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The outcome of Minibiobank under adverse conditions in Iraq

Mohemid Maddallah Mohammed Al-Jebouri
University of Tikrit, Iraq

Background: The finding of human umbilical cord blood as one of the most likely sources of hematopoietic stem cells offers a less invasive alternative for the need of hematopoietic stem cell transplantation. Due to the once-in-alifetime chance of collecting it, an optimum cryopreservation method that can preserve the life and function of the cells contained is critically needed.

Methods: Until now, slow-cooling has been the routine method of cryopreservation; however, rapid-cooling offersa simple, efficient, and harmless method for preserving the life and function of the desired cells. Therefore, this study was conducted to compare the effectiveness of slow- and rapid-cooling to preserve umbilical cord blood of mono nucleated cells suspected of containing hematopoietic stem cells. The parameters used in this study were differences in cell viability, malondialdehyde content, and apoptosis level. The identification of hematopoietic stemcells themselves was carried out by enumerating CD34+ in a flow cytometer.

Results: Our results showed that mononucleated cell viability after rapid-cooling (91.9%) was significantly higher than that after slow-cooling (75.5%), with a p value = 0.003. Interestingly, the malondialdehyde level in the mono nucleated cell population after rapid-cooling (56.45 μM) was also significantly higher than that after slow cooling (33.25 μM), with a p value < 0.001. The apoptosis level in rapid-cooling population (5.18%) was not significantly different from that of the mononucleated cell population that underwent slow-cooling (3.81%), with ap value = 0.138. However, CD34+ enumeration was much higher in the population that underwent slow-cooling (23.32 cell/μl) than in the one that underwent rapid-cooling (2.47 cell/μl), with ap value = 0.001.

Conclusions: Rapid-cooling is a potential cryopreservation method to be used to preserve the umbilical cordblood of mononucleated cells, although further optimization of the number of CD34+ cells after rapid-cooling is critically needed.

profaljebouri@yahoo.com

A survey of medicinal plants used by the Deb barma clan of the Tripura tribe of Moulvibazar district, Bangladesh

Kabir, Mohammad Humayun; Hasan, Nur; Rahman, Md. Mahfuzur; Rahman, Md. Ashikur; Khan, Jakia Alam; Hoque, Nazia Tasnim; Bhuiyan, Md. Ruhul Quddus; Mou, Sadia Moin; Jahan, Rownak; Rahmatullah and **Mohammed**
National Bureau of Fish Genetic Resources, India

The importance of fish cell culture work has got momentum as because of potential applications of fish cell lines in areas like fish pathology and immunology, toxicology, endocrinology, virology, biomedical research, biotechnology and radiation and developmental biology. Fish cell lines have been utilized as a rapid and cost-effective versatile tool in toxicological assessment of aquatic pollutants. The number of fish cell lines has been increasing tremendously covering a wide variety of species and tissues of origin during last decades. At present, more than fifty fish cell lines have been developed in India covering a wide variety of species and tissues of origin. This has raised the need of conserving the cell lines in one secured place. NBFGR, Lucknow is the state of art facility for development, characterization and storage of cell lines. A National repository of fish cell line (NRFC) has been established at National Bureau of Fish Genetic Resources (NBFGR) with the financial assistance from Department of Biotechnology (DBT), Govt. of India. At present, 50 fish cell lines from 24 different fish species are being maintained and cryopreserved in the NRFC. These cell lines were deposited by various research groups working on fish cell lines including the researchers at NBFGR. The cell lines were authenticated and characterized using DNA barcodes, karyotypes and protein expression signatures. The paper highlights different aspects related to characterization and applications of fish cell lines for fish germplasm conservation.

mukugoswami@gmail.com