

# Myriad applications of dental pulp stem cells

## Inúmeras aplicações de células-tronco da polpa dentária

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Dear Editor,

I read the article “Amniotic membrane as a biological scaffold for dental pulp stem cell transplantation in ocular surface reconstruction” by Monteiro et al. with great interest<sup>(1)</sup>. The potential applications of dental pulp stem cells (DPSCs) are limitless-especially regarding corneal regeneration. The study demonstrated that, in the presence of amniotic membrane (AM), the tendency of DPSCs to differentiate is reduced, creating a potential source for eye-related cell therapies. The ease of access and fewer ethical hurdles for using DPSCs has made them very popular in the field of regenerative medicine. Previously, we demonstrated the differentiation potential of DPSCs toward neuron-like cells-especially dopaminergic-like cells<sup>(2)</sup> and hepatocyte-like cells<sup>(3)</sup> as well as their immunomodulatory behaviors and paracrine effects<sup>(4)</sup>. It is indeed interesting to see the myriad of application avenues for this cell type despite their origin from such a small amount of tissue. As an advocate of DPSCs, I hope to see them applied for cell therapy one fine day.

I agree with the author’s point of view that the use of autologous stem cells relieves us from graft rejection; however, in some circumstances, there is no option but to incorporate allogeneic stem cells with immunosuppressive drugs. Although AM seems to be efficient for promoting the growth of DPSCs, there is a risk of HIV, hepatitis, and other viral infections if the cells are not

selected carefully. By targeting genes which are responsible in eliciting immune reactions via gene-editing technology<sup>(5)</sup>, I hope that it will be possible to address this issue and put DPSCs into practice.

To conclude, studies exploring the full potential of DPSCs should be supported by the global community of scientists. By working together, we will be able to translate our findings from bench to bedside.

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