

Correspondence

Induced pluripotent stem cells: A new futuristic era towards orodental disorders

Sir,

Apropos of an article on stem cell therapy¹ published last year, I would like to add some more information about the use of this therapy in orodental disorders. It is believed that induced pluripotent stem cells (iPSC) might demonstrate the potential for alleviating incurable diseases and aiding organ transplantation². The first iPSCs generation was reported by Takahashi and Yamanaka³ in 2006. They generated the iPSCs through simultaneous overexpression of a group of transcription factors using cell lines derived from mice. Initially the concept of utilizing iPSCs technology to model disease was mostly emphasized in neural degenerative diseases, which was then extended to other genetic disorders including immune system, muscular, blood, pancreas, skin, bone marrow, liver, lung, retinal, premature ageing, *etc*³. However, the concept of utilizing iPSC technology is still in its infancy for orodental disorders and diseases. Chronic degenerative dental diseases are very common in human populations and represent a major problem for public health. The iPSC technology could prove a boon for treating orodental disorders in coming future. Specific examples that are well documented include ectodermal dysplasia with dental manifestations of oligodontia and conical shaped teeth and cleidocranial dysplasia with multiple supernumerary and unerupted teeth^{4,5}. Current research points to a substantially higher relative risk of infant mortality among orodental disorders such as oral cleft cases in developing countries. Additional research is essential to determine the sources of these raised infant mortality rates and possible interventions to decrease them⁶. Possibly, iPSCs possess the potential for treating such genetic orodental disorders, confining the availability of suitable disease-specific iPSCs from the diseased person which are able to multiply,

cooperate and reform the missing or diseased part. The regeneration of orodental tissues is dependent on factors such as appropriate signals, cells, blood supply, and scaffold that are needed to target the tissue at the site of defect⁷. iPSCs may become the most powerful therapeutic tools for achieving these factors. It is hoped that the research being done in the field of iPSCs will provide solutions in overcoming orodental disorders on a large scale worldwide.

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