Human placenta, besides playing a critical and fundamental role in fetal development, nutrition and tolerance, represents a significant source of multipotent stem and progenitor cells. Four regions of the fetal placenta can be distinguished: amniotic epithelial, amniotic mesenchymal, chorionic mesenchymal and chorionic trophoblastic. From these regions, the following cell populations are isolated:

- Human Amniotic Epithelial Cells (hAEC)
- Human Chorionic Mesenchymal Stem Cells (hCMSC)

In addition, AllCells can isolate the following cell population from human amniocentesis:

- Human Amniotic Fluid Stem Cells (hAFSC)

**Research Applications:**

- Transplantation Studies
- Multilineage Differentiation
- Toxicity
- Tissue Engineering
- Study of Choronic Blood Disorders

For more information on other related human primary cells, please visit our website at [www.allcells.com](http://www.allcells.com)
Helping You Discover $1 \times 10^6$ Cells at a Time

**Human Amniotic Epithelial Cells (hAEC)**

These cells are isolated from the surface layer of the amniotic membrane of fresh placentas. hAEC cells retain embryonic stem cell like characteristics and express CD117 and SSEA-3 and 4. Additionally, they also express the molecular markers of pluripotent stem cells including Nanog, Oct-4, and Sox-2. These cells are useful for tissue differentiation of all three germ layers. Some examples of tissue differentiation applications include conversion into pancreatic islets, hepatocytes, cardiomyocytes and neuronal cells.

**Human Chorionic Mesenchymal Stem Cells (hCMSC)**

hCMSC are derived from fresh chorion following tissue dissociation and removal of the trophoblastic layer. The hCMSC form fibroblastic colony forming units (CFU-F) and readily adhere to tissue culture plastic. Additionally, these cells proliferate well in culture and maintain their stem cell characteristics beyond passage 10. These cells also have osteogenic, adipogenic, chondrogenic, endothelial and neurogenic potential for differentiation under the appropriate culture conditions.\(^1\)

This cell line is positive for CD90, CD73, CD105 and negative for CD45, CD34, CD14 and HLA-DR by flow cytometric analysis.

**Human Amniotic Fluid Stem Cells (hAFSC)**

hAFSC are obtained from human amniocentesis specimens and represent about 1% of the cells found in amniotic fluid. These rare cells are slow to proliferate and can be expanded for over 250 passages without senescence or telomere shortening.

hAFSC can be directed into a wide range of cell types including cells of the adipogenic, osteogenic, myogenic, endothelial, neuronal and hepatic lineages.

These cells express the embryonic stem cells markers such as Oct-4 and SSEA-4, as well as CD29, CD44, CD73, CD90 and CD105.


**Ordering Information**

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</table>

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