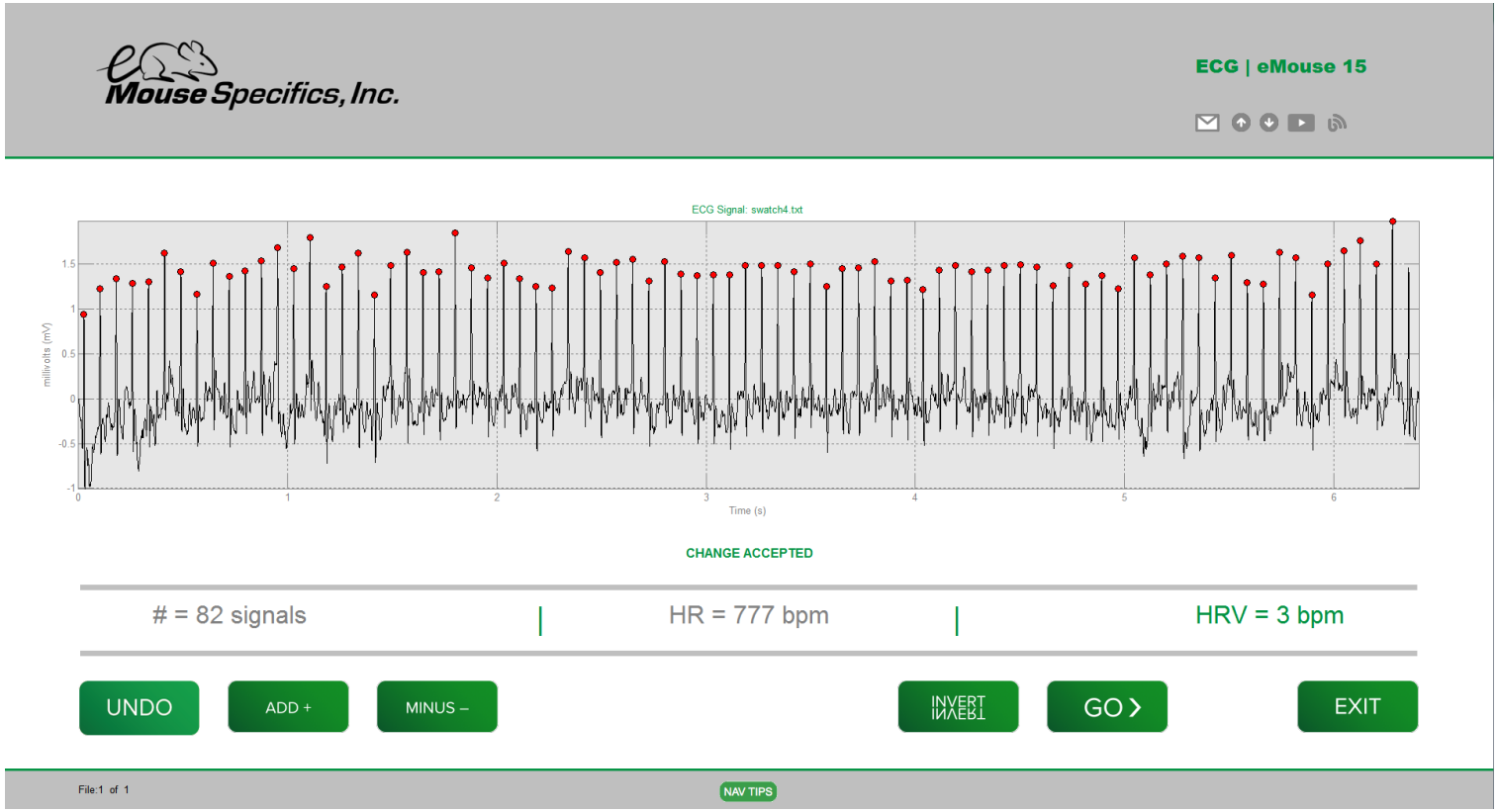
ECGenie

ECG



Mouse Specifics, Inc.

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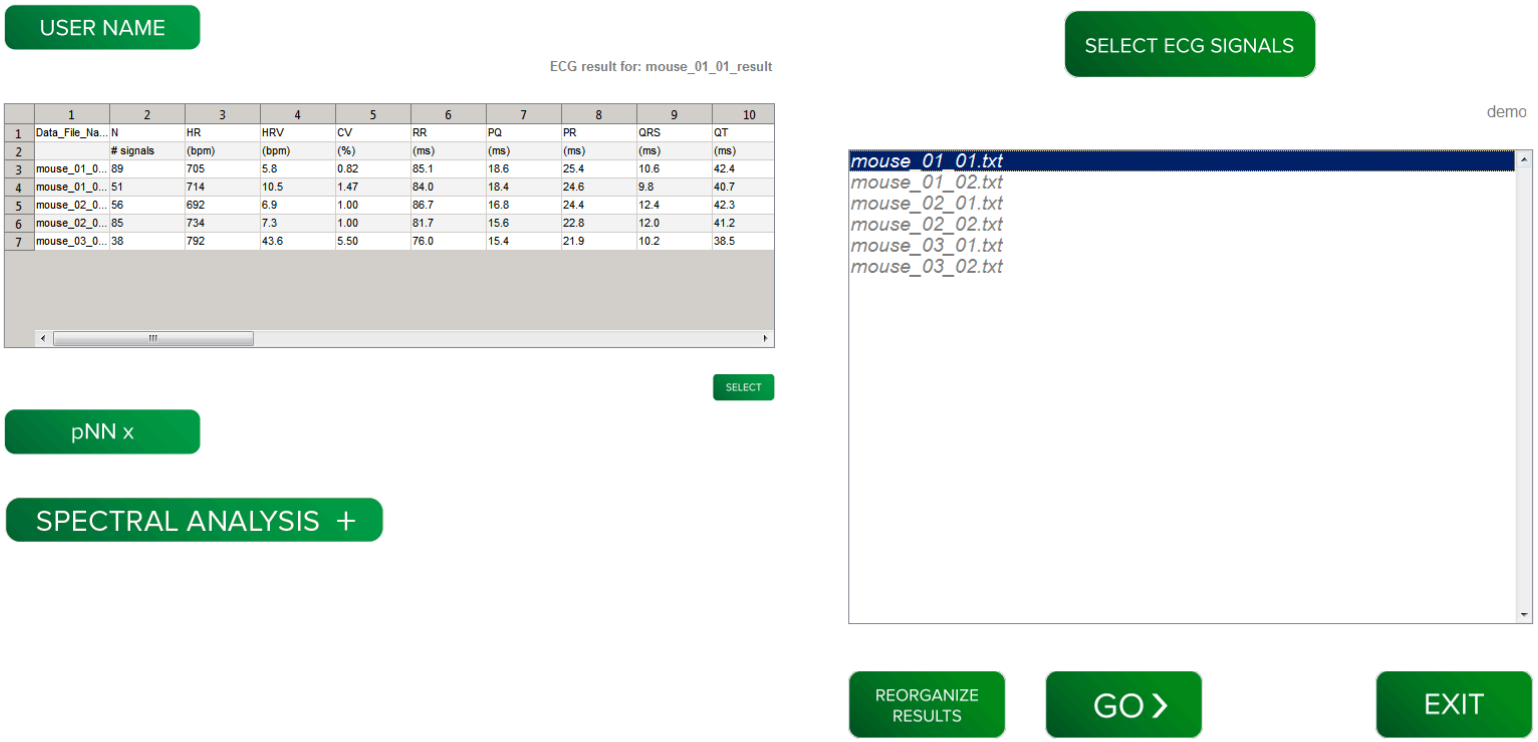
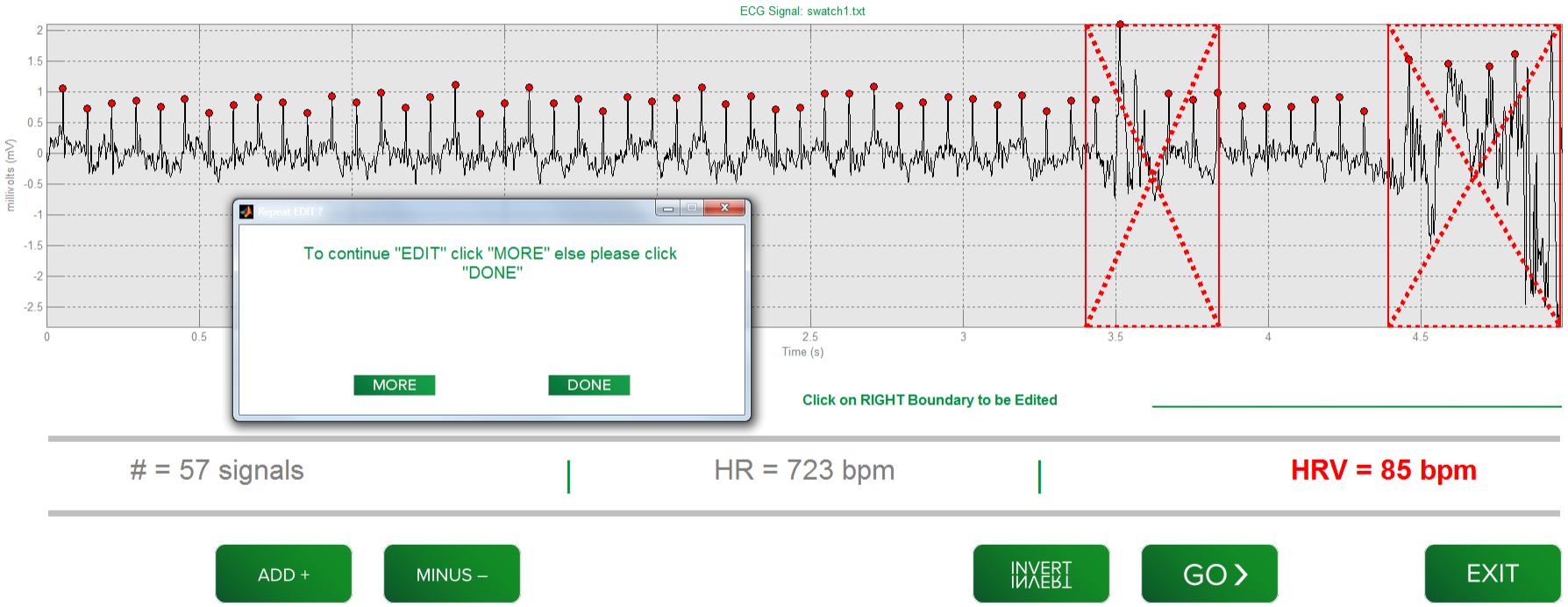
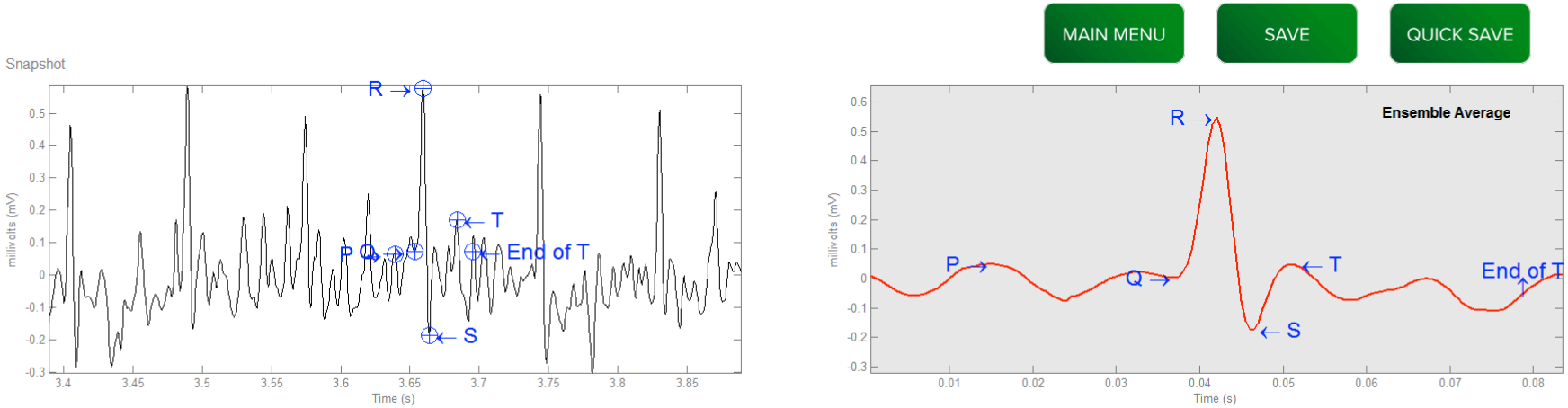


	1	2	3	4	5	6	7	8	9	10
1	Data_File_Na...	N	HR	HRV	CV	RR	PQ	PR	QRS	QT
2		# signals	(bpm)	(bpm)	(%)	(ms)	(ms)	(ms)	(ms)	(ms)
3	mouse_01_0...	89	705	5.8	0.82	85.1	18.6	25.4	10.6	42.4
4	mouse_01_0...	51	714	10.5	1.47	84.0	18.4	24.6	9.8	40.7
5	mouse_02_0...	56	692	6.9	1.00	86.7	16.8	24.4	12.4	42.3
6	mouse_02_0...	85	734	7.3	1.00	81.7	15.6	22.8	12.0	41.2
7	mouse_03_0...	38	792	43.6	5.50	76.0	15.4	21.9	10.2	38.5

The Main Graphical User Interface of the companion ECG analysis software asks the user to specify a directory and ECG files to be analyzed. The user can choose the option to perform heart rate variability (HRV) analysis in the frequency domain.



The raw ECG signal is presented, including any baseline drift and artifacts. Feedback is provided to the user regarding the quality of the data and number of complexes desired for analysis. The user is equipped with tools to extract from the signal noise associated with animal movement.



A snapshot of the signal is provided, showing the PQRST morphology for one of the complexes. Here the user has the option of entering animal demographics. Imagine after scores of recordings an ample database for normative control values, to reduce the numbers of animals and experiments needed for future studies. ***These data are from conscious mice without surgery or implants.***

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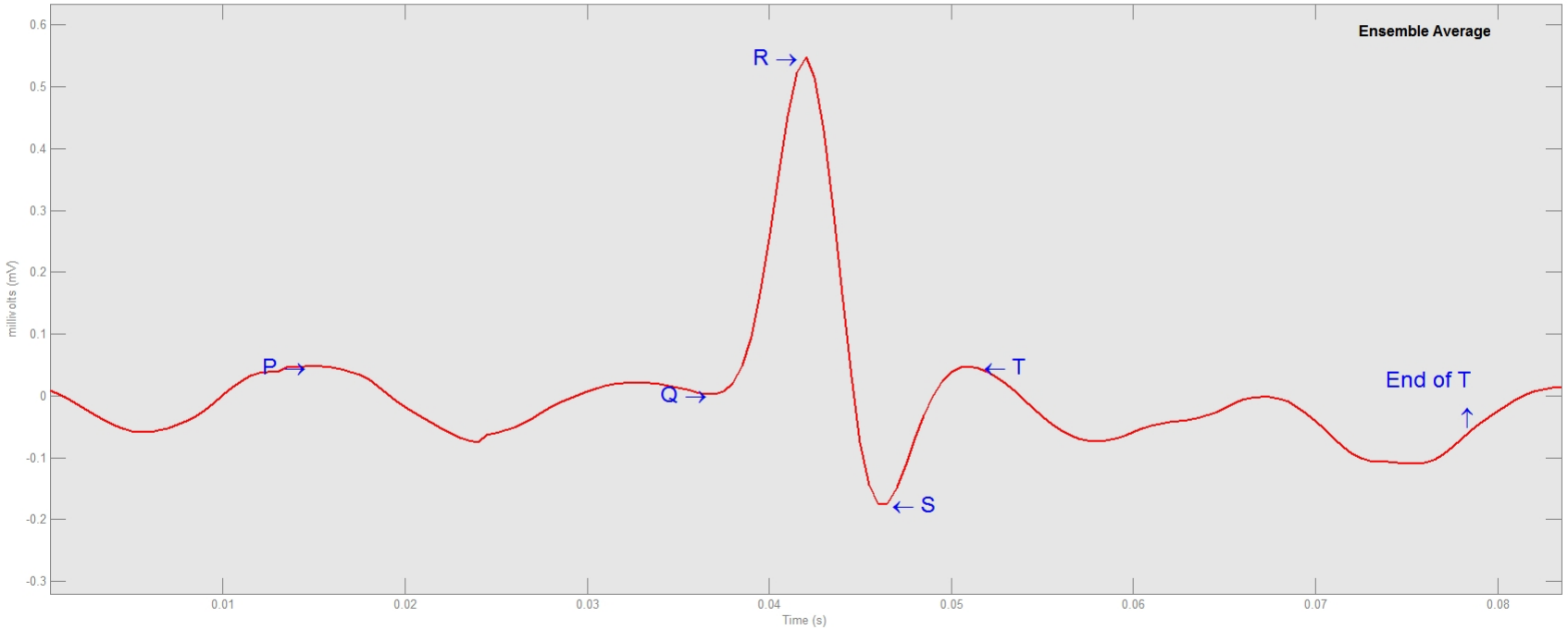
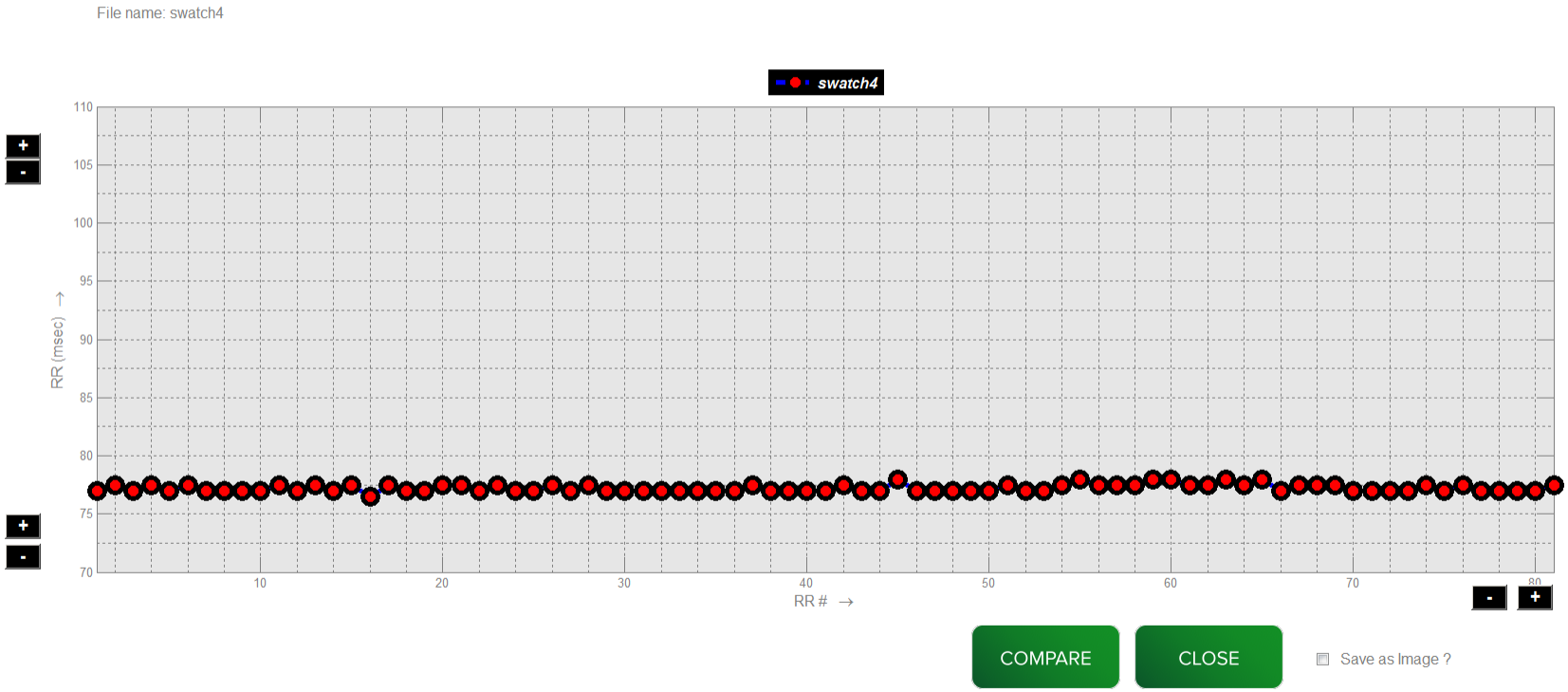
File name: mouse_01_01

Complexes represented in the EA: 87

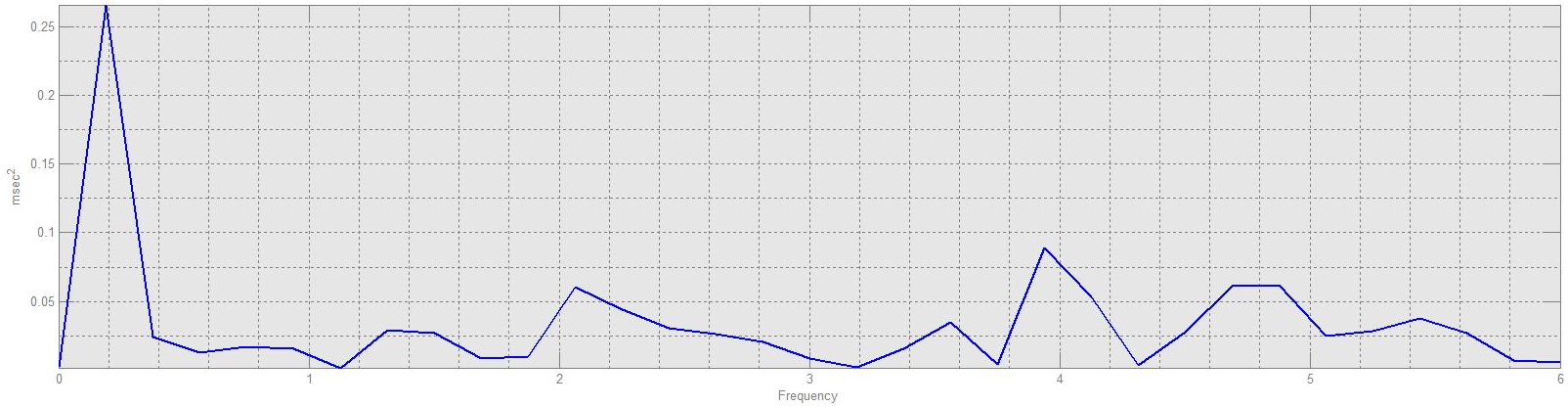


An ensemble average [EA] waveform is automatically generated. In a conscious moving mouse it may be difficult to discern by eye, in the raw signals, the ECG morphology. This EA feature is able to clarify that the correct morphology of the ECG has been determined and mathematically reported accurately.



A tachogram is automatically created and stored. A tachogram describes the beat-to-beat variability in heart rate (heart rate variability, HRV). RR interval duration on the Y-axis is plotted for each of the ECG complexes. Mammals, mice and human alike, demonstrate a fair amount of HRV. Abnormal changes can suggest autonomic nervous system problems.

File name: mouse_02_01



Low Frequency Lower Bound is: 0.03

Low Frequency Upper Bound is: 1.50

High Frequency Lower Bound is: 1.51

High Frequency Upper Bound is: 5.00

Total Power: 0.20 msec^2

LF Power: 0.07 msec^2

HF Power: 0.11 msec^2

LF/HF Ratio: 0.62 msec^2

The Power Spectrum is reported, enabling the user to change the inputs to the frequency bounds to further explore the parasympathetic and sympathetic contributions to heart rate variability.

Standard Parameters

- ✓RR
- ✓PR
- ✓QRS
- ✓ST
- ✓QT
- ✓QTc

Frequency Domain Heart Rate Variability

- ✓Total Power
- ✓Low Frequency
- ✓High Frequency

Time Domain Heart Rate Variability

- ✓HRV
- ✓CV%
- ✓SDDN
- ✓RMSSD
- ✓pNN”50”

This powerful **EzCG Analysis Software** can be used not only to analyze ECG signals recorded via the **ECGenie**, but also by signals recorded via other methods, including radiotelemetric recordings.

	A	B	C	D	E	F	G	H	I	J	K
1	Data_File_	N	HR	HRV	CV	RR	PQ	PR	QRS	QT	ST
2		# signals	(bpm)	(bpm)	(%)	(ms)	(ms)	(ms)	(ms)	(ms)	(ms)
3	ag_1.txt	114	516	24.5	4.75	116.8	28.5	37.5	13	61.1	48.6
4	ag_3.txt	71	410	27.5	6.71	147.6	34.6	49.3	19.2	82.2	63.6
5	ag_4.txt	89	464	65.4	14.1	131.2	30.2	41.8	15.9	68.4	53
6	ag_5.txt	86	472	2.1	0.44	127.1	31.2	42.8	17	67.4	50.9
7	ag_5a.txt	82	479	17.3	3.61	125.4	33.6	44.4	16.4	64.7	48.7
8											
9											
10	b6_1.txt	45	344	2.4	0.71	174.7	38.9	56.4	21.4	93.9	73.1
11	b6_3.txt	99	342	25.5	7.47	176.8	42.4	57.6	19	89	70.6
12	b6_4.txt	67	333	20.9	6.27	181.1	40.6	58.1	21.3	93.7	72.9
13	b6_5.txt	34	421	1	0.24	142.7	33.3	44.8	15.9	78	62.6
14	b6_5_repe	54	398	0.7	0.19	150.7	42.7	56.6	18.6	73.2	55.1
15	b6_6.txt	71	337	9.8	2.9	178.2	41.8	59	21.8	94.8	73.5
16											

A tabulated spreadsheet of all of the ECG metrics, and heart rate variability indices, in the time and frequency domains, is automatically generated. Your spreadsheet will have potentially ***scores, hundreds, thousands*** of ECG datasets **…all from conscious animals studied non-invasively**, without surgery or implants….even newborn pups.

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ECGenie has features that bring benefits to numerous pre-clinical applications.

Features	Benefits	Applications
▪*In vivo*	▪High throughput	▪Pre-clinical
▪Easy-to-use	▪Low cost	▪Arrhythmia detection
▪Turn-key	▪State of the art heart rate variability analyses	▪Autonomic disturbances
▪Scalable	▪Conscious animals	▪Pain
▪Comprehensive	▪Non-invasive	▪Phenotyping
▪Digital		▪Genotyping