3C 4C
M CM EB BL Exbl
Hmbgl U7 U8 U9

Culture process : Day0 Item editing

Retrieval Outcome	
Total Number of oocytes retrieved	
Conventional insemination	
# of oocytes inseminated	
Time of insemination	
Microsurgical Insemination	
Time of insemination	
# of oocytes ICSI	
# of MI oocytes	
# of MII oocytes	
# of GV (Germinal vesicle)	

Comment:

Delete Data... OK Cancel

Clicking an item (single click) highlights the letters orange. Clicking the item again (single click) makes the letters black again.

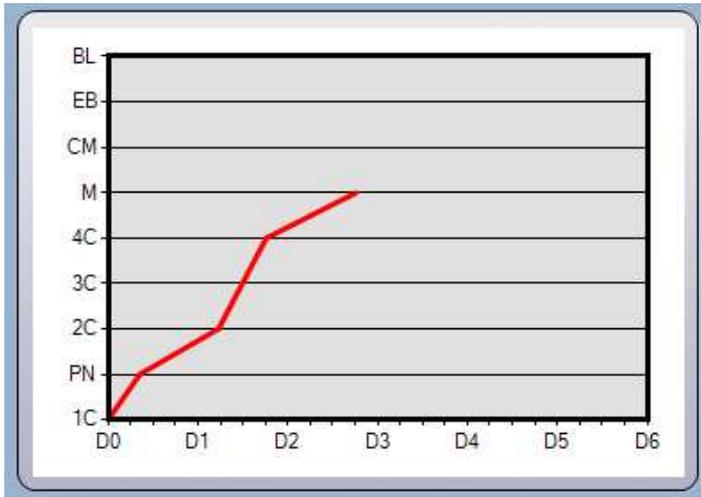
The item highlighted in orange is entered into the Culture Process table.

Entering a character string into the field shown to the right of an item highlights the item in orange.

With a character string entered, clicking the item (single click) does not turn the item back to black.

Deleting the character string makes the item be turned back to black.

3-B. Graph display



With status (such as 1C, PN, and 2C) added, the temporal axis and status transition are shown graphically.

3-C. Image enlargement ratio



Preview images can be enlarged and reduced. Pressing the **Fit** button makes the enlargement ratio be adjusted so that the displayed image fits to the screen properly.

With an image enlarged, clicking on the preview screen makes the image be shifted so that the clicked point comes to the center.

3-D. Save & Size



Using the **Save** button allows saving of the current preview image in a file. The **Size** button is switched between On (red) and Off (white).

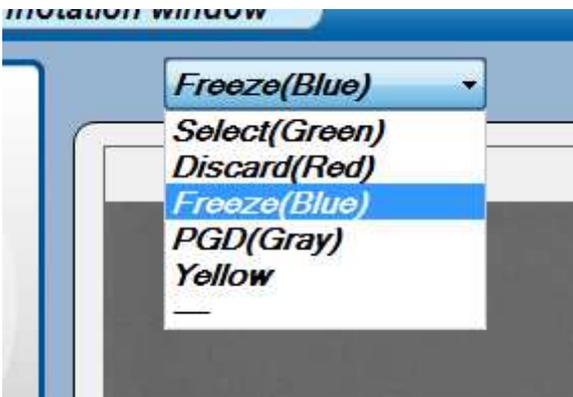


(When On)

When the button is On, the size of the cells shown in a preview image can be measured using the mouse, so that a comment can be entered.

* The **Size** button is effective when the size of the preview image has been adjusted by pressing the **Fit** button.

3-E. Mark setting

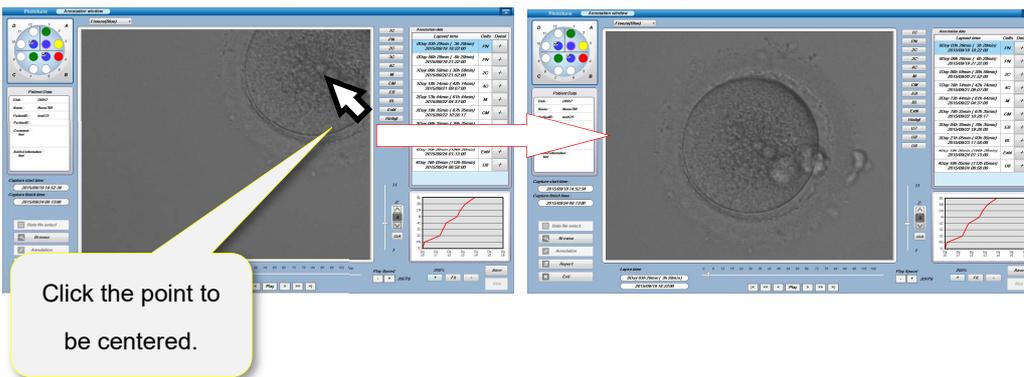


The mark to be shown at the top left of the preview screen can be selected.

3-F. Preview image

Clicking on the preview screen shifts the image so that the clicked point comes to the center.

This shift is executed only when an enlarged image is displayed.



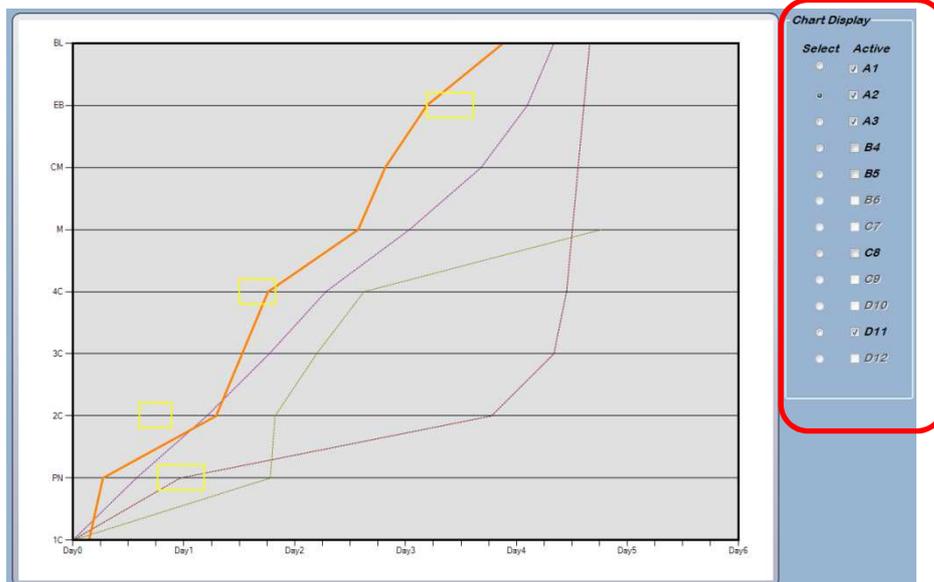
(4) Report screen



Cell status added onto the Annotation screen is shown graphically, and scores based on preset criteria are shown.

Using the **Print** button and **Save** button allows to output data.

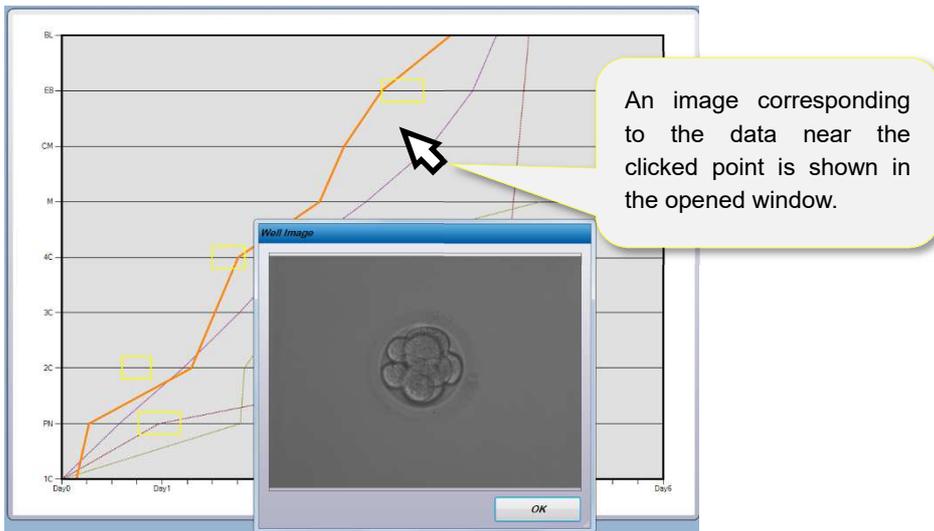
4-A. Graph



A graph is shown with a vertical axis which indicates status and a horizontal axis which represents the temporal axis.

Use the selection buttons and checkboxes on the right to switch the display target. In the case where multiple checkboxes have been checked, graphs of cell status of the checked wells are superimposed for display. Graphs of data selected with the selection buttons are shown with solid lines, and graphs of data not selected with the buttons are shown with thin dotted lines.

Clicking on a graph allows viewing of a well image whose position is nearest to the clicked point.



4-B. Reference table

Scores of cell status change of well No. are shown.

No.	Before	After	Range [h]		Time [h]	Score	Total Score
A2	1C	PN	5.00	~ 25.00	8.48	10pt	60pt
	PN	2C	8.00	~ 15.00	21.00	0pt	
	2C	3C	5.00	~ 13.00	—	—	
	3C	4C	15.00	~ 25.00	—	—	
	4C	M	10.00	~ 100.00	24.00	50pt	

No.	Before	After	Range [h]	Time [h]	Score
A2	1C	PN	5.00 to 25.00	8.48	10 pt

In the case above:

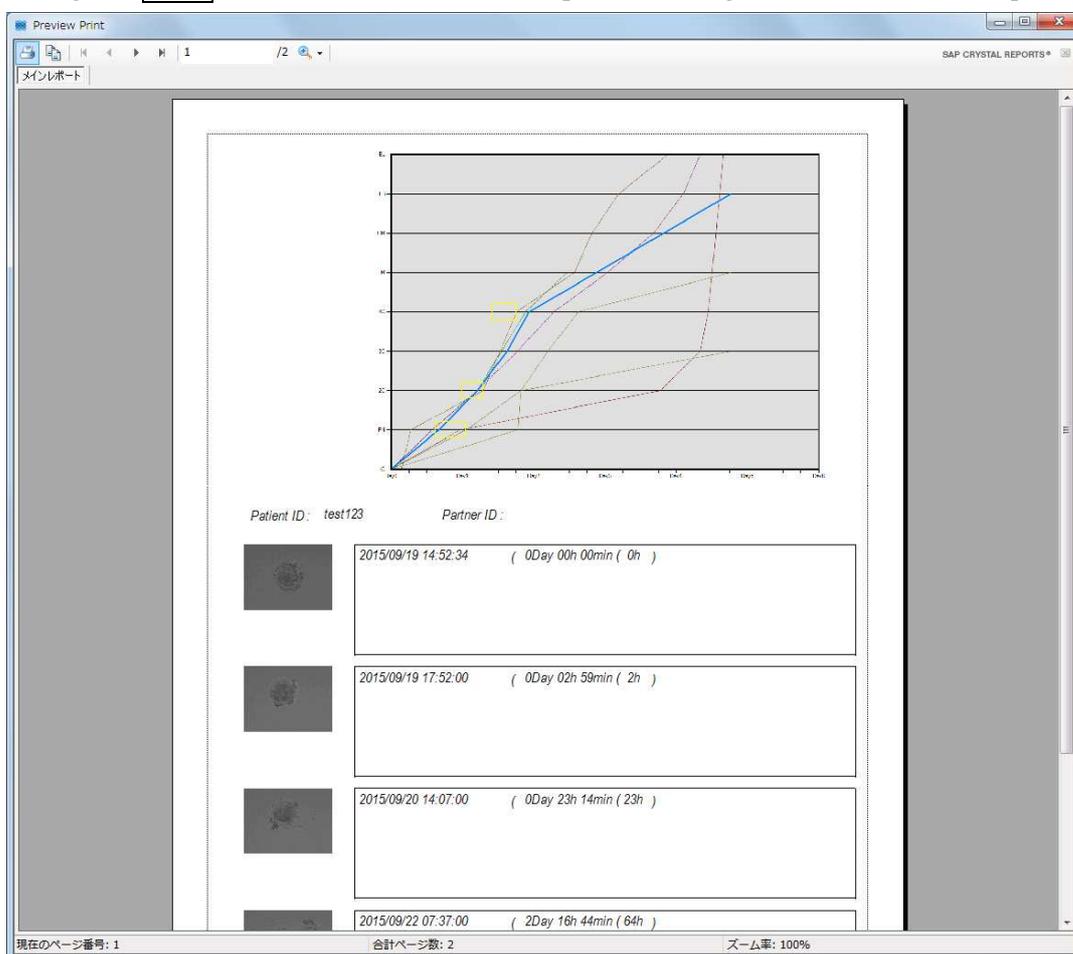
Regarding target well, A2, the time needed for change from "1C" to "PN" was 8.48[h].

The reference time range in terms of change is 5.00[h] to 25.00[h], and thus this time range was satisfied.

The judged score is 10 pt.

4-C. Print button

Using the **Print** button allows to show the preview image as below and to output.



Print layout

4-D. Save button

This button allows saving of the following three on the currently shown graph display: graph images of wells selected with checkboxes; annotation data; and reference table data.

After pressing the button, specify a save destination folder.

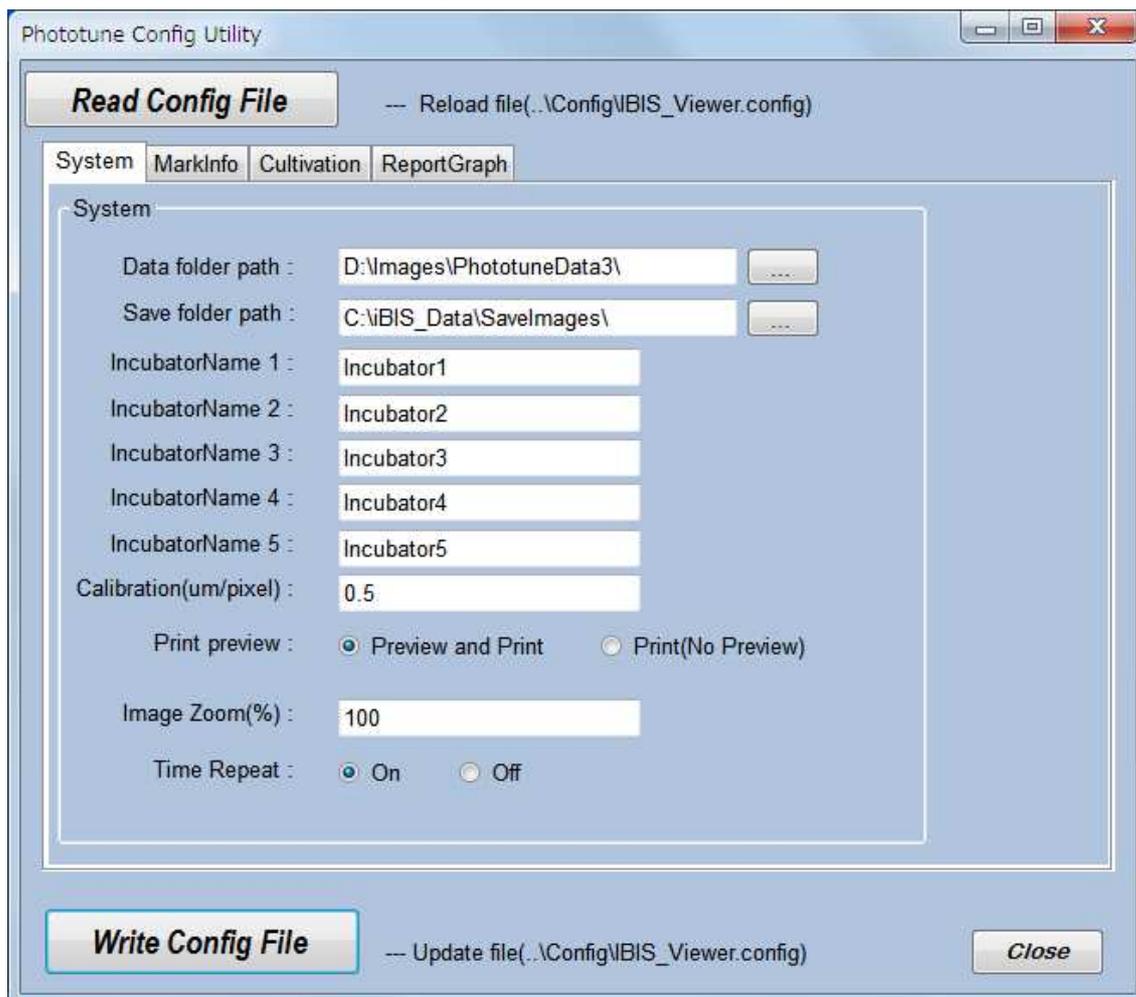
<Utility Use Procedures for System Administrators>

Phototune configuration file setting utility



Double-click icon on the desktop.

The program is started, with the setting files loaded.



[System settings]

Data folder path Data source folder

Save folder path Data save folder

IncubatorName(N) Names of incubators 1 to 5

Calibration(um/pixel) Set a micron value per pixel, to be used for size measurement.

Print preview Specify whether to display the print preview screen before printing.

Image Zoom(%) Enlargement ratio (%) of well images to be shown on the Browse screen

Time Repeat With this function ON, refresh display is repeated from the beginning (each after end of play) when the Play button regarding the temporal axis has been pressed.

[Mark settings]

Set the character string and color of the marks to be used on the Browse screen.

No.	String	Color
0	none	Blue
1	Select(Green)	Green
2	Discard(Red)	Red
3	Freeze(Blue)	Blue
4	PGD(Gray)	Gray
5	---	White
* 6		Light Gray

Use the **Add** and **Del** buttons to add and delete lines.

String: Enter the character string of the mark.

Color: Clicking displays the color setting screen, so that a color can be selected.

[Cultivation process settings]

Set the character string of the cultivation process to be used on the Annotation screen.

No.	Item
0	Retrieval Outcome
1	Total Number of oocytes retrieved
2	Conventional insemination
3	# of oocytes inseminated
4	Time of insemination
5	Microsurgical Insemination
6	Time of insemination
7	# of oocytes ICSI'd
8	# of MII oocytes
9	# of MI oocytes
10	# of GV (Germinal vesicle)

Day# Allows to set for each of 0 to 6. Select Day to be changed.

Add/Del Use to add and delete lines.

Item Edit the description of the cultivation process.

[Report graph settings]

Report Graph

Custom Name :

1 : 1C 6 : M

2 : PN 7 : CM

3 : 2C 8 : EB

4 : 3C 9 : BL

5 : 4C 10 : Exbl

 11 : Hinbgl

 12 : U7

 13 : U8

 14 : U9

Judgement condition :

	No.	Before	After	Min(h)	Max(h)	Score
▶	1	1C	PN	15	25	10
	2	PN	2C	8	15	20
	3	2C	4C	5	13	30
	4	M	EB	15	25	40
	5	BL	Hinbgl	70	100	50

Custom Name (6 to 14) Set cell status names. (Around five letters)

For 1 to 5, unchangeable cell status names have been preset.

Judgement condition Configure the reference table. Five settings can be made. Specify the cell status changes, the reference time span between cell status changes, and the score to be given when the reference time span is satisfied.

Write Config File -- Update file(..\Config\BIS_Viewer.config)

After finishing configuring, press the **Write Config File** button to update the setting file.

* Pressing the **Read Config File** button restores the previous settings.

For any inquiries about this product, please contact your dealer of ASTEC.

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