

BIOCHEMICAL BASES OF SELECTIVE SEROTONIN REUPTAKE INHIBITORS EFFECTS

Abdelmounaaim Kabbaj

Scientific supervisor: Kravchenko G. B.

National University of Pharmacy, Kharkiv, Ukraine

abdelmounaaim@hotmail.fr

Introduction. The last years statistics reveals a steady increase in the number of patients suffering from depression. Depression development leads structural, morphological and mediator changes, which are mediated by cerebrovascular disorders, traumatic, infectious or toxic effects, as well as provoked by long-term intake of drugs with maintenance therapy. Today, selective serotonin reuptake inhibitors (SSRIs) are most often prescribed as antidepressants.

Aim. The aim of our investigation was to find and reviewed informational scientific resources considering the mechanisms of SSRIs action.

Materials and methods. Information resources search was conducted in PubMed and ScienceDirect textual databases of medical and biological publications through November 2021. The following search terms were used: serotonin, serotonin receptors, SSRIs.

Results and discussion. Serotonin (5-hydroxytryptamine) is a neurotransmitter, which is synthesized from essential amino acid tryptophan. There are seven types of serotonin receptors in brain pointed 5HT1 and with the help of numbers and letters (i.e. 5-HT1A, 5-HT1B, 5-HT4, and 5-HT7). Serotonin is involved in the regulation of emotional behavior, motor activity, sleep and eating behavior. It is believed that insufficient activity of the serotonergic neurotransmitter system underlies anxiety and depression. The greatest pathogenetic significance in the correction of emotional disorders and the development of an antidepressant effect is the serotonin binding to 5-HT1 receptors. The generation of excitatory postsynaptic potential in 5-HT2 and 5-HT3 receptors is accompanied by the development of adverse effects in the form of sleep disturbances, agitation, nausea, and dizziness. Generally, it is thought that SSRIs work by increasing serotonin levels in the brain via tree sequential effects. At the first stage, inhibition of serotonin reuptake occurs in both the central and peripheral nervous systems. At the second stage, the blocking function of 5-HT1A receptors located in the somatodendritic part of the midbrain neurons is disrupted. In the third stage, serotonergic neurons are disinhibited and serotonin is released from axons leading to various structures in the brain.

Conclusions. Thus, SSRI antidepressants, which act by increasing levels of serotonin within the brain, are currently some of the most commonly prescribed medications.

CRISPR/CAS9 – GENOME-EDITING TECHNOLOGY

Ait Assila Nour Alimane

Scientific supervisor: Kravchenko G. B.

National University of Pharmacy, Kharkiv, Ukraine

nourfrance97@gmail.com

Introduction. On October 7, 2020, the Nobel Prize in Chemistry was awarded to researchers Emmanuel Charpentier and Jennifer A. Dudney “for the method of genome editing”. The