

## Highly potent stem cells from full-term amniotic fluid: a realistic perspective

### ABSTRACT

Amniotic fluid (AF) is now known to harbor highly potent stem cells, making it an excellent source for cell therapy. However, most of the stem cells isolated are from AF of mid-term pregnancies in which the collection procedure involves an invasive technique termed amniocentesis. This has limited the access in getting the fluid as the technique imposes certain level of risks to the mother as well as to the fetus. Alternatively, getting AF from full-term pregnancies or during deliveries would be a better resolution. Unfortunately, very few studies have isolated stem cells from AF at this stage of gestation, the fluid that is merely discarded during delivery. The question remains whether full-term AF harbors stem cells of similar potency as of the stem cells of mid-term AF. Here, we aim to review the prospect of having this type of stem cells by first looking at the origin and contents of AF particularly during different gestation period. We will then discuss the possibility that the AF, at full term, contains a population of highly potent stem cells. These stem cells are distinct from, and probably more potent than the AF mesenchymal stem cells (AF-MSCs) isolated from full-term AF. By comparing the studies on stem cells isolated from mid-term versus full-term AF from various species, we intend to address the prospect of having highly potent amniotic fluid stem cells from AF of full-term pregnancies in human and animals.

**Keyword:** Full-term amniotic fluid; Amniotic fluid stem cells; Amniotic fluid mesenchymal stem cells; Pluripotent