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EXPANSION OF CD34 HEMATOPOIETIC STEM CELLS: PROGRESS AND CHALLENGES

Nareshwaran Gnanasegaran*

Institute of Molecular and Cell Biology (IMCB), Agency of Science, Technology and Research (A*STAR)

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*Corresponding author
Email:
ketua_restoratif@um.edu.my

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SUMMARY

Despite the advancement of technology in regenerative medicine, the need for blood progenitors has been ever increasing since past the decades. It has been reported that over 90 million blood transfusions are carried out worldwide each year; thereby demanding for alternative sources to donor-derived blood. Allogeneic transplantation may seem as a potential solution but the limited number of hematopoietic stem and progenitor cells (HSPCs) in sources such as bone marrow and umbilical cord may deemed insufficient for transplantation purposes. As such, additional manipulation on top of *ex vivo* expansion of progenitor cells are required to address this setback. In this session, we shall look into the potential of co-culture technique to manipulate the growth of hematopoietic progenitor stem cells, especially those which carry CD34 antigens. The ideal exposure of progenitor cells in optimized culture media along with the feeder cells can provide compounding effect in terms of proliferative behavior. The potential application of such expanded cells are limitless considering the discovery of induced pluripotent stem cells as well as gene editing techniques, in which blood disorders can be extensively studied.