

WHAT CAN ANIMAL RESEARCH TEACH US ABOUT DEPRESSION AND THE TREATMENT OF MENTAL DISORDERS?

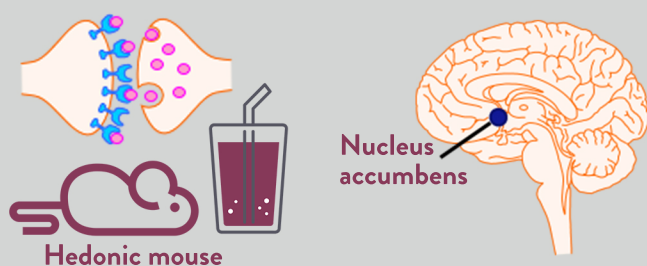
- 20% of Americans will suffer at least one depressive episode in their lifetimes.
- While rodents may not experience the complex emotions of depression and guilt, they do exhibit other hallmarks like impaired memory and lack of motivation.
- Animal research has enhanced our understanding of biological changes underlying depression. It has also led to treatments to combat symptoms.



ALLEVIATING ANHEDONIA

Depression is marked by reduced interest in previously pleasurable stimuli or activities, also known as **anhedonia**.

Rodent studies have revealed that reductions in the number of one type of **dopamine receptor (D1)** in neurons of the **nucleus accumbens**, a brain region important for reward and motivation, are reduced in anhedonia.



Anhedonic mice have fewer D1 brain receptors and have less preference for sweets.

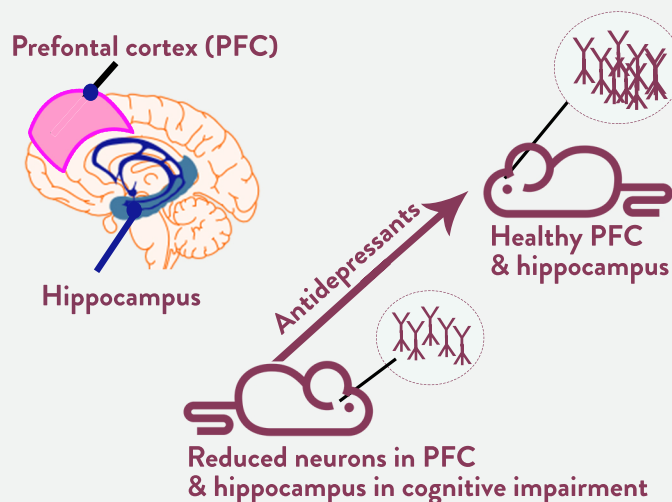


Efforts are underway to reverse changes in the dopamine system and alleviate anhedonia.

BOOSTING MEMORY AND COGNITIVE FUNCTION

Impaired cognitive function and memory often accompany depression, which is associated with loss of neurons and their connections in the **prefrontal cortex (PFC)** and hippocampus.

Work with rodents has shown that supporting the health of surviving neurons in the PFC and the use of antidepressants increases the creation of new neurons in the hippocampus.



Research is underway to develop improved methods for assisting those with cognitive impairments and depression.

BIOMEDICAL RESEARCH IS HIGHLY REGULATED

- ✓ All research involving animals must first be approved by an ethics committee called an Institutional Animal Care and Use Committee.
- ✓ Animals involved in research are cared for by veterinarians and other well-trained specialists.
- ✓ Laws, regulations and institutional policies are in place to safeguard the welfare of research animals.



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