The N-methyl-D-aspartate receptor (also known as the NMDA receptor or NMDAR), a glutamate receptor, is the predominant molecular device for controlling synaptic plasticity and memory function.

The NMDAR is a specific type of ionotropic glutamate receptor. NMDA (N-methyl-D-aspartate) is the name of a selective agonist that binds to NMDA receptors but not to other glutamate receptors. Activation of NMDA receptors results in the opening of an ion channel that is nonselective to cations with an equilibrium potential near 0 mV. A property of the NMDA receptor is its voltage-dependent activation, a result of ion channel block by extracellular Mg2+ & Zn2+ ions. This allows the flow of Na+ and small amounts of Ca2+ ions into the cell and K+ out of the cell to be voltage-dependent.

Calcium flux through NMDARs is thought to be critical in synaptic plasticity, a cellular mechanism for learning and memory. The NMDA receptor is distinct in two ways: first, it is both ligand-gated and voltage-dependent; second, it requires co-activation by two ligands: glutamate and either D-serine or glycine.