

## **Rat full term amniotic fluid harbors highly potent stem cells**

### **ABSTRACT**

Amniotic fluid stem cells (AFSCs) are commonly isolated from mid-term amniotic fluid (AF) of animals and human collected via an invasive technique, amniocentesis. Alternatively, AFSCs could be collected at full-term. However, it is unclear whether AFSCs are present in the AF at full term. Here, we aimed to isolate and characterize stem cells isolated from AF of full term pregnant rats. Three stem cell lines have been established following immunoselection against the stem cell marker, c-kit. Two of the new lines expressed multiple markers of pluripotency until more than passage 90. Further, they spontaneously differentiated into derivatives of the three primary germ layers through the formation of good quality embryoid bodies (EBs), and can be directly differentiated into neural lineage. Their strong stemness and potent neurogenic properties highlight the presence of highly potent stem cells in AF of full-term pregnancies, which could serve as a potential source of stem cells for regenerative medicine.

**Keyword:** Amniotic fluid stem cells (AFSCs); Broad multipotent stem cells; Embryoid bodies; Full term amniotic fluid; Neurogenic potential; Pluripotency test; Potentially pluripotent