

Magic-F1 transgene cooperates with Pax 3 during early myogenesis to induce muscular hypertrophy

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Met-Activating Genetically Improved Chimeric Factor-1 (Magic-F1) is a human recombinant protein derived from hepatocyte growth factor/scatter factor (HGF/SF) and consists in two Met-binding domains repeated in tandem and separated by an artificial linker. It has a reduced affinity for Met and, in contrast to HGF, it elicits activation of the AKT but not the ERK signaling pathway. We recently showed that Magic-F1 induces muscle cell hypertrophy but not progenitor cell proliferation, both in vitro and in vivo where a transgenic mouse express the recombinant protein exclusively in skeletal muscle tissue [1]. Here, we examined the temporal and spatial expression pattern of Magic-F1 in comparison with Pax3 (paired box gene 3) transcription factor during embryogenesis [2]. Ranging from 9.5 to 17.5 dpc (days post coitum) mouse embryos were analyzed by in situ hybridization using whole mounts during early stages of development (9.5-10.5-11.5 dpc) and cryostat sections for later stages (11.5-13.5-15.5-17.5 dpc). We found that Magic-F1 is expressed in developing organs and tissues of mesenchymal origin, where Pax3 signal appears to be downregulated respect to the wt embryos. These data suggest that Magic-F1 could be responsible of muscular hypertrophy, cooperating with Pax3 signal pathway in skeletal muscle precursor cells.

References

- [1] Cassano et al. (2008) Magic-factor 1, a partial agonist of Met, induces muscle hypertrophy by protecting myogenic progenitors from apoptosis. *PLoS One* 16; 3(9): e3223.
- [2] Ronzoni et al. (2011) Localization of Magic-F1 transgene, involved in muscular hypertrophy, during early myogenesis. *J Biomed Biotechnol.* 2011:492075.

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