

Pemanfaatan ekstrak centella asiatica linn dan acalypha indica linn dalam meningkatkan rekayasa sel punca mesenkim asal darah tepi untuk pendekatan terapi sel

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Abstrak

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Terapi sel merupakan salah satu pendekatan penyembuhan penyakit degenerasi yang memberikan harapan untuk dapat memperbaiki organ atau jaringan sehingga memberikan hasil yang memuaskan dalam hal regenerasi dan pengembalian fungsi normal suatu organ. Sel punca mesenkim ditemukan dalam darah manusia normal yang dapat dikultur. Sel punca mesenkim memiliki morfologi, cytoskeletal, cytoplasmik dan penanda permukaan (CD14-, CD31-, CD34-, CD44+, CD45-, CD73+, CD90+, CD105+, dan CD166+) yang sama seperti precursor mesenkim sumsum tulang. Darah tepi merupakan sumber yang menjanjikan untuk digunakan sebagai alternatif sumber sel punca mesenkim untuk tujuan terapi sel karena memiliki keuntungan yaitu tidak invasif, mudah, tidak perlu dilakukan biopsi dan tidak memerlukan keahlian dalam mendapatkannya. Namun ada kekurangan yang dimiliki oleh sel punca mesenkim yang berasal dari darah tepi yaitu jumlah populasi lebih sedikit dibandingkan dengan populasi yang dimiliki sel punca mesenkim yang berasal dari sumsum tulang.

Mengamati pengaruh pemberian ekstrak Centella asiatica (pegagan) dan Acalypha indica (air akar kucing) terhadap peningkatan efisiensi rekayasa sel pada kultur sel punca mesenkim asal darah tepi dalam pendekatan terapi sel.

Studi eksperimental in vitro pada kultur primer dan kultur post pasasi pada sel punca mesenkim asal darah tepi. Kelompok perlakuan terdiri atas beberapa kelompok yaitu satu kelompok control, 3 kelompok ekstrak air Acalypha indica (10mg/mL, 15mg/mL, 20mg/mL) dan 3 kelompok ekstrak air Centella asiatica (10mg/mL, 15mg/mL, 20mg/mL) selama 17 hari untuk kultur primer dan 48 jam pada kultur post pasasi. Setelah diberi perlakuan, nilai viabilitas relatif sel dan tingkat proliferasi sel diukur dengan metode MTT.

Viabilitas relatif sel dan tingkat proliferasi sel pada kultur primer dan kultur post pasasi sel punca mesenkim dengan pemberian ekstrak Centella asiatica memiliki tingkat proliferasi lebih tinggi secara bermakna dibandingkan dengan kontrol dan pemberian ekstrak Acalypha indica Linn ($p < 0,05$).

Pemberian ekstrak Centella asiatica lebih bermanfaat dalam meningkatkan proliferasi sel dan viabilitas relatif sel dibandingkan ekstrak Acalypha indica pada kultur post pasasi PBMC yang diperlukan untuk mendapatkan sel punca mesenkim yang akan dijadikan terapi sel

ABSTRACT

Cell therapy is one of healing degeneration diseases approaching which provides the hoping of organ or tissue repairing to provide satisfactory results in terms of regeneration and rehabilitation organ function. Mesenchymal stem cell found in the human peripheral blood. This stem cell have morphology, cytoskeletal, cytoplasmik and surface markers (CD14-, CD31-, CD34-, CD44 +, CD45-, CD73 +, CD90 +, CD105 + and CD166 +) which are the same with Bone marrow derived mesenchymal stem cell. Peripheral blood is a promising source that can be used as an alternative source of /Mesenchymal stem cells for cell therapy because it has the advantage that are not invasive, easy to cultur, not necessary for biopsy treatment and requires no expertise to be collected. The disadvantages of Mesenchymal stem cells derived peripheral blood are less population compared to bone marrow derived mesenchymal stem cells.

This research purpose to observe the effect of Centella asiatica and Acalypha indica extract in Mesenchymal stem cells derived peripheral blood cultured to approach cell therapy.

Experimental studies in vitro in primary culture and subculture of Mesenchymal stem cells derived peripheral blood. The treatment groups consisted of several groups: one control group, three groups of Acalypha indica water extract (10mg/mL, 15mg/mL, 20mg/mL) and three groups of Centella asiatica water extract (10μg/mL, 15μg/mL, 20μg/mL) for 17 days primary culture and 48 hours subculture. Further treatment, the relative cell viability and cell proliferation rate are measured by MTT method.

Relative cell viability and cell proliferation rate of primary culture cells and the Mesenchymal stem cells subculture from Centella asiatica extract have a significant higher proliferation than the control group and Acalypha indica Linn extract ($p < 0.05$).

Centella asiatica extract is more useful for increasing cell proliferation rate and relative cell viability compared to Acalypha indica extracts in PBMC culture to obtain mesenchymal stem cells that will be used for cell.;

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