



INTRODUCTION

- Cannabidiol (CBD) has been investigated in cardiovascular ailments.
 - Endothelial-to-Mesenchymal transition (EndoMT) could contribute to cardiac fibrosis and eventually heart failure (HF).
 - CBD also exhibited anti-fibrotic effect in our non-ischemic mouse model of HF.
 - We show that CBD inhibits EndoMT and also promotes the reverse process Mesenchymal-to-endothelial (MEndoT) transition *in vitro*.
- Hypothesis:** CBD administration will improve cardiac function by targeting anti-fibrotic mechanisms.

METHODS

HUVECs were used as an endothelial cell model. A combination of L-NAME and Ang-II was used as EndoMT inducing agents. EndoMT was characterized through immunofluorescence (IF) studies for endothelial (CD31) and mesenchymal (Vimentin) markers (*Krishnamoorthi MK et al., Front Pharmacol. 2022*). To evaluate the impact of CBD on EndoMT, CBD was added during the EndoMT induction process and IF studies were performed. Independently, CBD was added to EndoMT transitioned cells (after day 4 of EndoMT) and IF studies were performed at day 8.

RESULTS

Fig 1a: Inhibition of EndoMT

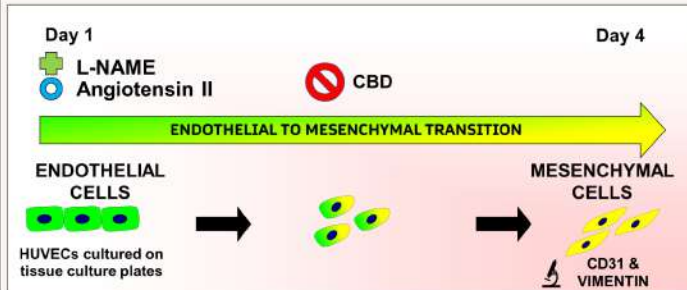
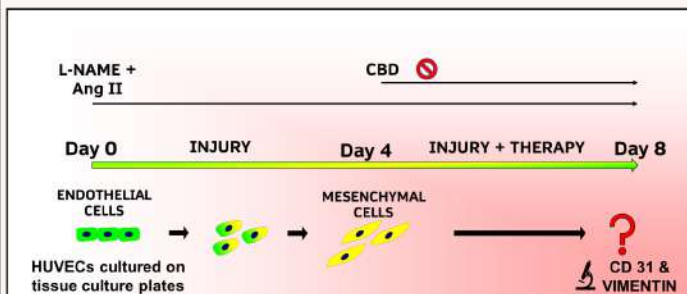


Fig 2a: Reversal of EndoMT



CONCLUSION

In conclusion, CBD not only inhibits EndoMT but also promotes the reverse process of MEndoT transition in an *in vitro* model. Further, CBD protects cardiac function and exhibits an anti-fibrotic effect, possibly mediated by EndoMT inhibition.

Fig. 1b: Endothelial cells on Day 4 from the experiment shown in Fig 1a. shows reduced Vimentin expression (Red color IF level) indicating that CBD inhibited *in vitro* EndoMT in a dose dependent manner.

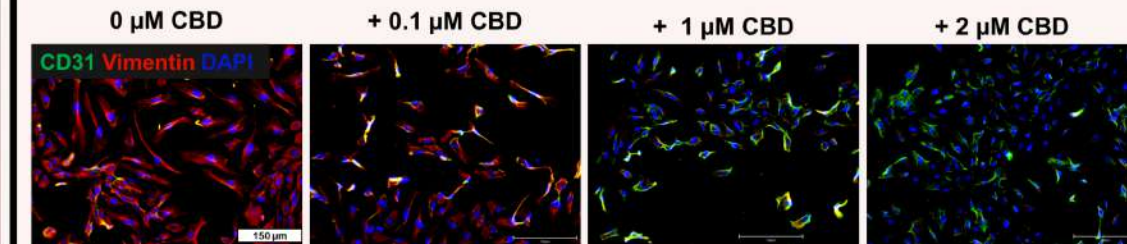
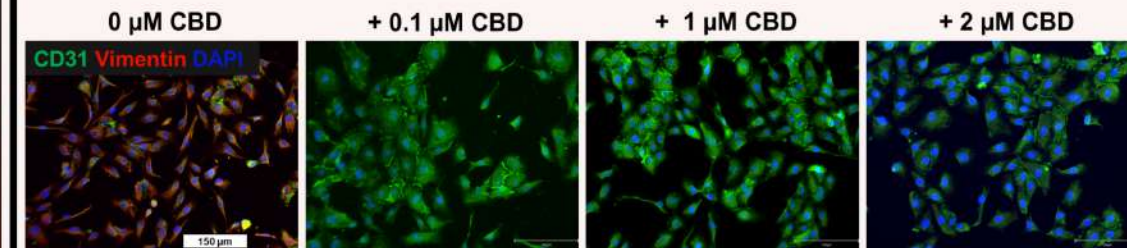


Fig. 2b: Endothelial cells on Day 8 from the experiment shown in Fig 2a. shows reduced Vimentin expression (Red color in IF). This suggests that CBD promoted reversal of *in vitro* EndoMT (compared to persistence of high Vimentin expression in controls- not shown here)



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