

Glutamate positive modulation

Direct comparison of control and modulating substances

Ion channel:
Glutamate

Cell type:
HEK

Chip type:
DF-48

Data courtesy of GlaxoSmithKline, Verona, Italy

Methods

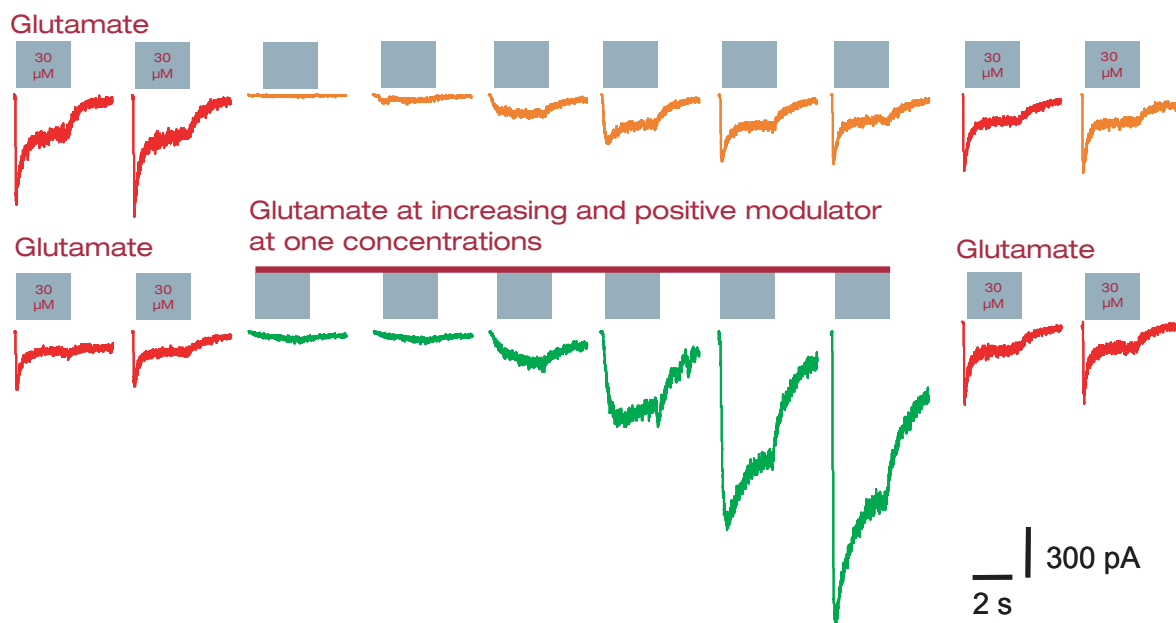
The aim of this study was to investigate the effects of a positive modulator on the Glutamate receptor expressed in transiently transfected HEK cells. For each cell, a full dose response to Glutamate was obtained immediately prior to running a full dose response to the positive modulator. This experimental set-up allowed for direct comparison of the positive modulator to the control current.

Transiently transfected cells co-transfected with GFP were selected in the DF-48 recording chamber for experimental analysis. Cells were voltage-clamped in the perforated-patch configuration at a holding potential of -60mV.

Characterization of positive modulator - dose response and kinetics

A typical recording from this experiment is shown in **Figure 1**. The agonist was applied for 2 seconds followed by a 60 second buffer wash. Note that the trace has been cut, showing only current responses to glutamate applications. Control currents were elicited with saturating concentrations of glutamate followed by eight applications of glutamate at increasing concentrations and a second pair of control applications. Note that in the upper trace, the second pair of control currents decreased, this rundown could be a sign of loss of intracellular ATP by wash out.

Figure 1



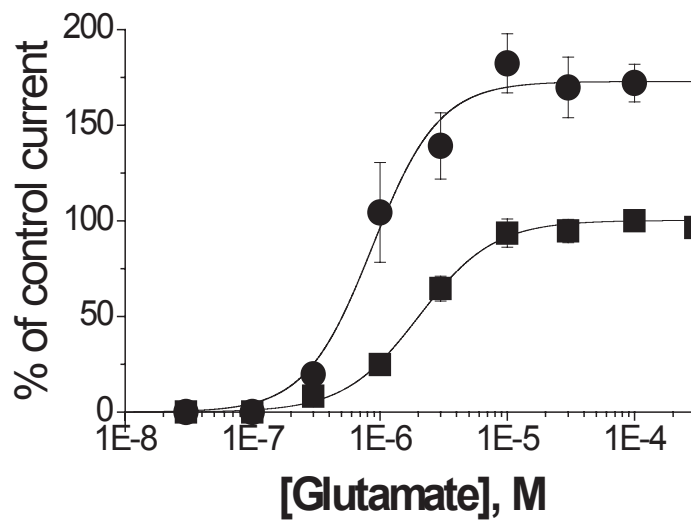
Download more application notes: www.cellectricon.com

GABA_A high content recordings, NMDA currents in acutely isolated neurons, hERG safety pharmacology screening and more.

Characterization of positive modulators - dose response and kinetics

Current amplitude increases significantly when the same cell is exposed to glutamate plus the positive modulator (second row). The positive modulator was applied at constant concentration whereas the concentration of glutamate was increased. Peak currents were normalized to the control response and plotted against glutamate concentration. **Figure 2** shows dose-response curves with (circles) and without (squares) the positive modulator.

Figure 2



Contact us for more information:

EU: sales-eu@cellectricon.com

US: sales-us@cellectricon.com

www.cellectricon.com