CDCs show a strong immunomodulatory activity and improve muscle physiology when systemically delivered.

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**SUMMARY**

Phenotypic analysis showed that CDCs have a low immunogenic expression profile. CDCs limited the in vitro proliferation of activated human CD4 and CD8 T lymphocytes.

**INTRODUCTION**

CAP-T102 Manufacturing Process

CAP-T102 is an allogeneic cell therapy product based on the isolation and expansion of Cardiosphere-Derived Cells (CDCs).

**Figure 1.** A) Expand-derived cells (EDCs) are produced from donor heart tissue and expanded to produce a master cell bank (MCB). B) Cardiospheres are formed from EDCs. C) CDCs are produced by culturing the cells obtained after washing the cardiospheres.

**CAP-T102 is Immunomodulatory and Regenerative**

The immunomodulatory and regenerative properties of CDCs have been shown effective in vitro and in vivo models.

**Figure 2.** CDC mechanism of action: CDC’s secreted EVs containing bioactive molecules able to regulate different response involved in tissue regeneration.

**Systemic Therapeutic Effects with IC Delivery in HOPE I**

**Figure 3.** Performance of the upper limb (UL) ECG test was used to measure the effects on skeletal muscle function in HOPE I. A) Test description showing shoulder, middle, and distal level tests. B) Results from middle and distal levels in patients treated with CDCs (red) and placebo (blue).

**Efficacy with IV Administration**

A dose-dependent improvement in exercise capacity (Fig. 6b) and isolated diaphragm muscle function (Fig. 6c) was observed 6 weeks after CDC treatment. Histological analysis of hearts reveal lower collagen deposition (Fig. 6d).

**BIODISTRIBUTION AND CLEARANCE**

Biodistribution of human CDCs was measured in mice using qPCR for human-specific Alu sequence. 10min and 24hr after CDC injection, most cells were found in the lungs (Fig. 7b). Less than 5% of cells present in the lungs at 24hr in SCID mice remained 1wk after administration. No significant amount of CDCs remained 3wk after injection (Fig. 7c).

**REFERENCES**