

## Electronic Supplementary Information (ESI)

### Chemically induced synaptic activity between primary hippocampal co-cultures in a microfluidic system

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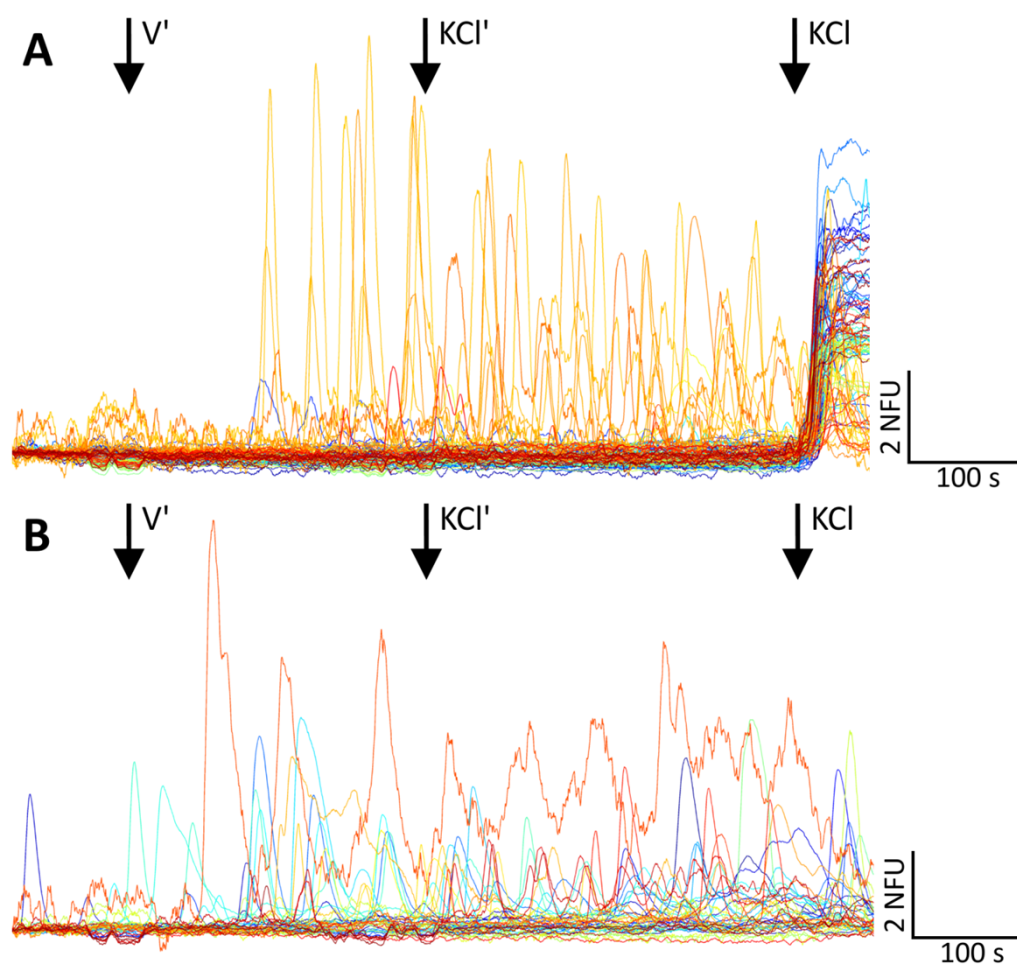
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Figure S1



**Figure S1:** Formatted data from a single calcium imaging experiment. Arrows ( $\downarrow$ ) indicate time points for injection of vehicle ( $V'$ ), indirect ( $KCl'$ ) and direct ( $KCl$ ) solutions. (A) Representative traces from over 100 signals that were identified as neuronal in origin due to their response to direct  $KCl$  solution. (B) Representative traces from 40 astrocytes that were identified by no sustained response to direct  $KCl$  solution. These signals were processed to extract the number of events that were greater than 0.5 normalised fluorescence units (NFU).

**Video S1:** Recording of calcium imaging during KCl' application to the Right culture chamber. The recording covers 100s of the experiment, at an increased frame rate; starting near the end of the vehicle treatment and finishing shortly after KCl' treatment. An abrupt activation of cells in the Right culture chamber is visible, at 3 s after the start of the video, coinciding with the KCl' application. Magnified views of two groups of cells (*a* and *b*) in the Left culture chamber show an immediate response to stimulation in the Right culture chamber.