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mRNAs and miRNAs profiling of Mesenchymal Stem Cells derived from amniotic fluid and skin

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Mesenchymal Stem Cells (MSCs) may be isolated from different adult sources and even if the minimal criteria for defining MSCs have been reported, the scientific question about the potential distinctions among MSCs derived from different sources is still opened. In particular, it is debated if MSCs of different origin have the same grade of stemness or if the source affects their undifferentiated status. Here we report not only the isolation and the traditional characterization of MSCs derived from amniotic fluid (AF-MSCs) [1] and skin (S-MSCs) [2], but also a molecular characterization based on mRNAs and miRNAs profiling. Our results show that even if both AF- and S-MSCs are regulated by the same pathways (such as Wnt, MAPK and TGF-β), there is a fine and different control of them as suggested by altered levels of expression of some member of these pathways. In conclusion, it will be necessary to improve the knowledge about the role of each dysregulated miRs/gene because, actually, these differences may strengthen the question about the importance of tissue origin.

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References

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Key words

MSCs, skin, amniotic fluid, mRNAs, miRNAs, profiling.