Progress in Biophysics and Molecular Biology, vol. 113(2), 2013, pages 295-298

Comparative study on human and bovine AT-SC isolation methods

Abstract

Mammalian adipose tissue derived stem cells (AT-SC) have a tremendous potential in regenerative medicine for tissue engineering and somatic nuclear transfer (SNT). The isolation methods of human and bovine adipose tissue derived stem cells are compared in this paper to determine the feasibility and optimum method of isolation. The optimum isolation method will reduce the processing time, efforts and money as isolation is the first crucial and important step in stem cells research. Human abdominal subcutaneous adipose tissue and bovine abdominal subcutaneous adipose tissue are digested in three collagenase type 1 concentration 0.075%, 0.3% and 0.6% agitated at 1h and 2h under 37°C in 5% CO2incubator. The cultures are then morphologically characterised. Human adipose tissue stem cells are found to be best isolated using abdominal subcutaneous depot, using 0.075% collagenase type 1 agitated at 1h under 37°C in CO2 incubator. While bovine adipose tissue derived stem cells are best isolated using abdominal subcutaneous depot, using 0.6% collagenase type 1 agitated at 2h under 37°C in CO2 incubator.

Keywords

Abdominal subcutaneous adipose tissue; Bovine; Human; Stem cell isolation