

Add one video...

Toggle Edit Table

Check consistency

Delete videos...

1. Process videos...

2. Compute measures...

3. Display results...

Quit

author

All (1 values)  
Nemo

date

All (1 values)  
1/1/2013

gene

All (2 values)  
Mutant  
Wild Type

trial

All (1 values)  
1

age

All (2 values)  
4  
5

segmented

All (1 values)  
0

measured

All (1 values)  
0

experiment

All (1 values)

class

All (1 values)

	name	author	date	gene	trial	age	set	note	directory	images	duration	frames_per_second	mm_per_pixel	well	segmented	worms	measured
1	Sample01	Nemo	1/1/2013	Wild Type	1	4		1 Demo video	/Users/christo...	544	30	18.1333	1	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>
2	Sample02	Nemo	1/1/2013	Wild Type	1	5		1 Demo video	/Users/christo...	544	30	18.1333	1	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>
3	Sample03	Nemo	1/1/2013	Mutant	1	4		1 Demo video	/Users/christo...	544	30	18.1333	1	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>
4	Sample04	Nemo	1/1/2013	Mutant	1	5		1 Demo video	/Users/christo...	544	30	18.1333	1	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>
5	Sample05	Nemo	1/1/2013	Wild Type	1	4		2 Demo video	/Users/christo...	544	30	18.1333	1	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>

Launch the processing window



CeleST: Video Processing – Choose the videos to process, define the swimming zones, launch the processing

author	date	gene	trial	age	segmented	measured	experiment	class
All (1 values) Nemo	All (1 values) 1/1/2013	All (2 values) Mutant Wild Type	All (1 values) 1	All (2 values) 4 5	All (1 values) 0	All (1 values) 0	All (1 values)	All (1 values)

Videos to choose from: (5 filtered)

Select all

Deselect all

Sample01  
Sample02  
Sample03  
Sample04  
Sample05

>> Add to the list >>

<< Remove <<

Close

Videos to process: (5 listed)

Select all

Deselect all

Sample01  
Sample02  
Sample03  
Sample04  
Sample05

Process all the videos listed above

Processing: stopped

Videos processed: 0 / 0

Current video:  
< no video >

Frames processed: 0 / 0

No swim well defined: (5 remaining)

Swim well defined: (0 found)

Sample01  
Sample02  
Sample03  
Sample04  
Sample05

Left click = add a point on the border of the well --- Right click = remove the latest point

Click on 3 points along the border of the swim well, to define the swim zone, which results in a precise computation of the millimeter/pixel scale, and a faster processing time.

author	date	gene	trial	age	segmented	measured	experiment	class
All (1 values) Nemo	All (1 values) 1/1/2013	All (2 values) Mutant Wild Type	All (1 values) 1	All (2 values) 4 5	All (1 values) 0	All (1 values) 0	All (1 values)	All (1 values)

Videos to choose from: (5 filtered)

Select all

Deselect all

Sample01  
Sample02  
Sample03  
Sample04  
Sample05

&gt;&gt; Add to the list &gt;&gt;

&lt;&lt; Remove &lt;&lt;

Close

Videos to process: (5 listed)

Select all

Deselect all

Sample01  
Sample02  
Sample03  
Sample04  
Sample05

Process all the videos listed above

Processing: stopped

Videos processed: 0 / 0

Current video:

&lt; no video &gt;

Frames processed: 0 / 0

No swim well defined: (4 remaining)

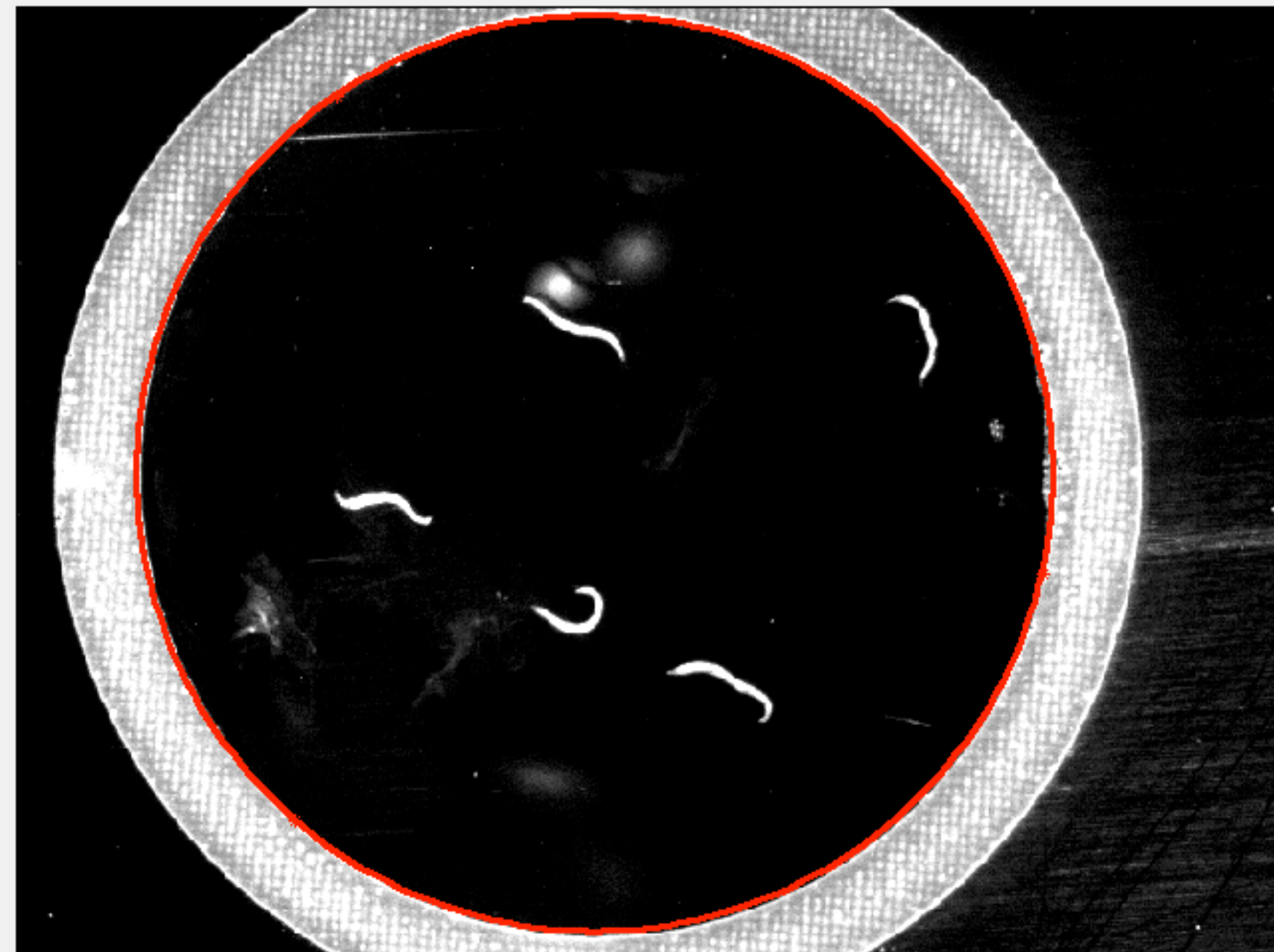
Sample02  
Sample03  
Sample04  
Sample05

Repeat for all videos

Swim well defined: (1 found)

Sample01

Left click = add a point on the border of the well --- Right click = remove the latest point





author	date	gene	trial	age	segmented	measured	experiment	class
All (1 values) Nemo	All (1 values) 1/1/2013	All (2 values) Mutant Wild Type	All (1 values) 1	All (2 values) 4 5	All (1 values) 0	All (1 values) 0	All (1 values)	All (1 values)

Videos to choose from: (5 filtered)

Select all

Deselect all

Sample01  
Sample02  
Sample03  
Sample04  
Sample05

&gt;&gt; Add to the list &gt;&gt;

&lt;&lt; Remove &lt;&lt;

Close

Videos to process: (5 listed)

Select all

Deselect all

Sample01  
Sample02  
Sample03  
Sample04  
Sample05

Process all the videos listed above

Processing: stopped

Videos processed: 0 / 0

Current video:

&lt; no video &gt;

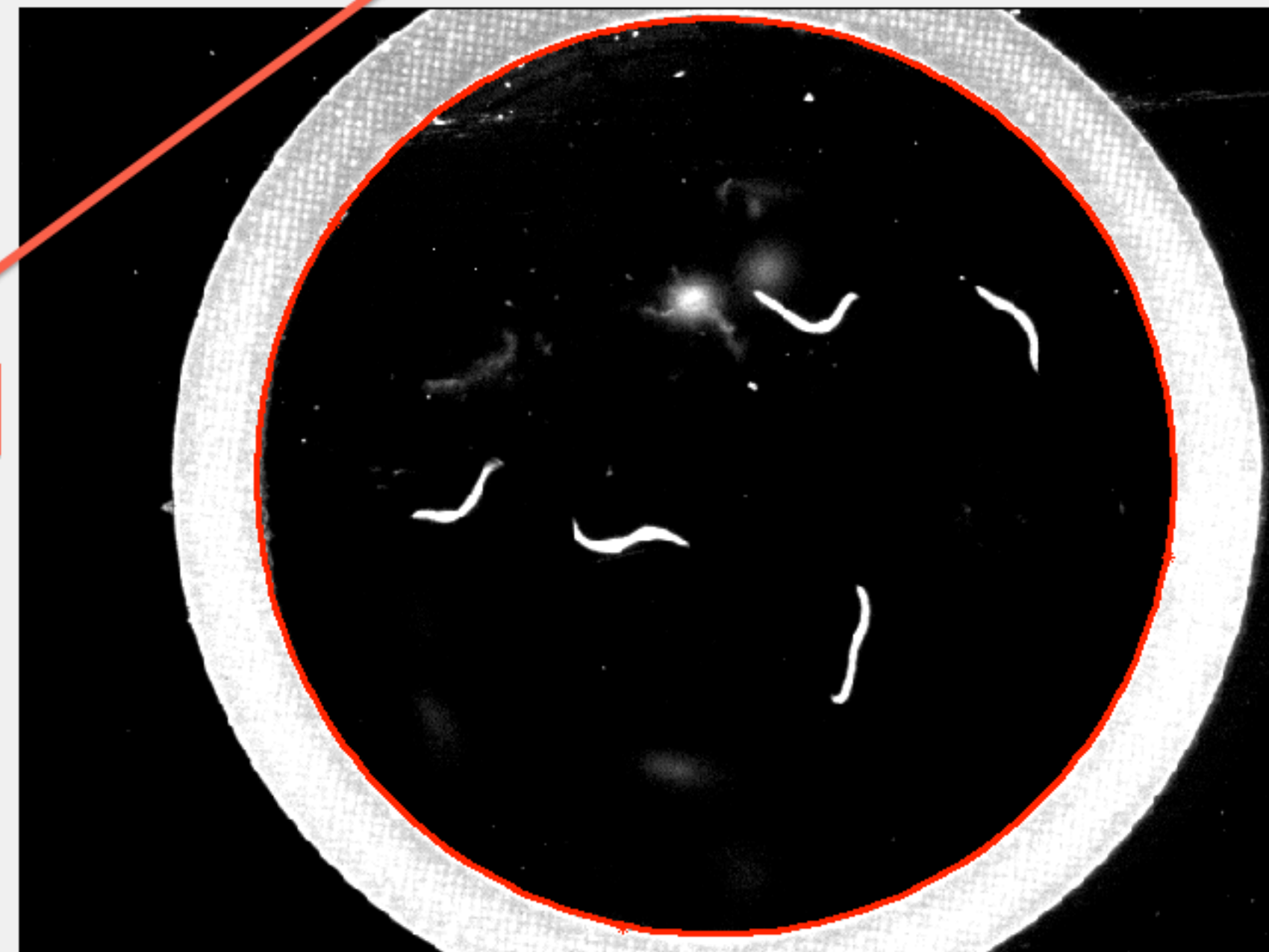
Frames processed: 0 / 0

No swim well defined: (0 remaining)

Swim well defined: (5 found)

Sample01  
Sample02  
Sample03  
Sample04  
Sample05

Left click = add a point on the border of the well --- Right click = remove the latest point



CeleST: Video Processing – Choose the videos to process, define the swimming zones, launch the processing

author	date	gene	trial	age	segmented	measured	experiment	class
All (1 values) Nemo	All (1 values) 1/1/2013	All (2 values) Mutant Wild Type	All (1 values) 1	All (2 values) 4 5	All (1 values) 0	All (1 values) 0	All (1 values)	All (1 values)

Videos to choose from: (5 filtered)

Select all

Deselect all

Sample01  
Sample02  
Sample03  
Sample04  
Sample05

>> Add to the list >>

<< Remove <<

Videos to process: (5 listed)

Select all

Deselect all

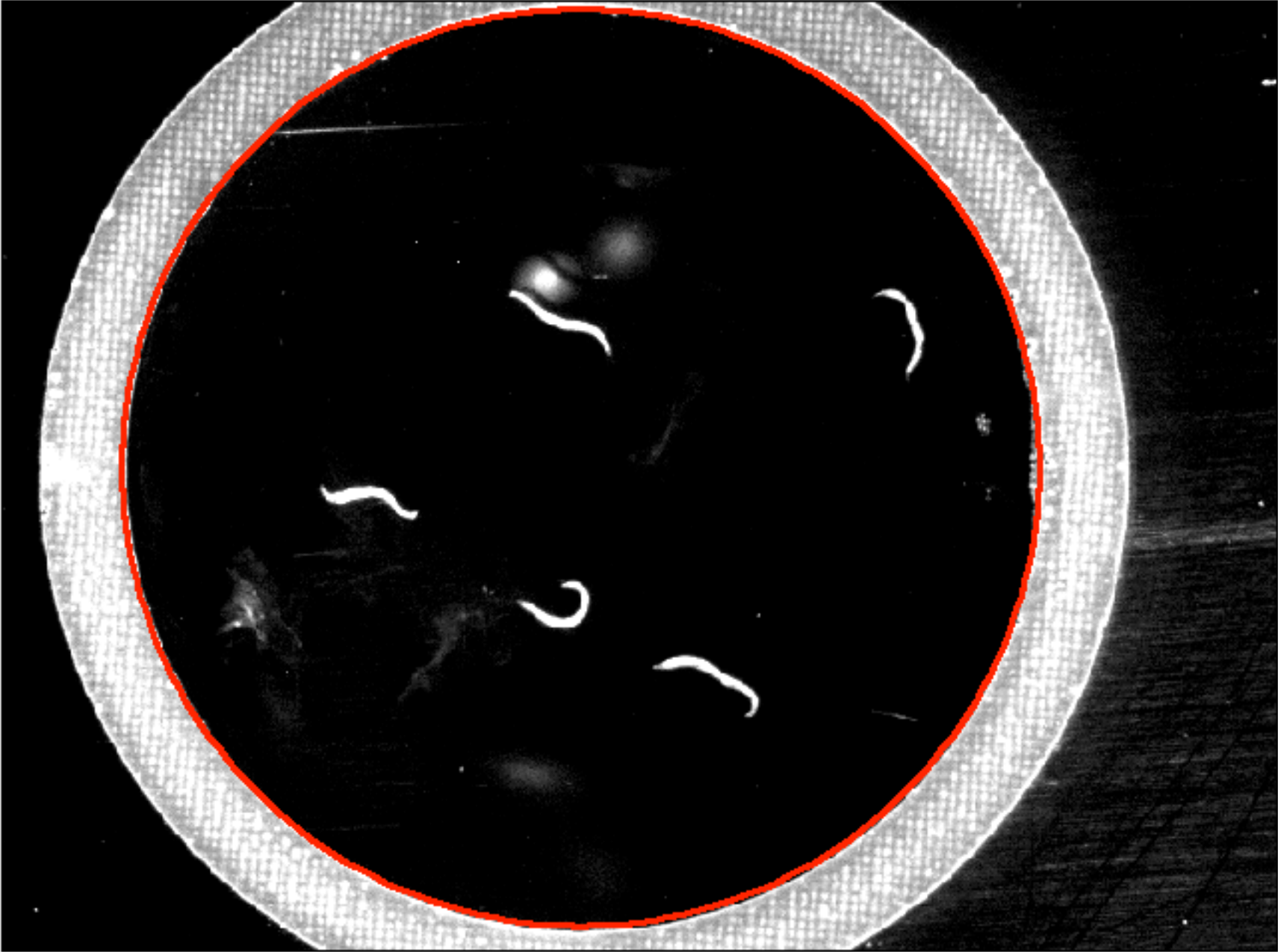
Sample01  
Sample02  
Sample03  
Sample04  
Sample05

No swim well defined: (0 remaining)

Swim well defined: (5 found)

Sample01  
Sample02  
Sample03  
Sample04  
Sample05

Left click = add a point on the border of the well --- Right click = remove the latest point



Close

Process all the videos listed above

Processing: on-going  
Videos processed: 1 / 5  
Current video:  
Sample01  
Frames processed: 6 / 544

Wait until all videos are processed





author	date	gene	trial	age	segmented	measured	experiment	class
All (1 values) Nemo	All (1 values) 1/1/2013	All (2 values) Mutant Wild Type	All (1 values) 1	All (2 values) 4 5	All (1 values) 0	All (1 values) 0	All (1 values)	All (1 values)

Videos to choose from: (5 filtered)

Select allDeselect all

Sample01  
Sample02  
Sample03  
Sample04  
Sample05

>> Add to the list >>

<< Remove <<

Videos to process: (5 listed)

Select allDeselect all

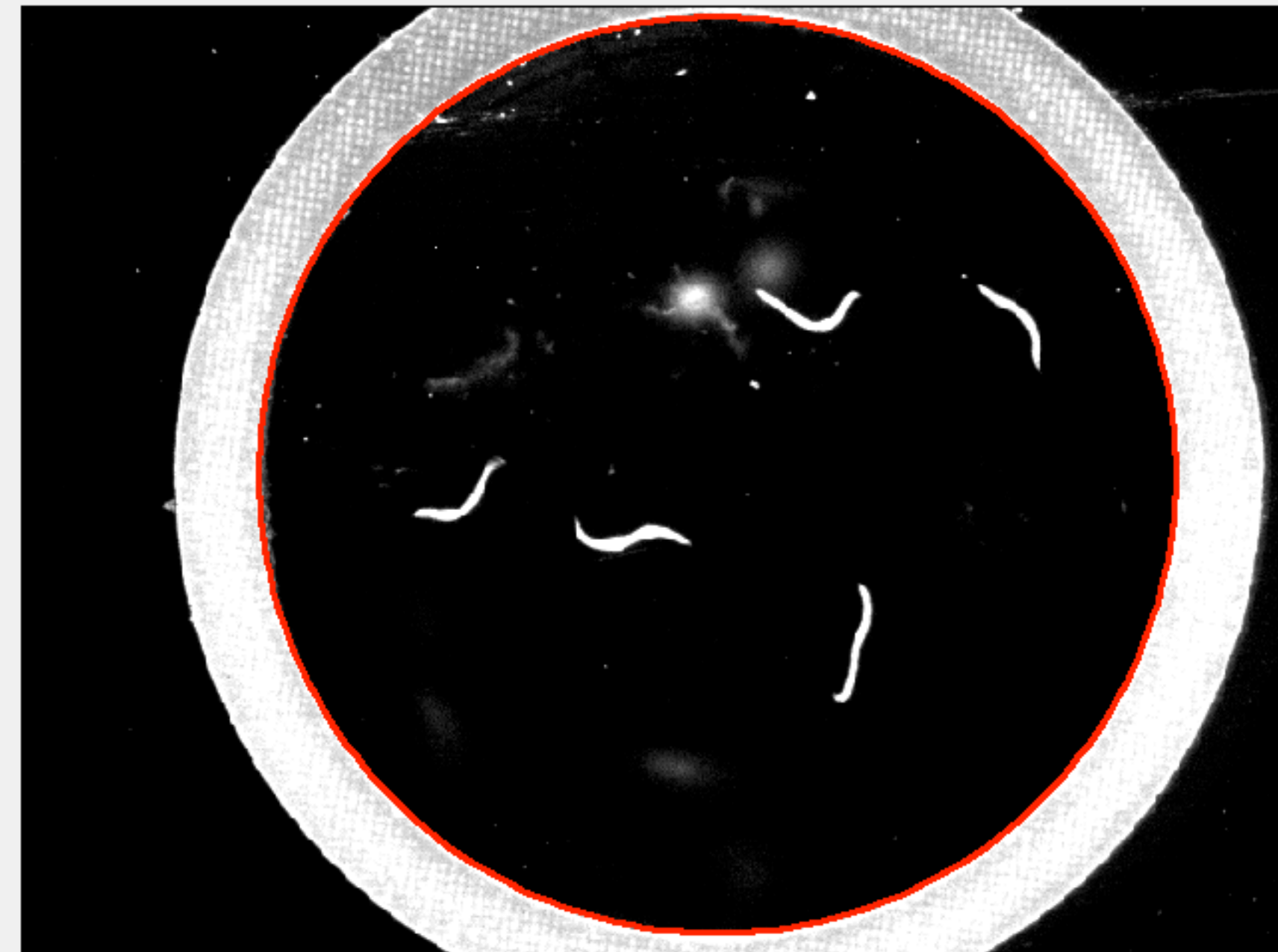
Sample01  
Sample02  
Sample03  
Sample04  
Sample05

No swim well defined: (0 remaining)

Swim well defined: (5 found)

Sample01  
Sample02  
Sample03  
Sample04  
Sample05

Left click = add a point on the border of the well --- Right click = remove the latest point



Close

Process all the videos listed above

Processing: finished  
Videos processed: 5 / 5  
Current video:  
Sample05  
Frames processed: 544 / 544



Add one video...

Check consistency

1. Process videos...

2. Compute measures...

3. Display results...

Quit

Toggle Edit Table

Delete videos...

author

date

gene

trial

age

segmented

measured

experiment

class

All (1 values)		All (1 values)		All (2 values)		All (1 values)		All (2 values)		All (1 values)		All (1 values)		All (1 values)		All (1 values)	
Nemo		1/1/2013		Mutant Wild Type		1		4 5		1		0					
	name	author	date	gene	trial	age	set	note	directory	images	duration	frames_per_second	mm_per_pixel	well	segmented	worms	measured
1	Sample01	Nemo	1/1/2013	Wild Type	1	4		1 Demo video	/Users/christo...	544	30	18.1333	0.0200	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	<input type="checkbox"/>
2	Sample02	Nemo	1/1/2013	Wild Type	1	5		1 Demo video	/Users/christo...	544	30	18.1333	0.0200	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	<input type="checkbox"/>
3	Sample03	Nemo	1/1/2013	Mutant	1	4		1 Demo video	/Users/christo...	544	30	18.1333	0.0200	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6	<input type="checkbox"/>
4	Sample04	Nemo	1/1/2013	Mutant	1	5		1 Demo video	/Users/christo...	544	30	18.1333	0.0200	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6	<input type="checkbox"/>
5	Sample05	Nemo	1/1/2013	Wild Type	1	4		2 Demo video	/Users/christo...	544	30	18.1333	0.0200	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	<input type="checkbox"/>

All videos are processed.  
Launch the window to check the  
results and compute the measures.

author

All (1 values)  
Nemo

date

All (1 values)  
1/1/2013

gene

All (2 values)  
Mutant  
Wild Type

trial

All (1 values)  
1

age

All (2 values)  
4  
5

segmented

All (1 values)  
1

measured

All (1 values)  
0

experiment

All (1 values)

class

All (1 values)

Select a video (5 filtered)

Sample01

Sample02

Sample03

Sample04

Sample05

Close (not saving)

Load the segmentation results

<no results loaded>

Glare zones

From frame

1

to frame

1

switch

< n/a >

and

< n/a >

Switch

Validate

Reject

Save and Compute measures

From

1

to

544

Switch H / T

1

<<<

.

<<

<

.

Play

>

>>

.

>>>

.

Validity of the segmented body:

Valid frames: - / - = - %

Rejected frames: - / - = - %

Next block

Switch validity (right click)

Split block (double click)

Isolate frame (triple click)

Within glare zones:

Lost during tracking:

Overlap with other worm:

End of self-overlap:

Self-overlap with previous frame (in %):

Threshold:

^

25

v

X

High threshold:

^

0

v

X

Length of the segmented body:

Low threshold:

^

0

v

X





# DURATION VALUES

author	date	gene	trial	age	segmented	measured	experiment	class
All (1 values) Nemo	All (1 values) 1/1/2013	All (2 values) Mutant Wild Type	All (1 values) 1	All (2 values) 4 5	All (1 values) 1	All (1 values) 0	All (1 values)	All (1 values)

Select a video (5 filtered)

- Sample01
- Sample02
- Sample03
- Sample04
- Sample05

Load the segmentation results

Select an animal

Sample01

Glare zones

Worm 1 : unchecked  
Worm 2 : unchecked  
Worm 3 : unchecked  
Worm 4 : unchecked  
Worm 5 : unchecked

from frame 1 to frame 1

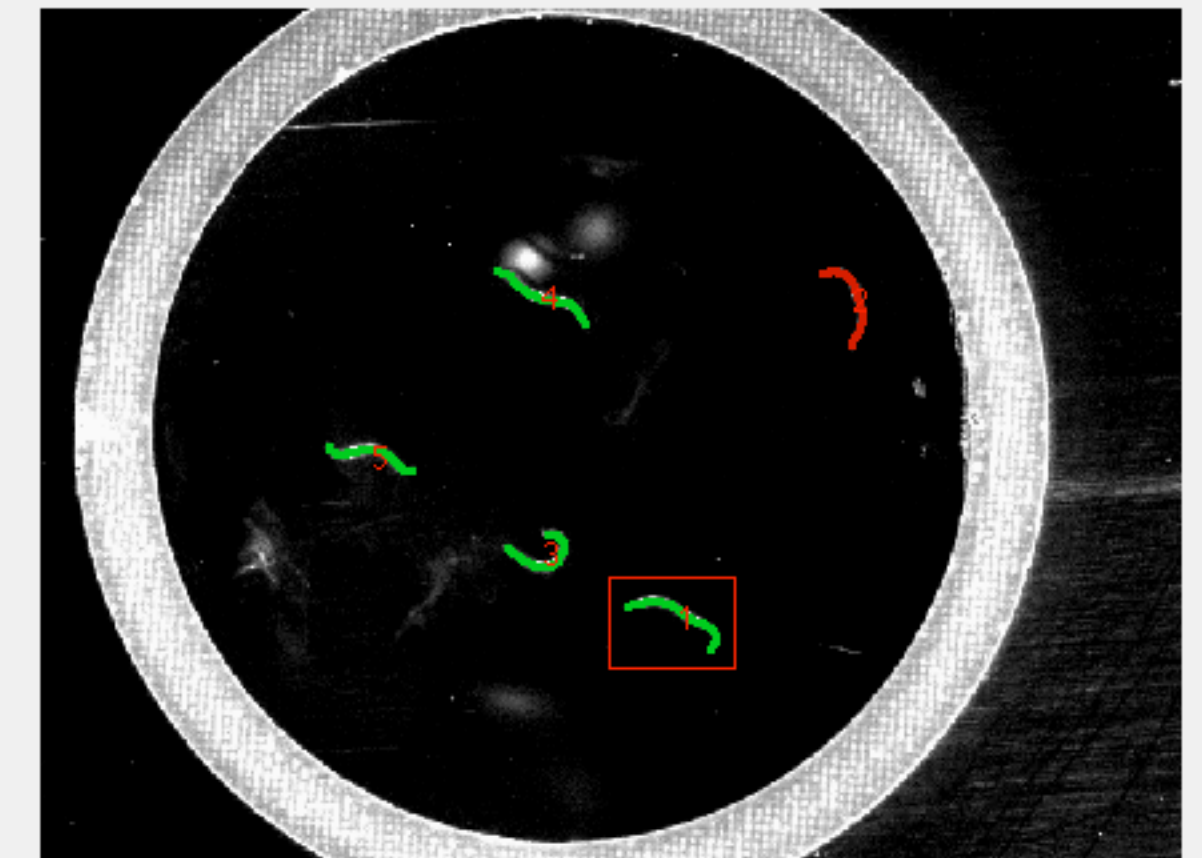
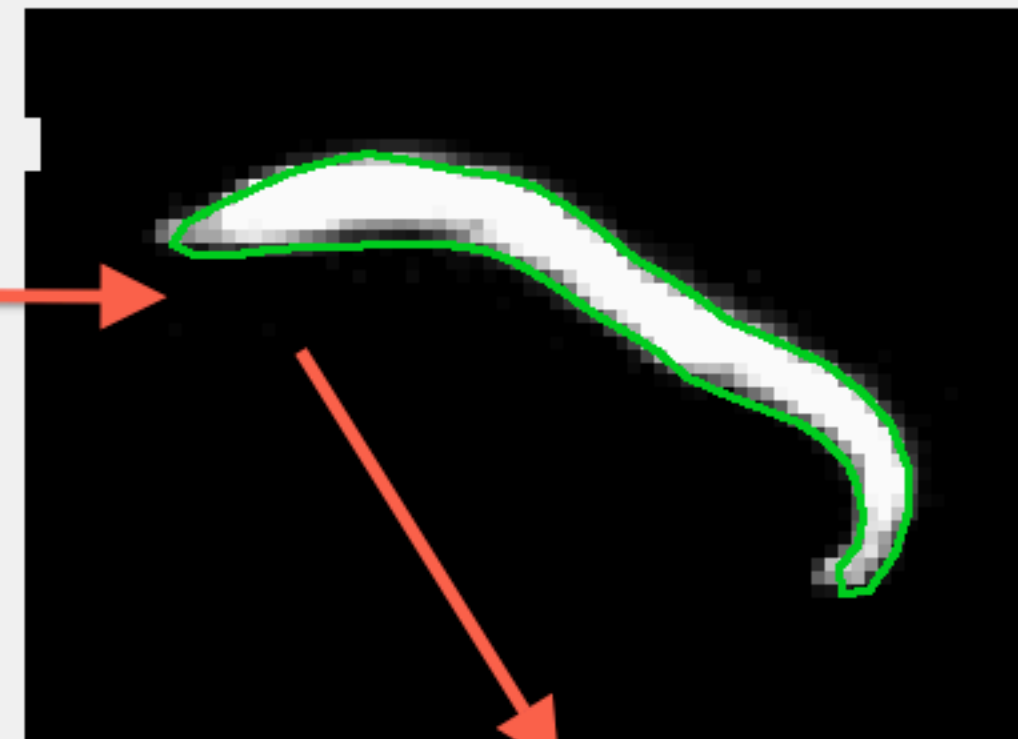
switch Worm 1 and Worm 2

Switch

Validate Reject

Save and Compute measures

From 1 to 544 Switch H / T



1 <<< 1 << < 1 Play > >> 544 >>> 544

Decide whether to validate or reject the animal

Validity of the segmented body:

Valid frames: 544 / 544 = 100.0 %

Rejected frames: 0 / 544 = 0.0 %

Check the quality of the results

Next block

Switch validity (right click)

Split block (double click)

Isolate frame (triple click)

Within glare zones:

Lost during tracking:

Overlap with other worm:

End of self-overlap:

Self-overlap with previous frame (in %):

Threshold: ^ 25 v X

High threshold: ^ 71 v X

Low threshold: ^ 56 v X

Length of the segmented body:

author

All (1 values)  
Nemo

date

All (1 values)  
1/1/2013

gene

All (2 values)  
Mutant  
Wild Type

trial

All (1 values)  
1

age

All (2 values)  
4  
5

segmented

All (1 values)  
1

measured

All (1 values)  
0

experiment

All (1 values)

class

All (1 values)

Select a video (5 filtered)

Sample01

Sample02

Sample03

Sample04

Sample05

Close (not saving)

Load the segmentation results

Sample01

Glare zones

Worm 1 : valid

Worm 2 : valid

Worm 3 : valid

Worm 4 : valid

Worm 5 : valid

Validate

Reject

Save and Compute measures

From frame

1

to frame

1

switch

Worm 5

and

Worm 1

Switch

1

<<<

1

<<

<

1

Play

>

>>

544

>>>

544

From

1

to

544

Switch H / T

1

<<<

1

<<

<

1

Play

>

>>

544

>>>

544

Next block

Switch validity (right click)

Split block (double click)

Isolate frame (triple click)

Validity of the segmented body:

Valid frames: 544 / 544 = 100.0 %

Rejected frames: 0 / 544 = 0.0 %

Within glare zones:

Lost during tracking:

Overlap with other worm:

End of self-overlap:

Self-overlap with previous frame (in %):

Threshold: ^ 25 v X

Length of the segmented body:

High threshold: ^ 65 v X

Low threshold: ^ 50 v X

When all animals are checked, save and compute the measures, then close



Add one video...

Check consistency

Toggle Edit Table

Delete videos...

1. Process videos...

2. Compute measures...

3. Display results...

Quit

author		date		gene		trial		age		segmented		measured		experiment		class	
All (1 values) Nemo		All (1 values) 1/1/2013		All (2 values) Mutant Wild Type		All (1 values) 1		All (2 values) 4 5		All (1 values) 1		All (1 values) 1		All (1 values)		All (1 values)	
	name	author	date	gene	trial	age	set	note	directory	images	duration	frames_per_second	mm_per_pixel	well	segmented	worms	measured
1	Sample01	Nemo	1/1/2013	Wild Type	1	4	1	Demo video	/Users/christo...	544	30	18.1333	0.0200	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	<input checked="" type="checkbox"/>
2	Sample02	Nemo	1/1/2013	Wild Type	1	5	1	Demo video	/Users/christo...	544	30	18.1333	0.0200	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	<input checked="" type="checkbox"/>
3	Sample03	Nemo	1/1/2013	Mutant	1	4	1	Demo video	/Users/christo...	544	30	18.1333	0.0200	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	<input checked="" type="checkbox"/>
4	Sample04	Nemo	1/1/2013	Mutant	1	5	1	Demo video	/Users/christo...	544	30	18.1333	0.0200	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	<input checked="" type="checkbox"/>
5	Sample05	Nemo	1/1/2013	Wild Type	1	4	2	Demo video	/Users/christo...	544	30	18.1333	0.0200	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	<input checked="" type="checkbox"/>

All videos are measured, launch the window to visualize the results



author

All (1 values)  
Nemo

date

All (1 values)  
1/1/2013

gene

All (2 values)  
Mutant  
Wild Type

trial

All (1 values)  
1

age

All (2 values)  
4  
5

segmented

All (1 values)  
1

measured

All (1 values)  
1

experiment

All (1 values)

class

All (1 values)

Videos to choose from: (5 filtered)

Select all

Deselect all

Sample01 (5 worms)

Sample02 (5 worms)

Sample03 (5 worms)

Sample04 (5 worms)

Sample05 (5 worms)

>> Add to a new sample >>

>> Add to the selected sample >>

<< Remove the selected videos <<

<< Remove the selected sample <<

Show graphs for these samples

Close

Double-click on a sample name (first line) to change it.

	1	2	3
Sample name	Sample 1	Sample 2	Sample 3
# worms	10 worms	10 worms	5 worms
Video 1	Sample01 (5 worms)	Sample03 (5 worms)	Sample05 (5 worms)
Video 2	Sample02 (5 worms)	Sample04 (5 worms)	

Group videos by similarity, and define several samples  
(more details in the other demonstration)



Close

Export...

Tests...

Wave Init Rate

Asymmetry

Attenuation

Curling

Brush Stroke

2D histograms

Body Wave Number

Stretch

Reverse Swim

Travel Speed

Activity Index

Colors:

hot

low



high

# of histogram bins:

200

# of worms:

6000

Wave Init Rate

Select the measures to visualize  
(more details in the other demonstration)

