J Genet Syndr Gene Ther 2018, Volume 9
DOI: 10.4172/2157-7412-C1-019

Retrodifferentiation in the treatment of a rare condition: Acquired aplastic anaemia

Ilham Abuljadayel
TriStem Corp Ltd, UK

Stem cells can offer cures to treat many rare diseases, which can be used to correct a plethora of genetic conditions or replenish damaged tissue and cells in acquired disorders, in allogeneic or autologous manners, respectively. The limiting factors for such applications are; the availability and quantity of the stem cell source, the identification of a suitable histocompatible donor and the aggressive nature of ablation therapies that enable engraftment. On the other hand, retrodifferentiation technology which is similar to epimorphic regeneration, albeit, occurs ex vivo, offers a rapid additional source of stem cells with high efficiency. The process involves dedifferentiation/retrodifferentiation of mature adult cells such as peripheral leukocytes into a heterogeneous population of stem cells belonging to a give tissue. Retrodifferentiation procedure produces unlimited supply of stem cells from patient or donor blood which have been shown to be safe as well as capable of long term engraftment. Furthermore, the autologous retrodifferentiated stem cells have been shown to engraft human bone marrow in the absence of ablation, in a rare disease such as acquired aplastic anaemia. This presentation will focus on the production of multipotent stem cells prepared from mononuclear cells and its application in the treatment of aplastic anaemia, a rare condition if left untreated lead to rapid morbidity.

iabuljadayel@tristemcorp.com