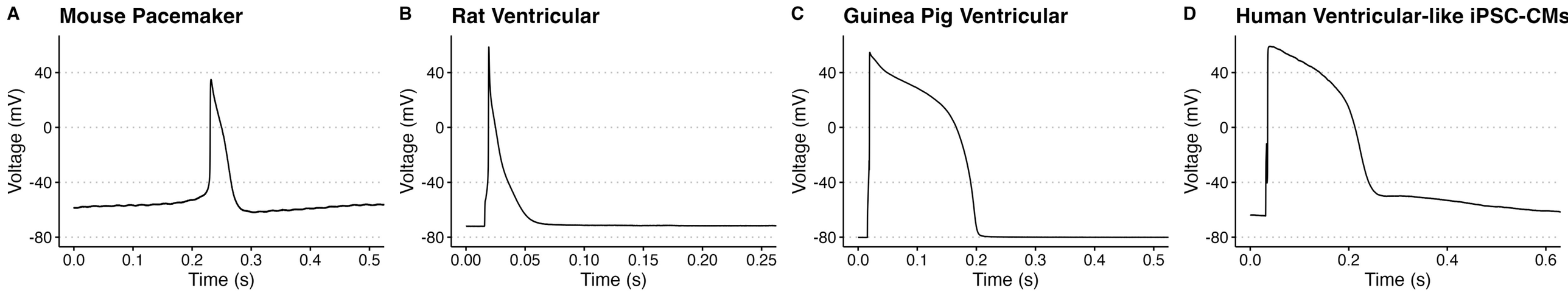
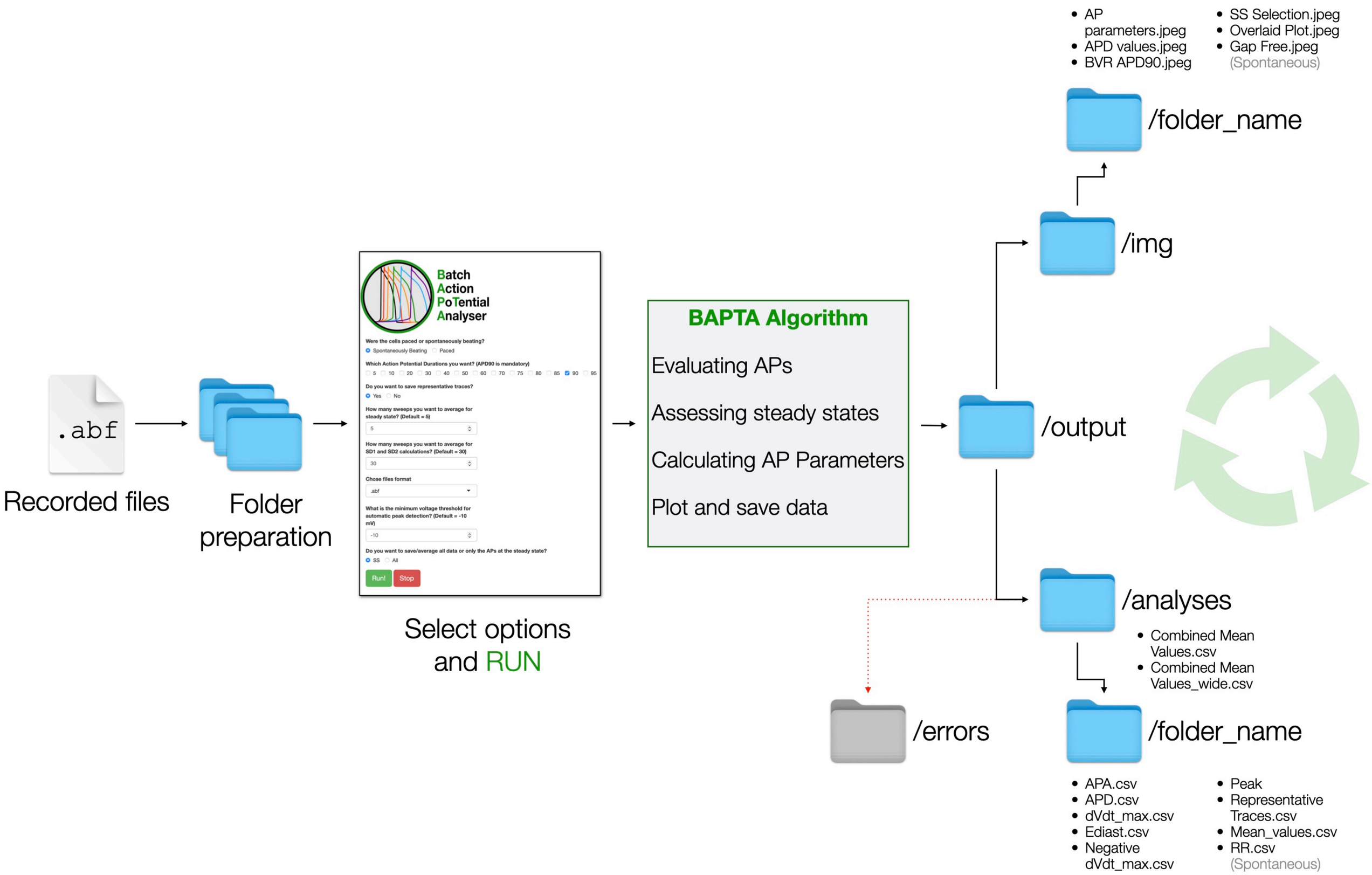
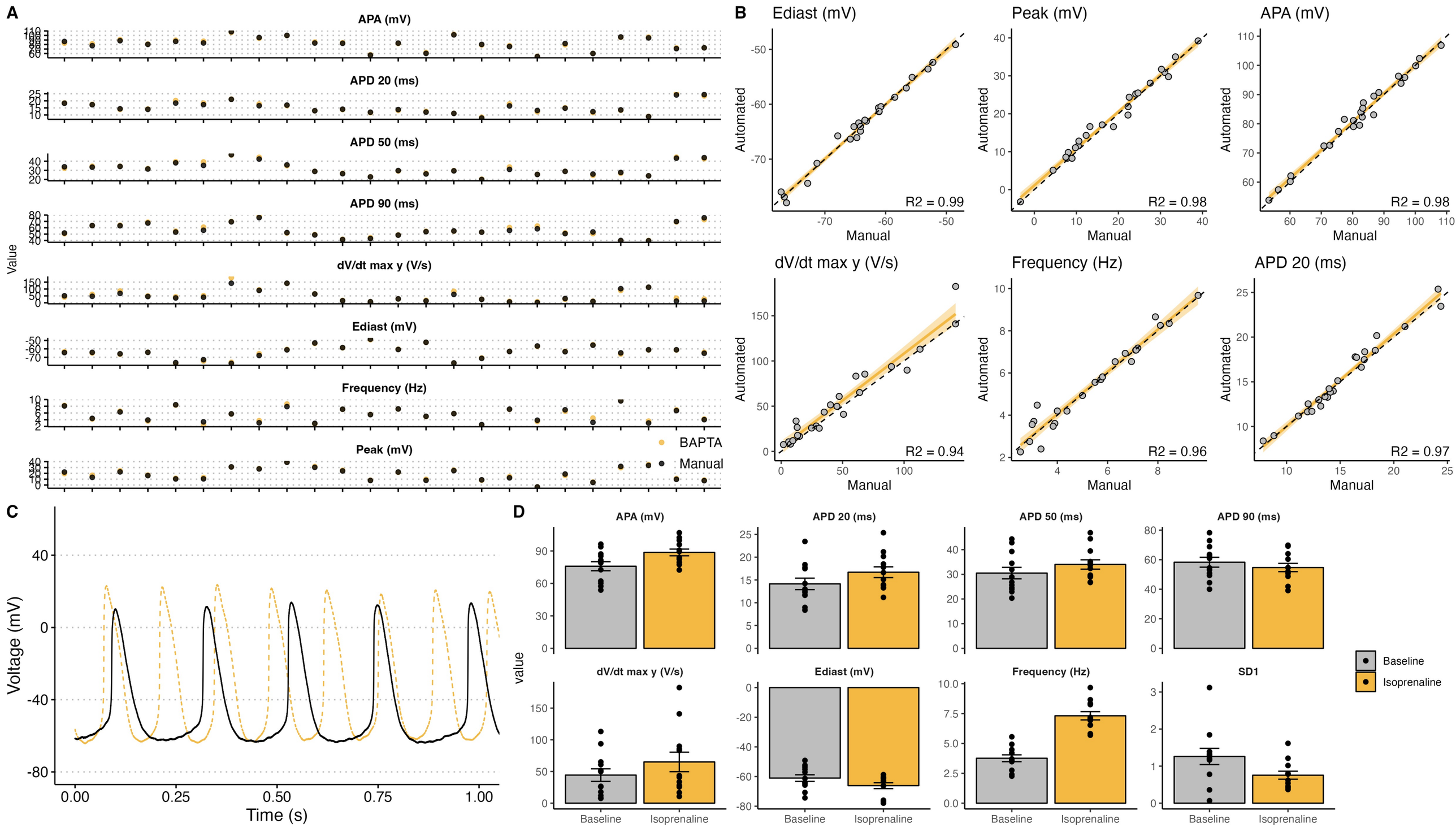
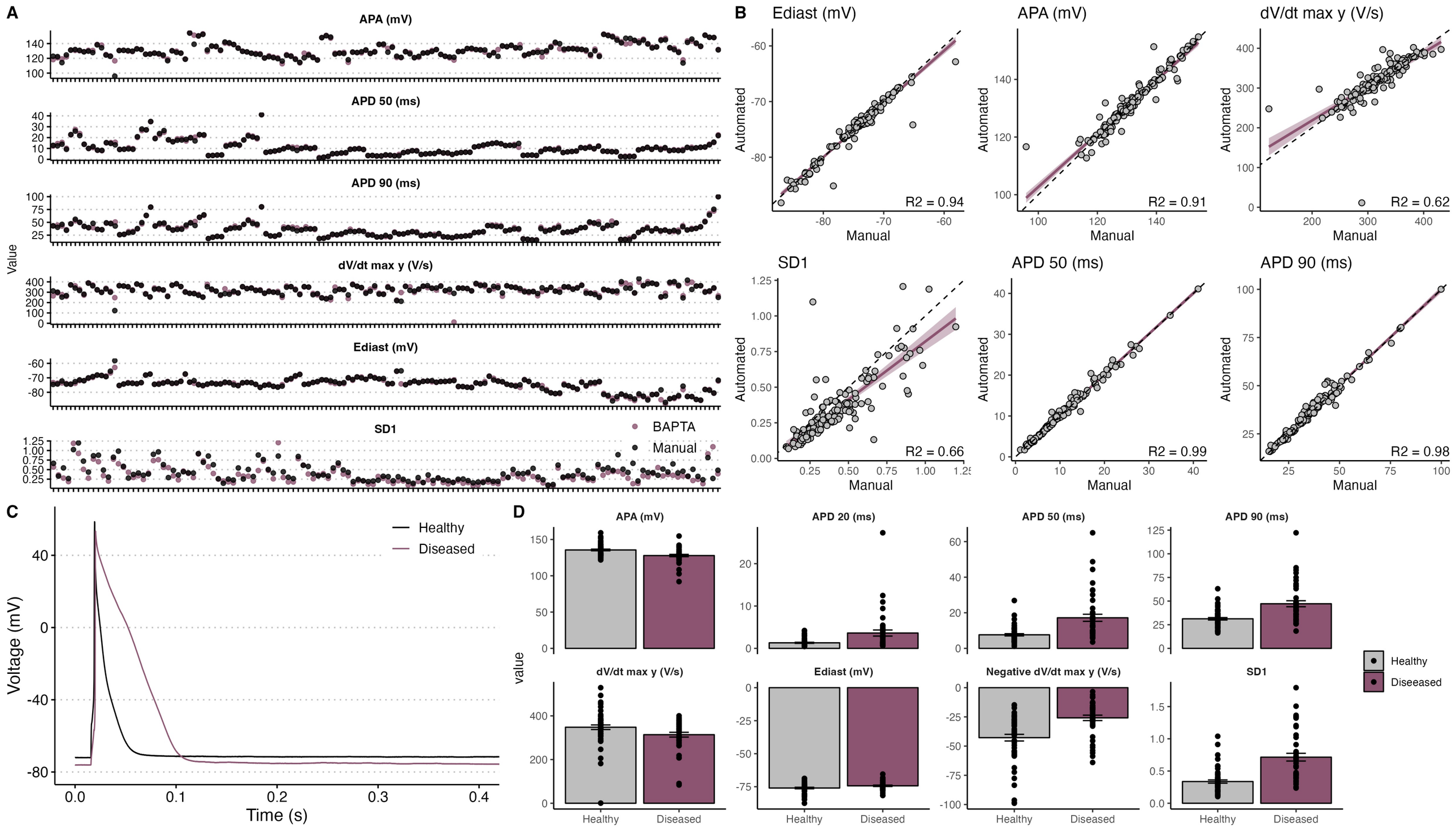
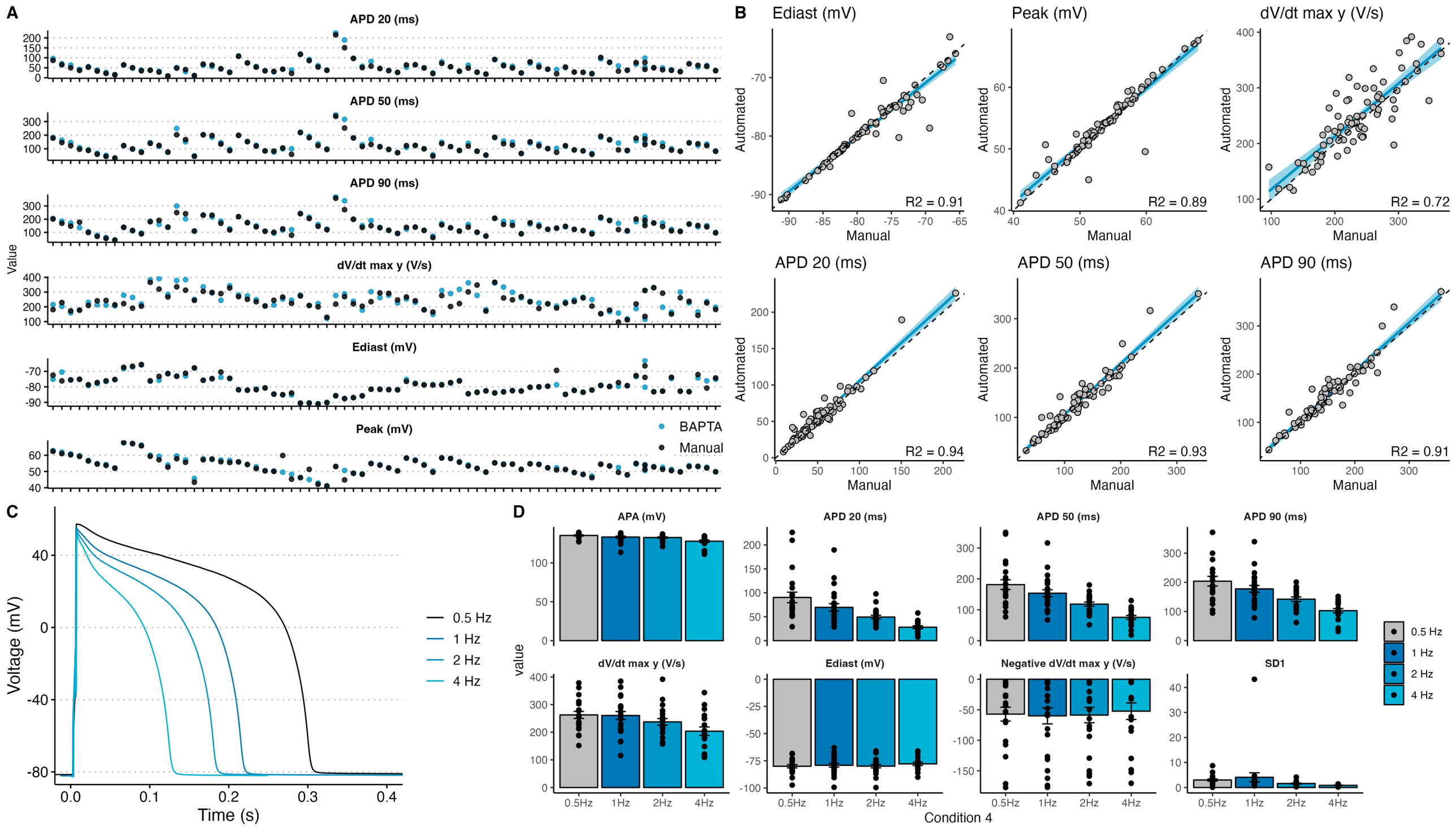
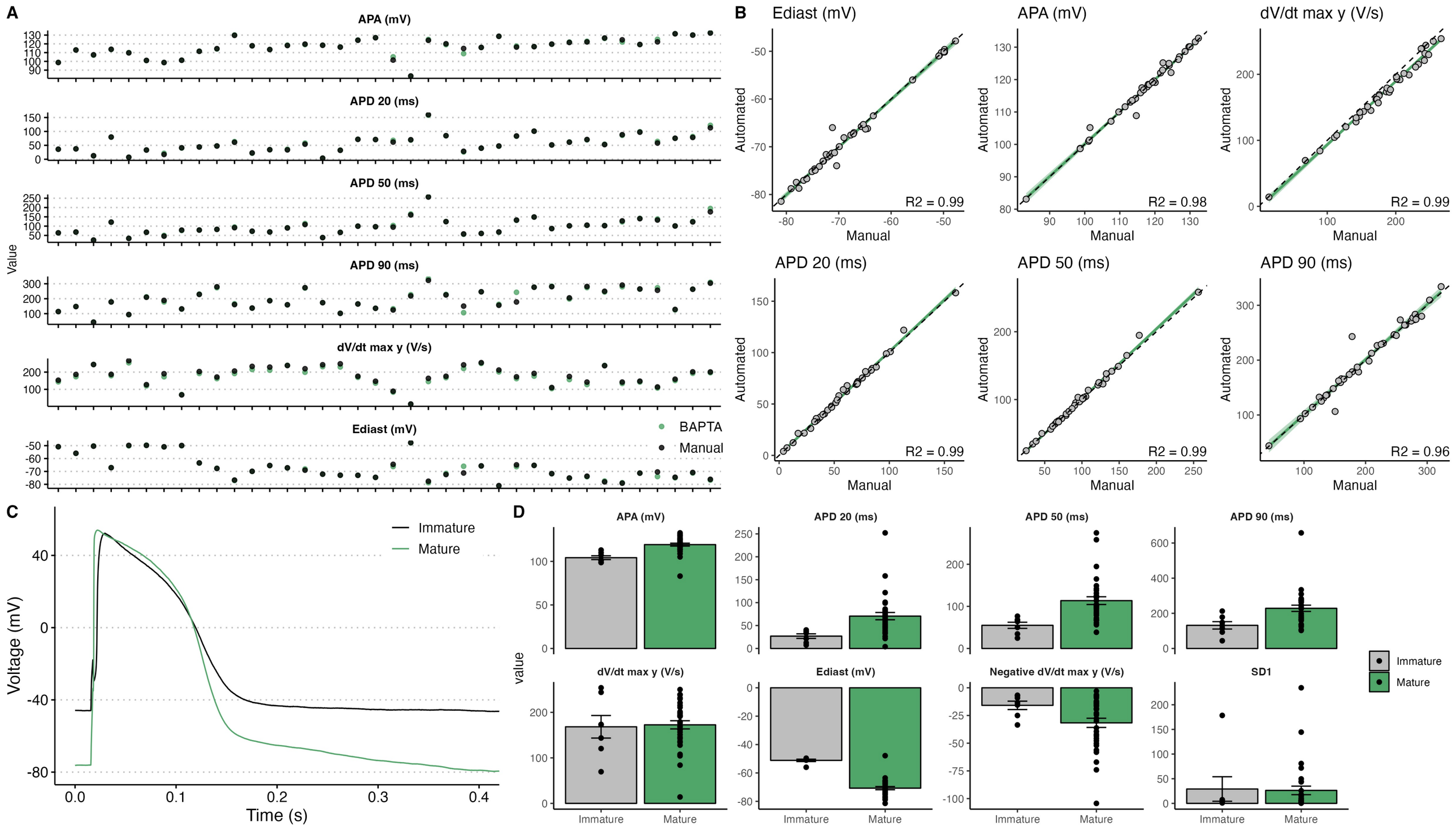

A
Mouse Pacemaker
B
Rat Ventricular
C
Guinea Pig Ventricular
D
Human Ventricular-like iPSC-CMs
Voltage (mV)
40
0
-40
-80
Time (s)
0.0
0.1
0.2
0.3
0.4
0.5
0.00
0.05
0.10
0.15
0.20
0.25
0.6

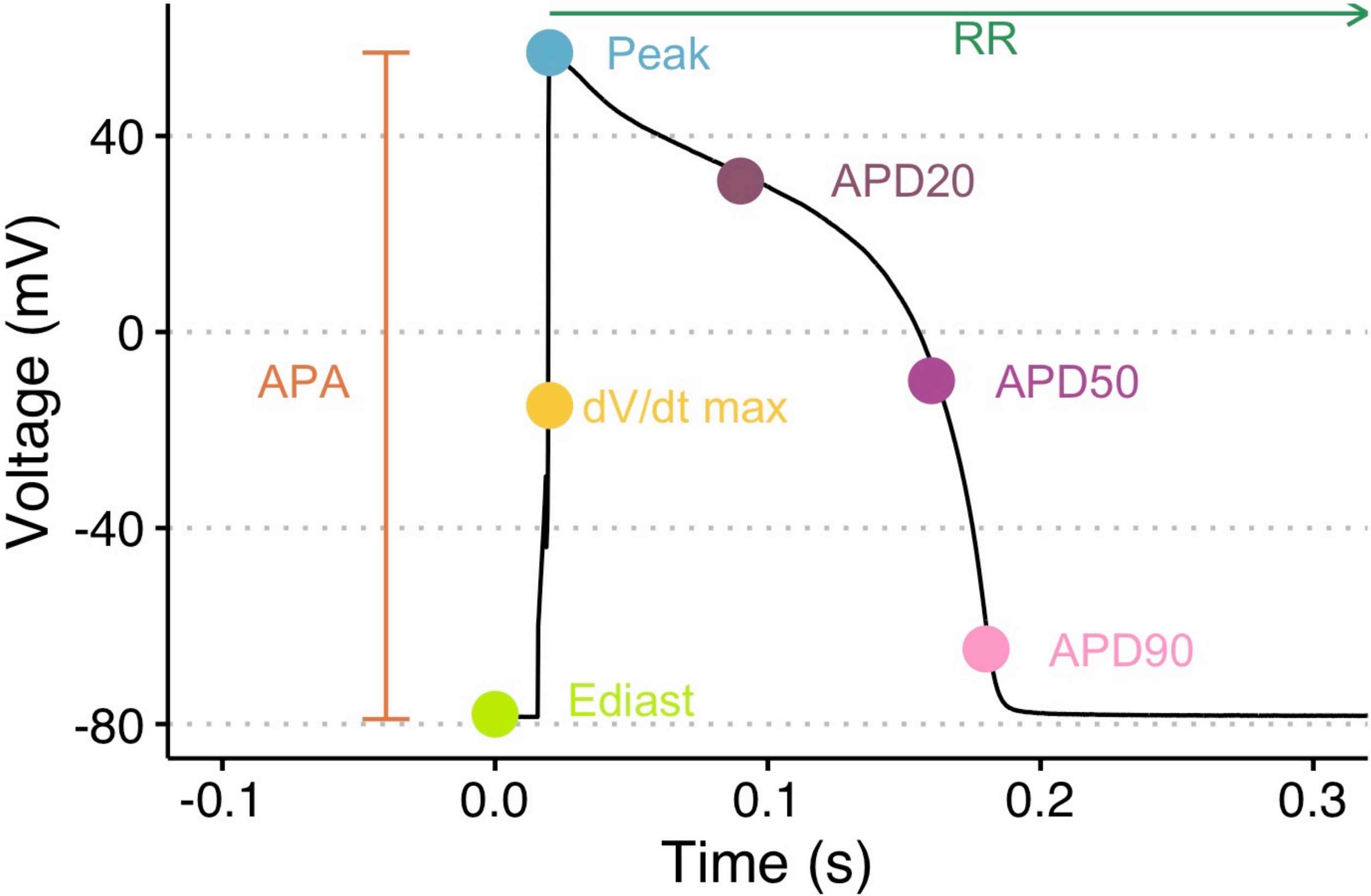

.abf
Recorded files
Folder preparation
Batch Action PoTential Analyser
Were the cells paced or spontaneously beating?
Spontaneously Beating
Paced
Which Action Potential Durations you want? (APD90 is mandatory)
5 10 20 30 40 50 60 70 75 80 85 90 95
Do you want to save representative traces?
Yes
No
How many sweeps you want to average for steady state? (Default = 5)
5
How many sweeps you want to average for SD1 and SD2 calculations? (Default = 30)
30
Chose files format
.abf
What is the minimum voltage threshold for automatic peak detection? (Default = -10 mV)
-10
Do you want to save/average all data or only the APs at the steady state?
SS
All
Run!
Stop
Select options and RUN
BAPTA Algorithm
Evaluating APs
Assessing steady states
Calculating AP Parameters
Plot and save data
/output
/img
/folder_name
AP parameters.jpeg
APD values.jpeg
BVR APD90.jpeg
SS Selection.jpeg
Overlaid Plot.jpeg
Gap Free.jpeg
(Spontaneous)
/analyses
Combined Mean Values.csv
Combined Mean Values_wide.csv
/errors
/folder_name
APA.csv
APD.csv
dVdt_max.csv
Ediast.csv
Negative dVdt_max.csv
Peak
Representative Traces.csv
Mean_values.csv
RR.csv
(Spontaneous)


A
APA (mV)
APD 20 (ms)
APD 50 (ms)
APD 90 (ms)
dV/dt max y (V/s)
Ediast (mV)
Frequency (Hz)
Peak (mV)
Value
BAPTA
Manual
B
Ediast (mV)
Peak (mV)
APA (mV)
dV/dt max y (V/s)
Frequency (Hz)
APD 20 (ms)
Automated
Manual
R2 = 0.99
R2 = 0.98
R2 = 0.98
R2 = 0.94
R2 = 0.96
R2 = 0.97
C
Voltage (mV)
Time (s)
D
APA (mV)
APD 20 (ms)
APD 50 (ms)
APD 90 (ms)
dV/dt max y (V/s)
Ediast (mV)
Frequency (Hz)
SD1
value
Baseline
Isoprenaline


A
APA (mV)
APD 50 (ms)
APD 90 (ms)
dV/dt max y (V/s)
Ediast (mV)
SD1
Value
BAPTA
Manual
B
Ediast (mV)
APA (mV)
dV/dt max y (V/s)
SD1
APD 50 (ms)
APD 90 (ms)
Automated
Manual
R2 = 0.94
R2 = 0.91
R2 = 0.62
R2 = 0.66
R2 = 0.99
R2 = 0.98
C
Healthy
Diseased
Voltage (mV)
Time (s)
D
APA (mV)
APD 20 (ms)
APD 50 (ms)
APD 90 (ms)
dV/dt max y (V/s)
Ediast (mV)
Negative dV/dt max y (V/s)
SD1
value
Healthy
Diseased
Diseeased


A
APD 20 (ms)
APD 50 (ms)
APD 90 (ms)
dV/dt max y (V/s)
Ediast (mV)
Peak (mV)
Value
BAPTA
Manual
B
Ediast (mV)
Peak (mV)
dV/dt max y (V/s)
APD 20 (ms)
APD 50 (ms)
APD 90 (ms)
Automated
Manual
R2 = 0.91
R2 = 0.89
R2 = 0.72
R2 = 0.94
R2 = 0.93
R2 = 0.91
C
Voltage (mV)
Time (s)
0.5 Hz
1 Hz
2 Hz
4 Hz
D
APA (mV)
APD 20 (ms)
APD 50 (ms)
APD 90 (ms)
dV/dt max y (V/s)
Ediast (mV)
Negative dV/dt max y (V/s)
SD1
value
0.5Hz
1Hz
2Hz
4Hz
Condition 4


A
APA (mV)
APD 20 (ms)
APD 50 (ms)
APD 90 (ms)
dV/dt max y (V/s)
Ediast (mV)
Value
BAPTA
Manual
B
Ediast (mV)
APA (mV)
dV/dt max y (V/s)
APD 20 (ms)
APD 50 (ms)
APD 90 (ms)
Automated
Manual
R2 = 0.99
R2 = 0.98
R2 = 0.99
R2 = 0.99
R2 = 0.99
R2 = 0.96
C
Immature
Mature
Voltage (mV)
Time (s)
D
APA (mV)
APD 20 (ms)
APD 50 (ms)
APD 90 (ms)
dV/dt max y (V/s)
Ediast (mV)
Negative dV/dt max y (V/s)
SD1
value
Immature
Mature


RR
Peak
APD20
APD50
APD90
APA
dV/dt max
Ediast
40
0
-40
-80
Voltage (mV)
-0.1
0.0
0.1
0.2
0.3
Time (s)