

ABSTRAK

EFEKTIVITAS SEKRETOME SEL PUNCA MESENKIMAL TERHADAP JUMLAH MELANIN DAN KOLAGEN

(Studi In Vivo Pada Tikus Galur Wistar Model Hiperpigmentasi Yang

Dipapar Sinar UVB)

Latar belakang: Radiasi UVB merupakan faktor utama penyebab hiperpigmentasi. sekretom MSC mengandung *soluble molecule* bioaktif seperti *growth factor* dan sitokin anti-inflamasi yang mampu memperbaiki dan menginduksi regenerasi kulit. Namun, peran sekretom terhadap melanin dan kolagen hingga saat ini masih belum jelas. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian gel hypMSC-Scr terhadap kadar IL-10, jumlah melanin, jumlah kolagen dan ekspresi tyrosinase pada kulit tikus model hiperpigmentasi yang diinduksi paparan sinar UVB.

Metode: Penelitian eksperimental dengan post test control group. Kelompok UV-, UV+, UVG, UV100 dan UV200 masing-masing dilukai UVB selama 6 kali dalam 14 hari dengan 302 nm dengan MED 390 mJ/cm², sedangkan UV- tidak menerima paparan UVB. pada UV100 diberi *gel hypMSC-Scr* 100 uL dan UV200 diberi *gel hypMSC-Scr* 200 uL setiap hari selama 14 hari, sedangkan UVG menerima base gel. Pada hari ke 14 dilakukan terminasi dan dianalisis IL-10 menggunakan qRT-PCR, melanin dan kolagen dianalisis menggunakan pewarnaan spesifik, sedangkan tirosinase menggunakan IHC.

Hasil: Analisa kadar IL-10 menggunakan uji One Way Anova dilanjutkan uji Post Hoc LSD. Hasil uji beda kadar IL-10 menunjukkan perbedaan bermakna ($p < 0,05$). Ekspresi Tyrosinase dan melanin menunjukkan penurunan ekspresi pada kelompok perlakuan, sedangkan kadar kolagen juga mengalami penurunan seiring dengan peningkatan dosis pemberian.

Kesimpulan: Pemberian *gel hypMSC-Scr* berpengaruh secara bermakna terhadap kecepatan penurunan proses hiperpigmentasi.

Kata Kunci: Tirosinase, IL-10, kolagen, melanin, hiperpigmentasi



ABSTRACT

EFFECTIVENESS OF MESENKIMAL PUNCH CELL SECRETOME ON AMOUNT OF MELANIN AND COLLAGEN

(In Vivo Study on Hyperpigmentation Model Wistar Rats Exposed to
UVB Rays)

Background: UVB radiation is the main factor causing hyperpigmentation.

MSC secretions contain bioactive soluble molecules such as growth factor and anti-inflammatory cytokines that are able to repair and induce skin regeneration. However, the role of secretions in melanin and collagen is still unclear. This study aims to determine the effect of hypMSC-Scr gel administration on IL-10 levels, the amount of melanin, the amount of collagen and the expression of tyrosinase in the skin of hyperpigmented rats induced by UVB exposure.

Methods: Experimental research with post test control group. UV-, UV +, UVG, UV100 and UV200 groups were each injured by UVB 6 times in 14 days with 302 nm with MED 390 mJ / cm², whereas UV- did not receive UVB exposure. On UV100 given hypMSC-Scr gel 100 uL and UV200 given hypMSC-Scr gel 200 uL every day for 14 days, while UVG received base gel. On day 14, IL-10 was terminated and analyzed using qRT-PCR, melanin and collagen were analyzed using specific stains, while tyrosinase was analyzed using IHC.

Results: Analysis of IL-10 levels used the One Way Anova test followed by the Post Hoc LSD test. The results of the different IL-10 levels showed significant differences ($p < 0.05$). Tyrosinase and melanin expression showed a decrease in expression in the treatment group, and also collagen levels decreased with increasing doses.

Conclusion: Giving hypMSC-Scr gel significantly affected the speed of reducing the hyperpigmentation process.

Keywords: Tyrosinase, IL-10, collagen, melanin, hyperpigmentation

