

Efek simpan beku berulang konsentrat trombosit kadaluarsa terhadap karakteristik sel punca asal jaringan lemak manusia = Effect of repeated freezed-thawed outdated thrombocyte concentrates on the characteristics on human adipose-derived stem cells / Evah Luviah

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Abstrak

**ABSTRAK
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Sel punca asal jaringan lemak manusia SPAJLM dianggap menjanjikan untuk pengobatan regeneratif dan rekayasa jaringan. Sel punca asal jaringan lemak manusia dapat dikultur pada medium mengandung lysate konsentrat trombosit kadaluwarsa untuk mendapatkan kultur yang xenofree. Pemrosesan konsentrat trombosit kadaluwarsa untuk mendapatkan lysate dapat dilakukan dengan cara simpan-beku berulang -20oC , namun cara ini belum standar. Banyaknya ulangan simpan beku dapat mempengaruhi karakteristik SPAJLM. Studi ini dilakukan untuk mengetahui pengaruh banyaknya ulangan simpan beku -20oC yang ke-1, 2, 3, 5 dan 10 kali terhadap karakteristik SPAJLM. Jumlah trombosit sebelum dan sesudah perlakuan dihitung. Jumlah sel hidup diukur pada hari ke-2 sampai hari ke-13 dengan MTS assay proliferation, dikonfirmasi dengan pengukuran population doubling time PDT . Diferensiasi kondrosit, adiposit, dan osteosit pada SPAJLM dilakukan secara induksi maupun spontan. Ekspresi marka permukaan positif CD90, CD73, CD105 dan negatif CD34, CD45, CD11b, CD19, HLA-DR diukur. Diketahui trombosit pecah secara bertahap pada tiap ulangan simpan beku. Hasil penelitian menunjukkan SPAJLM memiliki pola grafik proliferasi, PDT, potensi diferensiasi, dan ekspresi marka permukaan yang sama pada semua perlakuan simpan beku marka permukaan positif >80 , marka negatif 0.05 . Kesimpulannya, SPAJLM yang dikultur pada konsentrat trombosit kadaluarsa simpan-beku berulang sesuai dengan kriteria sel punca mesenkimal menurut International Society for Cell Therapy ISCT .

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**ABSTRACT
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Human adipose derived stem cell hADSCs are promising for regenerative medicine and tissue engineering. Human adipose derived stem cells can be cultured on medium containing lysate of outdated thrombocyte concentrates to get xenofree propagation. Outdated thrombocyte concentrates TC can be done by various freeze thaw 20oC cycles but this method was unstandardized. Number of repeated freeze thaw 1, 2, 3, 5, and 10 cycles could have impact on hADSCs characteristics. The aim of this study was to conduct characteristic of hADSCs when expanded in variously processed TC. MTS proliferation assay was measured on day 2 until day 13 confirmed by population doubling time PDT measurement. Cells were differentiated into chondrocyte, adipocyte, and osteocyte either induced or spontaneous. Surface marker expression were analyzed where CD90, CD73, CD105 as positive markers, CD34, CD45, CD11b, CD19, HLA DR as negative markers. The result showed various freezed thawed TC gave same graphs rsquo proliferation pattern, PDT, differentiation potential and surface marker expression positive surface marker 80 , negative surface marker 0.05 . It concluded that hADSCs cultured in various freezed thawed cycles outdated TC correspond with mesenchymal stem cells according to the requirement of International Society for Cell Therapy ISCT .