Glutamate is the most prominent excitatory neurotransmitter in the vertebrate brain and is used by most synaptic connections in the cortex. Signal transduction on these neurons is mediated by ionotropic glutamate receptors, including the NMDA receptor family. With the development of molecular biological methods and the advent of genomics, genetic changes found in ionotropic glutamate receptors were tested, as well as substances that modulate their activity. Since a large number of genetic changes found, rodents have ceased to be a sufficiently robust system for some, for example, behavioural studies. In these types of studies, the model organism *Danio rerio* could replace rodents. The use of this model organism could thus expand knowledge about the evolution and physiology of glutamate receptors. This work aims to summarize the current knowledge about the use of *Dania rerio* in the research of glutamate receptors, especially NMDA type in the central nervous system. This work also focuses on the description of specific behavioural tests available for the analysis of these receptors.