



Supplementary Movie 1: Calcium imaging recording of day 58 cortical neurons showing a single synchronised burst.



Supplementary Movie 2: Calcium imaging recording of day 64 cortical neurons showing a multiple synchronised bursts.



Supplementary Movie 3: Calcium imaging recording of day 70 cortical neurons showing sustained synchronised bursts.



Supplementary Movie 4: Calcium imaging recording of day 77 cortical neurons showing multiple synchronised bursts.



Supplementary Movie 5: Calcium imaging recording of day 108 cortical neurons showing complex network activity.

Supplementary Table 1: Breakdown of whole cell electrophysiological properties.

BBHX				
Day	63	69	76	78
Resting Membrane Potential	-30	-50	-42	-45
mV	-44	-28	-38	-45
	-45	-38	-43	-54
	-35	-38	-54	-40
	-48	-41	-43	-43
	-37		-50	-40
Action Potential Height	10	58.9	56	50
mV	31.05	50.2	82	49.9
	54.9	44.5	63	45
	43	56	64	51.1
	25.2	55.4	66	51
	31.1	55.6	73	48
Number of spikes	1	5	1	2
(1 second 10pA stimulation)	1	3	3	3
	1	1	2	1
	1	1	3	1
	1	1	7	6
	1	2	3	3
Input resistance	7.5	3.4	4.5	0.8
gΩ	3	4.5	2.6	3.9
	4.1	4.2	1.4	3.6
	1.8	3.2	3.5	2.4
	3.3	4.1	5.5	3.5
	2.1	3.9	2	3.3
CRL				
Day	50	73	100	
Resting Membrane Potential	-35	-43	-52	
mV	-48	-53	-50	

	-50	-47	-58	
	-38	-52		
	-55	-47		
	-40	-57		
Action Potential Height	60	49.6	64.6	
mV	40.6	57.1	62.9	
	60.3	56	66.4	
		51.8		
		58.1		
		50.1		
Number of spikes	1	1	2	
(1 second 10pA stimulation)	2	2	3	
	1	2	13	
	1	2		
	1	4		
		3		
Input resistance	7.5	4.6	3.3	
gΩ	5.6	2.8	3.9	
	6.1	4	2.3	
	6.2	4.1		
		3.5		
		3.8		
2F8				
Day	85	96		
Resting Membrane Potential				
mV	-63	-51		
	-46	-56		
	-50	-53		
	-35			
	-42			
Action Potential Height	70.4	69.4		

mV	61.2	69		
	45	70		
	39			
	75.9			
Number of spikes	2	5		
(1 second 10pA stimulation)	4	6		
	3	6		
	1			
	3			
Input resistance	3.6	3.4		
gΩ	3	1.5		
	2.8	2.4		
	3.5			
	3.1			
JRO				
Day	71			
Resting Membrane Potential				
mV	-50			
	-60			
	-63			
	-62			
	-30			
	-42			
Action Potential Height	66			
mV	44.9			
	61.7			
	67.3			
	49.2			
	50			
Number of spikes	4			
(1 second 10pA	1			

stimulation)				
	3			
	2			
	1			
	1			
Input Resistance	3.8			
gΩ	2.5			
	5.3			
	3.4			
	3.1			
	5.2			