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Letter to Editor

Response: MicroRNA-induced pluripotent stem cells

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Dear Editor,

We wish to thank Drs Tan Geok Chin and Nick J. Dibb for their comments on our review of induced pluripotent stem cells (iPSC) derivation and their potential applications in research and therapy.[1]

MicroRNAs (miRNAs) are small, non-coding RNAs that induce gene silencing through mRNA degradation or translational repression. The ability of miRNAs to interact with pluripotency machinery in human embryonic stem cells[2,3] opened up a new approach in the reprogramming of somatic cells as commented by Drs Tan and Dibb.

The mir-302 cluster, highlighted by Drs Tan and Dibb, is one cluster of miRNAs that is actively studied for its reprogramming potential. We also acknowledged the use of mir-302 in reprogramming under non-DNA based reprogramming methods in our review article. In addition to mir-302, we also included mir-200 and mir-369 clusters of miRNAs that have been successfully used in reprogramming.[3] However, we are aware that the list is not limited to these three clusters of miRNAs only and other miRNA clusters, capable of somatic cell reprogramming, are being actively identified as well.

In conclusion, we concur with Drs Tan and Dibb that microRNA manipulation could potentially be another valuable approach in reprogramming. The usage of microRNAs, directly or in combination with other established reprogramming methods, to reprogramme somatic cells warrants a comprehensive review on its own to better inform stem cell researchers on the potential of this approach.

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