

Sk-channel Agonist in Relation to Network Gamma-oscillations In-vitro

M.L. Raza¹, U. Heinemann¹

¹Neurophysiology, Charite Universitätmedizin-Berlin, Berlin, Germany

It is reported recently that sK-channels have implications in learning and memory processes and may serve as a potential target of memory impairment. Till now there is no in vitro data available on effect of sK-channel with respect to network oscillation that regulates consciousness based learning and memory tasks. In the present study we have test the effect of CyPPa on kainate-induced gamma oscillations.

For induction of gamma oscillations in acute hippocampal slices from adult rats bath application of kainic acid 100 nM is used. Once the gamma oscillations have been stabilized, CyPPa is added into kainte solution to test its effect at 20 and 100 μ M concentration.

CyPPa (100 μ M, n=6) blocked gamma oscillations in 25 ± 3 min, increased in peak power is observed within 15 ± 3 min of CyPPa application. Whereas, CyPPa (20 μ M, n=6) blocked gamma oscillations induced by kainate 100 nM in 38 ± 5 min. Further we have analyzed the effect of CyPPa on total peak power and power of dominant frequencies in bands ($p < 0.05$).

We may conclude the network activity is altered by sK-channel agosnit Cyppa and resulted in overall reduction of network oscillatory activity in hippocampus.