Electrocardiogram (ECG) JAXLA_ECG_001

Purpose

To provide a high throughput method to obtain Electrocardiograms in a conscious mouse.

Experimental Design

- **Minimum number of animals :** 5M + 5F
- **Age at test:** Week 72
- **Sex:** We would expect the results of this test to show sexual dimorphism

Procedure

1. The lead plates are to be snapped into place onto the top of the pre-amplifier tower. The covering is removed to reveal three gel coated pads surrounded by a sticking plate. The plate will need to be covered with the extra cover in the package.
2. Turn on the combined amplifier and the pre-amplifier tower.
3. Double click the icon ECG acquisition on the acquisition computer.
4. Open the ECG set up file (for default settings).
6. Place mouse on pad, lowering the Red Acrylic Cubby to surround the mouse on 3 sides discouraging escape.
7. Press Start.
8. After the desired acquisition time, (5-10 minutes) stop the reading. There will be one long reading.
9. Save the data.
10. For additional readings create a new session using the same settings as before.
11. When saving sections with good readings, highlight the selected area and then save.

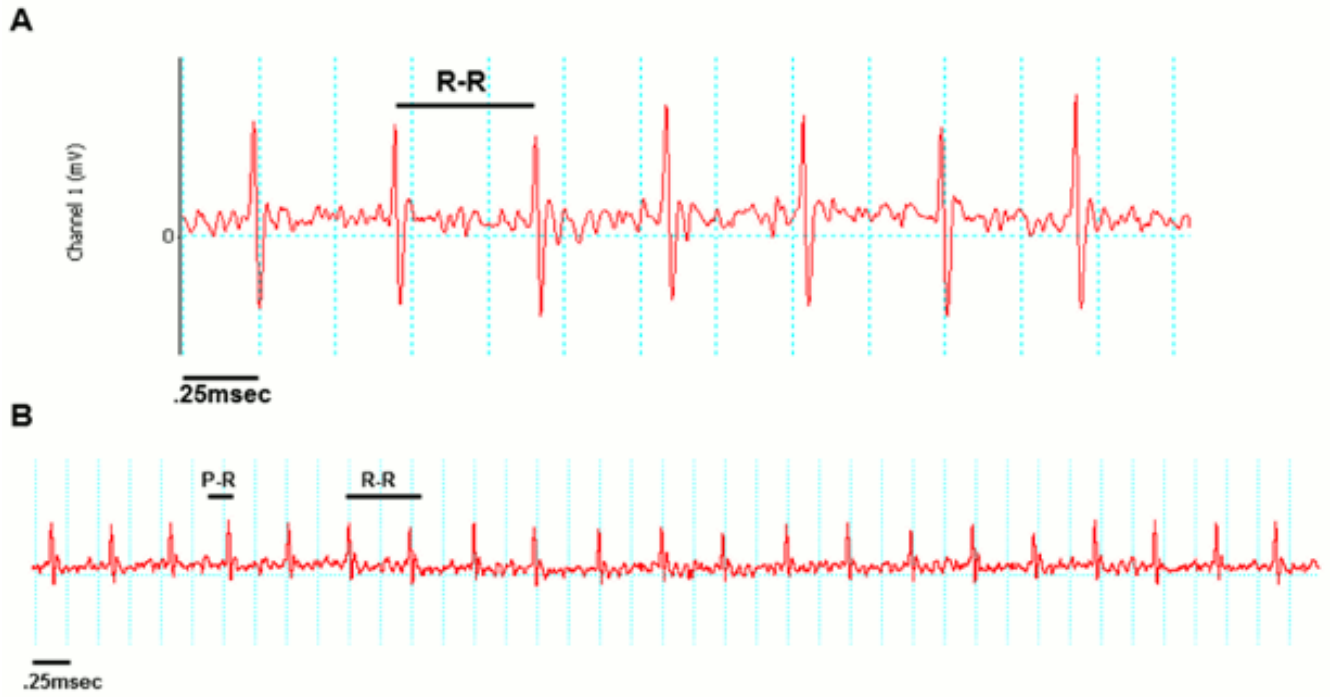
Notes

Data Analysis

1. Open Emouse Analyses icon
2. Select ECG signals
3. Choose folder (all readings in folder will show)
4. Click PNN X (for mice: N-N> than 6 ms)
5. Choose file(s) by highlighting
6. Go
7. Bottom file is the corrected file
8. Red dots should be on peak of R waves, if image appears inverted click invert
9. Click Add, or minus if R waves are not marked with red dots or if too many are marked
    - L click to zoom in

    - R click to zoom out
10. ‘What if?’ button to remove unwanted sections
    - L click image (zooms in)
    - L click left boundary
    - L click right boundary
11. Options- click more if want to exclude more sections
12. Undo available
13. Go
14. Here can input animal data if desired
15. Save- For the first mouse in in group, hit save, a new results folder will be created within the folder with the mouse data. Then can click quick save or next.
16. For the rest of the mice in the series, can hit quick save at this point- saves in last selected file – will group all files together in same excel sheet.
17. Open Emouse Analyses icon
18. Select ECG signals
19. Choose folder (all readings in folder will show)
20. Click PNN X (for mice: N-N> than 6 ms)
21. Choose file(s) by highlighting
22. Go
23. Bottom file is the corrected file
24. Red dots should be on peak of R waves, if image appears inverted click invert
25. Click Add, or minus if R waves are not marked with red dots or if too many are marked
    - L click to zoom in
    - R click to zoom out
26. ‘What if?’ button to remove unwanted sections
    - L click image (zooms in)
    - L click left boundary
    - L click right boundary
27. Options- click more if want to exclude more sections
28. Undo available
29. Go
30. Here can input animal data if desired
31. Save- For the first mouse in in group, hit save, a new results folder will be created within the folder with the mouse data. Then can click quick save or next
32. For the rest of the mice in the series, can hit quick save at this point- saves in last selected file - will group all files together in same excel sheet

Examples of good readings



Data QC

Analysis room should be dim and quiet. Keep the door closed preferably while analysis is taking place.

Figure A. Taking a reading

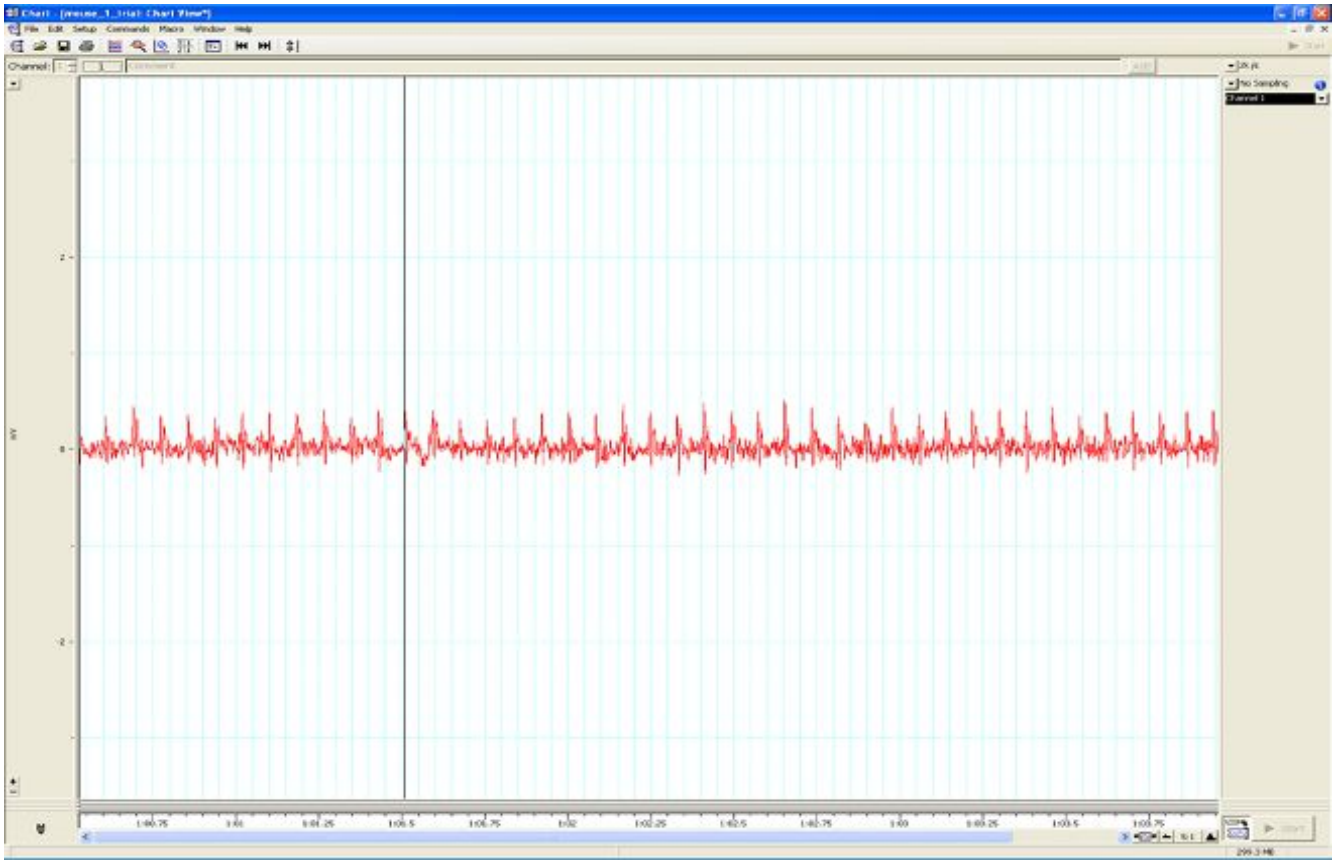


Figure B. Saving a section of the reading

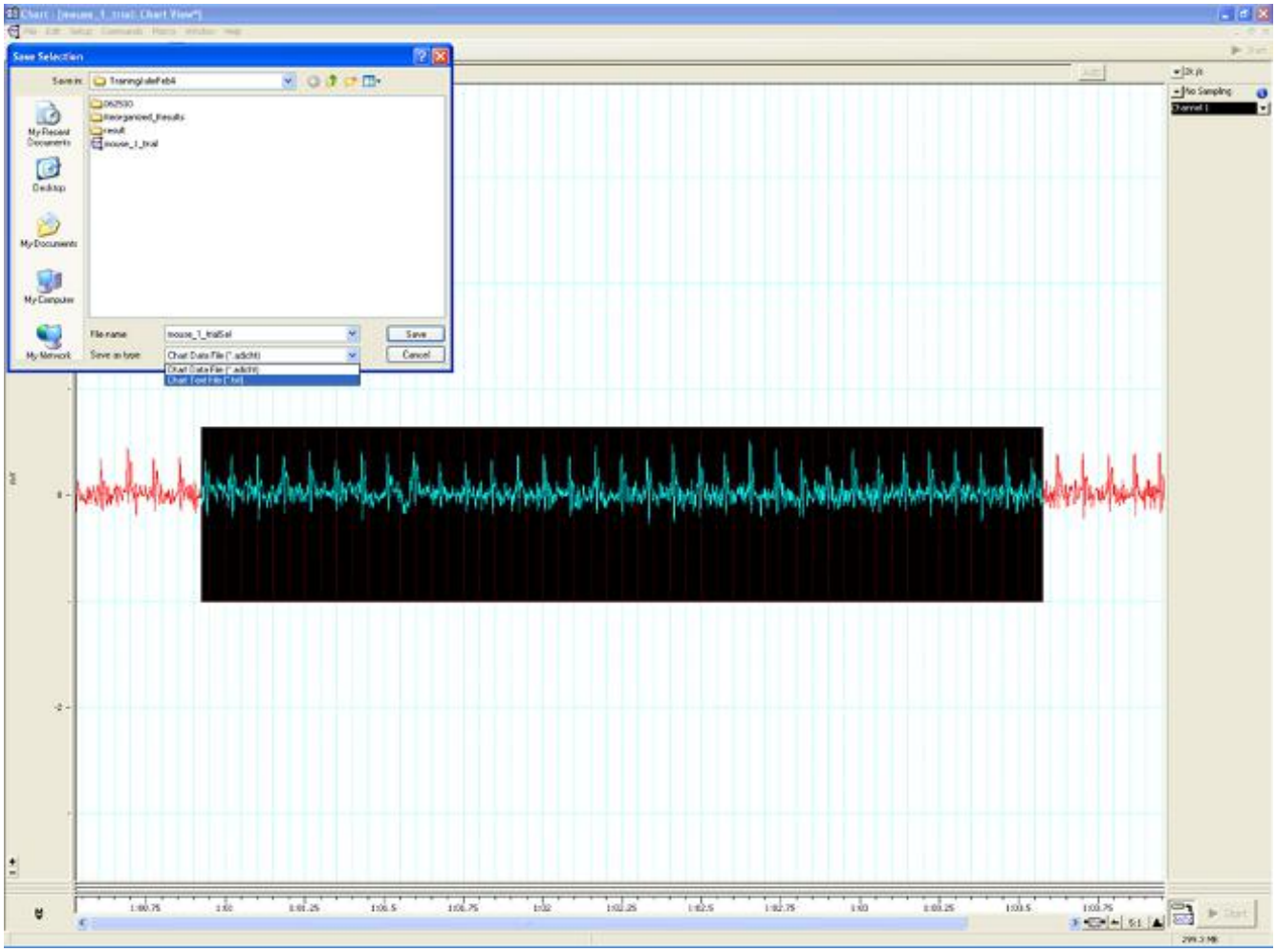
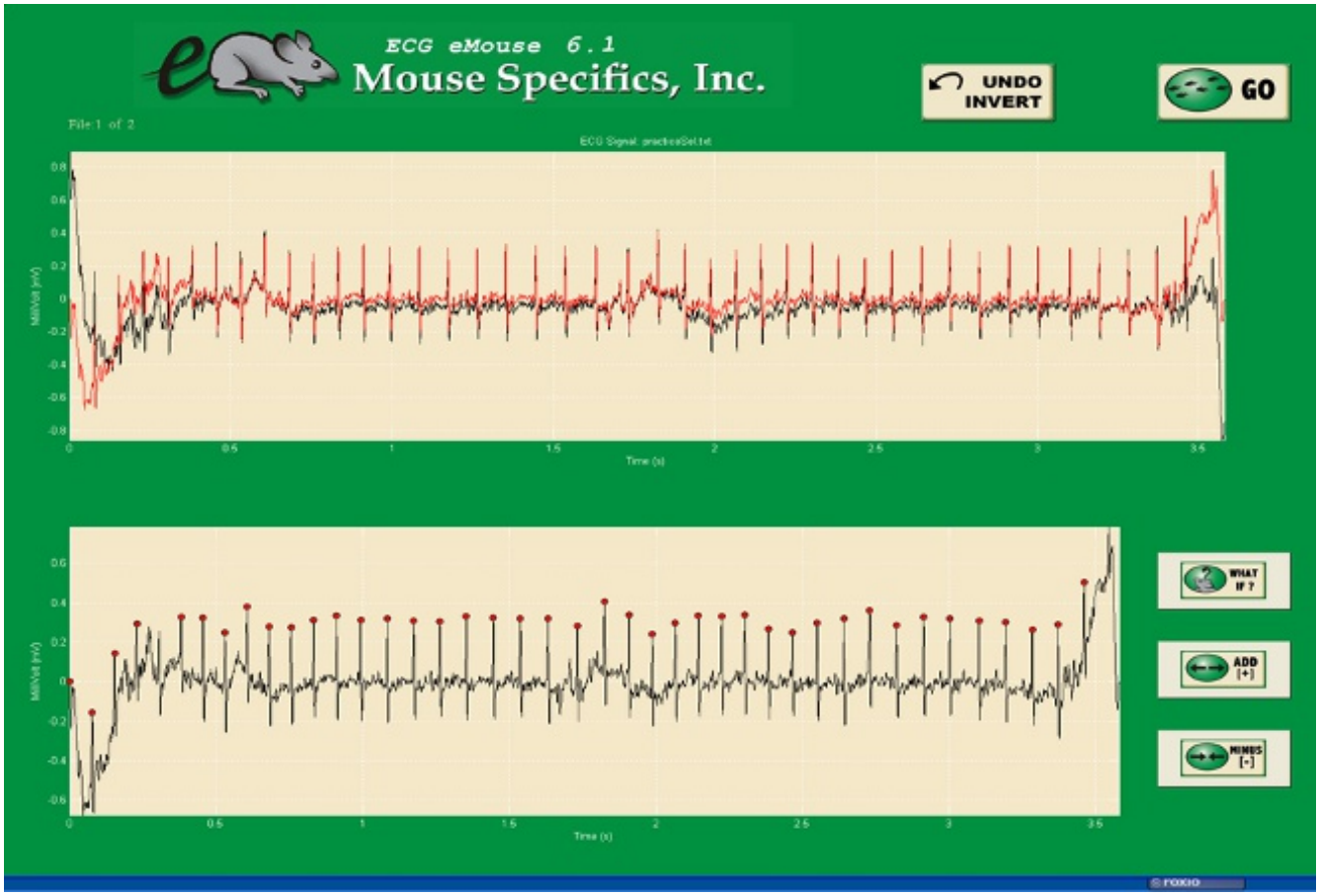


Figure C. Analysis phase, with the options to remove sections on the ‘What if?’ button below.



Parameters and Metadata

Waveform Image Comment JAXLA_ECG_026_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

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pNN5(6>ms) JAXLA_ECG_015_001 | v1.2

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Unit Measured: %

HR JAXLA_ECG_002_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: bpm

CV JAXLA_ECG_003_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** true

Unit Measured: %

Light level JAXLA_ECG_022_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

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Anesthetic JAXLA_ECG_019_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Options: Avertin, Isoflurane, No anesthesia, Tribromoethanol,

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Experimenter ID JAXLA_ECG_020_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** true **Is Annotated:** false

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HRV JAXLA_ECG_010_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** true

Unit Measured: bpm

Date equipment last calibrated JAXLA_ECG_023_001 | v1.1

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

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RR JAXLA_ECG_004_001 | v1.2

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: ms

Equipment Model JAXLA_ECG_018_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Options: Iso-DAM8A, ECGenie + gel pads, ML826/FE132, ML866, ECGenie, ML870/p, PowerLab: 4/35,

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Number of signals JAXLA_ECG_001_001 | v1.2

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** false

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Noise level JAXLA_ECG_021_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Waveform Image JAXLA_ECG_025_001 | v1.0

seriesMediaParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Increments: Minimum 1

QTc JAXLA_ECG_009_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Unit Measured: ms

Analysis Software JAXLA_ECG_024_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** false **Is Annotated:** false

Options: eMouse, Matlab,

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rMSSD JAXLA_ECG_014_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** true

Unit Measured: ms

PQ JAXLA_ECG_005_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** true

Unit Measured: ms

Mean SR amplitude JAXLA_ECG_012_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Unit Measured: mV

Equipment Manufacturer JAXLA_ECG_017_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Options: World Precision Instruments, AD Instruments, Mouse Specifics, Inc.,

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ST JAXLA_ECG_008_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: ms

Mean R amplitude JAXLA_ECG_013_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Unit Measured: mV

Equipment ID JAXLA_ECG_016_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** true **Is Annotated:** false

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QTc Dispersion JAXLA_ECG_011_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Unit Measured: ms

PR JAXLA_ECG_006_001 | v1.1

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: ms

QRS JAXLA_ECG_007_001 | v1.2

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: ms
