



NemaMetrix

ScreenChip System Quick Start Guide

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Procedure

A. Prepare Worms

1. Have plates of synchronized adults ready for use. Transfer worms onto a blank plate via chunking and then remove chunk, leaving worms in a clean, food-free environment.
2. Dislodge adults from a plate by pipetting 1.5 mL of Mg onto the surface
3. Using a glass pipet suck up the Mg + worms, pipetting up and down to get the highest yield.
4. Move Mg + worms into a 1.5 mL Epi tube.
5. Spin tube at 6000 rpm for 2 min or allow to settle by gravity.
6. Remove supernatant but leave 0.2 mL in tube along with worm pellet.
7. Add 1 mL of fresh Mg to wash worms. Invert tube several times.
8. Spin again at 6000 rpm for 2 min or allow to settle by gravity.
9. Remove supernatant but leave 0.2 mL in tube along with worm pellet.
10. Add 1 mL of freshly prepared 10 mM serotonin in Mg.
11. Set worms aside and set a timer for 20 minutes. When timer goes off, worms are ready for use.

B. Prepare System

1. Place ScreenChip Dock on the microscope and insert a ScreenChip Cartridge.
2. Attach the Amplifier recording system with the USB cable. Turn the Amplifier on.
3. Enable Bluetooth on your laptop and pair with your Amplifier.
4. Open the NemaAquire application.
5. Click the "Connect" button in the top right of the screen and connect with the Amplifier.
6. Align and adjust focus on the microscope so that the recording channel is visible.
7. Attach vacuum to exit port using Tube C (see setup guide).

Equipment

- ScreenChip dock
- Amplifier, with charged batteries
- Laptop with the NemaAquire app installed
- Vacuum pump, with tubing, bleed valve, and liquid trap
- Microscope
- Centrifuge

Materials

- 1 ScreenChip Cartridge
- 1 Plate of synchronized adults (day 1)
- 5 mL of 10 mM serotonin solution in Mg
- 5 mL of Mg
- Glass pipets
- 1.5 mL Epi tubes



NemaMetrix, Inc.
44 W 7th Ave
Eugene, OR 97401
1-844-663-8749
nemamatrix.com



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8. Place Epi tube containing plain Mg in the port in the top of the ScreenChip Dock.
9. Connect the Epi tube to the entry port in the ScreenChip Cartridge using Tube D. Insert the end with the stainless steel stub into the ScreenChip and place the other end into the bottom of the Epi tube containing the worms.
10. Turn on vacuum pump and set valve to maximum flow.
11. Press a finger down on the bleed valve button to engage pump.
12. Keep finger on valve until all air pulled out of worm delivery tube and the recording channel is full on Mg.
13. Observe the trace in the NemAcquire app and make sure the 60 hz noise is below 20 μ V in amplitude. (The 60hz notch filter should be off for this step.) If the noise is larger than the 20 μ V please contact us [by email or telephone](#) for continued support or to set up a time to skype and discuss issues.

C. Load Worms

14. Turn on vacuum pump again.
15. Press a finger down on the bleed valve button to engage pump.
16. Keep finger on valve until you can see worms at the entrance port.
17. Turn the vacuum down, adjusting the vacuum until you feel worms are entering and exiting at a manageable speed.

D. Record EPG

18. Once a worm is between the electrodes, remove finger from valve, turn off vacuum and remove tube from exit port.
19. The signal coming from the worm should appear on the screen.
20. Press the "Record" button in the top right corner to start recording. Press "Stop Recording" after the desired length of time (e.g., 2 minutes).
21. After recording, clear worm from the channel by reengaging the vacuum.
22. Repeat steps 25-27 until recordings are completed.

