The release of glutamate at a CA1 synapse only activates the AMPA receptors. The NMDA receptors are blocked by Magnesium ions (Mg2+) thus blocking the receptors integral Ca2+ channel. However if larger quantities of glutamate are released, thus stimulating AMPA receptors more strongly opens the Na+ channel, and an influx of Na+ ions depolarizes the postsynaptic membrane thus releasing the Mg2+ the NMDA receptors can now respond to the large amounts of Ca2+ admitting it in to the postsynaptic neuron. The large influx of Ca2+ at the NMDA receptors activates intracellular enzymes, proteins kinases, named CaMKII which then affects AMPA receptors in a few ways.

Activated CaMKII causes – more AMPA receptors to be produced, increased conductance of existing receptors of Na+ and K+ ions which increases the sensitivity of the synapse to released glutamate. Also a substance called CREB is activated by protein kinases.
Anatomical correlates

- *Inside cell*, β-amyloid alters tau proteins → disrupts transport of substances within cell → cell dies leaving **neurofibrillary tangles**

- *Outside cell*, β-amyloid combines with degenerating axons & dendrites to form **amyloid plaques** (impairs synaptic functioning)

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- Amyloid plaques and tangles particularly prevalent in structures involved in memory and complex cognitive functions

- Neural degeneration that they reflect underlies decline in AD