Time dependent finite-element analysis of in vivo electrochemotherapy treatment

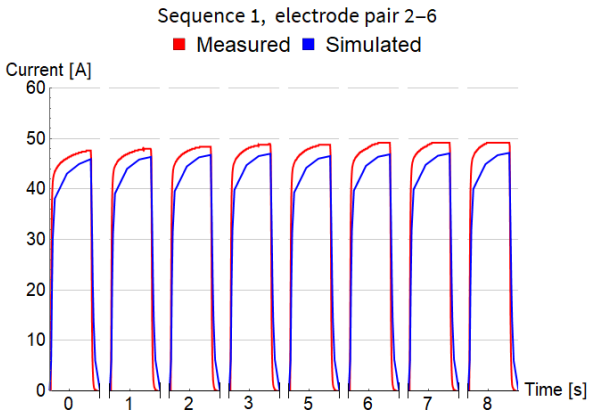
Supplementary data

Symbol	Description	Value
τ_{por}	Specific time of poration relaxation	100 µs
α_{σ}	Amplitude of pore growth model	0,35
τ_{σ}	Specific time of pore growth	15 µs
α_{T}	Amplitude of thermal model	0,125
τ_{T}	Specific time of thermal diffusion	1,75 s
$\alpha_{\vartheta\sigma}$	Amplitude of poration damage model	0,0015 m/V
$\alpha_{\vartheta T}$	Amplitude of thermal damage model	25 m/V
α_{C}	Amplitude of capacitive model	$5*10^{-4}$ m^{-2}
R_{C}	Resistance of capacitive model	15 Ω
C	Capacitance of capacitive model	$1,2*10^{-7}$ F

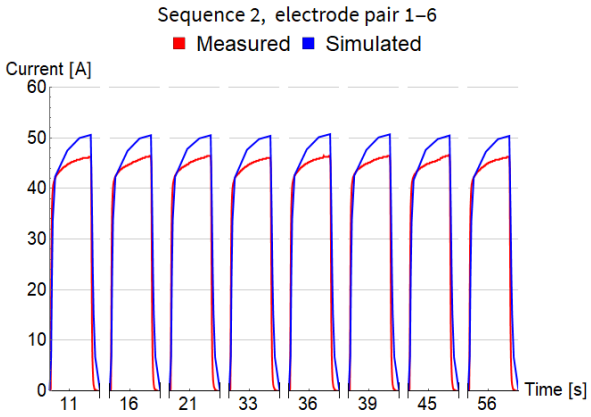
Table S 1: Other parameters of the time dependent electroporation model common for all tissues (taken from Langus et al. (2016))

Results

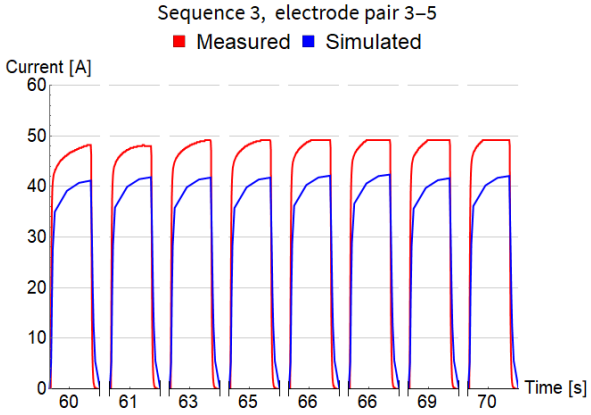
(a)


Sequence 1, electrode pair 2–6
Measured
Simulated
Current [A]
60
50
40
30
20
10
0
0
1
2
3
5
6
7
8
Time [s]

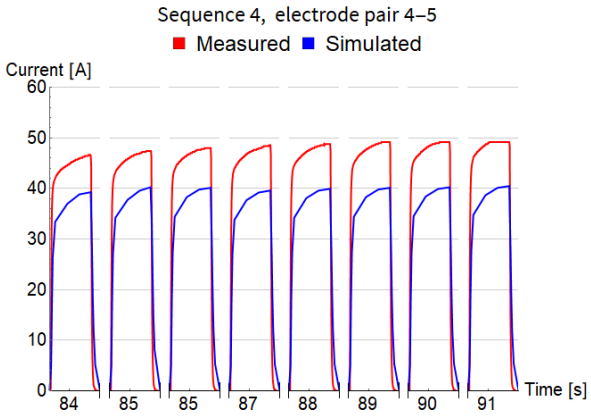
(b)


Sequence 2, electrode pair 1–6
Measured
Simulated
Current [A]
60
50
40
30
20
10
0
11
16
21
33
36
39
45
56
Time [s]

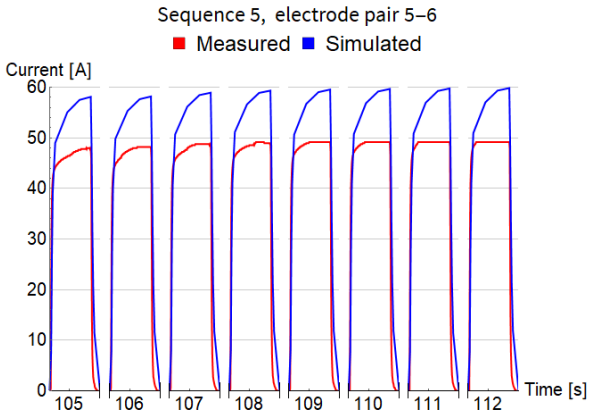
(c)


Sequence 3, electrode pair 3–5
Measured
Simulated
Current [A]
60
50
40
30
20
10
0
60
61
63
65
66
66
69
70
Time [s]

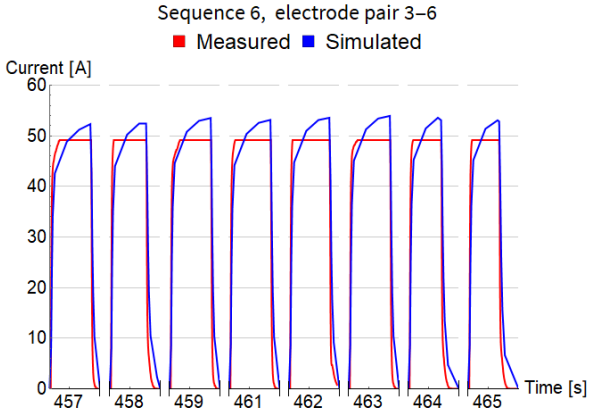
(d)


Sequence 4, electrode pair 4–5
Measured
Simulated
Current [A]
60
50
40
30
20
10
0
84
85
85
87
88
89
90
91
Time [s]

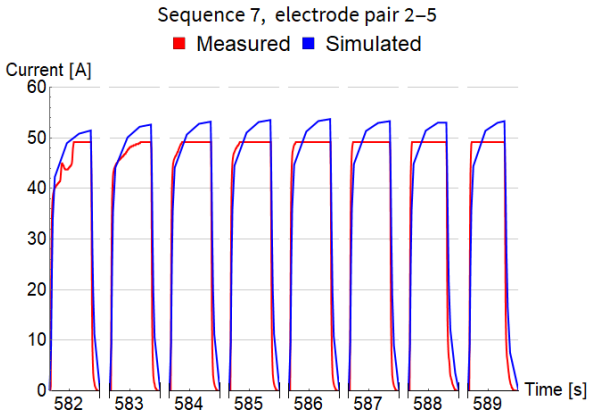
(e)


Sequence 5, electrode pair 5–6
Measured
Simulated
Current [A]
60
50
40
30
20
10
0
105
106
107
108
109
110
111
112
Time [s]

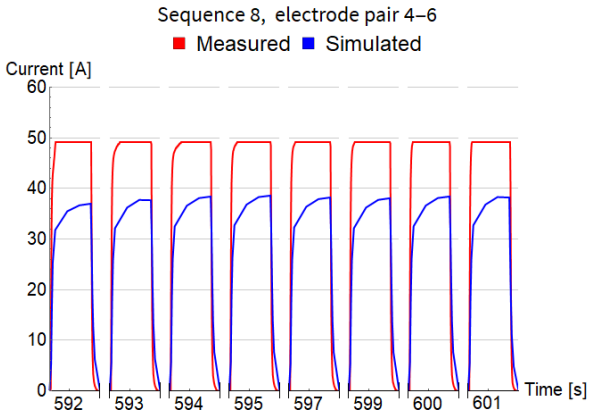
(f)


Sequence 6, electrode pair 3–6
Measured
Simulated
Current [A]
60
50
40
30
20
10
0
457
458
459
461
462
463
464
465
Time [s]

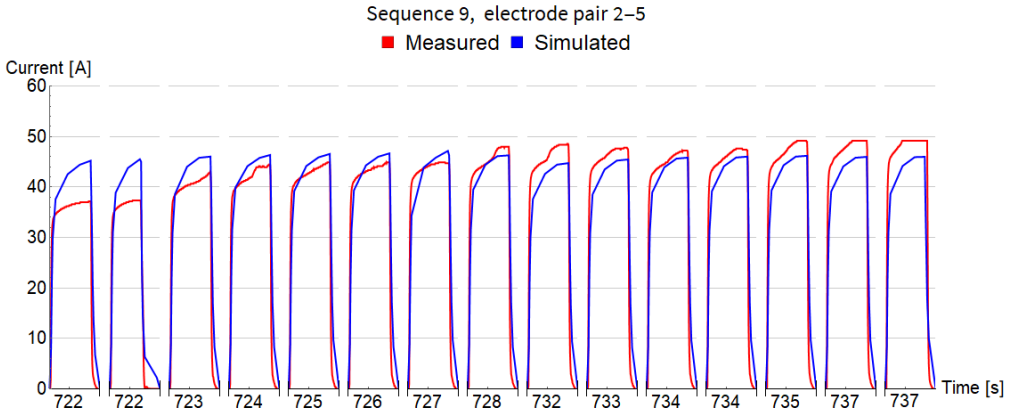
(g)


Sequence 7, electrode pair 2–5
Measured
Simulated
Current [A]
60
50
40
30
20
10
0
582
583
584
585
586
587
588
589
Time [s]

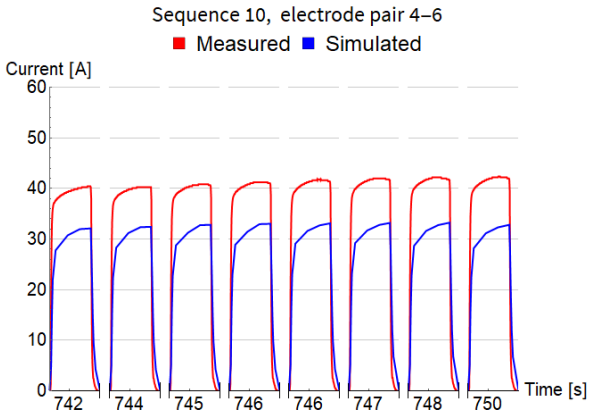
(h)


Sequence 8, electrode pair 4–6
Measured
Simulated
Current [A]
60
50
40
30
20
10
0
592
593
594
595
597
599
600
601
Time [s]

(i)


Sequence 9, electrode pair 2–5
Measured
Simulated
Current [A]
60
50
40
30
20
10
0
722
722
723
724
725
726
727
728
732
733
734
734
735
737
737
Time [s]

(j)



(k)

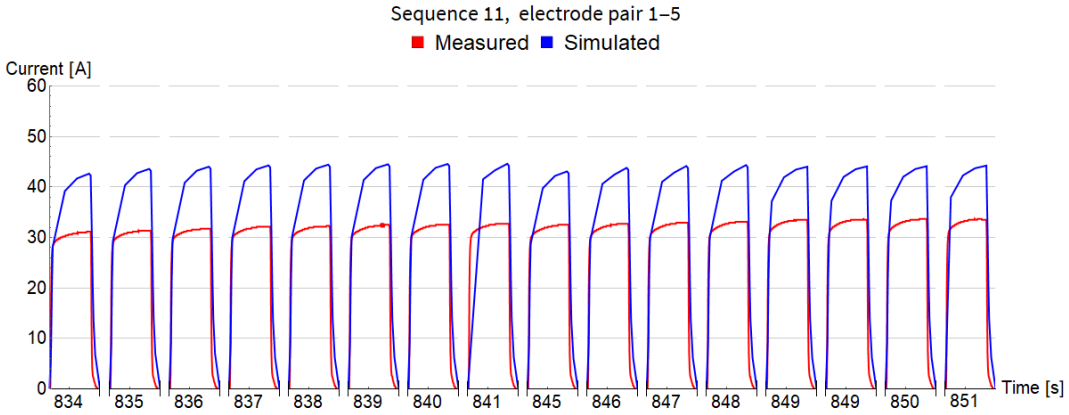


Figure S 1: (a-k) Comparison of simulated and measured current for all sequences and all pulses