90P-LC&SC

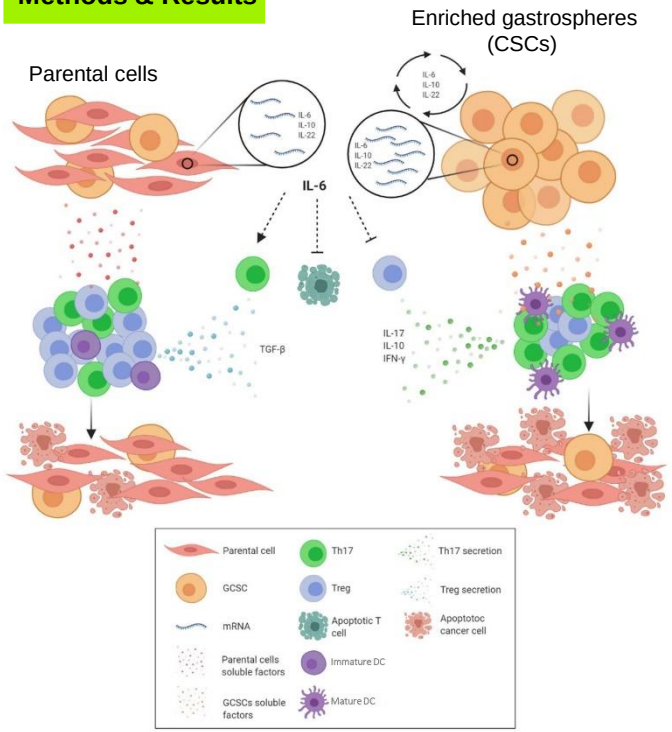
Gastro-sphere Effect on Th17/Treg Diagram: Help or Hindrance?

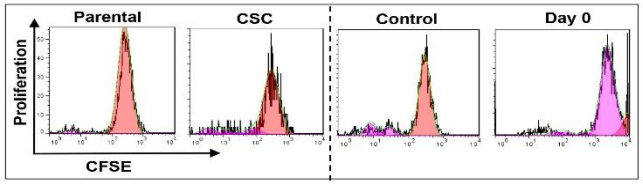
Alaleh Rezalotfi[1,2], Ghasem Solgi[2*], Marzieh Ebrahimi[1*]
[1]Stem Cells and Developmental Biology, Royan Institute for Stem Cell Biology and Technology, Tehran, Iran
[2]Department of Immunology, Hamadan University of Medical Sciences, Hamadan, Iran
*Corresponding Authors, Mailing Address: mebrahimi@royaninstitute.org

Introduction

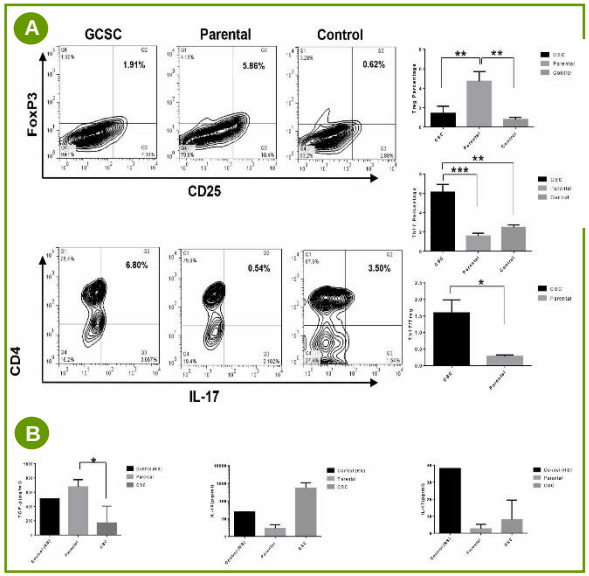
Gastro-spheres with a capacity of forming tumors are believed to be responsible for an escape from immune-mediated destruction. The adaptive immune system components including Th17 and Treg cells play a major role in gastric cancer, although their interaction with gastrospheres remains elusive.

Methods & Results

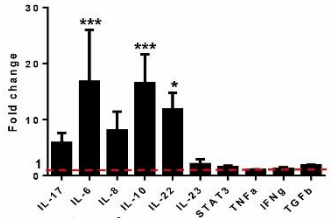




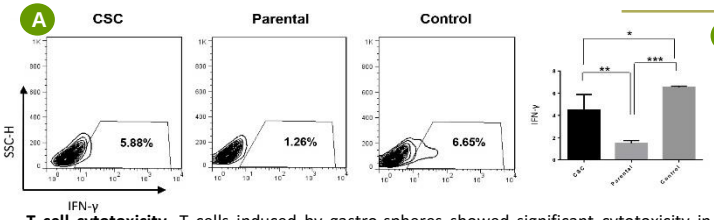
T cell expansion analysis. The flow cytometry analysis revealed a decrease in the expansion of T cells in the group treated with parental cells' supernatant.



T cell analysis for Treg and Th17. (A) Immunophenotyping showed an increase in the percentage of Th17 and an enhanced Th17 to Treg balance in T cells treated with CSCs, despite parental cells' supernatant. **(B)** There were also increases in the concentration of IL-10 and IL-17 but a decrease in TGF-β in supernatant derived from T cells treated with CSCs's supernatant



Gene expression of IL-17, IL-6, IL-8, IL-10, IL-22, IL-23, STAT3, TNF-α, and TGF-β in gastric CSCs compare to parental cells. quantitative gene expression showed an increase in expression of IL-6, IL-10 and, IL-22 in gastro-spheres compared to parental cells that are involved in the induction of Th17 cells.



T cell cytotoxicity. T cells induced by gastro-spheres showed significant cytotoxicity in terms of **(A)** producing IFN-γ and **(B)** death induction in target cells.

Conclusion

Our study showed that gastro-spheres supernatant can induce Th17 and an enhanced Th17 to Treg diagram compared to parental cells. Our study also suggests that T cells induced by gastro-spheres show tumor-suppressive potency. So, gastric cancer stem cells may be considered as an activator of T cells against the other tumor cells.

Data are mean±SD of three independent experiments. *, P<0.05, **P<0.01, ***P<0.001