



NMDA receptor data w/ continuous flow

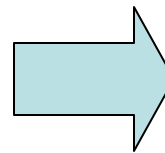
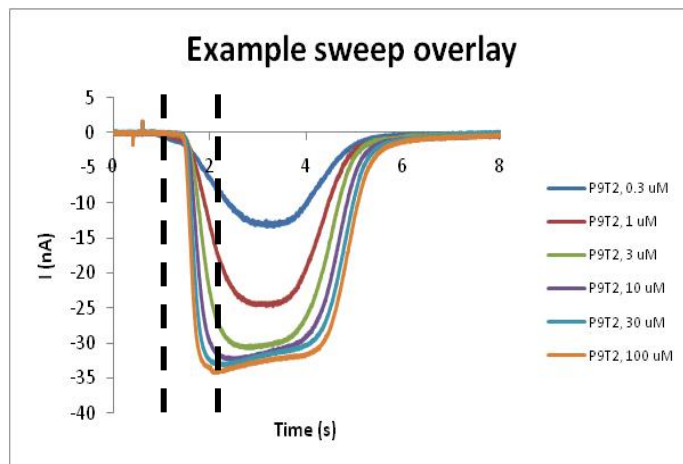
IonFlux system validation



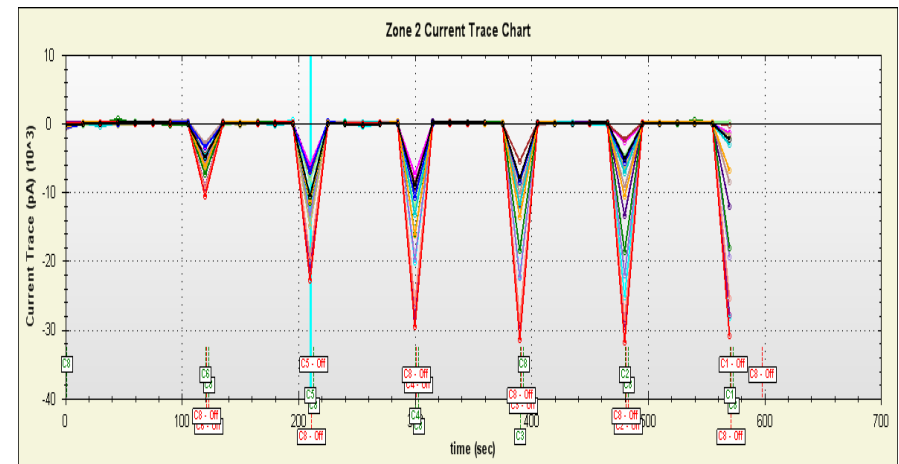
Data visualization

- Sweeps are acquired, differences between cursors get plotted onto the 'Current Trace Chart'
- 64 sweep recordings are acquired simultaneously
- Trace data is plotted one 'zone' at a time (1/4 of the plate, or 16 recording channels)

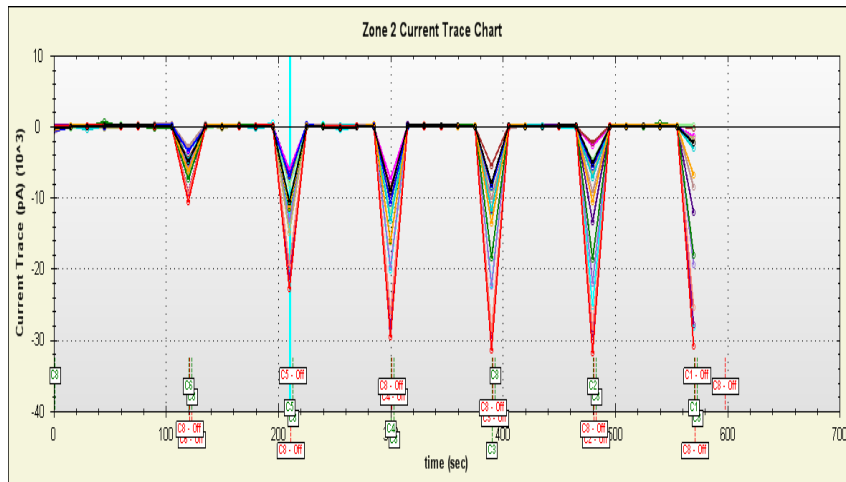
Sweep data



Trace Chart

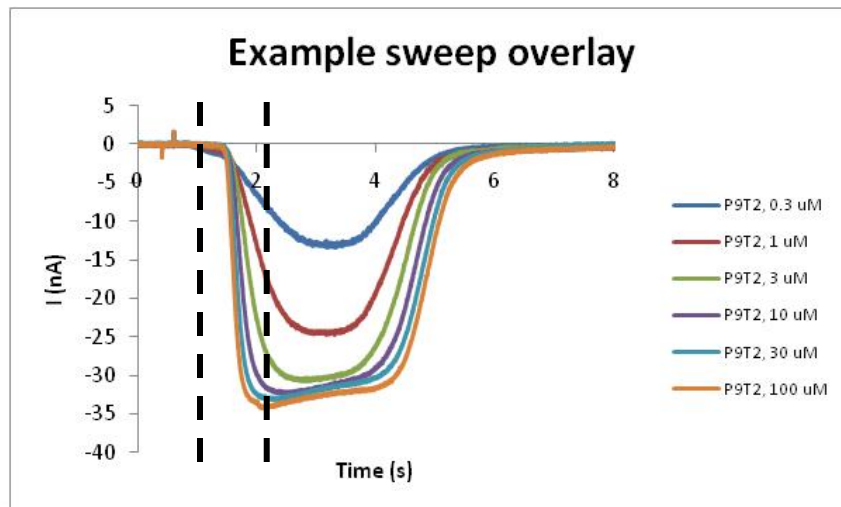
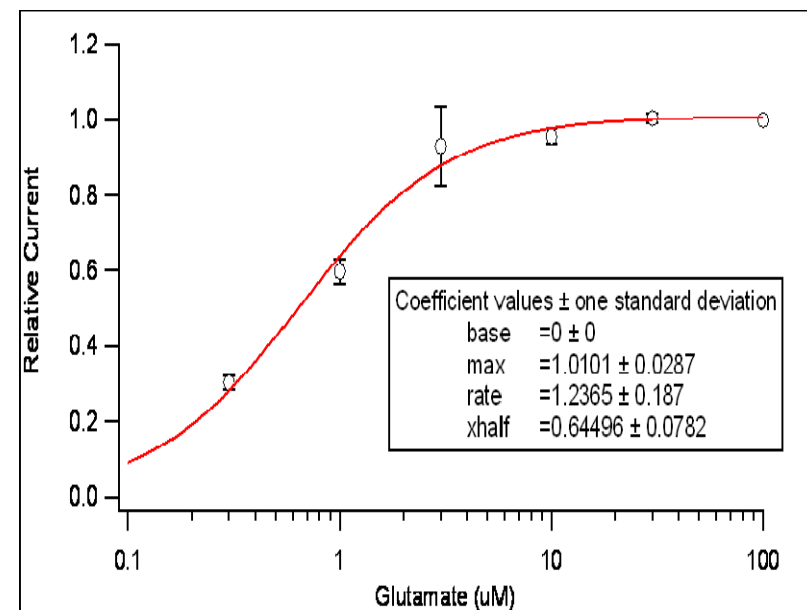


Glutamate EC50 dose response

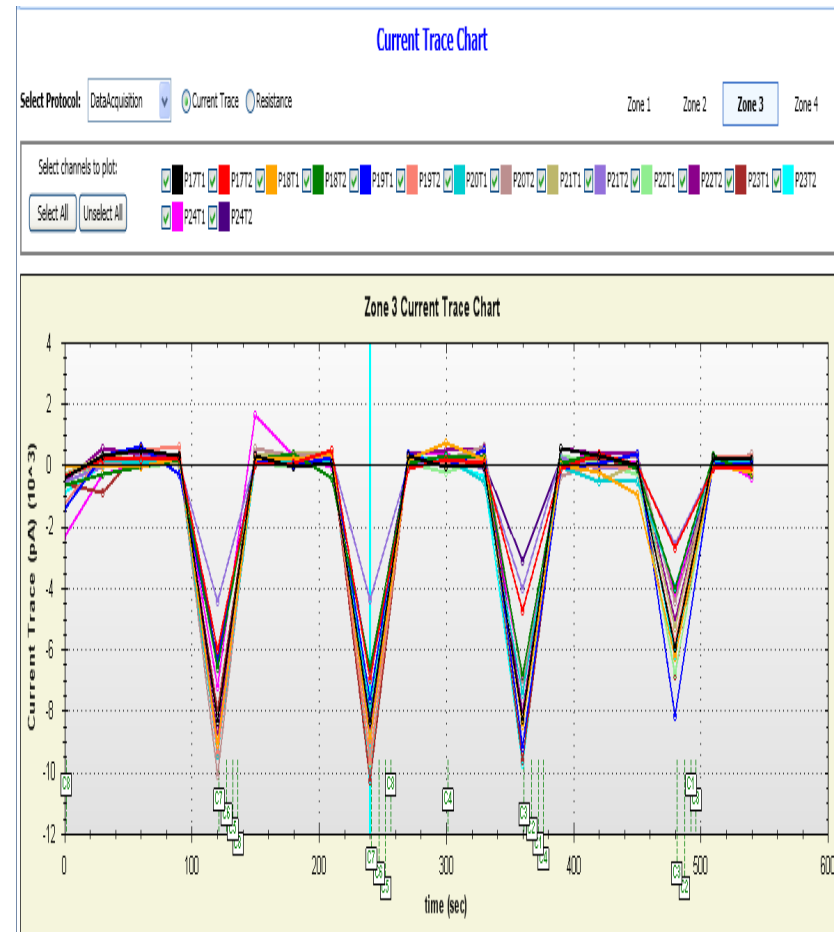
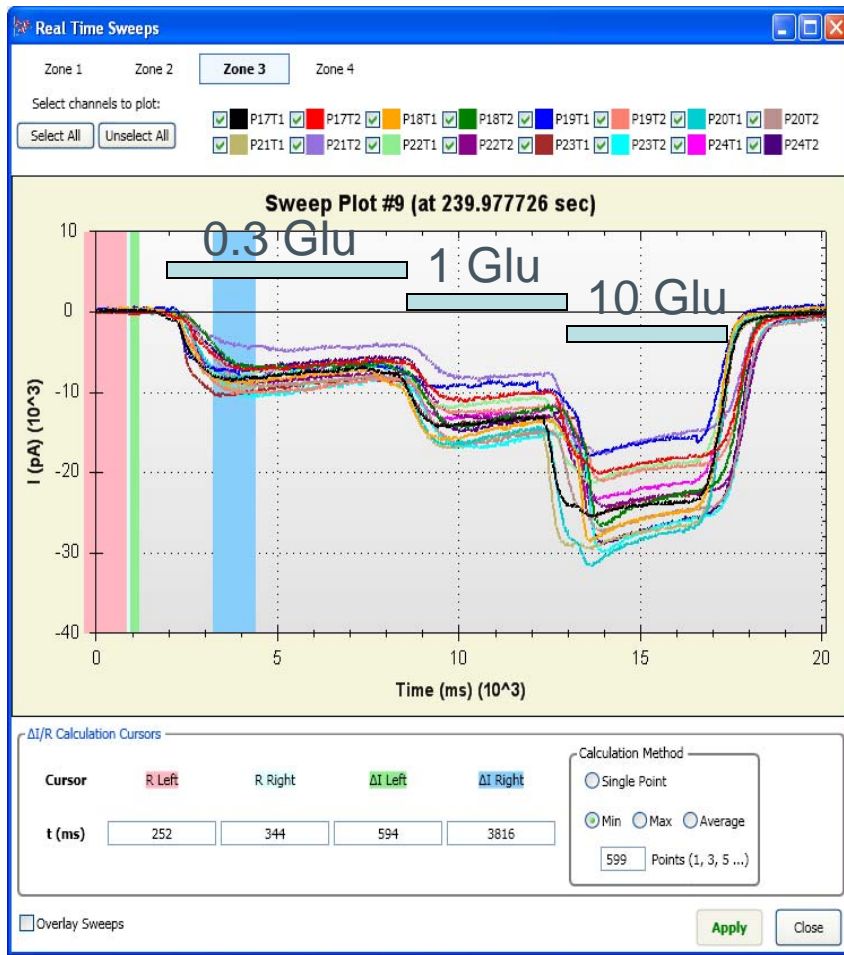


Responses assembled onto the EC50 graph below:

Fit from all patterns (64 channels)



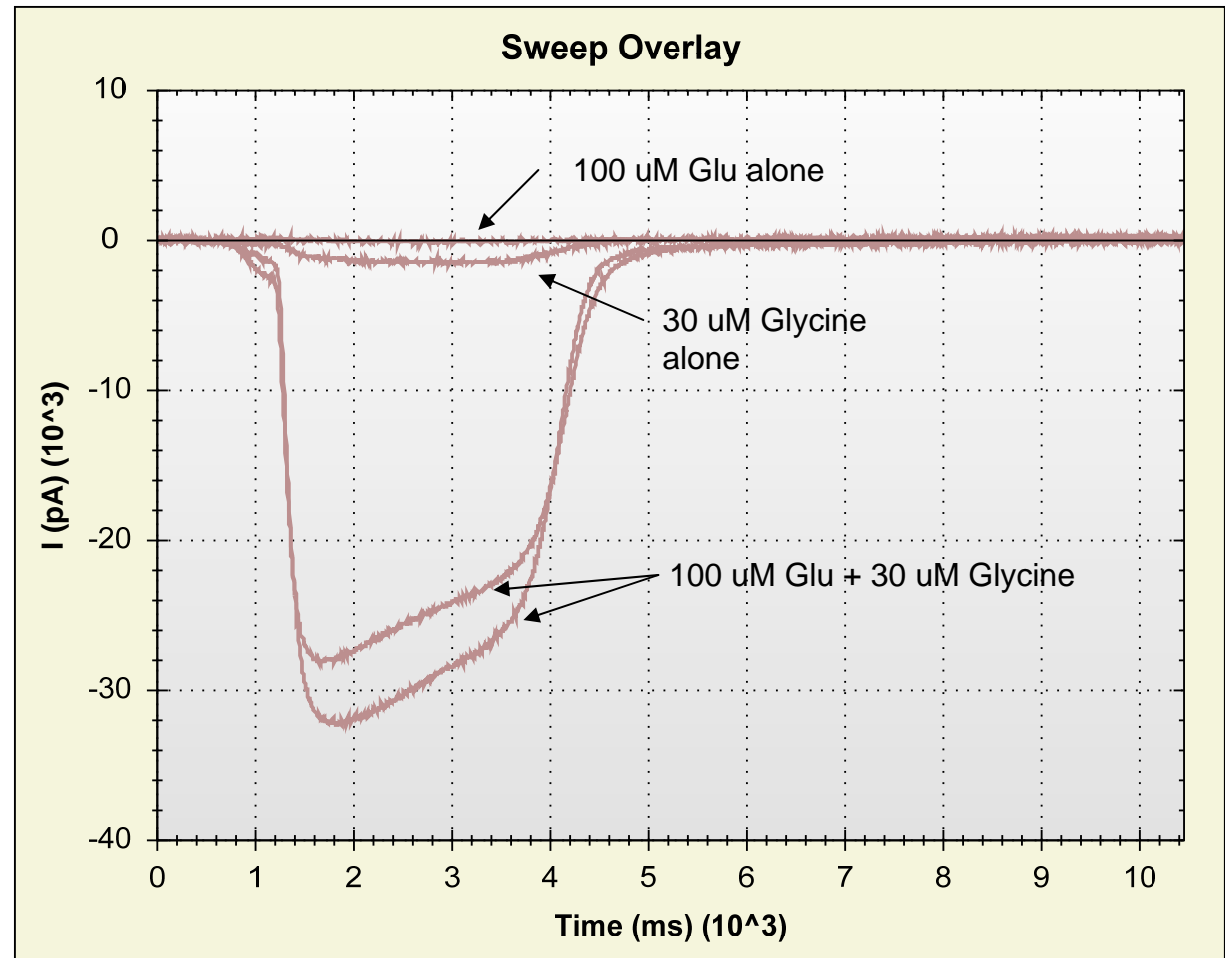
Fast EC50 experiment



Sample Glycine/Glutamate response

C8	control
C7	control
C6	control
C5	30 uM Glycine
C4	control
C3	100 uM Glu
C2	control
C1	100 uM Glu + 30 uM Glycine

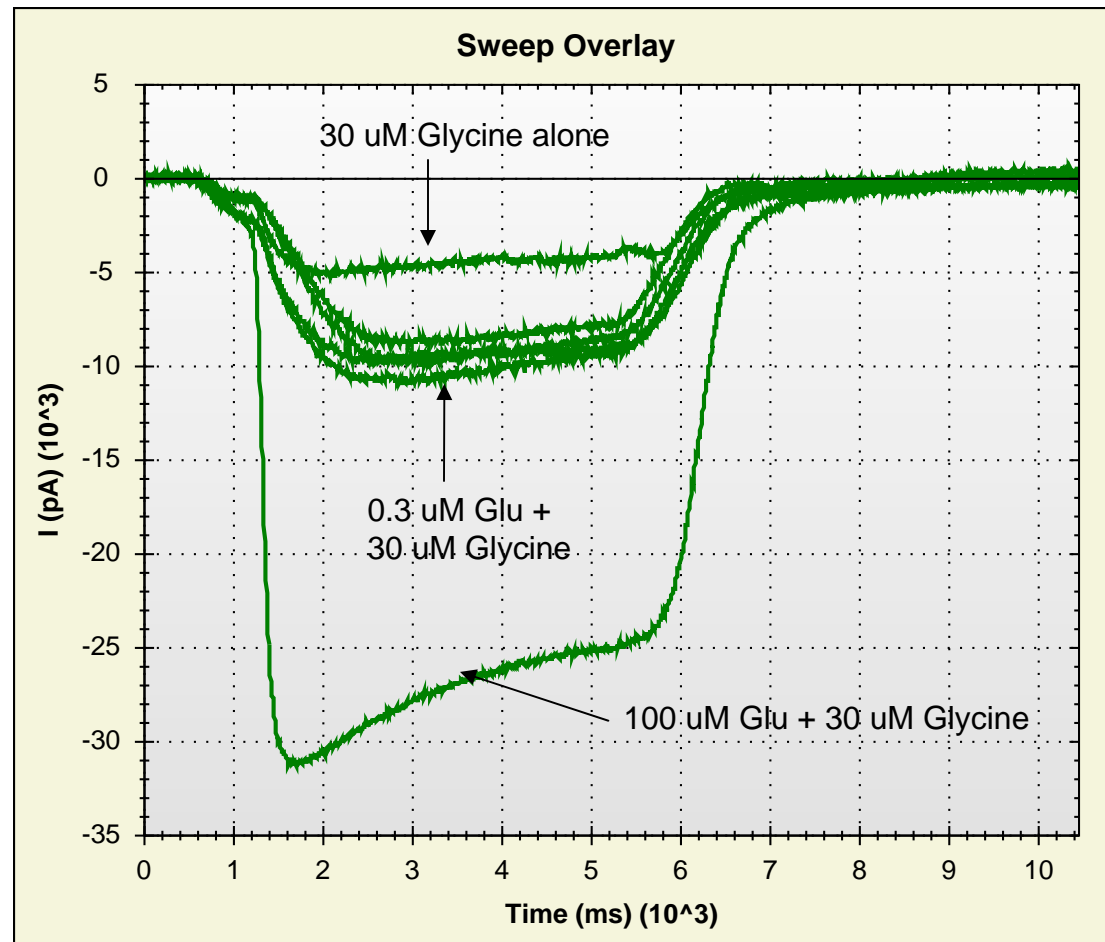
control = zero Mg buffer



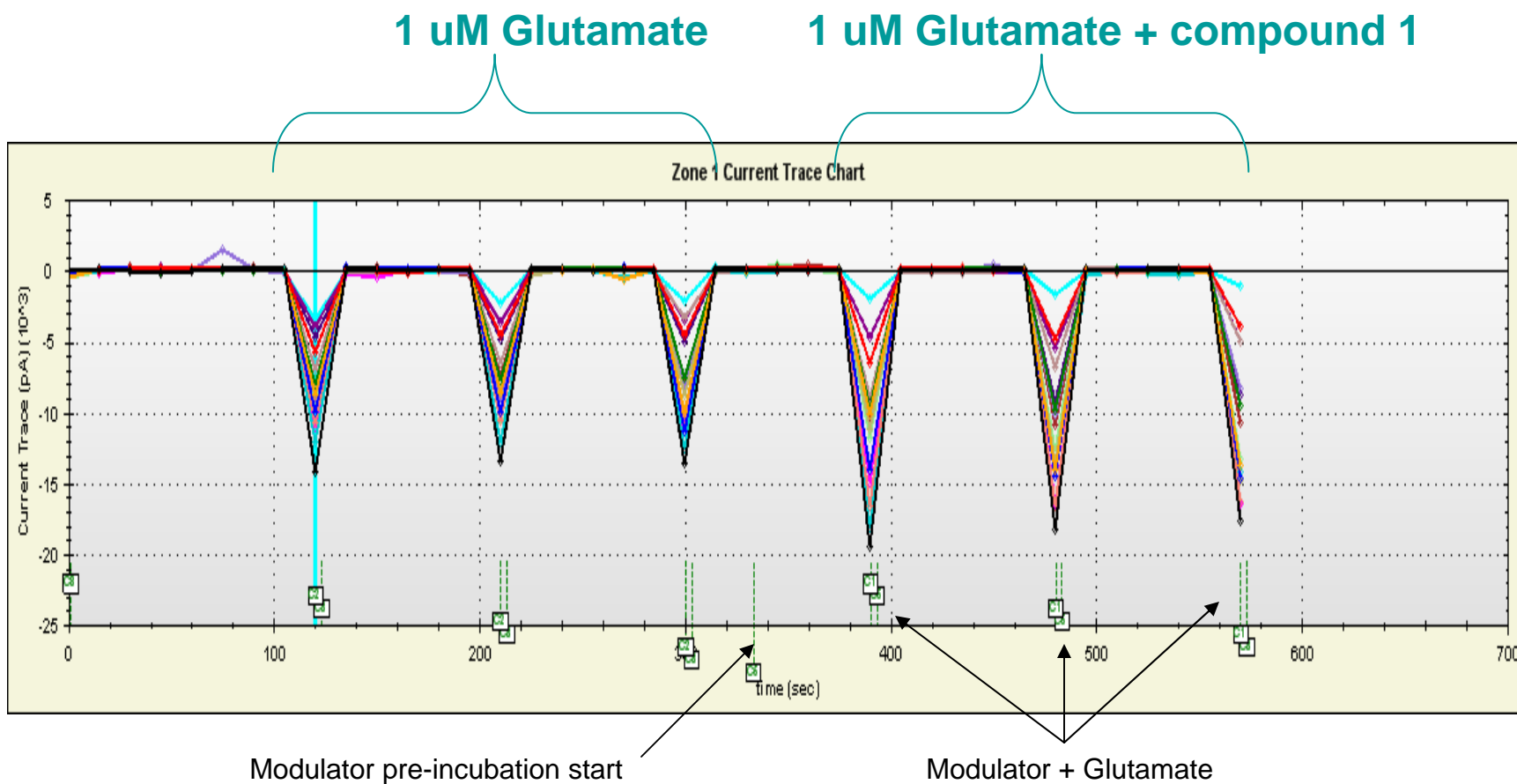
Glycine/Glutamate response 2

C8	control
C7	0.3 uM Glu + 30 uM Gly
C6	control
C5	30 uM Glycine
C4	control
C3	0.3 uM Glu + 30 uM Gly
C2	control
C1	100 uM Glu + 30 uM Glycine

control = zero Mg buffer



Current stability and modulator response



Conclusions

- The NMDA receptor assay shows the correct EC50 for glutamate, and correct Glycine modulation
- Cumulative agonist applications can be assembled into a fast EC50 measurement in <30s
- The NMDA assay has >95% success rate
- Repeated agonist challenges followed by agonist + compound show stable modulation
- Continuous perfusion results in great assay stability and efficient washout similar to continuous perfusion manual patch experiments