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# Amniotic fluid as a rich source of mesenchymal stromal cells for transplantation therapy.

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## Source

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## Abstract

Stem cells isolated from amniotic fluid are known to be able to differentiate into different cells types, thus being considered as a powerful tool for cellular therapy of different human diseases. In the last 4 years, amniotic fluid-derived stem (AFS) cells have been shown to express embryonic and adult stem cell markers. These cells can be considered an intermediate stage between embryonic stem cells and adult stem cells. AFS cells can give rise to adipogenic, osteogenic, myogenic, endothelial, neurogenic, and hepatic lineages, inclusive of all embryonic germ layers. AFS cells have a high renewal capacity and can be expanded for over 250 doublings without any detectable loss of chromosomal telomere length. Taken together, all these data provide evidence that amniotic fluid represents a new and very promising source of stem cells for research, as well as clinical applications. Certainly stem cells from amniotic fluid will be useful both for a customized cell supply for newly born children and for banking cells to be used for therapeutic cell transplantation in immunologically matched recipients. Further investigations are also warranted to fully explore the amniotic cells' potential for adult human disorders.

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