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Ellis Chase
Belmont University, ellis.chase@pop.belmont.edu

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Advisor: Nikki Glenn, Ph.D.

The CRISPR-Cas 9 system is a process used to create mutations, insertions, or deletions within a desired gene. It can be used to create mutant organisms necessary to study the function and impact of a particular gene[1]. Cannabinoids are active chemicals found in cannabis, the most common of which being cannabinol (CBD)[2]. Cannabinoid receptors are an integral part of the endocannabinoid system, recognizing cannabinoid signals to promote physiological processes like pain sensation, memory, mood, and appetite[3]. Studying these cannabinoid receptors can provide insight into how cannabis can affect bodily processes.

Zebrafish are small translucent freshwater fish residing the minnow family, allowing for developing structures to be observed very easily. This optical transparency paired with the inexpensiveness and quick reproduction of zebrafish makes them a very good model system for research. Zebrafish share 70% similarity in their genome with humans. The zebrafish genome includes two cannabinoid receptor genes- cannabinoid receptor 1 (*cnr1*) and cannabinoid receptor 2 (*cnr2*)[5]. *cnr1* has been shown to play an important role in regulating aspects of brain function, including mood, anxiety, appetite, and memory, and locomotor activity within zebrafish[5].

The purpose of this study was to determine the developmental effects of *cnr1* within embryos of zebrafish, followed by toxicological and behavioral observations performed after their maturation to further this cause. The data obtained from this model could provide insight into the effects observed on human fetal development within a mother using cannabis medicinally; which is not completely understood.

Citations

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