Effect of mesoangioblast extracellular vesicle on cell migration and vessel formation of human endothelial cells.

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The discovery that extracellular vesicles (EV) represent an important mediator of cell-to-cell communication has added a novel understanding to regenerative medicine. We investigated on the ability of isolated mouse mesoangioblast EV to have an effct on human endothelial cells (ECV304) to: **1.** modify the migration capability and **2.** induce the differentiation versus *capillary-like structures*. We first established that EV were able to be internalize into ECV304 after 24 h of incubation realising their content into cells. We first verified whether EV were able to modify positively the human ECV304 migration ability by wound healing assays. We have demonstrated that the addition of mesoangioblast EV to the growth medium of ECV304 increased their migration capability in a dose dependent manner. Moreover, we found out that ECV304, incubated on growth factor reduced matrigel, modulate either positively or negatively their ability to form *capillary-like structures* depending on different concentrations of EV addition, and the use of neutralizing antibodies against FGF-2 and VEGF suggests that they are not the only factors responsible for *capillary-like structures* formation. Furthermore, the transcriptome analysis of mesoangioblast EV showed six overrepresented transcripts related to angiogenesis process and at least other six transcripts were involved in actin cytoskeleton remodulation and cell migration. These findings let us to hypothesize that EV, might be used to change the destiny of other cells.