Functioning of the endocannabinoid system in stress and anxiety in zebrafish larvae

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PROPOSITIONS

Accompanying the PhD thesis

"Functioning of the endocannabinoid system in stress and anxiety in zebrafish larvae"

1) Behavioral assays in zebrafish larvae are generally suitable for screening of cannabinoid receptor (Cnr) 1 agonists, which show profound effects in these assays (this thesis, Chapter 2 and 3).

2) Activation of Cnr1, and not Cnr2, results in anxiolytic effects in zebrafish larvae (this thesis, Chapter 2 and 3).

3) Cnr1 activation in the hypothalamus or other brain regions leads to an increase in cortisol production in zebrafish larvae (this thesis, Chapter 4).

4) Although zebrafish larvae contain a functional Cnr1, it is not sufficiently activated by endogenous cannabinoids (at least until 5 days post fertilization) to modulate their behavior or the cortisol response (this thesis, Chapter 2, 3 and 4).

5) Because zebrafish larvae display a low activity of the endogenous cannabinoid system (at least until 5 days post fertilization), they are an excellent model system for studying the effects of exogenous Cnr agonists (this thesis, Chapter 2, 3 and 4).

6) To properly interpret observations on zebrafish embryos and larvae, comparisons should be made with adult zebrafish.

7) The medicinal use of cannabis, or its commercial derivatives, should be discouraged, because scientific evidence of their efficacy is still weak (Cohen 2019).

8) The technique of synchronous analysis of behavior and brain activity in zebrafish larvae will become an important research tool for studying the link between physiology and behavioral biology (Vanwalleghem 2018).

9) The availability of two different endogenous ligands (AEA and 2-AG) for Cnrs allows for the spatial and temporal differentiation of Cnr activation, for example during the stress response (Morena 2016).

10) The development of drugs is based on science, but the development of medical care is lagging behind in this respect.

11) Gaining knowledge should make a scientist feel smaller, not bigger.

October 7, 2020

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