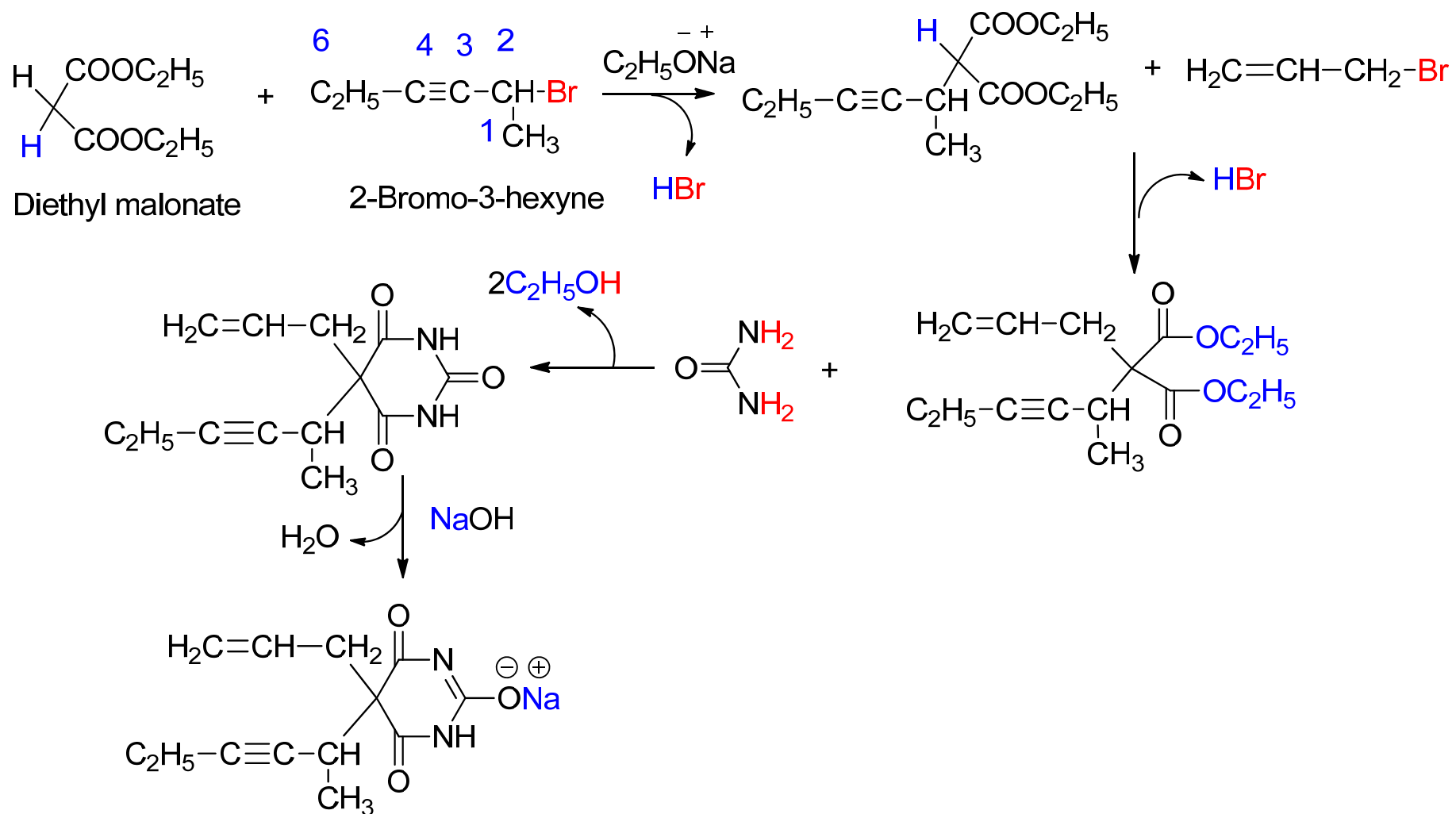


Methohexital Sodium



Mechanism of action of methohexital

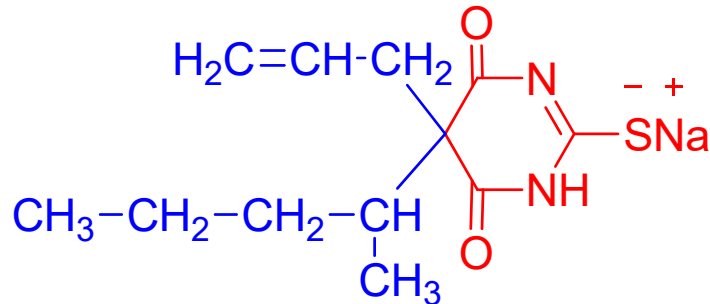
- ❖ It is believed that methohexital decreases the electrical nerve activity in the CNS that leads to general anesthetic action.
- ❖ Methohexital binds to **GABA-BZD receptors-Chloride ion channel** complex. This binding **increases affinity** of GABA for the GABA_A receptor.
- ❖ It leads to **increase in chloride ion conduction** via an increase in the frequency of the chloride channel opening. At higher dose, it directly increase conductance of Cl⁻ ion and **inhibit** calcium dependant **release of neurotransmitter**.

❖ In addition to above it also depresses glutamate-induced neuronal depolarization through AMPA receptors. At very high doses barbiturates depress Na^+ and K^+ ion channels also.

Uses:

It is primarily used to induce anesthesia. It is only used in hospital under strict supervision. It has been used to induce deep sedation for surgery and dental procedures.

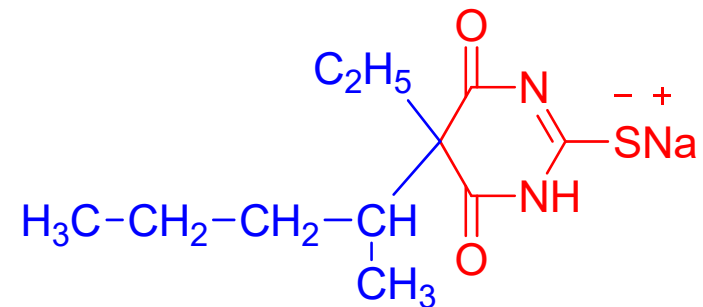
Thiamylal sodium



MOA: Similar to methohexital sodium.

Uses: It has sedative, hypnotic and anticonvulsant properties and is used as a short acting sedative. It is used primarily for induction of surgical anesthesia or as an anticonvulsant to counteract side effects from other anesthetics.

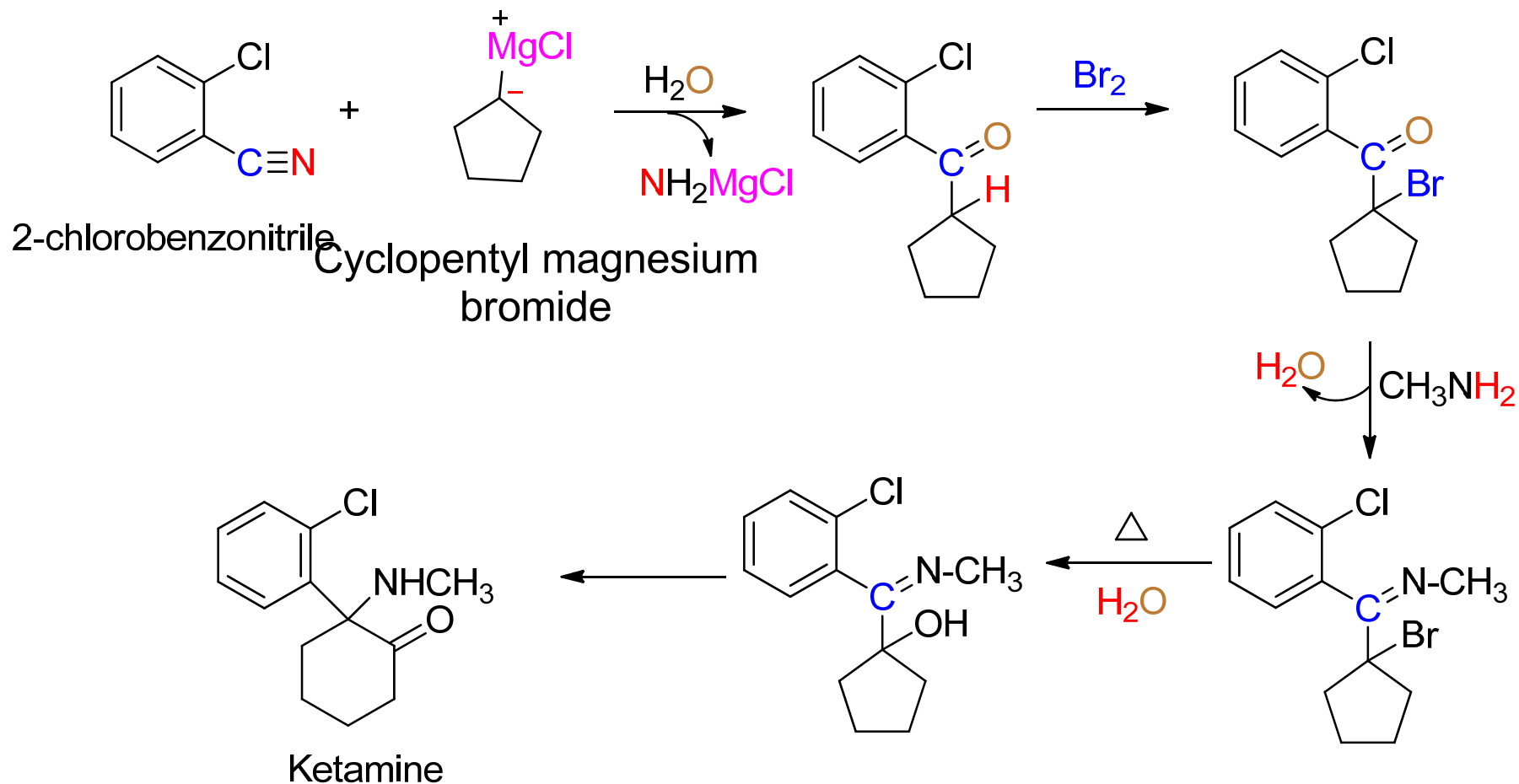
Thiopental Sodium



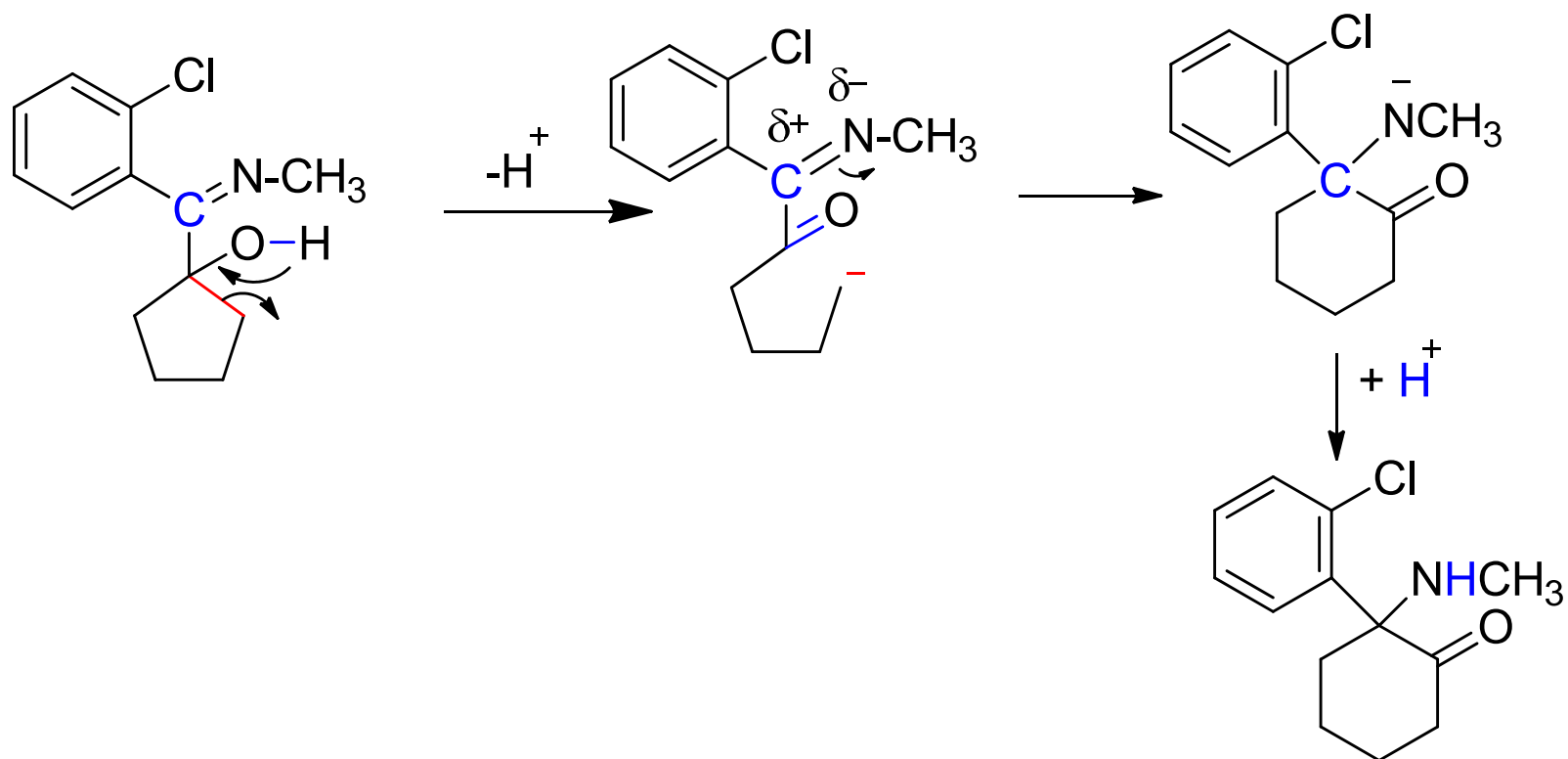
MOA: Similar to methohexital sodium.

Uses: Thiopental is an extremely short acting barbiturate that makes anesthesia pleasant and smooth for the patient. It has been used to induce deep sedation for surgery and dental procedure.

Ketamine Hydrochloride



Reaction mechanism for step-5



Mechanism of Action

- ❖ Ketamine show multiple therapeutic properties like **analgesic**, **anesthetic** and **sympathomimetic** effects by acting on different sites.
- ❖ N-methyl-D-aspartate (**NMDA**)-receptor antagonism is the most important neuropharmacological mechanism for the **analgesic** effects of ketamine.
- ❖ Effects on **opiate receptors** may contribute to the **analgesic** properties as well as to dysphoric reactions.
- ❖ **Sympathomimetic** properties are mediated by **enhanced** central and peripheral **monoaminergic** transmission.

❖ Inhibition of central and peripheral **cholinergic transmission** may contribute to the induction of **anaesthetic** state and hallucinations.

Uses:

Ketamine is a specific drug for non-inhalation anesthesia. It is used in **brief surgical procedures**. It is indicated as the sole anesthetic agent for diagnostic and surgical procedures.