CANNABINOID-RECEPTORS MEDIATED REGULATION OF LONG-CHAIN POLY-UNSATURATED FATTY ACID (LC-PUFA) TRANSPORTER (MSFD2A) IN PLACENTAL AND BLOOD-BRAIN (BBB) BARRIERS.

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INTRODUCTION
Legalization of recreational marijuana raised issues regarding effects of exogenous cannabis in pregnancy. The cannabinoids family is comprised of 66 chemical products with the common structure of Cannabis sativa (Δ9Tetrahydrocannabinoid-THC), which binds to CB1R and CB2R main cannabinoid receptors. Exogenous cannabinoids are working through the mechanism of “kick-starting” the endogenous cannabinoid system (ECS). ECS are derivative of LC-PUFA. The LC-PUFA transporter- MSFD2A - is essential for the BBB integrity and placental syncytialization. Both receptors (CB1R and MSFD2A) are expressed in both placenta and fetal brain; however, their role in the regulation of brain and placenta functions remains to be elucidated.

OBJECTIVE
The aim of this study was to evaluate whether CB1R and CB2R are involved in the regulation of MSFD2A transporter expression in placenta and brain models.

MATERIALS AND METHODS
IN VITRO MODEL OF HUMAN BBB, BASED ON INDUCED PLURIPOTENT STEM CELLS (iPSCs).

RESULTS
MSFD2a mRNA expression in HUVEC cells, treated with CB1R antagonist (AM251) and CB2R agonist (JW015). Slight differences between treatment groups.

DISCUSSION
We demonstrated CB1R-dependent regulation of LC-PUFA transporter (MSFD2A) in BBB and CB2R-dependent regulation in the placental barrier.

CONCLUSIONS
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