

## **HIGHLIGHT THE NEED FOR EVIDENCE ABOUT AMNIOTIC STEM CELL CLAIMS**

In 2007, a highly publicized paper was published in the first tier scientific journal, Nature Biotechnology. The authors described the derivation of amniotic fluid-derived stem (AFS) cells<sup>1</sup>. The authors presented evidence that AFS cells differentiate into several cell types, including neurons. The impact of these claims was far reaching since AFS cells could be a resource for cell therapy without the ethical challenges of using embryonic stem cells. In particular, cell therapy for neurodegenerative diseases such as Parkinson's disease and Huntington's disease require a source of transplantable neurons<sup>2</sup>. Now correspondence has been published by the same journal, which questions the robustness of the experimental findings presented<sup>3</sup>. This important decision by the editors of Nature Biotechnology to publish correspondence that challenges high impact findings strengthens the basis of stem cell research. Indeed, discourse is an essential part of the scientific progress<sup>4,5</sup>. The correspondence by Toselli et al. draws upon their experience and specifically addresses multiple aspects of the description of neuronal differentiation by AFS cells<sup>3</sup>. We hope that De Coppi et al. are able to address the concerns raised and provide further evidence in support of their initial claims.

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### References

1. De Coppi, P. et al. Isolation of amniotic stem cell lines with potential for therapy. Nat Biotechnol 25, 100-106 (2007).
2. Isacson, O. The production and use of cells as therapeutic agents in neurodegenerative diseases. Lancet Neurol 2, 417-424 (2003).
3. Toselli, M., Cerbai, E., Rossi, F. & Cattaneo, E. Do amniotic-fluid derived stem cells differentiate into neurons in vitro? Nat Biotechnol 26 (2008).
4. Hwang, W.S. et al. Patient-specific embryonic stem cells derived from human SCNT blastocysts. Science 308, 1777-1783 (2005).
5. Kennedy, D. Editorial expression of concern. Science 311, 36 (2006).