

Der Astec CCM-IBIS-SG Time Lapse Inkubator



Treffen des RZBW 11.03.2020 in Karlsruhe

Dr. rer. nat. Ralf Böhm
Kinderwunschzentrum Heinsberger Höfe
info@cuypers-cuypers.com

CCM-IBIS-SG

Cultured **C**ell **M**onitoring - Innovative **B**lastocyst **I**ncubation **S**ystem - **S**econd **G**eneration

Allgemeines	
Abmessungen (b x t x h)	38,2 x 63,1 x 21,9 cm
Gewicht	30 kg
Gehäuse	Vollmetall
Integrierter Farbmonitor	17,5 cm (7 Zoll) Touch Screen
Bedienung Inkubator	Funktastatur/-maus, Touchscreen
Software für Auswertungen am PC	Phototune
Datenspeicherung	NAS oder Praxisserver
Software mehrarbeitsplatzfähig	Ja, pro Netzwerk-PC 1 Dongle nötig
Fernzugriff	Über VPN und zusätzliche Phototune Software



CCM-IBIS-SG

Lieferumfang

CCM-IBIS Time Lapse Inkubator

Schläuche für Gasanschluss

9 x Schälchenhalter

USB Funktastatur/-maus, Touch Pen

USB-HUB

QNAP 4Bay NAS-Festplatte, 2 TB

16x Netzwerk-HUB

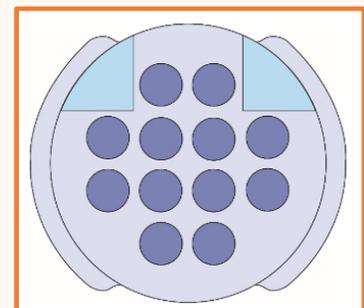
Softwares für Konfiguration und Auswertung

Handbuch, Garantiekarte, Inspektionszertifikat



CCM-IBIS-SG

Optisches System	
Bewegliche Kamera	1,3 MPixel CCD
Objektiv	Nikon, Vergrößerung 10 x
Lichtquelle (im Kammerdeckel)	Rotlicht-LED 623 nm
Belichtungsdauer pro Foto	10 ms
Dateiformat Fotos	JPEG
Dateiformat Videos	MP4, MOV, AVI
Datenspeicherung	NAS oder Praxisserver
Aufnahmeintervall	15, 20, 30, 40, 45 oder 60 min
Abstand, Range und Anzahl der Fokussierungsebenen	0 – 10 µm, 20 – 100 µm (bis zu 19 Ebenen)
Anzahl hinterlegbarer Fokussierungsmuster	7 Muster für Tag 1 bis 7



CCM-IBIS-SG

Inkubationssystem	
Anzahl Inkubationskammern	9
Innenmaße Inkubationskammer (b x t x h)	62 x 65 x 17 mm
Volumen der Inkubationskammern	69 ml
Schalentyp	12-Well LifeGlobal 38 special GPS
Inkubation	trocken, feucht nicht möglich
Gasversorgung	Gasmischkammer CO ₂ , N ₂
CO ₂ -Regelung	Infrarotsensor, 0 – 20%, Flow ± 0,1 %
O ₂ -Regelung	Keramiksensoren, 2 – 18%, Flow ± 0,5 %
Externe Kontrolle CO ₂ /O ₂	Frontseitige Tüllen, Zirkulationsprinzip
Temperaturkontrolle individuell pro Kammer	Stabilität ± 0,1° C
Beheizung der Kammern	Boden und Deckel
Temperaturüberwachung	z. B. Thermobuttons



CCM-IBIS-SG

Inkubationstart über Touch Screen

Eingabe von Patientennamen, -ID

Inseminationszeitpunkt

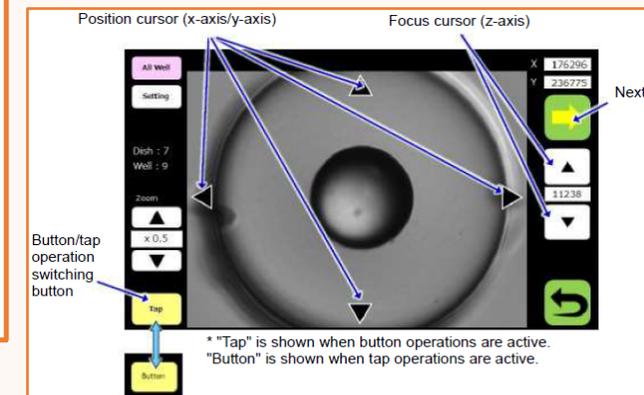
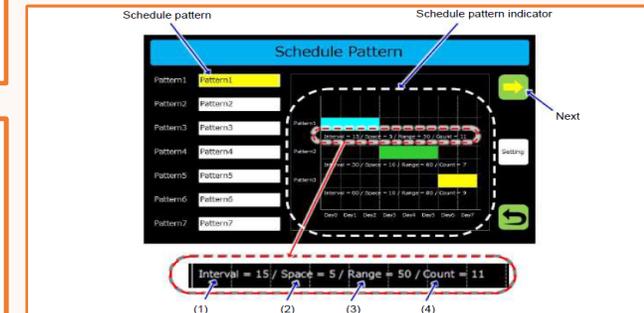
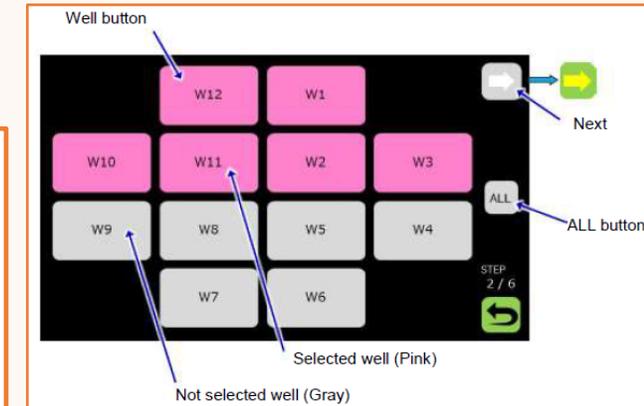
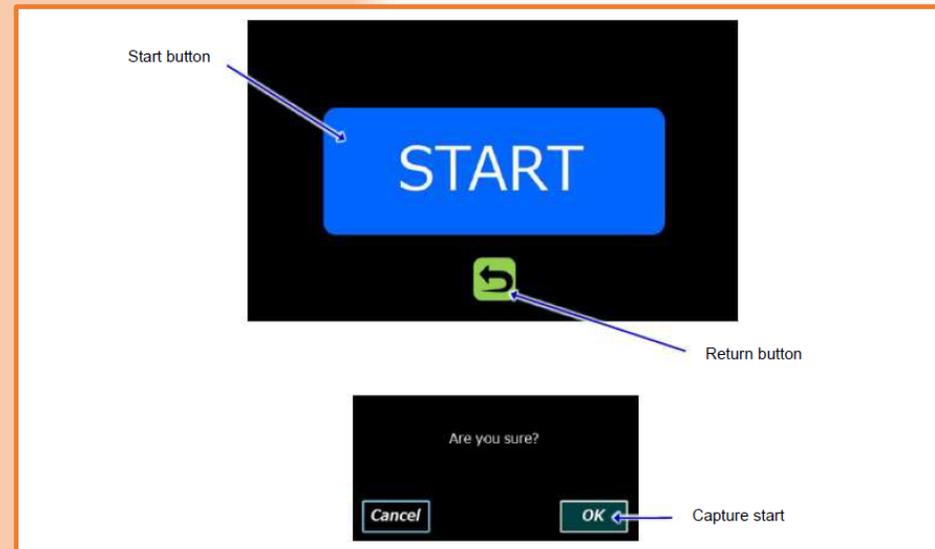
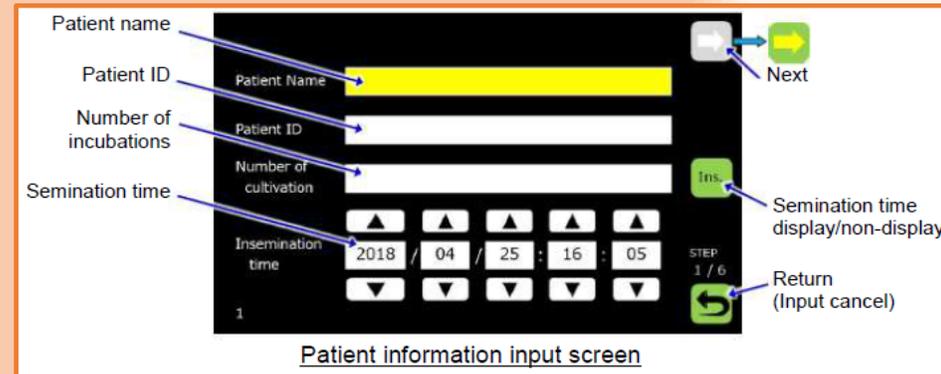
Auswahl Inkubationskammer

Eingabe belegter Wells in Schälchen

2-Punkt-Positionierung der Kamera

Eingabe des Fokussierungsmusters

Start der Time Lapse Inkubation



Phototune Browse window

Patient Data

Dish:	DishName
Name:	PatientName
PatientID:	PatientID1
PartnerID:	PatientID2

Capture start time:

Capture finish time:

Lapse time

Select Dish

Dish select
Selection item

Patient ID
 Patient ID
 Patient name
 Capture start time
 Incubator name
 name

No	Capture time	Patient name	Partner ID	Incubator name	
<input type="checkbox"/>	157	2020.03.09 14:14:15	Vehling Dan...	17	INCUB1
<input type="checkbox"/>	156	2020.03.09 10:43:41	Walderbos ...	251	INCUB1
<input type="checkbox"/>	155	2020.03.09 10:24:34	Huijboom S...	347	INCUB1
<input type="checkbox"/>	154	2020.03.06 11:50:47	Baart Jolanda	643	INCUB1
<input type="checkbox"/>	153	2020.03.06 11:15:09	Wensink va...	277	INCUB1
<input type="checkbox"/>	152	2020.03.05 14:38:08	Vissers Sylv...	83	INCUB1
<input type="checkbox"/>	151	2020.03.05 13:33:57	Gaasbeek E...	169	INCUB1
<input type="checkbox"/>	150	2020.03.05 11:49:41	Verkaik Rox...	61	INCUB1
<input type="checkbox"/>	149	2020.03.04 14:04:25	Halder van ...	73	INCUB1
<input type="checkbox"/>	148	2020.03.03 13:29:35	Tschoeke Cl...	201	INCUB1
<input type="checkbox"/>	147	2020.03.03 13:22:18	Katz Judith	538	INCUB1
<input type="checkbox"/>	146	2020.03.02 15:18:31	van Harten ...	77	INCUB1
<input type="checkbox"/>	145	2020.03.02 14:28:33	van t End va...	530	INCUB1
<input type="checkbox"/>	144	2020.03.02 14:15:47	Oomen de ...	29	INCUB1

20

Z:

▲

99

▼

CLR

1

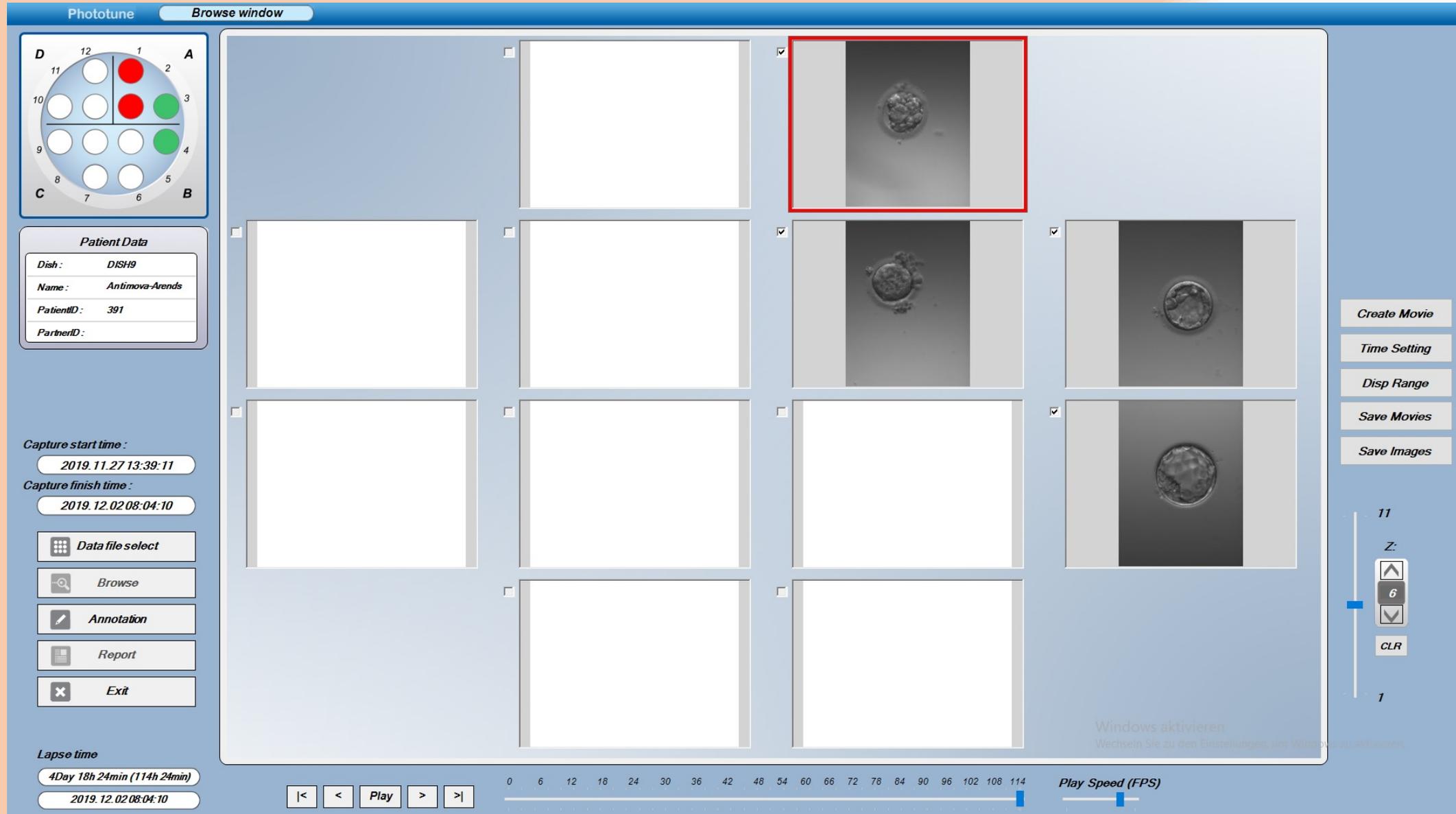
Windows aktivieren
Wechseln Sie zu den Einstellungen, um Windows zu aktivieren.

0 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 102 108 114 120 126 132 138 144

Play Speed (FPS)

Phototune-Software

Phototune **Browse window**



Grid of Images: A 3x4 grid of image frames. The top-right frame (row 1, column 4) is highlighted with a red border and contains a grayscale image of a cell. The other frames are mostly blank or contain similar grayscale images.

Patient Data:

Patient Data	
Dish:	DISH9
Name:	Antimova-Arends
PatientID:	391
PartnerID:	

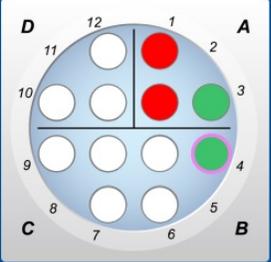
Control Panels:

- Left Panel:** Includes a circular diagram with 12 numbered positions (1-12) and colored dots (red, green, white). Below it are buttons for "Data file select", "Browse", "Annotation", "Report", and "Exit".
- Bottom Left:** "Lapse time" section with a display showing "4Day 18h 24min (114h 24min)" and a date/time "2019.12.02 08:04:10".
- Bottom Center:** A timeline slider from 0 to 114 with a "Play" button and navigation arrows.
- Bottom Right:** "Play Speed (FPS)" control with a slider.
- Right Panel:** Includes buttons for "Create Movie", "Time Setting", "Disp Range", "Save Movies", and "Save Images". Below these is a vertical slider labeled "Z:" with a value of "6" and a "CLR" button.

Windows aktivieren
Wechseln Sie zu den Einstellungen, um Windows zu aktivieren.

Phototune-Software

Phototune
Annotation window



Patient Data

Dish: DISH9

Name: Antimova-Arends

PatientID: 391

PartnerID:

Capture start time: 2019.11.27 13:39:11

Capture finish time: 2019.12.02 08:04:10

Data file select

Browse

Annotation

Report

Exit

Transfer(Green)

Detailed information input

Capture time: 2019.11.28 01:40:19

Lapsed time: Day0 12:01:08

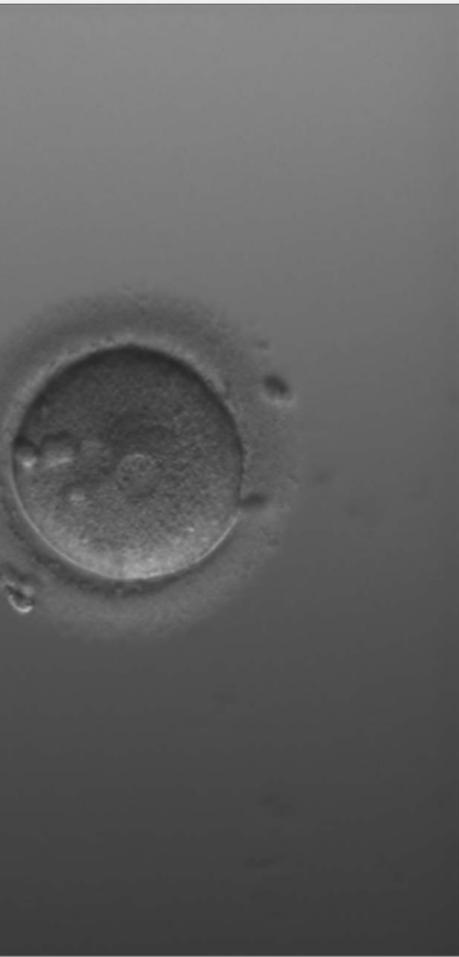
Cells: 1C PN 2C 3C 4C
5C 6C 7C 8C M
sBL BI eBL hBL

Culture process: Day1 Item editing

# of PNs	2
# of PBs	2
Time to pronuclear fade	

Comment:

Delete Data... OK Cancel



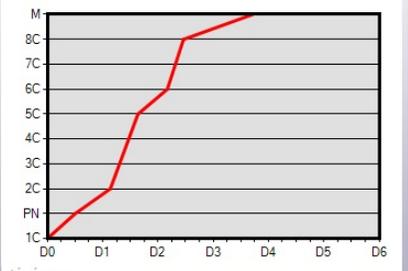
- 1C
- PN
- 2C
- 3C
- 4C
- 5C
- 6C
- 7C
- 8C
- M
- sBL
- BI
- eBL
- hBL

Z: 7

CLR

Annotation data

Lapsed time	Cells	Detail	Del
0Day 12h 01min (12h 01min) 2019.11.28 01:40:19	PN	+	-
1Day 03h 20min (27h 20min) 2019.11.28 16:59:15	2C	+	-
1Day 15h 20min (39h 20min) 2019.11.29 04:59:15	5C	+	-
2Day 04h 05min (52h 05min) 2019.11.29 17:44:17	6C	+	-
2Day 11h 05min (59h 05min) 2019.11.30 00:44:18	8C	+	-
3Day 17h 05min (89h 05min) 2019.12.01 06:44:17	M	+	-



Lapse time: 0Day 12h 01min (12h 1min) 2019.11.28 01:40:19

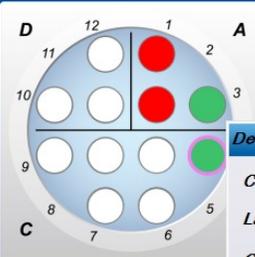
<| < Play > >|

0 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 102 108 114

Play Speed 24FPS

100% + Fit - Save Size

Phototune
Annotation window



Patient Data

Dish: DISH9

Name: Antimova-Arendt

PatientID: 391

PartnerID:

Capture start time:
2019.11.27 13:39:11

Capture finish time:
2019.12.02 08:04:10

Data file select

Browse

Annotation

Report

Exit

Lapse time

4Day 18h 24min (114h 24min)

2019.12.02 08:04:10

Transfer(Green)

Detailed information input

Capture time: 2019.12.02 08:04:10

Lapsed time: Day4 18:24:59

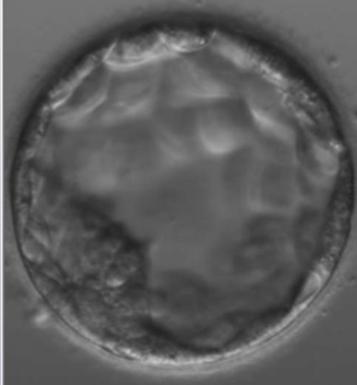
Cells: 1C PN 2C 3C 4C
5C 6C 7C 8C M
sBL BI **eBL** hBL

Culture process: Day5 Item editing

Time to Full/Expanded blast	
Time to ICM formation	
Time to Trophectoderm formation	

Comment:

Delote Data... OK Cancel



1C

PN

2C

3C

4C

5C

6C

7C

8C

M

sBL

BI

eBL

hBL

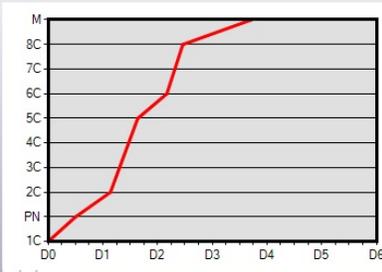
11

Z:

7

CLR

1



Windows

100%

Play Speed 24FPS

Save

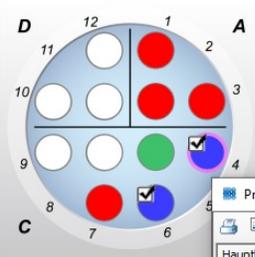
Size

11.03.2020

Kinderwunschzentrum Heinsberger Höfe
www.cuyper-cuyper.com

10

Phototune
Report window



Kryo(Blue)

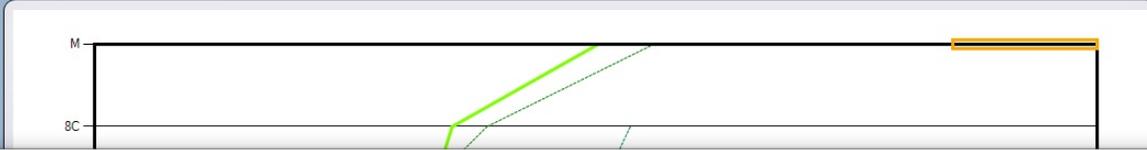


Chart Display

Select Active

A1

A2

Annotation data

Lapsed time	Cells	Detail	Del
0Day 10h 17min (10h 17min) 2019.11.23 00:39:15	PN	+	-
0Day 23h 47min (23h 47min) 2019.11.23 14:09:17	2C	+	-
min (36h 32min) 24 02:54:18	4C	+	-
min (51h 22min) 24 17:44:17	8C	+	-
min (72h 19min) 25 14:40:29	M	+	-
min (97h 13min) 26 15:35:12	sBL	+	-
min (105h 13min) 26 23:35:12	BL	+	-
min (112h 13min) 27 06:35:12	eBL	+	-

Patient Data

Dish: DISH1

Name: van den Berg

PatientID: 25

PartnerID:

Capture start time : 2019.11.22 14:21:20

Capture finish time : 2019.11.27 08:37:13

Data file select

Browse

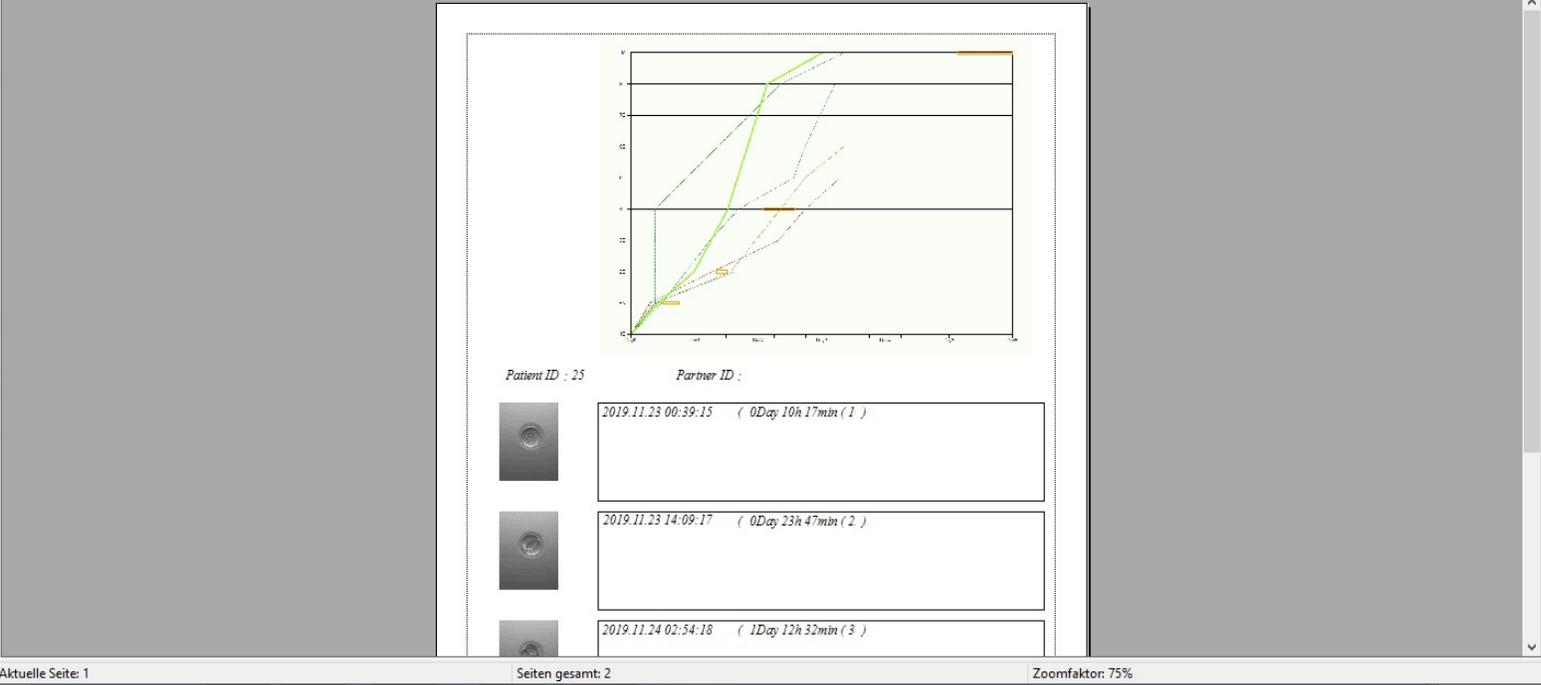
Annotation

Report

Exit

Preview Print

Hauptbericht



Patient ID : 25

Partner ID :

2019.11.23 00:39:15 (0Day 10h 17min (1))

2019.11.23 14:09:17 (0Day 23h 47min (2))

2019.11.24 02:54:18 (1Day 12h 32min (3))

Aktuelle Seite: 1

Seiten gesamt: 2

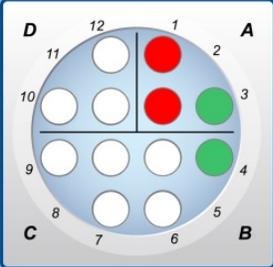
Zoomfaktor: 75%

PN	2C	22,00	~	26,00	13,50	0pt
2C	4C	26,00	~	38,00	12,75	0pt
8C	M	72,00	~	96,00	20,95	0pt
eBL	hBL	110,00	~	116,00	—	—

Save Print

Phototune-Software

Phototune **Browse window**



Patient Data

Dish:	DISH9
Name:	Antimova-Arends
PatientID:	391
PartnerID:	

Capture start time:
2019.11.27 13:39:11

Capture finish time:
2019.12.02 08:04:10

 Data file select

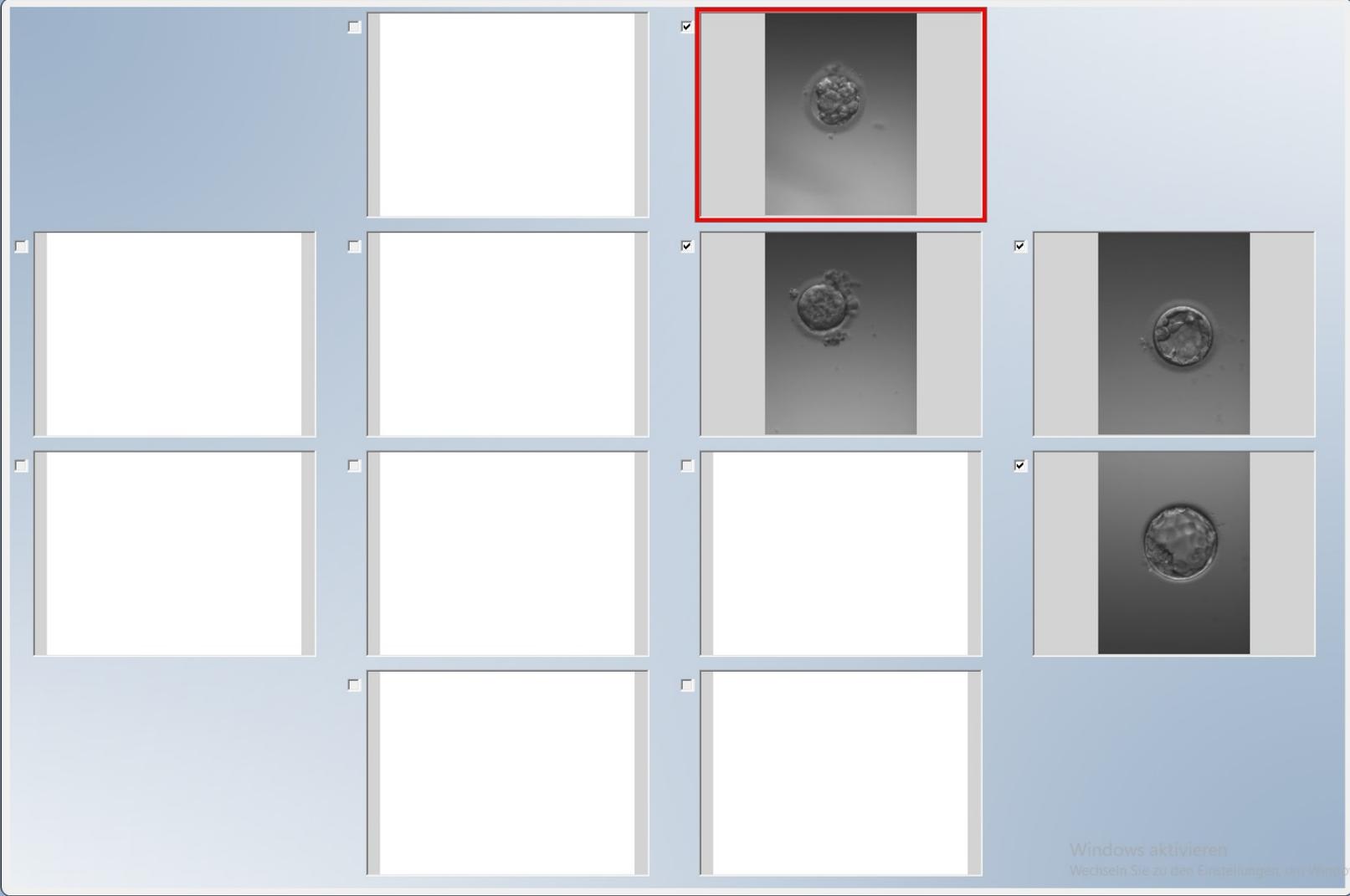
 Browse

 Annotation

 Report

 Exit

Lapse time
4Day 18h 24min (114h 24min)
2019.12.02 08:04:10



Create Movie

Time Setting

Disp Range

Save Movies

Save Images

11

Z:

 6 

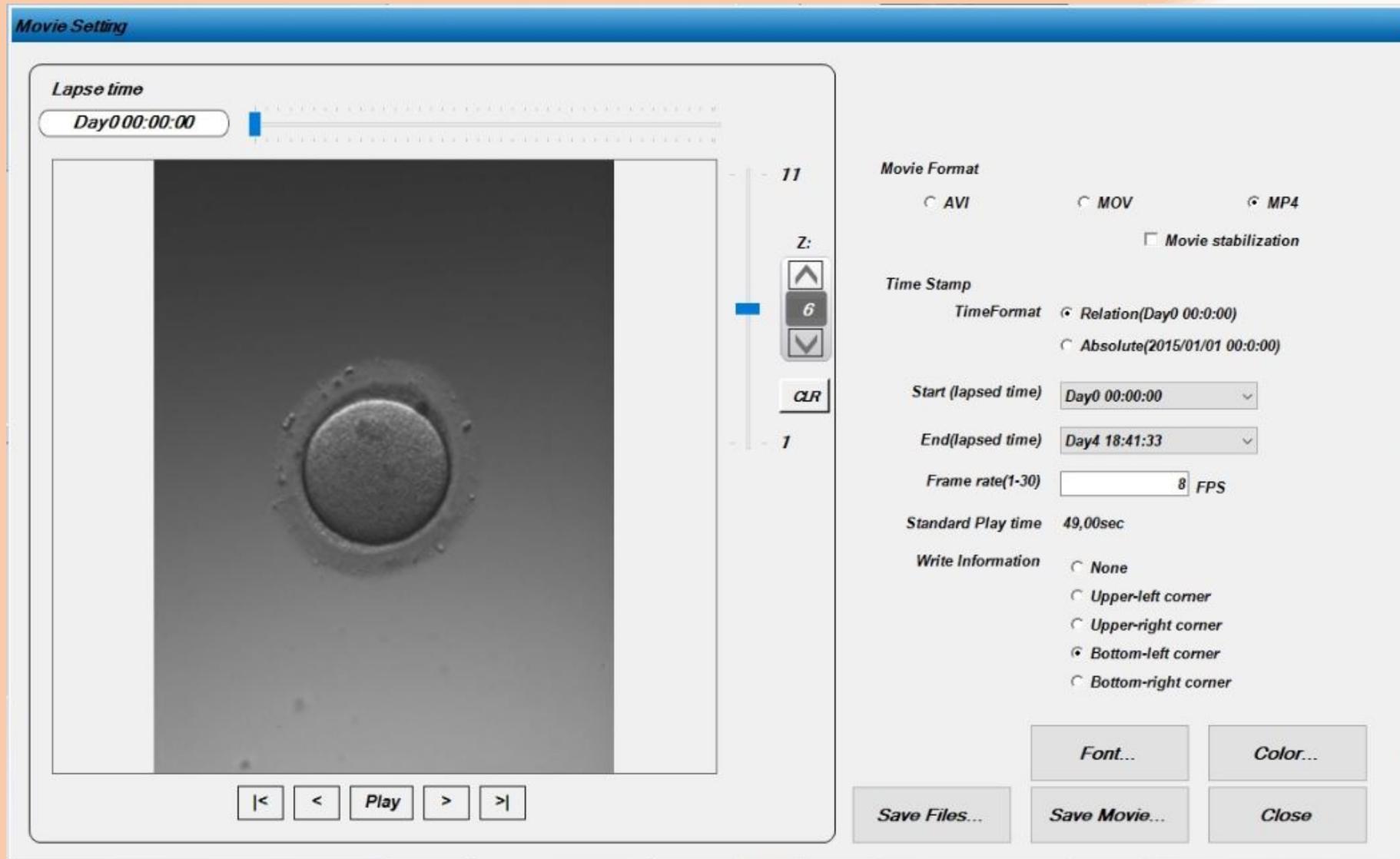
CLR

1

Windows aktivieren
Wechseln Sie zu den Einstellungen, um Windows zu aktivieren.

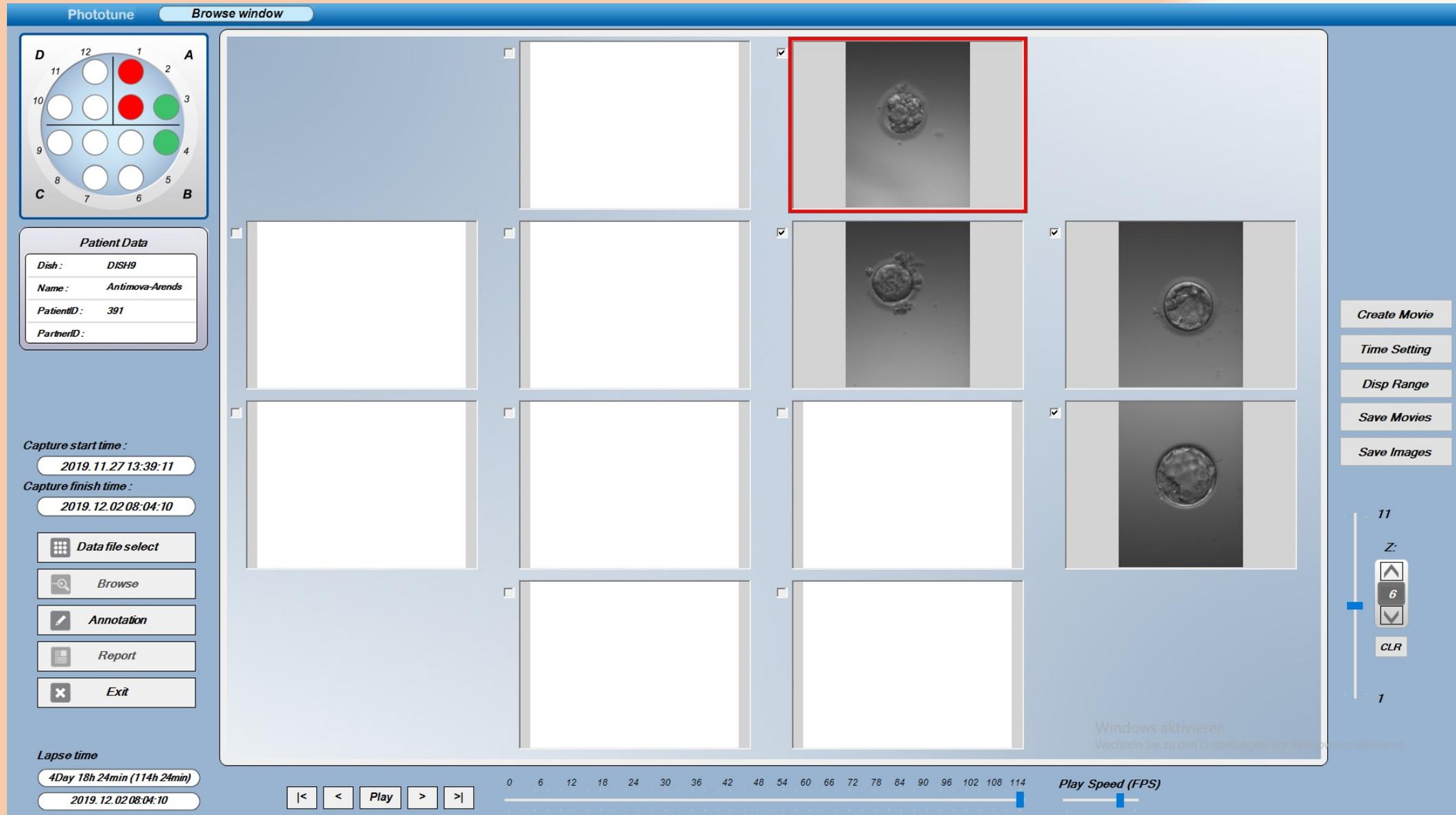
0 6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 102 108 114

Play Speed (FPS)



Phototune-Software

Phototune **Browse window**



Grid of Images: A 3x4 grid of image frames. The top-right frame (row 1, column 4) is highlighted with a red border and contains a grayscale image of a cell. Other frames in the grid are mostly blank or show similar cell images.

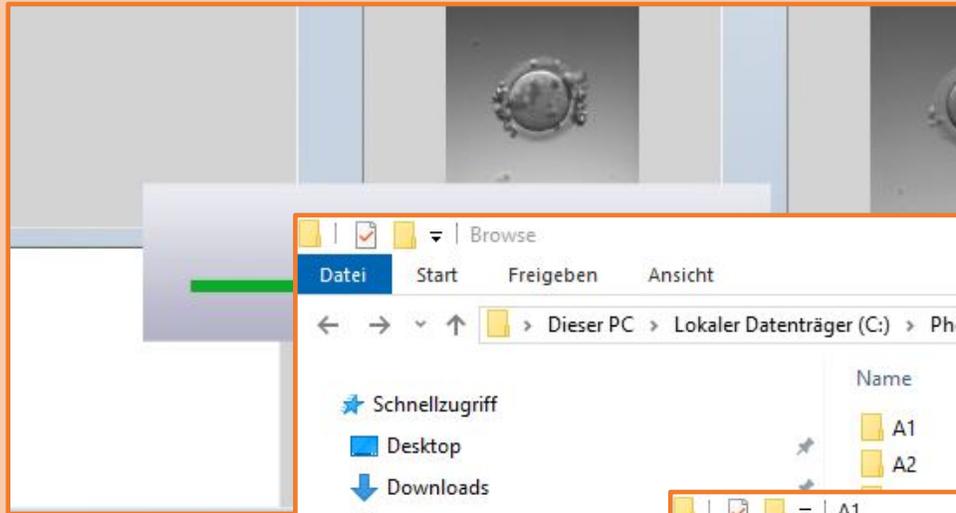
Patient Data:

Patient Data	
Dish:	DISH9
Name:	Antimova-Arends
PatientID:	391
PartnerID:	

Control Panels:

- Top Left:** A circular diagram with 12 numbered positions (1-12) and colored dots (red, green, white).
- Left Panel:** Buttons for "Data file select", "Browse", "Annotation", "Report", and "Exit".
- Bottom Left:** "Capture start time" (2019.11.27 13:39:11) and "Capture finish time" (2019.12.02 08:04:10).
- Bottom Left (Lapse time):** "4Day 18h 24min (114h 24min)" and "2019.12.02 08:04:10".
- Right Panel:** Buttons for "Create Movie", "Time Setting", "Disp Range", "Save Movies", and "Save Images".
- Bottom Right:** A vertical slider labeled "Z:" with values 1, 6, 11 and a "CLR" button.
- Bottom Center:** A timeline with markers from 0 to 114 and "Play Speed (FPS)" controls.

Phototune-Software



File Explorer window showing the directory structure:

Path: **Dieser PC > Lokaler Datenträger (C:) > Phototune > Save > Testfrau > Browse**

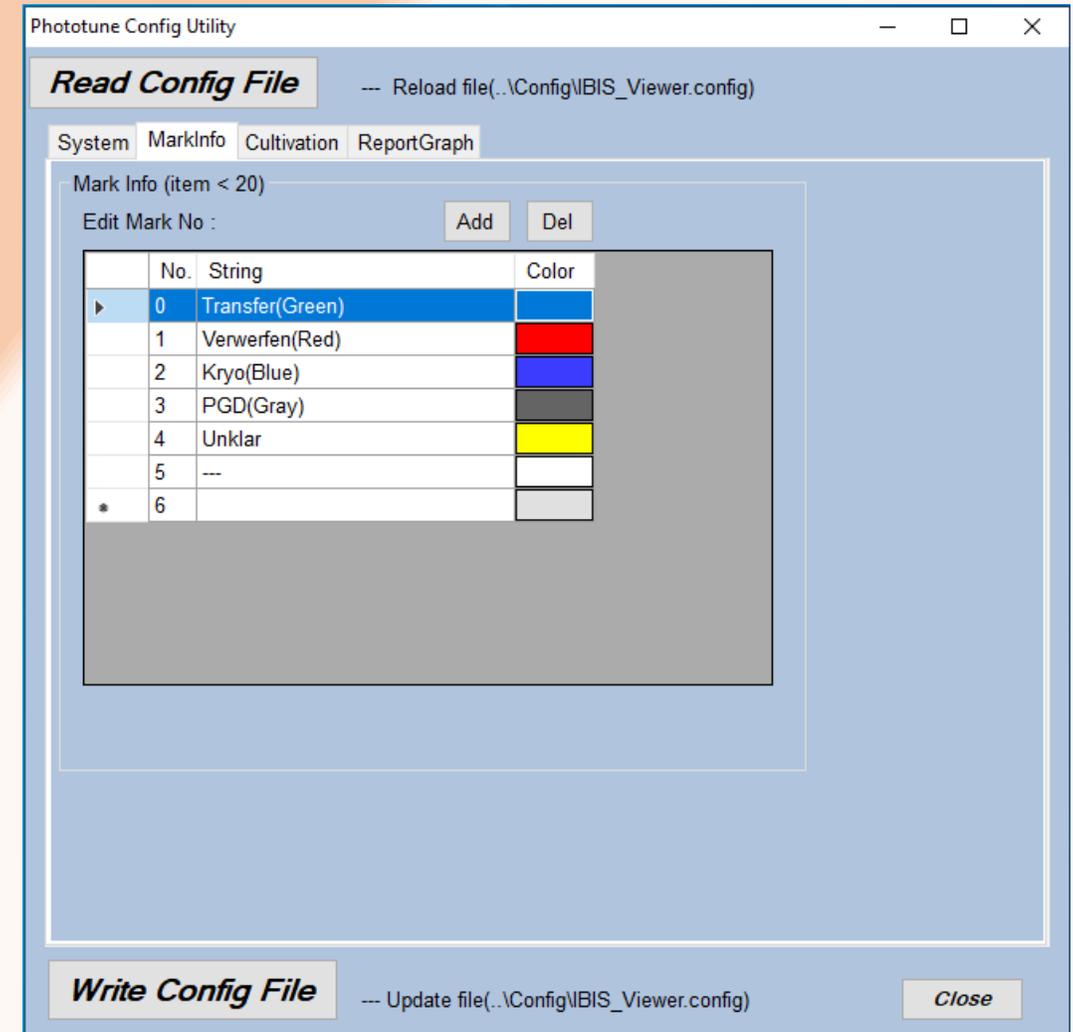
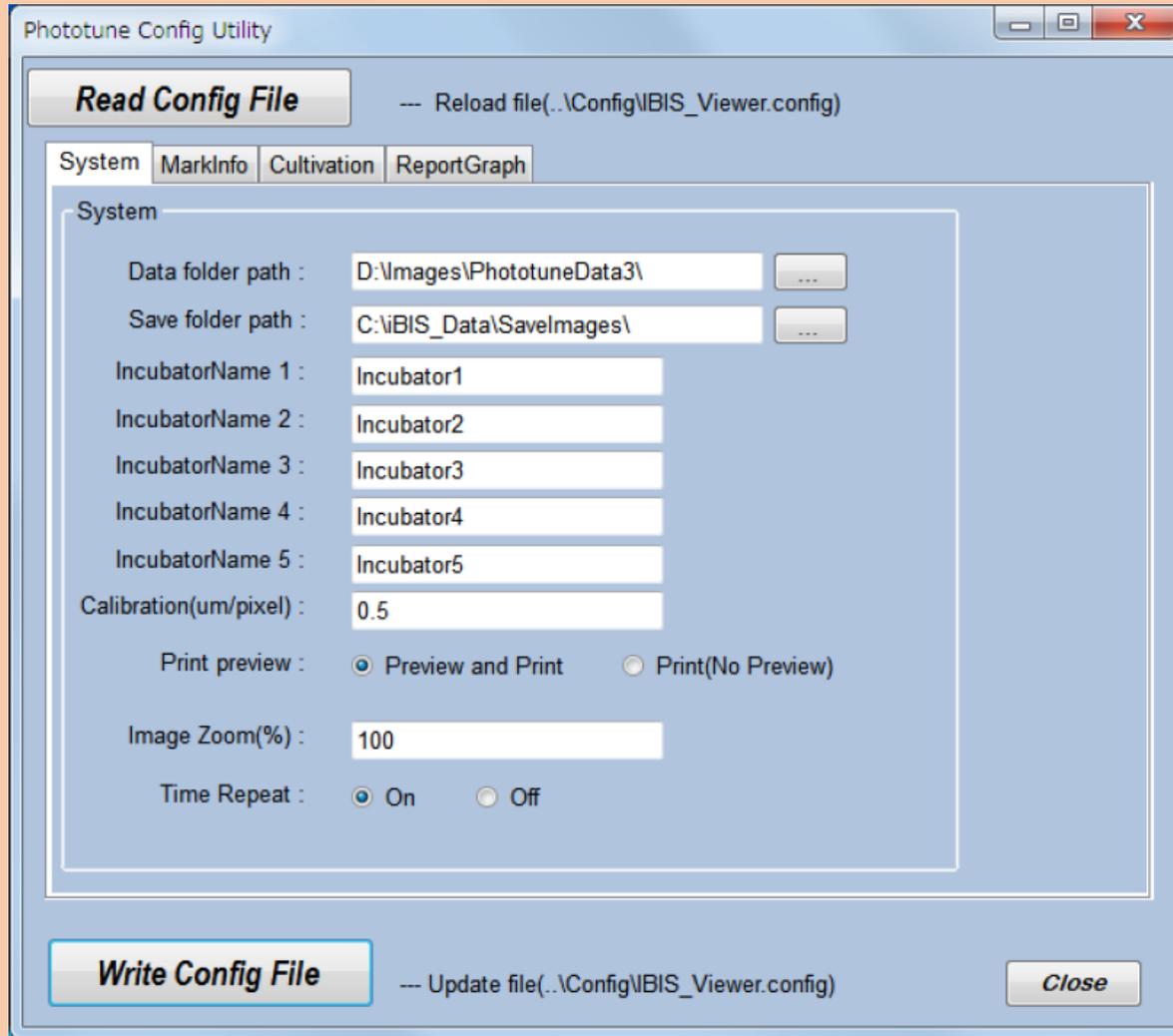
Name	Änderungsdatum	Typ	Größe
A1	09.03.2020 16:35	Dateiordner	
A2	09.03.2020 16:35	Dateiordner	

File Explorer window showing the contents of the A1 folder:

Path: **Dieser PC > Lokaler Datenträger (C:) > Phototune > Save > Testfrau > Browse > A1**

Name	Änderungsdatum	Typ	Größe
2019_1122_142120_W01	09.03.2020 16:35	Setup-Informatio...	1 KB
2019_1122_142120_W01	09.03.2020 16:35	MP4-Datei	13.338 KB
D1W01Z06_2019_1127_075514	09.03.2020 16:34	JPG-Datei	399 KB

Phototune Utility-Software



Phototune Utility-Software

Phototune Config Utility

Read Config File --- Reload file(..\Config\BIS_Viewer.config)

System MarkInfo Cultivation ReportGraph

Cultivation Detail Info (item < 20)

Day # : 3

No.	Item
0	# of Cells/time of development
1	% Fragmentation
2	Symmetry
3	Compaction:Initial/partial/complete
4	# of multinucleated blastomeres > 2
5	

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

Phototune Config Utility

Read Config File --- Reload file(..\Config\BIS_Viewer.config)

System MarkInfo Cultivation ReportGraph

Report Graph

Custom Name :

1 : 1C 6 : 5C
2 : PN 7 : 6C
3 : 2C 8 : 7C
4 : 3C 9 : 8C
5 : 4C 10 : M
11 : sBL
12 : BI
13 : eBL
14 : hBL

Judgement condition :

No.	Before	After	Min(h)	Max(h)	Score
1	1C	PN	12	18	10
2	PN	2C	22	26	20
3	2C	4C	28	38	20
4	8C	M	72	96	20
5	eBL	hBL	110	116	30

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

Zusammenfassung CCM-IBIS

- Sehr kompaktes, robustes Gerät
- Kostengünstig in der Anschaffung
- Umfangreiches Zubehör → auch als Stand-Alone-Lösung verwendbar
- Sehr stabile Inkubationsparameter
- Kostengünstige Kulturschalen, sehr geringer Gasverbrauch
- Einfach in bestehendes Netzwerk implementierbar, mehrarbeitsplatzfähig
- Intuitive und einfache Bedienung
- Sehr leistungsfähige Software mit vielen Konfigurations- und Einstellmöglichkeiten für Auswertung und Dokumentation
- Sehr einfache Erstellung von Einzel- sowie Gruppenfotos und –videos und Berichten
- Sehr guter Service

Verbesserungsbedarf

- Automatisches Auffinden der Zellen in Positionierungs-Well beim Start
- Autofocus für Kamerasystem
- Ein paar kleine Softwareschwächen

Vielen Dank für Ihre Aufmerksamkeit!



Treffen des RZBW 11.03.2020 in Karlsruhe

Dr. rer. nat. Ralf Böhm
Kinderwunschzentrum Heinsberger Höfe
info@cuypers-cuypers.com