

# Effect of glutamate receptor phosphorylation by endogenous protein kinases on electrical activity of isolated postsynaptic densities of rat cortex and hippocampus

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Postsynaptic densities (PSDs) were isolated from rat brain cortex and hippocampus, purified and incorporated into giant (5-80  $\mu$ m in diameter) liposomes. Gigaohm seals were obtained with a patch-clamp pipette, and a giant liposome PSD-containing membrane patch, was excised and recorded. The PSD was always oriented in an inside-out configuration. This allowed receptor agonists or antagonists to be added from the interior of the recording pipette, and also the addition of different substances, such as ATP, calcium, calmodulin and others to the 'intracellular' side of the PSD, i.e. to the bath.  $\alpha$ -Amino-3-hydroxy-5-methylisoxazole propionic acid (AMPA) receptor agonists such as quisqualate or AMPA induced in the PSD a complex pattern of electrical activity, that was blocked by 10  $\mu$ M 6-cyano-7-nitroquinoxaline-2,3-dione (CNQX), but not by 2-aminophosphonovalerate (APV). The currents generated by 0.5-1  $\mu$ M quisqualate were increased by about 100% when the PSDs were phosphorylated. Similar find