The mesolimbic pathway, sometimes referred to as the reward pathway, is a dopaminergic pathway in the brain.

The pathway begins in the ventral tegmental area of the midbrain and connects to the nucleus accumbens. It is the most significant neural pathway in the brain in which changes occur in all known forms of addiction.

The following structures are considered to be a part of the mesolimbic pathway:

Ventral tegmental area

The ventral tegmental area (VTA) is a part of the midbrain. It consists of dopaminergic, GABAergic, and glutamatergic neurons.

The VTA communicates with the nucleus accumbens via the medial forebrain bundle. Nucleus accumbens

The nucleus accumbens is found in the ventral striatum and is composed of medium spiny neurons.

It is subdivided into limbic and motor subregions known as the shell and core.

The medium spiny neurons receive input from both the dopaminergic neurons of the VTA and the glutamatergic neurons of the hippocampus, amygdala, and medial prefrontal cortex. When they are activated by these inputs, the medium spiny neurons' projections release GABA onto the ventral pallidum.

The release of dopamine in this structure drives the mesolimbic system.

Clinical significance

This pathway plays a central role in neurobiology of addiction.

It is also implicated in schizophrenia and depression.

Drug addiction is defined as the compulsive use of drugs that are rewarding (i.e., activate this pathway), despite adverse consequences.

Addiction, schizophrenia, and depression all involve distinct structural changes with in this pathway.

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