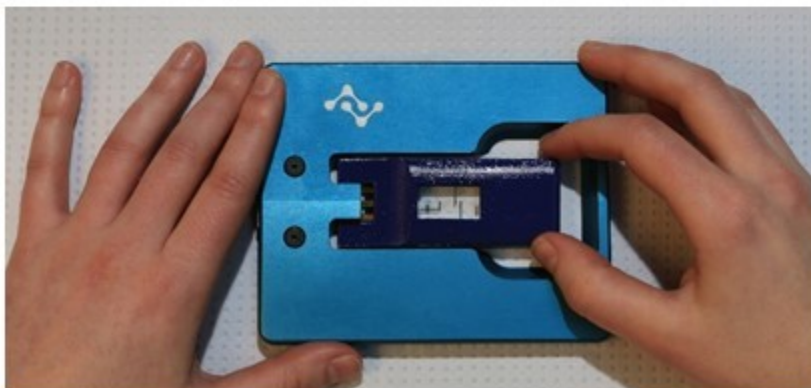


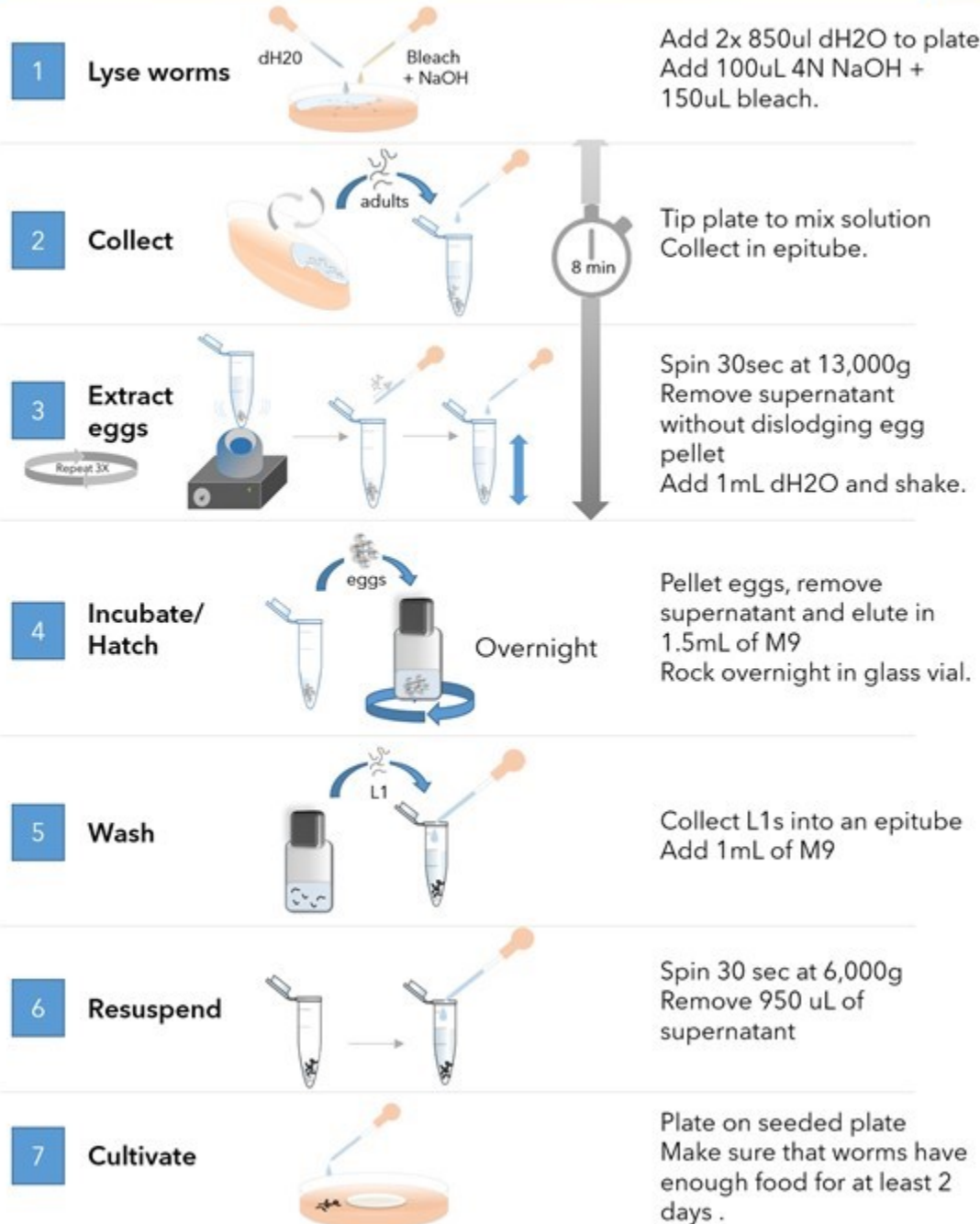
ScreenChip system

Experiment guide

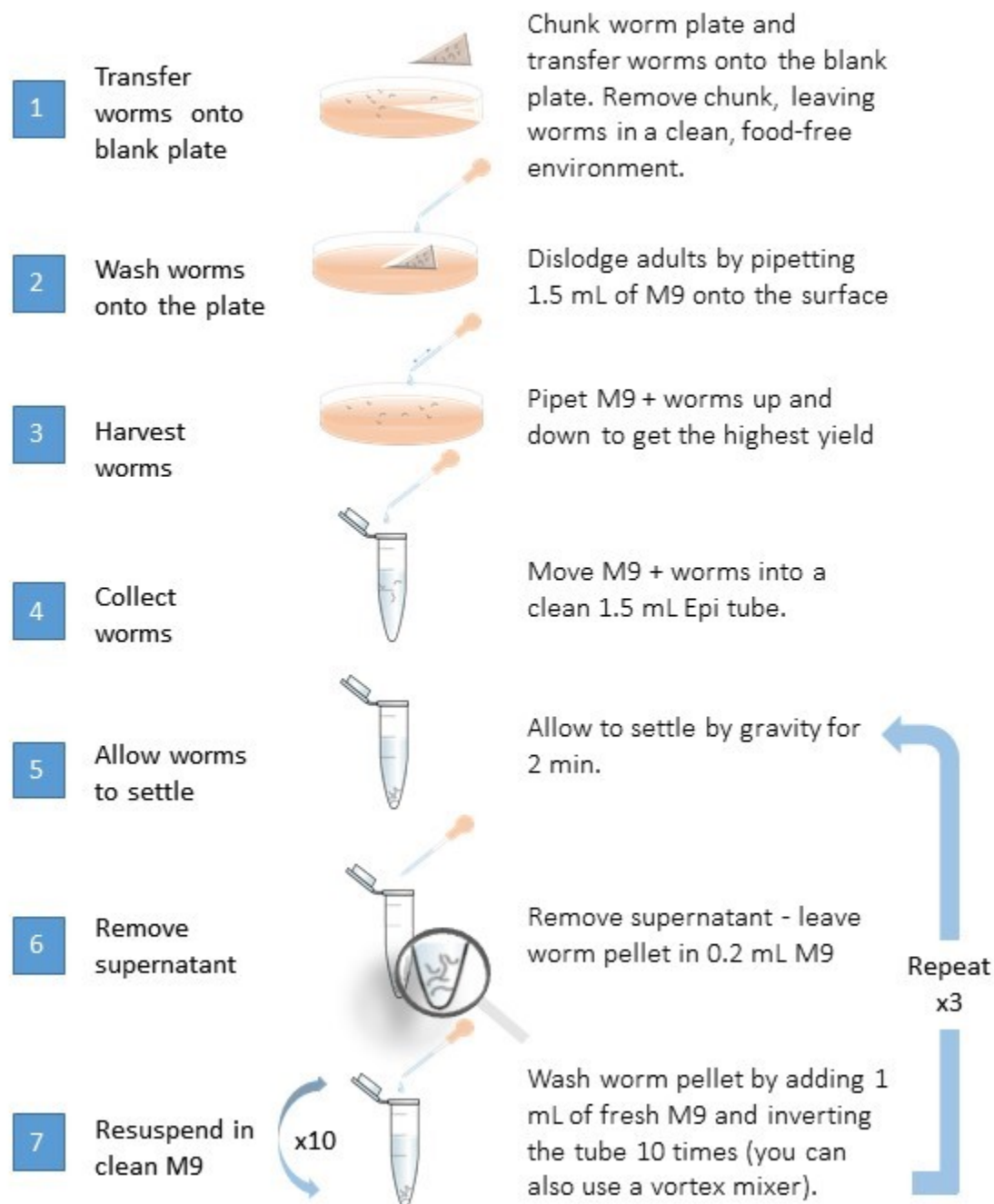


How to prepare your worms?

SYNCHRONIZING WORMS - BLEACHING

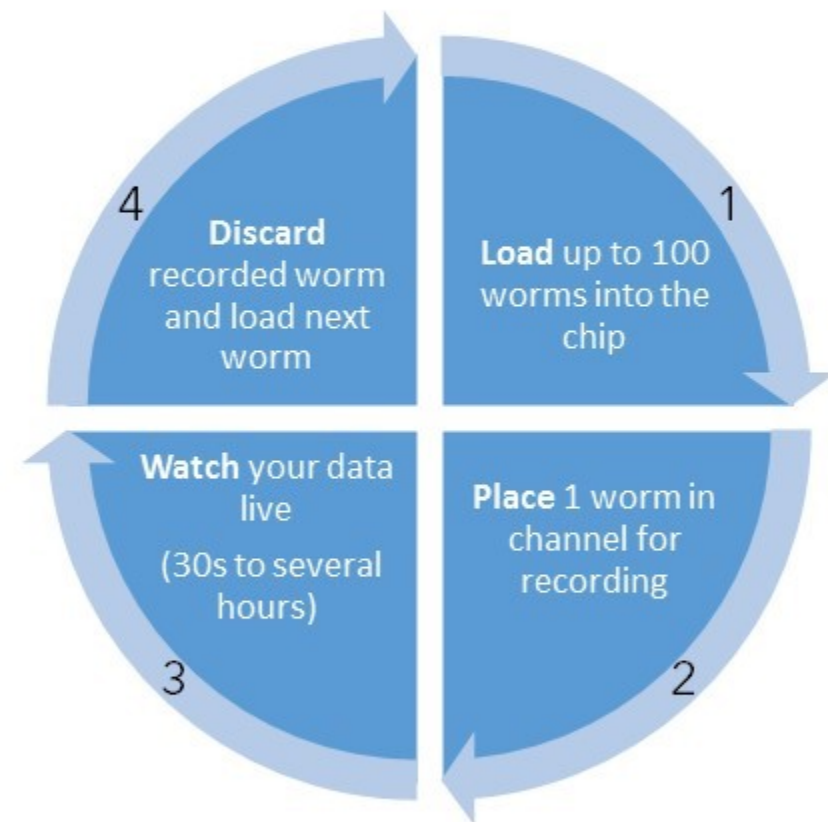
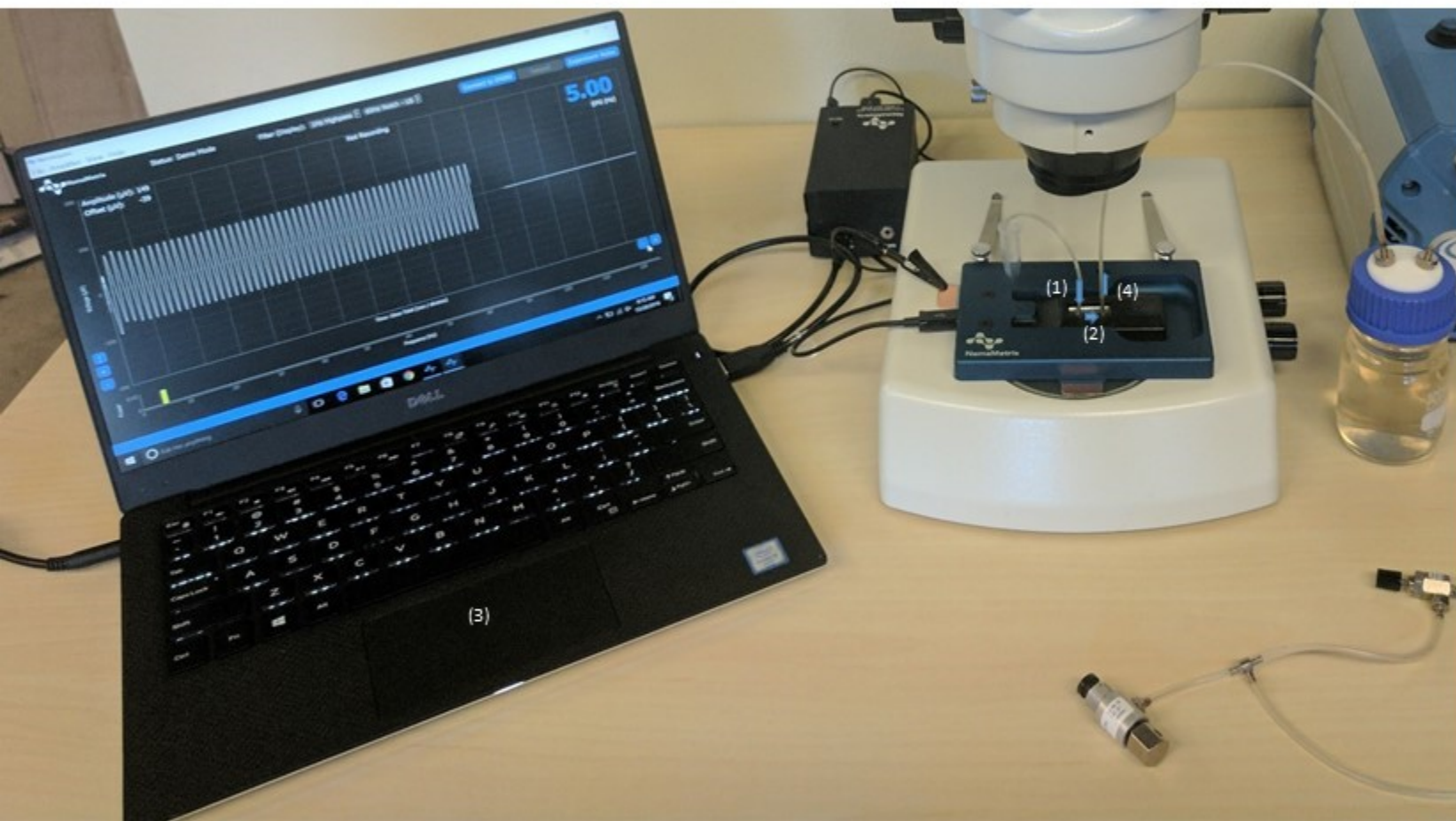


PREPARING WORMS TO PREVENT CLOGGING

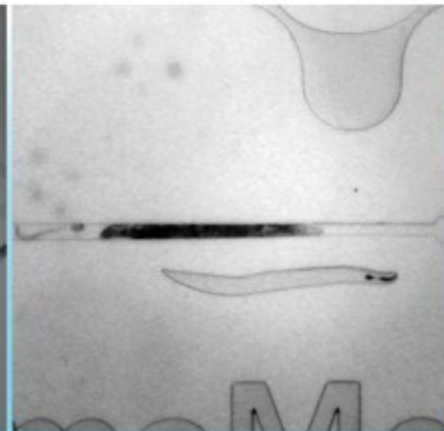
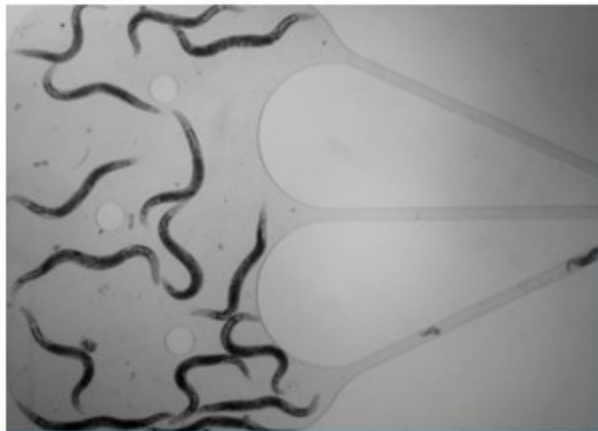
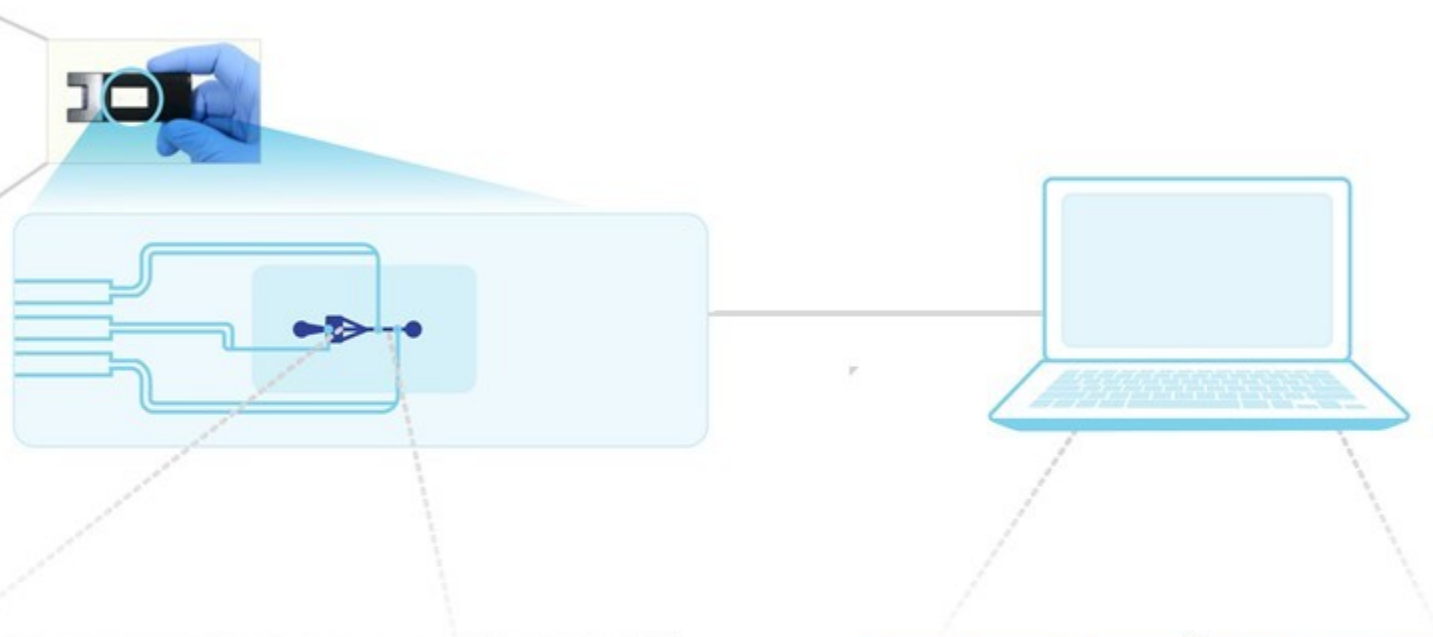
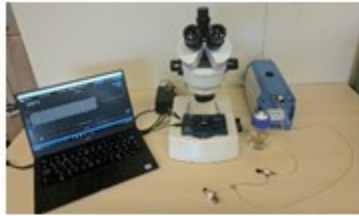


How to use the ScreenChip?

4 steps to data



Results



Let's get started!

How to set-up your system



Here is your **STARTER KIT:**

You can get data just minutes after it arrives in your lab!



1

Connect the amplifier to your computer and to the blue dock

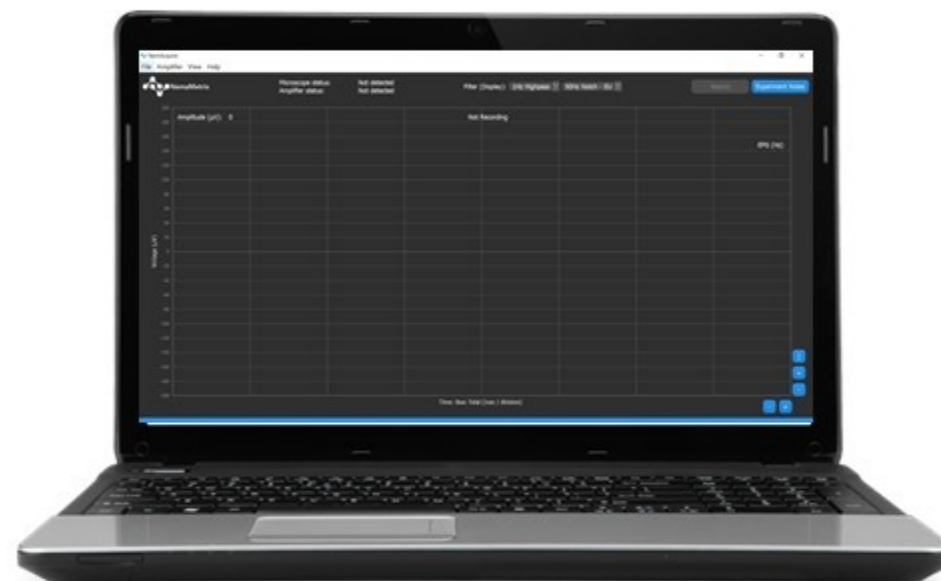
Make sure that you are using the newest version of your operating system, otherwise you will not be able to go on with your experiments:

Windows 10 64-bit OS or Mac OS X 10.11, USB 2.0 port



Download NemAcquire and NemAnalysis [here](#)

2 Open the NemAcquire software



3

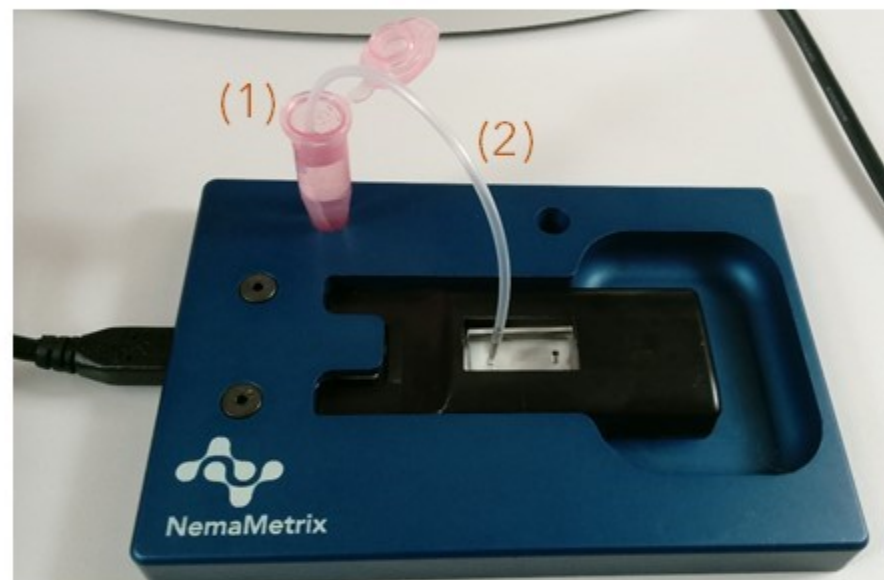
Connect the vacuum pump to the liquid trap bottle



4

Prepare the samples

- Harvest worms in an microfuge tube, rinse 3 times or more to get rid of bacteria clumps (1) (see "Preparing worms to prevent clogging" protocol)
- Put short tubing in microfuge tube and connect it to the first (inlet) port of the ScreenChip (2)



5

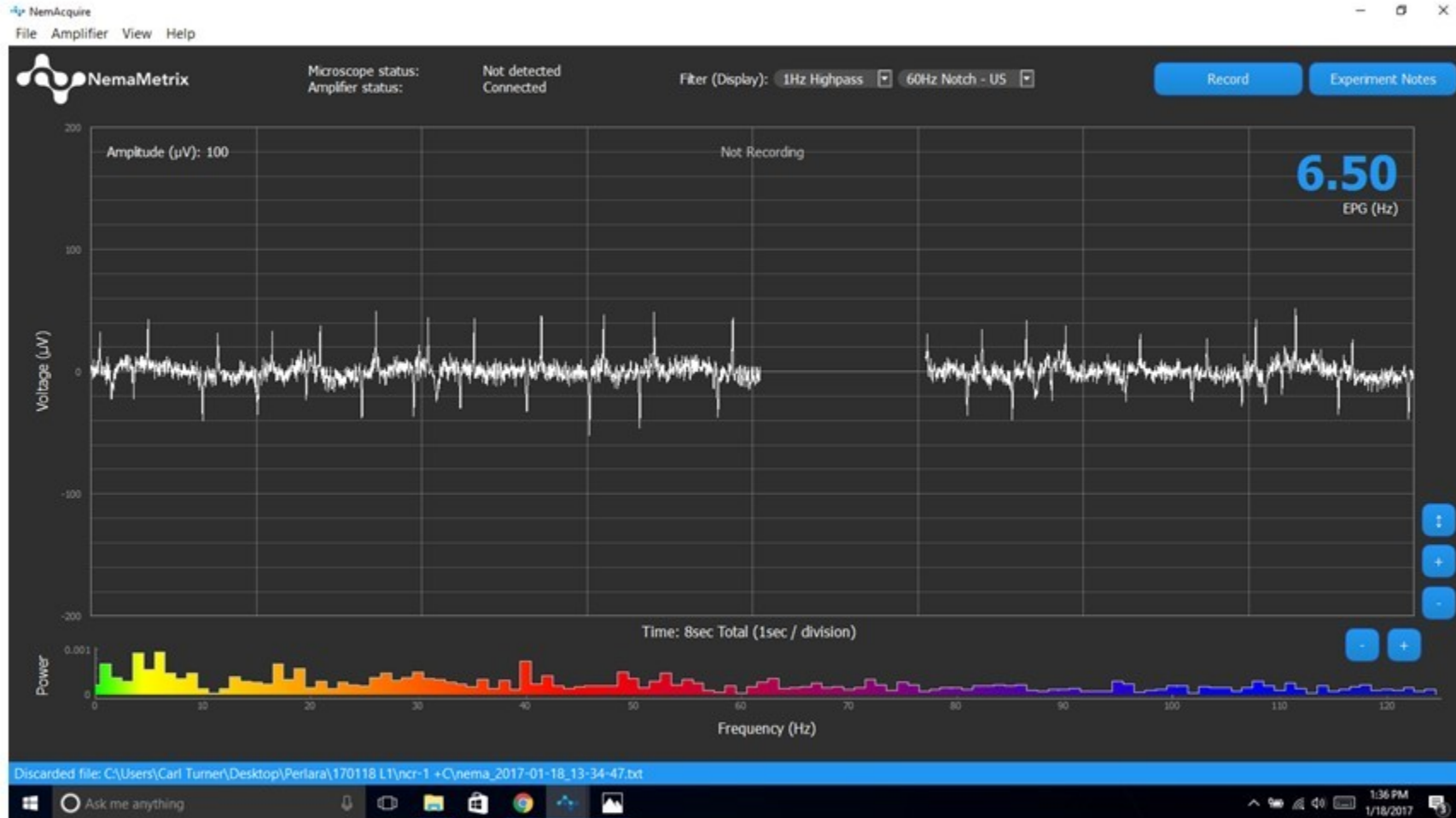
Connect the liquid trap bottle to the outlet port



You are ready to acquire data!



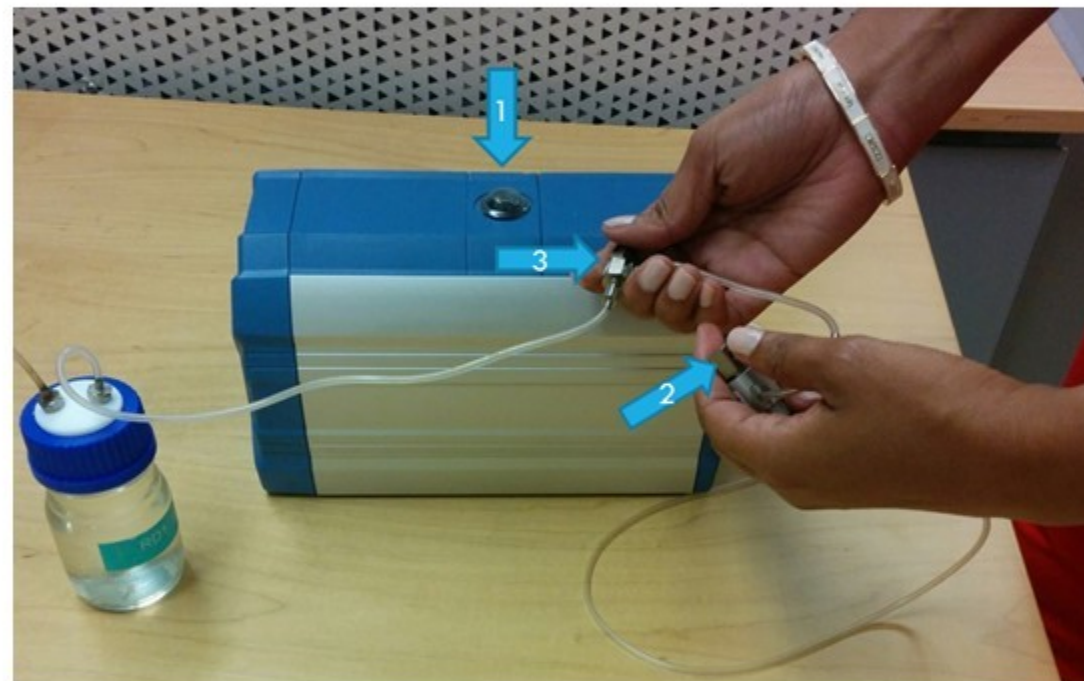
STEP 2- Acquire data



1

Load the worms into the chip

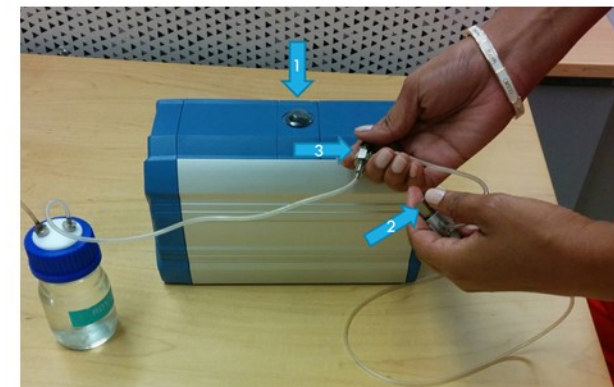
- Turn on the vacuum pump (1)
- Allow vacuum flow by positioning your finger on the regulator (2) - adjust vacuum force with the screw (3) if necessary
- Allow worms to travel from the microfuge tube to the loading chamber of the chip



2

Load one worm into the channel

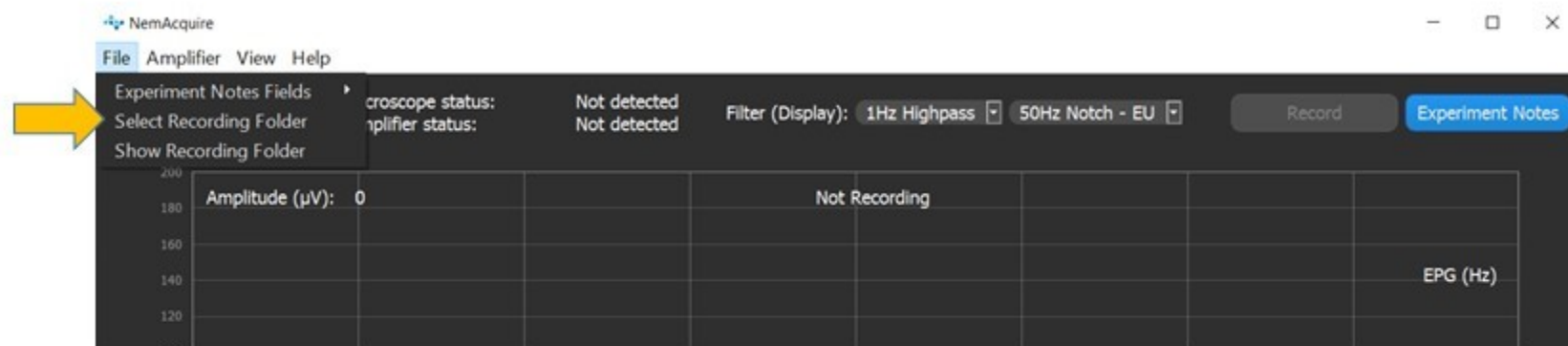
Use the regulator to place one worm between the recording electrodes (orange highlight)



3

Collect data

- Select the **location** in which to save your data
- Open the Experiment Notes
 - Note the direction of the worm (tail (T) or head first (H)), strain, experimental conditions
- Click on the **"Record"** button
- The trace will become **red** to indicate that you are recording



3

Collect data

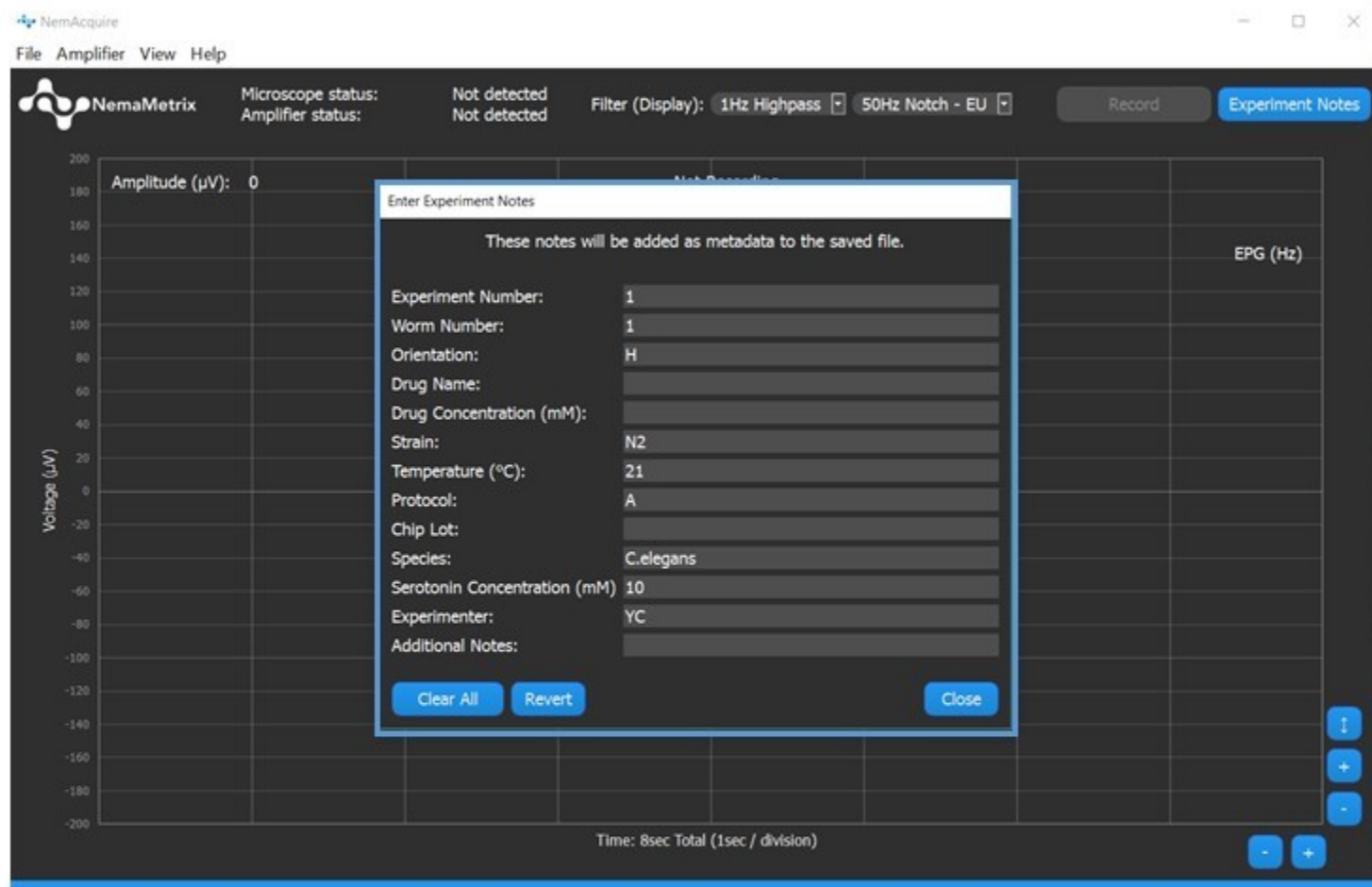
For information about how to use NemAcquire, please see the [NemAcquire software user guide](#)



4

Save your data

- Click on the "Stop recording" button
- The Experimental Notes will pop up
- Check the information and click "save"
- Your data will be saved as a .txt file



STEP 3- Analyze your data



1

Retrieve your data

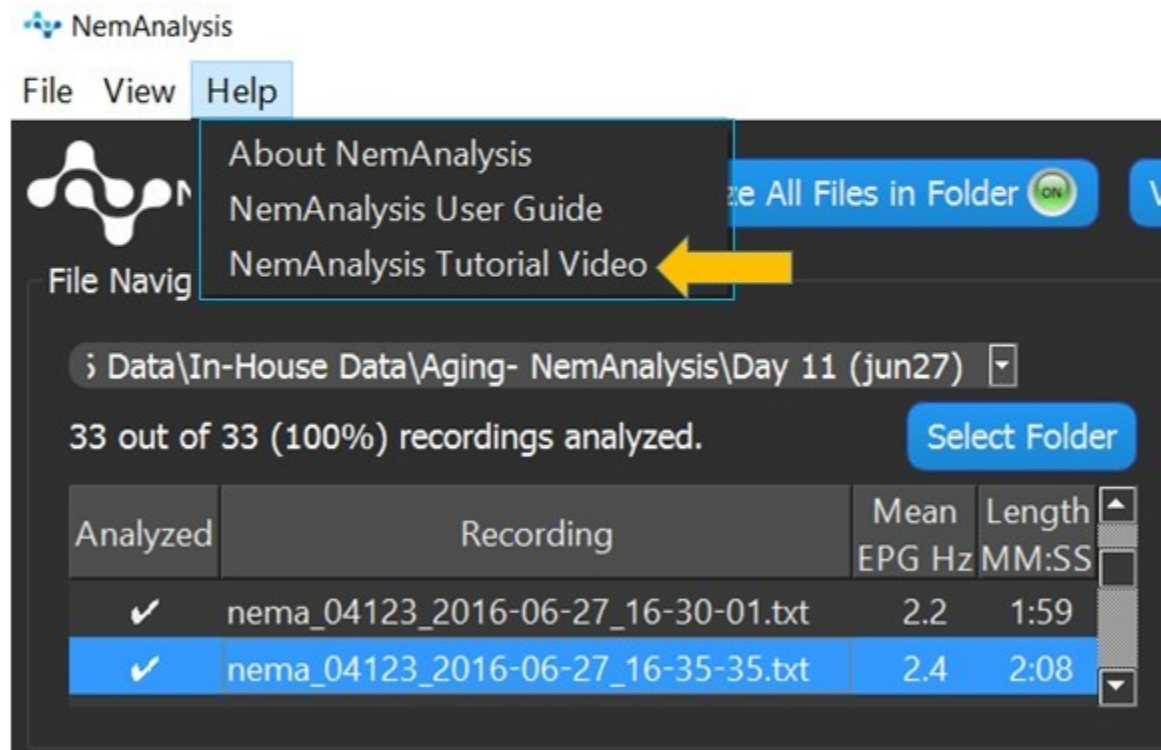
| File Home Share View | | | | |
|--------------------------------|--|-------------------|---------------|----------|
| ← → ▾ ↑ > This PC > Desktop | | | | |
| Quick access | | | | |
| Desktop | | | | |
| Downloads | | | | |
| Documents | | | | |
| Pictures | | | | |
| Google Drive | | | | |
| Sales training tools | | | | |
| Tech Photos | | | | |
| worm | | | | |
| worm 40X-oil-SL lal | | | | |
| Name | | Date modified | Type | Size |
| nema_04129_2016-06-28_17-53-45 | | 6/28/2016 5:55 PM | Text Document | 1,661 KB |
| nema_04129_2016-06-28_17-51-14 | | 6/28/2016 5:53 PM | Text Document | 1,756 KB |
| nema_04129_2016-06-28_17-45-24 | | 6/28/2016 5:47 PM | Text Document | 1,676 KB |
| nema_04129_2016-06-28_17-42-57 | | 6/28/2016 5:45 PM | Text Document | 1,711 KB |
| nema_04129_2016-06-28_17-40-21 | | 6/28/2016 5:42 PM | Text Document | 1,609 KB |
| nema_04129_2016-06-28_17-37-43 | | 6/28/2016 5:39 PM | Text Document | 1,642 KB |
| nema_04129_2016-06-28_17-34-51 | | 6/28/2016 5:37 PM | Text Document | 1,880 KB |
| nema_04129_2016-06-28_17-32-02 | | 6/28/2016 5:34 PM | Text Document | 1,706 KB |
| nema_04129_2016-06-28_17-17-56 | | 6/28/2016 5:20 PM | Text Document | 1,667 KB |
| nema_04129_2016-06-28_17-15-11 | | 6/28/2016 5:17 PM | Text Document | 1,902 KB |
| nema 04129 2016-06-28 17-11-41 | | 6/28/2016 5:13 PM | Text Document | 1.664 KB |

Retrieve your data (.txt files) from the location selected on NemAcquire

2

Extract your data

For information about how to use NemAnalysis, please see the NemAnalysis Tutorial video in the Help menu



2

Extract your data

Use our free, open source software: **NemaAnalysis** to automatically extract your data.



3

Analyze your data

| | A | B | C | D | E | F | G | H | I | J | K |
|----|----------------------------|-----------------|------------------------|---------------------|-------------------------|---------------------------------------|---------------------|-----------------------------------|------------------------|--------------------------------------|---------------|
| 1 | Recording Name | Number of Pumps | Recording Duration (s) | Mean Frequency (Hz) | Mean Pump Duration (ms) | Pump Duration Standard Deviation (ms) | Mean Amplitude (uV) | Amplitude Standard Deviation (uV) | Mean IPI Duration (ms) | IPI Duration Standard Deviation (ms) | Analysis Date |
| 2 | N2 | | | | | | | | | | |
| 3 | nema_04129_2016-06-28_13-4 | 725 | 146 | 4.97 | 85 | 18 | 96 | 11 | 202 | 34 | 29/06/2016 |
| 4 | nema_04129_2016-06-28_13-4 | 716 | 144 | 4.97 | 88 | 21 | 196 | 30 | 202 | 37 | 29/06/2016 |
| 5 | nema_04129_2016-06-28_13-4 | 573 | 123 | 4.66 | 82 | 30 | 91 | 22 | 215 | 61 | 29/06/2016 |
| 6 | nema_04129_2016-06-28_13-5 | 641 | 175 | 3.66 | 106 | 17 | 287 | 81 | 273 | 44 | 29/06/2016 |
| 7 | nema_04129_2016-06-28_13-5 | 511 | 125 | 4.09 | 108 | 28 | 176 | 63 | 244 | 70 | 29/06/2016 |
| 8 | nema_04129_2016-06-28_13-5 | 677 | 138 | 4.91 | 80 | 17 | 161 | 38 | 204 | 44 | 29/06/2016 |
| 9 | nema_04129_2016-06-28_14-0 | 425 | 127 | 3.35 | 114 | 10 | 694 | 280 | 299 | 69 | 29/06/2016 |
| 10 | nema_04129_2016-06-28_14-0 | 543 | 127 | 4.28 | 81 | 12 | 221 | 48 | 234 | 35 | 29/06/2016 |
| 11 | nema_04129_2016-06-28_14-0 | 587 | 122 | 4.81 | 81 | 20 | 180 | 29 | 208 | 57 | 29/06/2016 |
| 12 | nema_04129_2016-06-28_14-1 | 606 | 122 | 4.97 | 73 | 23 | 164 | 48 | 202 | 60 | 29/06/2016 |
| 13 | nema_04129_2016-06-28_14-1 | 526 | 124 | 4.24 | 87 | 11 | 126 | 23 | 237 | 58 | 29/06/2016 |
| 14 | nema_04129_2016-06-28_14-2 | 484 | 121 | 4 | 98 | 14 | 214 | 89 | 250 | 32 | 29/06/2016 |

NemAnalysis allows you to generate an Excel file containing the data for each recording.

Software and user guides

<http://nemametric.com/downloads/>

Software Downloads

Computer requirements: Windows 10 64-bit OS or Mac OS X
10.11, USB 2.0 port

NemAcquire (MAC) – NemAcquire-2.0_1149_OSX_10.11.3 (38 MB)

NemAcquire (PC) – NemAcquire-2.0_1149_Windows_10 (47 MB)

NemAnalysis – Beta (MAC) – NemAnalysis-0.1_1149_OSX_10.11 (61 MB)

NemAnalysis – Beta (PC) – NemAnalysis-0.1_1149_Windows_10 (148 MB)



User Guides

ScreenChip Setup Guide

NemAcquire Software User Guide

NemAnalysis Software User Guide