Ottava Giornata della Ricerca della Svizzera Italiana
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Modulo per la sottomissione abstract ricerca di LABORATORIO

Titolo (massimo **15 parole**)

Role of SDF-1α/CXCR4 axis in the homing and uptake of Cardiac Progenitor Cells derived Exosomes by damaged cardiomyocytes

Autori (cognome e iniziali, es: Grassi L.)

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Testo (massimo **250 parole**, preferibilmente in italiano (accettato anche in inglese), suddiviso in Introduzione, ***Metodi***, ***Risultati***, ***Conclusioni*** e ***Finanziamento***

Introduction: Within hours after acute MI, the expression of stromal cell-derived factor-1α (SDF-1α) is upregulated in the heart, providing a signal to circulating stem cells that express the chemokine receptor CXCR4 for homing and engraftment. Whether the axis SDF-1α/CXCR4 may also modulate the effectiveness and cellular uptake of exosomes (Exo), secreted from cardiac progenitor cells (Exo-CPC) is unknown.

Methods: CPC were transfected with vector overexpressing CXCR4 or null vector (pCDNA3.1) as a control. To track Exo, c. elegans species specific Cel-miR-39 was overexpressed in human CPC. Exo containing Cel-miR-39 and CXCR4 (ExoCR4-Cel39) or control Exo (ExoCTR-Cel39) were isolated and incubated with cardiomyocytes (CM) exposed to staurosporin for 12 hrs. Ex-vivo hearts were perfused in a Langendorff system and ExoCR4-Cel39 and ExoCTR-Cel39 were added to the perfusate for 2 hours.

Results: In-vitro cel-miR-39 expression levels were significantly higher in CM incubated with ExoCR4-Cel39 compared to ExoCTR-Cel39, thus showing that overexpression of CXCR4 receptor improves the uptake of Exo by CM. Consistent with this in a Langendorff system, Cel-miR-39 levels were higher in CM from hearts perfused with ExoCR4-Cel39 -containing perfusates, as compared with ExoCTR-Cel39. In-vitro calcein-AM staining showed that the number of viable cells was significantly improved in ExoCR4 staurosporin-treated CM (CM + ExoCR4 group, 98% ± 1,6) as compared to ExoCTR treated CM (CM + ExoCTR group, 81% ± 3,5; $p<0.05$).

Conclusion: This study reveals a novel role of Exo derived from CPC overexpressing CXCR4 and highlights a new mechanism of intercellular mediation of progenitor cells for MI treatment.

Visto superiore (prego indicare Nome e Cognome del superiore)

Lucio Barile

Criteri per sottomissione Abstract:
NO Case report
NO Abstract senza nessun risultato
VISTO da un superiore

Invio Abstract